CHAPTER 2

REVIEW OF LITERATURE

2.1 Shareholder Value Creation
2.1.1 Introduction and History of shareholder value

The theories on shareholder value have a history stretching back to 1950s and 1960s and their intellectual roots are in the path breaking work of some economists of that time and a number of them have been honored with the Nobel Prize for economics. Shareholder value started to take on a life of its own as a result of work done on what's become known as the Capital asset Pricing Model (CAPM) which argues that the returns both received and expected by investors are related to the risk incurred by owning particular financial assets. As it is commonly understood, the higher the risk the greater the return should be. The main insight of CAPM model which is central to the shareholder view of the world is that there is a risk-weighted discount factor which allows one to assess the value today and tomorrow’s developments, profits and cash flows. Not only the discount rate is delivered from the observation of the capital market, but it also defines what the opportunity cost of the equity to an investor in the market is. It also states that what the company has to earn in order to justify the use of capital resources tied up in the business, during the late 1970s and 1980s the work in applying some insight of CAPM to the corporate sector began (Black et al, 1998)

differs from the traditional measures like ROE, ROI and demonstrates the superiority of the shareholder value approach over the traditional measures.

Interest in shareholder value approach received a further appraisal with the 1990 publication of Valuation by Tom Copeland and other publications from the McKinsey Group. In this book they show that the application of shareholder value principal to the company is feasible and highly desirable and that it yields substantial benefits not only to shareholders but also to other stakeholders (Black et al, 1998).

Similarly, Stewart (1991) in his book ‘The Quest for Value’ proposes the idea of economic value added, a revolutionary new concept that has been developed by the US consultants Stern Stewart & company to identify and track sources of value creation that are not explained by traditional accounting and financial measures. Though the nomenclature is new, EVA is simply a variant of the well-known concept called residual income. It is simply the adjusted after-tax operating income minus a capital charge. Although the term EVA appeared in financial literature as early as 1989 (Finegan, 1989), it did not attract that much attention until an article appeared in Fortune magazine on September 20, 1993 (Tully, 1993). Nevertheless, Stewart/s text was instrumental in promoting and advancing this new/old value based metric.

Finally, it can thus be concluded that the idea of a firm’s operations to maximize shareholder value is not a new one, but this doctrine is only now gaining widespread acceptance. Rappaport (1986) concedes that this is now being embraced as the
“politically correct” stance of corporate board members and top management in the United Kingdom, continental Europe, and Australia and even in Japan. However, in the United States, it has been a long established tradition. Rappaport also asserted that, as is the case with other god ideas, shareholder value has moved from being ignored to being rejected and then to becoming self-evident.

2.1.2 The concept of shareholder value

The shareholder value approach has gained widespread acceptance since the publication of ‘Creating Shareholder Value’ by Alfred Rappaport in 1986. This text provided a new and in-depth assessment of the rationale for the shareholder value approach as well as the tools needed to implement it as a standard for business performance. According to Rappaport (1986) total value of an entity such as a firm or business unit is equal to the sum of the values of its equity and its debt. This value of the business is named the corporate value while the value of the equity portion is named shareholder value. In the form of equation:

\[
\text{Corporate Value} = \text{Shareholder Value} + \text{Debt Value}
\]

Rearranging this formula in order to compute shareholder value gives:

\[
\text{Shareholder Value} = \text{Corporate Value} - \text{Debt Value}
\]

In this formula, the debt portion stands for the market value of debt, unfounded pension liabilities and also the market value of other claims such as preferred stock.

The corporate value is the value of the total firm or business unit. It includes three following components:

- The present value of cash flow from operations during the forecast period
• “Residual value” which represents the value of the business attributable to the period beyond the forecast period

• The current value of marketable securities and other investments that can be converted to cash and are not essential to operating business (Rappaport, 1986).

It is only Rappaport who defined shareholder value but many other Authors have also defined shareholder value such as Black et al (1998) who defined shareholder value as being the difference between the corporate value and debt whereby the corporate value is the sum of the future or free cash flows discounted at the WACC. The free cash flows themselves are made up of the individual cash flows for each year of the growth. Thus, Cash flow is named free in the sense that it could be distributed to shareholders.

Serven (1999) commented that what matters most to shareholders is what happens to the price of their stock and then he defines shareholder value as being the market value of a common stock. Scott (1998) wrote that shareholder value is another term for the total value of equity of a firm or its ‘market capitalization’. He added that the market capitalization of a publicly traded firm is highly transparent and it is the number of shares listed on the market multiplied by the average price per share. Even though different authors give these definitions, the key element of most of the definitions seem to cover the Rappaport definition of shareholder value.

2.1.3 What is value creation?

According to Copeland et al (2000) value is created in the real market by earning a return on the investment greater than the opportunity cost of capital. Thus the more you invest at a return above the cost of capital the more value you create. That means that growth
creates more value as long as the return on the capital exceeds the cost of capital. They further added that one should select the strategies that maximize the present value of expected cash flows or economic profits. The returns that shareholders earn depend primarily on changes in the expectations more than the actual performance of the company.

Dalborg (1999) highlighted that value is created when the returns to shareholder, in dividend and share price increases, exceed the risk adjusted rate of return required in the stock market (cost of equity). He said that the total shareholder return must be higher than the cost of equity to truly create value. Hogan et al (1999) state that in a competitive environment, shareholder value is created when a company invests in projects that earn a return in excess of the cost of capital.

According to Fernandez (2002) shareholder value creation is the comparison between the market value and book value per share. When the market value exceeds the book value, the shareholder value is created; when the book value exceeds the market value, the shareholder value is destroyed.

The equity market value of a listed company is the company’s market value which is each share’s price multiplied by the number of shares. The increase of equity market value in one year is the equity market value at the end of that year less the equity market value at the end of the previous year. The equity market value is also called as capitalization.
Shareholder value added is the term used for the difference between the wealth held by shareholders at the end of a given year and the wealth they held the previous year. The increase of equity market value is not the shareholder value added. One talks of an increase in equity market value, but not the shareholder value when

1. Shareholders subscribe to new shares of the company paying money
2. A conversion of convertible debentures takes place.

One talks of decrease of the equity market value, but not of a decrease of shareholder value when

1. The company pays money to all of the shareholders: dividends
2. The company buys shares on the market (Share Buybacks or Stock repurchases)

A company creates value for the shareholders when the shareholder return exceeds the share cost (the required return to equity). In other words, the company creates value in one year when it outperforms expectations (Fernandez, 2002).

2.2 Methods of Measuring Shareholder Value Creation

Accounting-based measures, though simple to calculate and familiar, fail to accurately measure value, and have limited use for strategic decision-making. They can be manipulated and serve as a poor criteria for performance evaluation and compensation.

Following are the economic measures of measuring shareholder value.

2.2.1 Economic Profit (EP)

In Economic Profit model, the value of a company is equal to the amount of capital invested plus the present value of the economic profit created each year. The EP in any given time period takes in account not only the accounting expenses but also the opportunity cost of the Equity capital invested in the business.
$$EP = \text{Net Income} - (\text{Invested capital} \times \text{cost of capital})$$

Or

$$EP = \text{Invested capital} \times (\text{ROIC} - \text{Cost of Capital})$$

$$EP = \text{Invested capital} \times \text{spread}$$

When a company has a positive spread, its economic profit is improved by investing more capital. In the case of a negative spread, more capital actually decreases economic profit. This distinction between good growth and bad growth is an important concept in value creation.

2.2.2 Residual Income

Residual income represents the surplus income after meeting the capital charge. The capital charge is the product of total capital employed multiplied by the cost of capital. One of the method of calculating residual income is Economic Value Added EVA®, a performance measurement concept introduced to the corporate arena in the 1920s, by the General Motors Corporation, and then forgotten, until Stern Stewart Company, New York based consulting firm, reintroduced it in the 80s as a replacement for the traditional measure of value creation. Stern Stewart now trademarks the approach. EVA is actually Stern Stewart & Co’s trademark for a specific method of calculating economic profit.

According to Stem Stewart (1991), EVA® is defined as the difference between a firm's net operating income after taxes (NOPAT) and an appropriate charge for the opportunity cost of all capital invested in that firm. As such, EVA is a measure of a company's ability to produce an economic profit, that is, a return in excess of a firm's cost of capital. In equation form, EVA for a given year, t, can be expressed as follows:
EVA_t = NOPAT_t - [WACC_t x TIC_{t-1}] = (ROIC_t - WACC_t) x TIC_{t-1}

where NOPAT_t is the net operating profit after taxes, but before financing costs in year t; TIC_{t-1} is the economic book value of the total capital invested in the company, at the beginning of year t, which includes both the interest bearing debt and equity -- it stands as proxy for all cash invested in the company since its inception; WACC_t is the weighted average cost of capital in year t, that is, the minimum rate of return demanded by both lenders and shareholders; ROIC_t is the return on the capital employed in the company in year t and is calculated by dividing NOPAT_t by TIC_{t-1}; [ROIC_t - WACC_t] is the profitability spread; and [WACC_t * TIC_{t-1}] is the annual capital charge, i.e., the cash flow required to compensate all the company's capital providers, equity as well as debt, for the risk of the capital that has been used during the year.

The model also reveals that EVA is not only a measure of performance, but it is also a measure of value creation. It measures how and if a company creates true value for its shareholders. A company with a positive EVA creates value; a zero EVA maintains value; whereas a negative EVA suggests a squandering of value. In symbols,

If [ROIC - WACC] x capital employed >0 → value is created

If [ROIC - WACC] x capital employed =0 → value is maintained

If [ROIC - WACC] x capital employed <0 → value is destroyed
Here for calculating WACC cost of equity is derived on the basis of CAPM. For EVA analysis certain accounting policies, which Indian companies generally follow as per Companies Act and relevant Accounting Standard are not always suitable. To find out the meaningful EVA certain accounting adjustments are required. Sometimes it is alleged that EVA talks too much about the shareholders’ value added rather than focusing on the interest of all stakeholders. But EVA is a powerful performance measurement tool and it is also argued that if a company is able to serve its shareholders then it can also serve its all other stakeholders.

2.2.3 Market Value Added

Another measure that determines if the company has created shareholder value is Market Value Added, which holds that if the total market value of a company is more than the amount of capital invested in it, the company has created shareholder value. The difference between the company’s market value and book value is Market Value Added, as defined by Stewart (1990, p. 153).

\[
MVA = \text{Company’s Total Market Value} - \text{Capital Invested}, \text{ Or;}
\]

\[
MVA = \text{Market Value of Equity} - \text{Book Value of Equity}
\]

Where Equity implies Equity share capital+ Reserve & Surplus – Miscellaneous Expenditure – P&L (Dr.) balance. The market value of equity is the stock price multiplied by the number of shares outstanding.

Armed with the above definitions and given that the market value of a company can be expressed in terms of the present value of all future cash flows and then in terms of the current book-value of assets-in-place plus the present value of all the EVAs it is expected to generate in the future, the MVA equation can be written as follows (O’Hanlon and Peasnell, 1998):
\[
\begin{align*}
\text{MV}_{\text{company}} &= \sum_{t=1}^{\infty} \text{FCFF}_t = \text{BV}_{\text{assets-in-place}} + \sum_{t=1}^{\infty} \frac{\text{EVA}_{t}}{(1+WACC)^t} \\
\text{MVA} &= \text{MV}_{\text{company}} - \text{BV}_{\text{assets-in-place}} = \sum_{t=1}^{\infty} \frac{\text{EVA}_{t}}{(1+WACC)^t}
\end{align*}
\]

Where,

- \text{FCFF} = \text{free cash flow to the firm}
- \text{WACC} = \text{weighted average cost of capital}
- \text{MVA} = \text{market value added}
- \text{MV}_{\text{company}} = \text{market value of company}
- \text{BV}_{\text{assets}} = \text{Stern Stewart’s adjusted book value of assets in place.}

Stern Stewart argues, correctly, that the present value of all future EVAs constitutes the crucial difference between the book value of assets and the market value of the firm owning the assets. This excess is referred to as the firm's unrecorded goodwill, or MVA (O'Hanion and Peasnell, 1998, p. 425). The value creation can then formally be linked to EVA by assessing the excess of market value over book value as shown above. Thus, maximizing the present value of the future stream of EVA amounts to exactly the same thing as maximizing the intrinsic market value added.

According to Stern and Shiely (2001), in order to calculate the market value of a firm, we have to value the equity part of its market price on the date the calculation is made. The total investment in the company since day one is then calculated as the interest-bearing debt and equity, which includes retained earnings. Present market value is then compared with total investment. If the former amount is greater than the latter, the company has created wealth.
Stewart (1991) states that MVA is a cumulative measure of corporate performance and that it represents the stock market assessments from a particular time onwards of the net present value of all of a company’s past and projected capital projects. The disadvantage of the method is that like EVA there can be a number of value based adjustments made in order to arrive at the economic book value and that it is affected by the volatility of the market values, since it tends to move in tandem with the market.

2.2.3.1 Market Value Added and wealth creation

Shareholder wealth would be maximized only if the company’s managers are able to add value to the total Equity Capital. This added value is Market Value Added, or MVA.

\[
MVA = \text{Total Value} - \text{Total Equity Capital}
\]

Total Value = Market Value of Equity.

= Market Capitalization.

= Current Market Share Price × (No. Of Shares Outstanding)

Total Equity Capital = Book Value of Equity


Market Value Added (MVA) measures the difference between the market value (debt + equity) and book value of capital invested by investors since inception. MVA represents the stock market’s judgment of the net present value of the firm taken as a whole. Thus, it represents the true achievement of shareholder expectations.

2.2.4 Total Shareholder Return (TSR)

Total shareholder return or TSR is another value-based metric which measures the overall return for shareholders over a given period of time. It has been used for many years by investors and business analysts as a means of assessing performance and value creation.
Moreover, TSR target has become an important element in determining executive pay (Atrill, 2003, p. 366). It is a comprehensive measure that reflects all activities or decisions taken by a management team and as such it has become an increasingly important indicator of managerial success (Arnold, 2005, p. 854). Management Today (March 1997, p. 48), for example, pointed out that “TSR reflects the measure of success closest to the hearts of a company's investor: what they have actually gained or lost from investing in one set of executives rather than in another.”

TSR shows the total return shareholders earned on their shares over a stated period of time, which in addition to the stream of actual dividend payments also includes capital appreciation or depreciation - any increases (or decreases) in the share price.

For one period TSR can be calculated as given below.

\[
TSR_t = \frac{DPS_{t+1} + PPS_{t+1} - PPS_t}{PPS_t}
\]

where,

\( TSR_t \) = total shareholder return

\( DPS_{t+1} \) = dividends paid per share at the end of the period

\( PPS_{t+1} \) = share price at the end of the period

\( PPS_t \) = share price at the beginning of the period (or initial share price)
Article titled Calculating Total Shareholder Return. (n.d.) clearly explains the treatment of dividend expressed below.

“Importantly, when calculating TSR, we must take account of only the dividends that our period of ownership of the stock entitles us to receive, so we need to take account of the stock ex-dividend date rather than the dividend payment date. It could be that we own the stock on the day when the dividend is actually payable, yet we would only be entitled to receive the dividend had we owned the stock on the ex-dividend day”

TSR is thus the most direct measure of changes in shareholder wealth over a given period of time, expressed in percentage terms (Young and O'Byrne, 2001, p. 417). It has the benefit of being easily understood, and is more "dynamic" in that its values are constantly being assessed by the market. Furthermore, as no accounting information is included in this metric one may claim that it is independent of accounting policies (Whittington, 2000, p. 360). TSR can be easily compared from company to company without having to worry about size bias. Recognizing this, the "Wall Street Journal" publishes a yearly report called "Shareholder Scoreboard" that ranks the 1000 major U. S. Companies on TSR.

Similar to ROI, TSR, despite its appeal as a measure of shareholder wealth creation, is still considered flawed. The calculated or absolute TSR has little information value when taken alone. It does not indicate whether the return achieved is adequate, that is, is 20% for one particular company better than 15% for another company? A higher TSR does not mean that more shareholder wealth has been created.
An article titled Total Shareholder Return (TSR) (n.d.) clearly highlights the way to interpret TSR in following words.

“TSR performance of an individual company may be affected by the general prevailing economic climate, industry specific factors and company specific factors, all of which will exert an influence on TSR through fluctuations in the share price. Therefore, it is normal for a company to compare its TSR performance with that of a peer group of similar companies in the same industry and usually over a 3-5 year rolling period to smooth out any short-term ‘unsubstantiated’ fluctuations in share prices.”

2.2.5 Shareholder Value Added (SVA)

Alfred Rappaport introduced the shareholder value added approach. According to him, shareholder value is defined as a corporate value less the value of debt. Corporate Value is equal to the DCF value of the company plus the value of the non-operating assets and marketable securities.

The SVA analysis begins by forecasting the cash flows over the planning period. The steps involved are Forecast cash flow from the value drivers.

1. Calculate the residual value at the end of each year by capitalizing the cash flow before new investment.

2. Discount the cash flow and the residual value back to the preset using the cost of capital.

The cumulative present value of the cash flow and the residual value of each period together represent the value created in that period. The change in value from the previous period is the SVA of that period.
2.2.6 Created Shareholder Value

According to Fernandez (2002) a company creates value for the shareholders when the shareholder return exceeds the share cost (the required return to equity). In other words, the company creates value in one year when it outperforms expectations.

Created shareholder value = Equity market value \times (Shareholder Return – K_e)

Or

Created shareholder value = Shareholder value added - (Equity market value \times K_e)

In the above formula, the shareholder return is the shareholder value added in one year, divided by the equity market value at the beginning of the year.

Shareholder Return = Shareholder Value Added/Equity Market Value

Required Return to Equity (also called cost of Equity) is the return that shareholders expect to obtain in order to feel sufficiently remunerated. The required return to equity depends on the interest rates on long-term treasury bonds and the company’s risk. The required return on equity is the sum of the interest rate on long-term Treasury bonds plus a quantity that is usually called the company’s risk premium.

Required return on equity = return of long-term treasury bonds + risk premium

2.3 Empirical Studies Dealing With Shareholder Value
2.3.1 International Studies

Stewart (1991)\textsuperscript{16} was the first person who studied the relationship between EVA and shareholder wealth with market data of 618 U.S. companies and presented results in his

book “The Quest for Value”. He stated that EVA and MVA correspond with each other quite well among the selected U.S. Companies. The study provided the first empirical evidence of EVA’s potential as a proxy for MVA and reported a $R^2$ of .97 between changes in EVA and changes in MVA for 25 groupings of firms over the period 1987-88. Only the relationship between negative EVA and negative MVA did not hold very well. According to Stewart, it was because the potential of liquidation, recovery, recapitalization, or takeover used to set a floor on a company’s market value. The study reported that MVA and EVA corresponded to each other best when changes in EVA and MVA were studied and not the absolute levels. Moreover, changes in EVA and MVA were not affected so much by accounting distortions and inflation than the absolute values. Further, Stern, Stewart, and Chew (1995) concluded that changes in EVA over a five-year period explained 50% of the change in MVA over the same period.

Stewart (1994)\textsuperscript{17} has explained that EVA is a powerful new management tool that has gained worldwide recognition as the standard tool of corporate performance. EVA presents an integrated framework of financial management and executives’ compensation. The adoption of the EVA system by more and more companies throughout the world clearly depicts that it provides an integrated decision-making framework, can reform energies and redirect resources to create sustainable values for companies, customers, employees, shareholders and for management.

Biddle, Bowen and Wallace (1996)\textsuperscript{18} presented evidence on the relative and incremental information content of EVA, residual income, earnings and operating cash flow. They concluded that "residual income and/or EVA add incremental information in some settings, but that, on average, neither dominates earnings as a performance measure".

Dodd and Chen (1996)\textsuperscript{19} studied the correlation between stock returns and different profitability measures, including EVA, non-adjusted residual income, ROA, EPS and ROE. In their study, ROA explained stock returns best with R squared of 24.5%. The R squared for other metrics are: EVA 20.2%, residual income 19.4% and EPS, ROE approximately 5-7%. The writers concluded that firms adopting EVA might as adopt simple residual income concept, while residual income correlates with share prices almost as well as its adjusted version called EVA. The study is based on 566 U.S. companies from 1983-1992.

Lehn and Makhija (1996)\textsuperscript{20} studied EVA and MVA as performance measures and signals for strategic change. Their data consisted of 241 U.S. companies and cover the years 1987, 1988, 1992 and 1993. The researchers first found out that both measures correlated

\textsuperscript{18} Biddle, G., Bowen, R. & Wallace, J. (1996), Abstract of evidence on the relative and incremental information content of EVA, residual income, earnings and operating cash flow. University of Washington, Seattle, WA.


\textsuperscript{20} Lehn, K & Makhija, A. K. (1996), EVA And MVA: As Performance Measures And Signals For Strategic Change, Strategy and leadership, 24 (3), 34-38
positively with stock returns and that the correlation was slightly better than with traditional performance measures like return on assets (ROA), return on equity (ROE) and return on sales (ROS). Additionally, they studied how companies’ performance, as measured in terms of EVA and MVA, effect on the CEO firings. Finally, they examined the relationship between EVA/MVA, and corporate focus. Lehn and Makhija found an inverse relation between EVA/MVA, and abnormal CEO turnover. They also found that firms with greater focus on their business activities had significantly higher MVA than their less focused counterparts. Lehn and Makhija conclude that their results suggest EVA and MVA to be effective performance measures that contain information about the quality of strategic decisions and serve as signals of strategic change.

Milunovich and Tsuei (1996)\(^{21}\) review the correlations between MVA and several conventional performance measures in the computer industry. They find EVA to correlate somewhat better with MVA than the other measures. R squared is for EVA 0.42, for EPS growth 0.34 and for ROE and EPS 0.29.

O’Byrne (1996)\(^{22}\) from Stern Stewart & Co used capitalized EVA as independent variable in a regression where the market value divided by capital is the dependent variable. He found that the level of EVA explained 31% of the variance in market value, whereas the level of net operating profit after taxes explained only 17%. When looking at


changes in EVA and market value O’Byrne found that changes in EVA explained 55% of the variations in changes in market value. Changes in NOPAT explained only 33%.

Peterson and Peterson (1996)\textsuperscript{23} analyzed traditional and innovative measures of performance and compared them with stock returns. According to their findings, traditional measures are not empirically less related to stock returns than EVA measures. They conclude that traditional measures should not be eliminated as a means for evaluating firm performance. They affirm, however, that EVA measures are worthwhile since because value added measures focus on economic rather than accounting profit. They play an important role in evaluating performance because managers will aim towards value creation rather than the mere manipulation of short-sighted accounting figures.

Uyemura, Kantor and Pettit (1996)\textsuperscript{24} from Stern Stewart & Co present findings on the relationship between EVA and MVA with 100 bank holding companies. They calculate regressions to 5 performance measures, including EPS, Net Income, ROE, ROA and EVA. According to their study the correlations between these performance measures and


MVA are: EVA 40%, ROA 13%, ROE 10%, Net income 8% and EPS 6%. The data are from the ten-year period 1986 through 1995.

Bacidore et al. (1997) investigated American's companies from 1982 to 1992. They concluded that the framework for analyzing performance and calculating the shareholder value is by using return on investment, which resulted in dividend and change in share price in a period. They also concluded that economic value added is a suitable measure for performance analysis and calculation of the created shareholder value.

Kramer and Pushner (1997) tested the hypothesis that EVA is highly related to the MVA. The study concluded that no clear evidence to support the contention that EVA is the best internal measure of corporate success in adding value to shareholder investments. On the contrary, the market return seems more focused on profit than EVA. The study found that there is no clear advantage to shareholders in looking at EVA, as the accounting return on their investment. They found that NOPAT explains more of the variations of MVA than EVA.

Kimball (1998)\textsuperscript{27} reviewed the use of economic profit to evaluate performance, to price transactions, and to reward managers. The research described in detail one performance measurement and incentive system and then went on to discuss the shortcomings of performance metrics founded on economic profit, which may distort banks’ investment and operating decision-making. Kimball (1998) concluded that banks need to recognize the ambiguities of such calculations and be prepared to create and apply multiple specialized performance measures.

Hall and Bummer (1999)\textsuperscript{28} determined empirically which performance measures of a company correlate better with its external performance measure as represented by MVA of the corporation. Based on a sample of 135 industrial companies listed on the Johannesburg Stock Exchange, an empirical analysis was conducted for 11 years time-period. The results showed that the highest consistent positive correlation coefficient obtained was between MVA and EVA with inflation adjustments to the data. The very same pattern was obtained with discounted EVA. Slightly lower positive correlations were found between MVA and the other performance measures like ROA, ROE, EPS and DPS. These correlation coefficients were found to be higher when data with inflation adjustments were utilized.


Nyiramahoro and Shooshina (2001)\textsuperscript{29} presented a general method on how shareholder value is created as a background to the valuation methods being used for shareholder value creation measurement. The empirical part of this study showed that although the companies in this study have implemented many ways to create shareholder value, little effort is being made to measure it since the majority of them are still using the traditional accounting measures. The reasons for this may be the conservatism and lack of pressure from both the stock market and shareholders. Subsequently, a recommendation was made that the companies should use “value based methods” when measuring shareholder value creation since they are more reliable.

Fernandez (2001)\textsuperscript{30} analyzed 582 American companies using EVA, MVA, NOPAT and WACC data provided by Stern Stewart. For each of the 582 companies, he calculated the 10-year correlations between the increases in the MVA each year and each year’s EVA, NOPAT and WACC. For 296 (of the 582) companies, the correlation between the increase in the MVA each year and the NOPAT was greater than the correlation between the increase in the MVA each year and the EVA. The NOPAT is a purely accounting parameter, while the EVA seeks to be a more precise indicator of the increase in the MVA. There are 210 companies for which the correlation with the EVA has been


\textsuperscript{30} Fernandez, P. (2001). EVA economic profit and cash value added do not measure shareholder value creation. IESE University of Navarra Research paper number 453
negative. The average correlation between the increase in the MVA and EVA, NOPAT and WACC was 16%, 21% and −21.4%, respectively. The average correlation between the increase in the MVA and the increases of EVA, NOPAT and WACC was 18%, 22.5% and −4.1%. He also found that the correlation between the shareholder return in 1994-1998 and the increase in the CVA (according to the Boston Consulting Group) of the world’s 100 most profitable companies was 1.7%.

Fernandez (2002)\textsuperscript{31} defined and analyzed shareholder value creation. To help us understand this concept better, he used the General Electric Company, as an example, between 1991 and 1999. He concluded that in order to obtain the created shareholder value, the firm must first define the increase of equity market value, the shareholder value added, the shareholder return and the required return to equity. He also calculated the created shareholder value of 142 American companies during the three-year (1997 to 1999) and eight-year (1992 to 1999) period.

Fiordelisi et al. (2006)\textsuperscript{32} analyzed the information content of traditional (Net Income ROE, ROA , Interest and intermediation margins) and innovative performance indicators (namely, Residual Income and EVA) in the lights of creating shareholder value within the banking industry. The study evaluated both relative and incremental information content


focusing on to quote European banks between 1996 and 2002. The results of Ordinary-Least Square (OLS) regression model suggested that the Economic Value Added (EVA) measure that accounts for the specifics of banking outperform all other performance measures. In contrast, the standard EVA did not seem to better explain the shareholder value creation than a wide range of simple accounting and other performance measures. These results highlighted that it is necessary to accurately consider the peculiar nature of capital as well as other accounting adjustments if accurate measures of bank performance are to be used.

Popa et al. (2009)\textsuperscript{33} claims that EVA can be an important tool that bankers can use to measure and improve the financial performance of their bank. They emphasize the advantages of EVA by comparing to other performance indicators. Since EVA takes the interest of the bank’s shareholders into consideration, the use of EVA by bank management may lead to different decisions than if management relied solely on other measures. They investigate the Romanian Banking systems to compare the advantages of EVA to other measures of bank performance, such as return on assets (ROA), return on equity (ROE), net banking income and the efficiency ratio, which do not consider the cost of equity capital employed.

2.3.2 Indian Studies

KPMG-BS Study (1998)\textsuperscript{34} assessed top companies on EVA, sales, PAT (Profit after Tax), and MVA criteria. The survey has used the BS 1000 list of companies using a composite index comprising sales, profitability and compounded annual growth rate of those companies covering the period 1996-97. Sixty companies have been found able to create positive shareholder value, whereas 38 companies have been found to destroy it. Accounting numbers have failed to capture shareholder value creation or destruction as per the findings of the study. 24 companies have destroyed shareholder value by reporting negative MVA.

Banerjee and Jain (1999)\textsuperscript{35} carried out an empirical research in this field. Five independent variables, namely earning per share (EPS), the average return on net worth (ARONW), capital productivity (KP), labour productivity (LP) and economic value added (EVA) were chosen in the study to establish their relation with market value added which is taken as the surrogate of shareholders’ wealth. Top 50 companies from Drug & the Pharmaceutical industry in India were selected as the sample companies and data were collected for the period of 8 years from 1990-91 to 1997-98. The authors observed that EVA was the most important significant explanatory variable for shareholders’ wealth and thus they claimed the superiority of EVA over the other explanatory variables.


Anand, et. al. (1999)\textsuperscript{36} revealed that EVA, REVA (refined Economic Value Added) and MVA are better measures of business performance than NOPAT and EPS in terms of shareholders’ value creation and competitive advantage of a firm. Since conventional management compensation systems emphasize sales/asset growth at the expense of profitability and shareholders’ value. Thus, EVA is a measure that shifts focus on an organizational culture for value.

Thenmozhie (1999)\textsuperscript{37} explained the concept of EVA and compared it with some other traditional measures of corporate performance viz, ROI, EPS, RONW, ROE, ROCE et. Examining a sample of 28 companies from BSE Sensex, the study covered a period of three years ranging from 1996 to 1999. The study used the coefficient of determination to demonstrate that the traditional measures do not reflect the real value of shareholders’ wealth. For this purpose, they at first described the concept of EVA in the Indian scenario with specific reference to companies like NIIT, Hindustan Lever and ITC. The study also referred to some of the shortcomings of the EVA concept and identified EVA to be a better measure of corporate performance as compared to the traditional measures.


Madhu Malik (2004)\textsuperscript{38} examined the relationship between shareholder wealth and certain financial variables like EPS, RNOW, and ROCE. By using correlation analysis, it was found that there was a positive and high correlation between EVA and RONW, ROE. There was a positive but low correlation between EVA and EPS. By using coefficient of determination, \((r^2)\) EVA was compared with traditional performance measures and it was found that not a single traditional performance measure explains to the fullest extent variation in shareholder wealth.

Bhatnagar et al. (2004)\textsuperscript{39} investigated the efficacy and appropriateness of EVA as a method of measuring profitability of a concerned as compared to some traditional methods of measuring profitability like ROCE, NPV and EPS etc. The study was based on an analysis of data pertaining to 56 companies for 10 years ranging from 1988-89 to 1997-98. The year wise composite regression exercise indicated EVA to be the single variable, which was significantly related to the MVA. The result proved beyond doubt that EVA is the most significant measure of corporate performance.

Ramana (2005)\textsuperscript{40} empirically examined the relationship between MVA and EVA of Indian companies. The study indicated that there is no strong evidence to support a Stern

\begin{itemize}
\item \textsuperscript{40} Ramana, D. (2005). Market Value Added & Economic Value Added: Some Empirical Evidences, paper presented at 8\textsuperscript{th} Capital market conference, \textit{Indian Institute of
Stewart’s claim that EVA is superior to the traditional performance measures in its association with MVA.

Kukreja and Giridhar (2005) evaluated the financial performance of 23 selected companies from Indian pharmaceutical industry by using various value based performance measures. It was found that the companies that perform well on appropriate value based performance metrics are amply awarded by capital markets. Using 115 firm year observations a correlation study was undertaken to see which metric out of nine (i.e. RONW, ROCE, EPS, EVA, Current Operational Value, Future Growth, Value, CFROI (%), Free Cash Flow and Residual Cash Flow) was more correlated with Market Value Added. The metrics that were significantly correlated to MVA were future growth rate, current operating value, free cash flow and EVA.

Ramachandra Reddy and Yuvaraja Reddy (2007) examined the financial performance of the selected cement companies in Andhra Pradesh by Market Value Added approach. The study was aimed at examining the effect of return on net worth, capital productivity, labour productivity, earnings per share, economic value added, return on sales, return on total assets, and cash profit on market value added. It was inferred that except earnings

---


per share all other factors were found to have insignificant impact on market value added. The study concluded that the market value added of cement companies were not only affected by the selected independent variables but also influenced by other factors.

Sakhtivel (2011)\textsuperscript{43} carried out an empirical study on shareholder value in Indian pharmaceutical industry by taking a sample of 15 pharmaceutical companies. He analyzed the trend and growth of shareholders’ value in Indian pharmaceutical industry in terms of EVA and MVA. He concluded that the companies under pharmaceutical industry have succeed to meet public expectations in terms of shareholders’ value creation through EVA either by increasing operating income from assets in place through reducing cost of production or increasing sales, or reducing the cost of capital by changing the financing mix in capital structure.

### 2.4 The Principles of Bank Valuation

#### 2.4.1 Introduction

The shareholder value approach has gained popularity recently in measuring the economic performance of the companies. It is being used as comprehensive tool in evaluating strategies as well as overall performance of the organization. For banks, the shareholder value approach is not only an important strategic management tool; its overarching objective of shareholder value maximization is vital for banks to exist. Unlike non-banks, banks are required to secure their business with equity capital. Consequently, the provision of equity capital is conditional for the growth of banks'

business volume and therefore is a highly critical function of banks. As higher shareholder value eases access to equity capital, a shareholder value orientation is especially important for banks.

Surprisingly few studies have focused on bank valuation and the determinants that drive market value in banks. Even in one of the most accepted valuation books “Valuation – measuring and managing the value of companies” by (Koller, Goedhart & Wessels 2010) only one chapter is devoted to the subject and in the chapter intro it is written “Banks are among the most complex businesses to value, especially from the outside in. Published accounts give an overview of a bank’s performance, but the clarity of the picture they present depends largely on accounting decisions made by management”(Koller, Goedhart & Wessels 2010). Maybe because of this great complexity another author writes “There is still a lack of comprehensive coverage of this subject [bank valuation]. Moreover, the valuation literature that does focus on banks has rarely been practical and theoretical satisfactory at the same time”(Gross 2006)

In the valuation of banks, several factors need to be addressed which might be why standard literature only focuses on valuating industrial companies (Gross 2006). Banks have in the recent years started expanding their potential customer base and increased their business scope. This has increased the complexity greatly, making it necessary to use different valuation models for their different divisions (Koller, Goedhart & Wessels 2010). Yet, a detailed income and balance sheet that is divided into these different business units is very rare and subjects such as transfer pricing, capital allocation and
synergies created through cross-selling are difficult to estimate (Koller, Goedhart & Wessels 2010). Especially if some products are kept due to their synergies even though income margins are low or negative. Further, due to a very non-transparent balance sheet and income statement, as discussed earlier, it is difficult to define entries such as debt, capital expenditures, working capital, etc. which makes the estimation of cash flows (the core in DCF-valuation) difficult (Damodaran 2004). Also, accounting rules that apply to banks are often different from those that apply in non-financial companies which yields the problem, also mentioned by (Koller, Goedhart & Wessels 2010), that performance largely depends on accounting decisions made by management. Further, “normal” bank products are often not patented and difficult to differentiate which makes forecasting even more difficult than the above mentioned complications suggest. Finally, banks are due to their economic importance often heavily regulated, which is something that must be incorporated in the models. (Koller, Goedhart & Wessels 2010)

One of the valuation pioneers, Aswath Damodaran, suggests that banks are best valued using equity valuation models rather than the usual enterprise valuation models applied in non-banks valuation (Damodaran, 2009).

2.4.2 Overview of Bank Valuation Literature
There exists voluminous published literature in the area of shareholder value and value-based management. As the shareholder value approach was originally developed for industrial companies, the majority of contributions focuses on the valuation of industrial companies and do not account for bank-specific issues. Copeland et al. (2000), authors of the standard work on valuation, devote just a single chapter to bank valuation, while Stewart (1990) and Young and O'Byrne (2000), who set the standard in value-based
management, do not discuss the specifics of value-based management for banks at all. Overall, coverage of bank-related valuation issues is sporadic.

Despite the recent increase in the number of articles and doctoral thesis in the area of bank valuation and bank management, only a few contributions give a detailed and comprehensive overview of the adjustments to valuation necessary in a banking context and go on to deliver practical, hands-on advice for valuing banks.

Very few studies have been done regarding the bank valuation and methods of its measurement. North American contributions in the 1990s, such as Mercer (1992), Johnson (1996), and Rezaee (2001), give a comprehensive overview of the banking industry, introduce the general principles of valuation, and cover some of the bank-specific issues.

Recently few authors have tried to cover existing bank valuation literature comprehensively. Most articles are typically limited to a general discussion of valuation principles and their application to banks instead of further developing existing insights on bank-specific valuation issues. Copeland et al. (2000), and does not cover the fundamental specifics when valuing a bank. The majority of the empirical studies in the context of bank valuation have been done by consulting companies. Except for Fiordelisi (2002), purely academic studies providing empirical evidence on banks and shareholder value do not exist. Thus, before discussing valuation methods for banks, it is appropriate to review some of the literature that has implications for valuation methods for banks.
Van Horne and Heiwig (1966)\textsuperscript{44} researched the determinants of market value of small bank stock and suggested that the dividend payout ratio is the only significant determinant of the market value of small bank stocks. Mukherjee and Dukes (1989)\textsuperscript{45} re-examined the findings of Van Horne and Heiwig (1966) and argued, based on their multiple regression analysis, that dividend payout ratio, growth rate of expected dividend and market participants’ perception of a firm risk are the relevant determinants of a firm's market value. Mukherjee and Dukes (1989) build on the research of Van Horne and Heiwig (1966), however, unlike Van Horne and Heiwig (1966) chi-square analysis, Mukherjee and dukes (1989) employed multiple regression technique. The theoretical framework for both the Van Horne and Heiwig (1966) and Mukherjee and dukes (1989) researches are the Gordon dividend growth model popularly known as the Gordon Model. Employing proxy variables for payout ratio, growth rate, expected dividend and the firm’s cost of equity or risk perception, Mukherjee and dukes regressed the end of year P/E (price to earnings) ratio of 77 banks on proxy variables for cash flows, growth and risk. Their data sample range from 1978-1981. One weakness of the Mukherjee and Dukes (1989) research is the limited sample size employed for their regression. This is likely to have introduced misspecifications errors in their model and thus biased their estimated coefficients.

\textsuperscript{44} Heiwig, R. & Van Horne, J. (1966) The Valuation of Small Bank Stocks,’ (East Lansing: Bureau of Business and Economic Research, Graduate School of Business Administration, Michigan State University).

In an attempt to ascertain the relationship between bank ownership structures, shareholders protection laws and determinants of bank market value, Caprio, Laeven and Levine (2003)\(^{46}\) constructed a database on ownership structure of the 10 largest banks in 44 countries. Their sample encompasses 244 banks. Employing multiple regression technique, Caprio et al (2003) investigated how ownership structure and shareholders protection laws affect the market value of banks. Using Tobin Q's and P/B ratios as value measures, they regressed these valuation measures on proxies for the legal protection of minority shareholders, bank regulation policies, cash flow and control rights of shareholders, bank specific traits and various interaction terms such as Loan Growth. On ownership structure, they suggested that with the exception of Canada, Ireland, and the United States of America, banks are not widely owned and that this is due to strong shareholder protection law in these countries. In addition, they argued that in countries where there are no strong shareholder protection law, banks are largely owned by a family or the state. On the determinants of market value of banks, they argued that large cash-flow rights by controlling owners of banks, boost the market value of banks, while weak shareholder protection laws lowers the market value of banks. Furthermore, they argued that greater cash flow rights helps to mitigate the adverse effects of weak shareholder protection laws on banks. And that this is due to concentrated cash flow rights which help to restrain expropriation of minority shareholders. Further, Caprio et al (2003) argued that neither capital requirement nor regulatory restrictions on the banks' capital structure.

activities influences the market value of banks. Thus, implying that the same core corporate control mechanism that influences the governance of non-financial firms has also influenced bank operations. Although, the research of Caprio et al (2003) is similar to that of Muhkerjee and Dukes (1989) in the context of banks value determinants, the analytical foundation of both researches are dissimilar. The focus of Caprio et al (2003) was the inter-relational effect or cross-sectional effect of ownership structure, shareholder protection laws and bank valuations. While, Muhkerjee and Dukes (1989) research was centered on time series determinants of market values of banks.

Similar to the research of Caprio et al (2003), Calomiris and Nissim (2007) researched how the asset and liability type held by banks affects their market value. They regressed proxy variables complied from the balance sheet and income statements of bank holding companies in the USA) on the quarterly P/B ratios of the banks in their sample. Further, they used the residuals from their cross-sectional regression to forecast P/B ratios. Calomiris and Nissim (2007), hypothesized that at each moment in time, the average empirical relationship between income categories or sources and a firm's market value are reflected in observing P/B values. Thus, implying that the asset and liability types in the financial statements of banks affect the market price of a bank. In addition, they argued that with the exception of a few banks, higher leverage is associated with higher market value, implying that banks are able to maintain higher profitability through greater leveraging without generating higher risk. Thus, inferring the superior risk management

---

is a core driver of bank's market value. Furthermore, Calomiris and Nissim (2007) suggested that future stock returns can be predicted with residuals from their regression. And the predictability of future stock returns does not reflect risk factors, but is related to trading costs. The research of Calomiris and Nissim (2007) is similar to that of Mukherjee and Dukes (1989) in the context of methodology, but differs in terms of the independent variables and sample period. Calomiris and Nissim (2007) employed quarterly data, ranging from 2001Q1-2005Q3. Calomiris and Nissim (2007) regression accounted for variability of market prices over time. And also for how the different asset and liability types in the financial statements of banks affect their market value over time. Calomiris and Nissim regressions were on average 70%, suggesting that the exogenous proxy variables used in their regression explain 70% of the variability of P/B over time.

While most research performed on valuation focus on what determines value, Damodaran (2006), on the contrary, research models/methods for determining the intrinsic value of both non-financial and financial firms. He reviewed various valuation theories and evidence and attempted to reconcile the strength and weakness of the different valuation methods. He argued that there are generally four valuation methods. The first, discounted cash-flow valuation, relates the value of an asset to the present value of future cash-flow. The second, liquidation and accounting valuation is based on valuing the existing assets of a firm using accounting estimates. The third, relative valuation estimates the value of an asset or firm by looking at the market value of comparable assets relative to a common variable like earnings, cash-flows, book value or sale. The fourth approach, contingent claim valuation, uses option pricing models to measure the value of assets that share
option characteristics. Damodaran (2006) indicated that the weakness inherent in all valuation methods lies in their underlying assumptions. For instance, in the discounted cash flow valuation method, it is assumed that the market value can deviate from intrinsic value and that the discrepancies between intrinsic value and market value correct itself over time. In contrast, it is assumed in relative valuation, that the market can value individual stocks wrongly, but on average the market value of a group of stocks is efficient. In other words, when the relative valuation method is applied to value a new computer company relative to other computer companies, it is assumed that the market has priced these companies correctly on average, even though it might have made mistakes in the pricing of each of them individually. Thus, valuation is in some sense an act of faith and not a science. Furthermore, Damodaran (2006) argued that no one valuation method is suitable for all firms because of the structural differences between firms and their corporate governance differences. Therefore, in computing the intrinsic value of a firm, the different factors affecting the firm must be considered before considering the suitable valuation method for the firm. Further, in reconciling the different valuation methods, Damodaran (2006) argued that all valuation models/methods leads to equivalent values provided their underlying assumptions are consistent. And that while each valuation method has its limitations, their applicability depends on the factors affecting a firm.
In reviewing the appropriate valuation method for financial firms (banks and insurance companies), Damodaran (2009) argued that while the aforementioned methods of valuation are applicable in valuing financial firms, the role of debt, capital expenditures, working capital, and regulatory considerations in banks makes direct application of the aforementioned valuation methods inadequate for valuing financial firms. For instance, in a non-financial firm, capital connotes both debt and equity. While in a bank, debt is viewed as a source of capital or raw material. In other words, debt is to a bank what steel is to General Motors, something to be molded into other financial products which can then be sold at a higher price and yield profit. Thus, capital in a bank seems to be narrowly defined as including only equity capital. It is difficult to estimate debt in banks or to define what comprises of debt in banks. Thus, in valuing banks, Damodaran (2009) and Goedhart et al (2005) argues that it is more suitable to value directly the equity of banks by discounting cash flows to equity at cost of equity. Furthermore, capital expenditure and working capital, which are required inputs for estimating cash flows are not easy to estimate in banks or financial service firms because most of the re-investments that occur in banks are categorized under operating expenses. Thus, to estimate cash-flows to equity, one either has to use dividends or modify the definition of re-investments (see Damodaran, 2009; Goedhart et al, 2005; Franceschi, 2008, for an elaborate discussion on the problems associated with cash flow estimation for banks). In addition, Damodaran (2009), argues that in employing financial multiples to value banks, the difficulties associated with debt estimation in banks makes equity multiples such as

---

P/E and P/B more suitable for relative valuation than enterprise multiples. Further, regulatory restrictions could overlay banks valuation, by either allowing banks to make excess returns in a particular business climate and restrict their profitability or value increase under another business climate. Similar to the research of Damodaran (2009) and Franceschi (2008), Dermine (2010), investigated the different valuation methods for banks, and come to the same conclusion as Damodaran (2009).

The sub-prime mortgage crisis (2007-2009) and the implementation of the Basel II capital accord regulation has recently become very topical. Most banks are significantly affected by the sub-prime mortgage crisis (hereafter called SMC) and as a result have lost a significant part of their market value. These huge lost in market value or bankruptcy of some banks has raised serious questions as to the validity of the valuation methods employed in valuing banks prior to the SMC. Fouche, Mukudden-Petersen, Petersen and Senosi (2008) investigated amidst the SMC, the connection between bank valuations and the Basel II capital accord. They argued that low valuation values for banks amidst the SMC is due to a sharp decline in bank capital and their profitability, which emanates from huge loan losses and loan loss provision by banks. This in turn translates to a decrease in earnings for the banks. Furthermore, Fouche et al (2008), argued that the procyclical element inherent in the Basel II capital regulation contributes to the low valuation of banks amidst the SMC. In addition, Fouche et al (2008) suggest that loan loss provisions to increase as world economies move further into recession, which makes banks increase loan loss provisions as loan problems become more apparent. Employing

---

the theoretical framework of discounted cash flow valuation, Fouche et al (2008) employed the Lagrange optimization technique in determining the optimal intrinsic value of banks. They presented a two period discrete time banking model involving balance sheet variables such as assets (cash, bonds, shares, loans, treasuries and reserves), liabilities (deposits and interbank borrowing) bank capital (shareholder equity, subordinate debt and loan loss reserves) and off balance sheet items such as intangible assets. The valuation model of Fouche et al (2008) differs from conventional discounted cash flow valuation not only in the Lagrange optimization technique employed, but also their discount factor is assumed to be stochastic.

Apart from the empirical literature cited above, analyst reports on banks nicely illustrate the application of valuation techniques to banks. These reports, however, are typically limited to a single bank or a small sample of banks. With respect to the driver of the value, the theoretical derivation of the drivers of bank shareholder value is rare and empirical evidence on the potential drivers in a banking context does not exist to date. A multitude of articles focuses on the relevance of shareholder value in a banking context and in particular on its applicability to public savings banks and cooperatives given their specific ownership structures. The majority of these contributions conclude that shareholder value is just as relevant for private and public banks as it is for non-banks. The discussions, above all, are focused on the general debate on the shareholder vs. the stakeholder view and do not produce bank-specific results any different to those found for non-banking industries. We have therefore excluded these articles from the scope of this study.
**Table 2.1: Overview of empirical studies on bank shareholder value**

<table>
<thead>
<tr>
<th>Author and Year</th>
<th>Affiliated institution</th>
<th>Regional scope</th>
<th>Sample (N=)</th>
<th>Time period</th>
<th>Performance measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barfield (1998a)</td>
<td>PWC</td>
<td>Banks worldwide (Top 50)</td>
<td>50</td>
<td>1993-1998</td>
<td>Total Return to shareholders</td>
</tr>
<tr>
<td>Uyemura et al. (1996)</td>
<td>Stern Stewart</td>
<td>Banks worldwide (Top 100)</td>
<td>100</td>
<td>1986-1995</td>
<td>EVA</td>
</tr>
<tr>
<td>MOW (2003)</td>
<td>MOW</td>
<td>Financial institutions worldwide</td>
<td>400</td>
<td>Annually since 1997*</td>
<td>Risk Adjusted Total return to shareholders</td>
</tr>
</tbody>
</table>

*Source: (Gross, 2006)*
2.4.3 Bank specifics in the context of valuation

Standard literature on valuation is mainly directed towards industrial companies. However, banks differ significantly from industrial companies due to their role as a service provider and financial intermediary. The specifics of banks imply adjustments to the valuation of banks, and based on the definition of banks and the comparison of the structures of their balance sheets and income statements with those of industrial companies, we identify a number of value-relevant bank specifics. In particular, specifics in the area of financing and risk-taking, laws and regulations, as well as the operating business of banks, are relevant to the valuation of banks.

2.4.3.1 Definition and business structure of banks

Definition of banks

The main function of a bank is to provide services related to the storing of value and the extending of credit. A bank is a financial institution that provides banking and other financial services, and the term *bank* is generally understood to refer to an institution that holds a banking license. The banking licenses granted by financial supervision authorities allow banks to provide basic banking services such as accepting deposits and making loans. Typically, a bank generates profits from the interest spread on the resources it holds in trust for its clients while paying them interest on the assets, and from transaction fees on financial services (Gross, 2006).

Banking services include the deposit, transport, exchange and provision of liquid funds. Production and selling are thereby intertwined and cannot be isolated. Furthermore, the use of various banking products is interwoven for cross-selling purposes. For example, it
is almost impossible for customers to use a bank credit services or most of its capital investment services without making use of its payment transaction Services

The main difference between the banking industry and industrial companies is that banking services are not concrete physical goods. Indeed, customers often do not perceive the intangible products offered as discrete, fee-worthy services. Furthermore, banking services are not storable. Due to the missing shelf life of banking services, banks must hold out sufficient capacity (Gross, 2006).

Due to the phenomena of universal banking and consolidation within the financial services industry, a large and increasing number of banks have become diversified financial institutions, operating in more than one area of business, including insurance, investment banking and asset management (Damodaran, 2004). Conversely, institutions offering the latter types of financial services have also diversified and now too offer traditional banking services.

2.4.3.2 The Balance Sheet of Bank and Implications for Valuation

One of the core differences between bank and non-bank balance are their balance sheets. Since the financial risks, that banks incur, affects both assets and liabilities it is important for them to focus on both sides in order to run their business (Gross 2006).

Analyzing the structure of the balance sheets and income statements of banks and industrial companies allows us to derive several banking specifics relevant to the valuation. The major positions on the asset side of the balance sheet of industrial companies are property, plant and equipment (25 percent of total assets), inventories (23 percent of total assets) and receivables (33 percent of total assets). The asset side of a bank balance sheet, however, is dominated by receivables from customers and from credit institutions, accounting for three quarters of total assets. Tangible assets are of
minor importance (1 percent of total assets) for banks whose major input factors are personnel expenses and investment in knowledge. Inventories and changes therein do not exist, as banks provide services that are not storable. Consequently, bank earnings are usually collected in the period in which they accrue. The net income of banks before any risk adjustments therefore has the character of a cash equivalent (Gross, 2006).

**Table 2.1: Balance Sheet of Banks and Non-banks**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Non-banks</th>
<th>Banks</th>
<th>Liabilities</th>
<th>Non-banks</th>
<th>Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant and equipment</td>
<td>25%</td>
<td>1%</td>
<td>Equity capital and reserves</td>
<td>18%</td>
<td>4%</td>
</tr>
<tr>
<td>Investments</td>
<td>13%</td>
<td>2%</td>
<td>Provisions</td>
<td>20%</td>
<td>1%</td>
</tr>
<tr>
<td>Inventories</td>
<td>23%</td>
<td>N/A</td>
<td>Liabilities</td>
<td>62%</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Trade payables</td>
<td>12%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Liabilities to financial institutions</td>
<td>20%</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Secured loans</td>
<td>N/A</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Other liabilities</td>
<td>23%</td>
<td>5%</td>
</tr>
<tr>
<td>Receivables</td>
<td>33%</td>
<td>74%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-From customers</td>
<td>15%</td>
<td>49%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-From credit institutions</td>
<td>N/A</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Other receivables</td>
<td>18%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment Securities</td>
<td>3%</td>
<td>19%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>4%</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other assets</td>
<td>0%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Gross (2006)

While looking at the liabilities' side of the balance sheet, we see that industrial companies are financed to the tune of approx. 50 percent of debt and to the tune of approx. 50 percent of equity and provisions, whereas bank financing is dominated by debt capital (91 percent of total liabilities).
A significant part of this debt, however, relates to the deposit business, i.e. it has no financing function, but instead is part of the operating business of a bank. In contrast to most industrial companies, banks create value on the asset as well as on the liabilities side of their balance sheets. (Copeland et al., 2000) From an outside-in perspective, however, the function of debt is hard to determine. Equity capital and provisions only account for a minor part of the liabilities side, with equity capital being on average 4 percent of total liabilities compared to 18 percent for non-banks. Equity in banks instead functions as a liability and compensation for losses incurred rather than as a source of funding for the lending business (Gross, 2006)

Another area to focus on when valuing banks is the fact that assets are traded in the market and often not held to maturity which is why the marked-to-market principle is often applied (Damodaran 2009). Besides increasing volatility, it creates at least one problem. Comparison and interpretation of ratios (e.g. P/B or ROE) between banks and non-banks are almost impossible. If ROE is taken as an example: In non-banks this would be a measure of the return earned on equity invested in the company, but that information is missed due to the marked-to-market principle. In fact, if the assets were truly marked-to-market ROE would equal the cost of equity (Damodaran, 2009)

2.4.3.3 The Income Statement and Implications for Valuation

From a valuation point of view, it is important to understand the main driver of revenue, interest income. Most banks experience a maturity miss-match on their balance sheet as a result of short term deposits and long term lending and therefore not all interest income creates value (Koller, Goedhart & Wessels 2010).
Another important income driver is the increased focus on proprietary trading which has also increased the risk through increased volatility and made it challenging for external analysts to estimate the internal positions. Finally, a typical banking income is a fee and commissions when the banks are either advising or servicing their customers. Services that include deposits transport of money, exchange, provision of liquid funds, etc. (Gross 2006).

**Table 2.2: Income Statement for Banks and Non-banks**

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Non-banks</th>
<th>Banks</th>
<th>Expenses</th>
<th>Non-banks</th>
<th>Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>93%</td>
<td>N/A</td>
<td>Supplies expense</td>
<td>61%</td>
<td>N/A</td>
</tr>
<tr>
<td>Change in inventories</td>
<td>1%</td>
<td>N/A</td>
<td>Staff expense</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>Interest income</td>
<td>1%</td>
<td>83%</td>
<td>Other administrative expenses</td>
<td>N/A</td>
<td>7%</td>
</tr>
<tr>
<td>Income from provisions</td>
<td>N/A</td>
<td>7%</td>
<td>Depreciation</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-On fixed assets &amp; intangibles</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Provisions on receivables &amp; securities</td>
<td>N/A</td>
<td>5%</td>
</tr>
<tr>
<td>Income from securities and investments</td>
<td>N/A</td>
<td>1%</td>
<td>Interest expense</td>
<td>2%</td>
<td>71%</td>
</tr>
<tr>
<td>Net income from financing activities</td>
<td>N/A</td>
<td>1%</td>
<td>Tax charges</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Other income</td>
<td>5%</td>
<td>5%</td>
<td>Other expenses</td>
<td>14%</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Source: Gross (2006)*

On the expense side a structural characteristic of banks is their high share of fixed costs due to storage of both human capital and advanced IT systems. Together with variable costs like interest expenses (similar to COGS in non-banks), and provision for loan losses, this is what mainly drives expenses (Gross 2006). Especially the loan loss should
be handled with care. The probability of default fluctuates significantly during a business cycle. However, rather than writing off loans as their default, banks make provisions for losses and average out the large changes (Damodaran 2009). This of course comes in handy when making valuation but it is a subjective decision whether banks are conservative and set aside a large amount for loan losses or aggressive. In an estimation of future loan losses there are three ways to go, either analysts use sector wide estimates, the banks' historical provisions (to see whether it is conservative or aggressive) or a combination of both. (Damodaran 2009)

2.4.3.4 Value-relevant specifics of banks

Financing represents a major part of a bank's value chain. Debt is a raw material to a Bank. The financing function not only serves to refinance the funds granted to customers as credits, but also represents an original source of revenue for banks. As a result, banks create value both on the asset as well as on the liabilities side of their balance sheets. This specific characteristic of banks affects the valuation method of banks significantly, as banks can be only valued correctly if all financing activities are included in the valuation model.

Another specific of banks in the area of financing is the role of liquidity. For industrial companies liquid funds are only a residual of the production process. However, the liquidity kept on a bank's books, plays a central role as a basic input factor in its banking business." As a result, cash flows are significantly more volatile in banking and therefore more difficult to plan and forecast than in other industries (Gross, 2006).

As banks take financial market risks on both sides of their balance sheets play a significant role in their business. Whereas other industries incur risks as a side effect of
their original business activities, the original business activity of banks is to incur structure, assess, and manage financial market risks. Interest income accounts for 83 percent of total revenues, and interest expense accounts for 71 percent of total expenses. Consequently, banks are highly dependent on interest rate risk (Johnson, 1996). They consciously incur interest rate risks and earn part of their revenue through refinancing at mismatched maturities. Given the relatively low share of equity financing, banks have a significantly higher leverage risk than other industries and are highly vulnerable to even small changes in interest rates. Furthermore, banks run additional risks because of proprietary trading activities. Banks' income from trading on their own account has increased continuously over recent years, thereby increasing their vulnerability to capital market risks. Furthermore, in addition to the risks inherent in balance sheet items, banks take on significant risks by entering off-balance sheet positions such as swaps, forward deals and options on foreign currencies or securities. In summary, the risks taken on by banks and the dependency on external factors associated with these risks increase the volatility of a bank's equity value and significantly complicate the forecasting of the future performance of banks relative to that of industrial Companies (Gross, 2006).

Apart from specific rules affecting the accounting of various balance sheet items, banks are subject to specific capital adequacy rules given their role as macroeconomic institutions, including the capital standards put forward by the Basel Committee on Banking Regulations and Supervisory Practices. In addition, the rules on the maintenance of minimum reserves and systems for the protection of deposits regulate capital management within banks (Rezaee, 2001). These capital rules restrict the payout of
distributable profits to investors and therefore determine largely the equity value of a bank." Consequently, bank capital represents a bottleneck for bank managers and has to be considered when formulating bank growth targets.

Adams and Rudolf (2010) distinguish the characteristics of banking business into four categories, motivating a distinct valuation approach. First, banking is a heavily regulated industry. Second, banks operate on both sides of their balance sheets, actively seeking profits not only in lending but also in raising capital. Third, banks are exposed to credit default risk, but they also actively seek risk as a part of their business model. Last but not the least, the profit and the value of a bank are much more dependent on interest rate risk than other industries.

2.4.3.5 Specifics of the operating business

Apart from the specific role of financing and risk in banking and bank-specific regulations, the specific nature of banking services and the relationship between banks and their customers also affect the valuation of banks.

Due to the intangible character of banking services, product differentiation within banking is low and no banking products are patented. Consequently, forecasting the future performance of banking products and banks is complicated. Conversely, the long-term contracts and customer relations of banks simplify the forecasting of future performance, as the long contract durations and the high percentage of existing lending relative to new lending allow more precise planning of cash flows in early years. For short-term contract durations, the knowledge of customer behavior gained during often long-lasting customer relationships provides insights that allow a more detailed estimate of new lending (Gross, 2006).
In contrast to the product-oriented organization of the majority of industrial companies, the organization of banks is customer-oriented. Cross selling exists between individual banking products, and this often results in the hybrid costing of banking products, with individual services that generate low or even negative value contributions being subsidized by the value contributions of other services. A product-oriented valuation of banks based on the performance of individual products is therefore not possible. Banks have to be valued based on customer structures that incorporate the cross-selling effects of banking products (Gross, 2006).

2.5 Valuation Methods and their Applicability to Banks

Approaches to bank valuation will be discussed in the following sections. When valuing a bank, we measure its value on a stand-alone basis and assume the going concern of the bank.

2.5.1 Market-oriented approaches

The market or relative valuation approach is probably the simplest way to value a bank. Capital market-oriented approaches use the information efficiency of stock exchanges and form comparative multiples that compare the value of an asset with the values assessed by the market for similar or comparable assets. The identification of an appropriate benchmark company as well as choice of reference value are essential, and require careful analysis of the company to be valued (Gross, 2006).

Equity multiples are much better suited for valuing banks than value multiples. Firm value multiples such as EV/EBIT or EV/EBITDA are not applicable to bank valuation, as the operating and financing activities of banks cannot be clearly separated. (Damodaran, 2004). With respect to equity multiples, we examine two widely used concepts and their
applicability to bank valuation: price-to-earnings (P/E) multiples and the market-to-book ratio (M/B) (Damodaran, 2004).

One of the most widely used multiples is the P/E ratio, defined as the ratio of the market price to the earnings per share (EPS) of a company (Brealey and Myers, 2000, p.76). The actual P/E multiple typically uses historical earnings as an approximate value for earnings, and therefore lacks a forward-looking perspective. The use of predicted P/E ratios and an estimate of future earnings can solve this problem. Nevertheless, valuation using P/E ratios is still limited to a return view and does not consider the risk (Damodaran, 2004, p. 34). For banks in particular, risk plays an important role when assessing future performance. Higher earnings growth in the short-term may lead to the destruction of shareholder value of banks in the long term if the earnings growth is realized by a decrease in the quality of the credit portfolio. Consequently, the P/E approach tends to overvalue growing banks with a high share of interest income.

Furthermore, the explanatory power of P/E ratios depends on the quality of the underlying accounting variables. In the case of banks, the application of P/E ratios is especially questionable, as banks can significantly manipulate the basis of these multiples by means of their risk policy measurements, e.g., the buildup of provisions This potential bias in banks' P/E ratios is hard to measure from an outside-in perspective. For diversified banks, the application of P/E ratios at the bank level is not reasonable, and meaningful results can only be achieved at the business unit level (Damodaran, 2004, p.33).
For non-banks, advanced P/E multiples such as EV/EBIT and EV/EBITDA help overcome the shortcomings of standard P/E multiples by excluding distorting and extraordinary factors such as taxes and depreciation (Fernandez, 2002, p. 49) Since banks' operating and financing activities cannot be clearly separated, however, these advances in the standard P/E approach are not applicable to them (Damodaran, 2004, p.32).

In addition to the theoretical weaknesses of the P/E approach, empirical studies find only a very low correlation between EPS growth and P/E multiples.(Uyemera et al., 1996, p.99) Given the low empirical evidence, P/E multiples and their applicability to banks also have to be questioned from a practical viewpoint.

Another widely used multiple is the M/B ratio, which compares the market value to book equity (Brealey and Myers, 2000, p. 830). The M/B multiple is forward-looking and relates the market's expectations concerning future performance to invested capital. Due to the balance of risk ability and profitability, M/B multiples have a higher explanatory power than P/E multiples when it comes to banking. The relationship between M/B ratios and returns on equity should be relatively strong for banks, as the book value of equity is much more likely to be close to the market value of equity invested in existing assets (Damodaran, 2004, p. 36) The strength of the relationship in theory is validated by empirical evidence, with a high correlation between M/B multiples and ROE. (Damodaran, 2004, p. 37)
In summary, multiples represent good rules of thumb for valuing banks, and practitioners make substantial use of multiples in day-to-day business situations as rough approximations. The multiples approach is simple and the required bank information easily accessible. However, the availability of comparable assets is limited, and firm specific factors that might affect a company's multiple can only be accounted for to a certain degree. (Rezaee, 2001, pp. 81-182) Consequently, the use of multiples is problematic in an academic context. Furthermore, some of the shortcomings of multiples are even increased in a banking context, as illustrated above.

Market oriented approaches lack transparency when it comes to the underlying value drivers and are therefore not suitable for stand-alone use. Their use for the measurement and management of bank shareholder value is therefore limited. Nevertheless, multiples have an important auxiliary function and support the fundamental valuation methods as an early indicator, control methodology and negotiation tool. Market-oriented approaches serve as indicators if the business environment is changing quickly or the retrieval of data required for the fundamental approaches is complicated. Practitioners often use them as a control methodology to assess whether the intrinsic value is in line with the market view of the comparables or to render financial forecasts more accurate (Rezaee, 2001, p.340). In negotiations, multiples limit the number of variables and thus facilitate communication.

2.5.2 Asset-oriented approaches

The asset-based valuation of a bank requires valuing the loan portfolio of the bank (which comprises its assets) and subtracting the outstanding debt to estimate the value of equity. It is also known as a net asset value method. Net asset value methods take an
individualized approach when it comes to valuation and measure the value of asset and liabilities separately. Net asset value methods are based either on liquidation values or on the replacement values of the assets (Gross, 2006).

The net asset value of a bank based on replacement values is calculated as the difference between the replacement costs of on-balance-sheet assets and liabilities. This value generally does not or only inadequately incorporates unrecorded goodwill and other unrecorded intangible assets as well as all off-balance sheet items. These items, however, may account for a major part of the value of a bank. In addition, banks' book assets and liabilities have to be corrected for hidden reserves in the investment portfolio, in real estate assets and in the risk provision. These adjustments are necessary to determine the true value of a bank, but are almost impossible to estimate from an outside perspective. Not only does the net asset approach measure only part of a bank's value, it generally does not assign any value to future growth and resulting excess returns (Damodaran, 2004, p.31) The net asset value is not meaningful from an economic perspective, as "the relevant value estimate is based on the future income-generating capabilities of the bank as a whole operating unit, not on the specific assets it happens to own (Rezaee, 2011, p.333) For instance, the net asset value approach does not account for the synergies and effects of mergers, nor, to take another example, does it consider value creation or destruction based on high or low quality management.

Contrary to the above discussion, that rejects the use of net asset values as a measure of bank shareholder value; this approach is actually in widespread use in the banking
industry. The reasons might be the relatively high liquidity of bank assets as well as the proximity of banking to the capital markets. Nevertheless, the net asset value is only meaningful for the valuation of individual financial investments and not for the valuation of banks as a whole. On a stand-alone basis, the liquidation value does not have a proprietary function in the valuation of shareholder value and only complements existing methods (Gross, 2006).

2.5.3 Cash flow-oriented approaches

Cash flow-oriented approaches are mainly based on the principle of future benefits, which states that the value of any business equals the net present value of all future economic benefits attained as a result of the ownership of the business (Rezaee, 2001, p.175). Looked at from this perspective, the value of a bank is driven by its ability to create cash flows in the future. DCF approaches measure value by estimating future cash flows and taking into consideration the time value of money.

Three basic concepts essentially underlie the cash flow-oriented valuation approaches (Copeland et al. 2000, p.131) The entity approach uses the weighted average cost of capital (WACC) of shareholders and debt holders as a hurdle rate or discount factor and estimates the enterprise value of a company (Copeland et al. 2000, pp.132-137). The equity approach uses the cost of equity as a discount factor, thereby directly deriving the value of equity (Copeland et al. 2000, pp.150-152) The adjusted present value (APV) method measures shareholder value in two steps: First of all the value of the company were it to be entirely financed by equity is calculated. Secondly, the value of the tax benefit arising from debt financing is added (Copeland and Weston, 1992, pp. 439-451; Brealey and Myers, 2000, pp.555-559).
Whereas the entity approach is the most widely used approach for valuing industrial companies, it falls short when measuring the shareholder value of banks (Copeland et al., 2000, p.428). With respect to banks, there is general agreement in literature that the equity approach is the more appropriate model to use and there are several reasons for this (Damodaran, 2004, p.7). As described earlier, operating and financing activities in banks are intertwined. A bank creates value on the liabilities' side of its balance sheet not only by using financing instruments more efficiently than other market participants, but also by collecting cheap financing through its deposit franchise. From the outside, it is almost impossible to determine whether the role of debt is to be permanent capital or just an instrument of spread management (Copeland et al., 2000, p.429). For this reason, it is difficult to assign the proper cost of capital to deposits and refinancing instruments (MSDW, 2001, p.11).

Second reason is that debt capital is composed of a variety of debt tranches varying in amount and the interest rate paid. As a result, the estimation of the overall cost of bank debt is complicated. Given the high leverage of banks and consequently the small share of equity on the liability side of bank balance sheets, the cost of equity has only a small impact on the weighted average cost of capital. In addition, the margin between equity cost and interest income is very small. Small errors in the calculation of capital cost may therefore lead to significant variations in the value of equity (Copeland et al., 2000, p.489). The capital structure and the structure of the debt capital of banks are continuously...
changing. For this reason, the cost of equity varies significantly with changes in interest rates, and assuming a constant debt ratio and cost of debt may lead to misinterpretations.

Similar to the entity approach, the APV approach falls short as a valuation method for banks, as the separation of operating and refinancing activities is problematic for banks, as mentioned above (Gross, 2006).

The equity approach is hence the most qualified for measuring the shareholder value of banks. In particular, it is more appropriate for the measurement of shareholder value on a business unit level and for the management of shareholder value. The choice of the equity model for valuing financial companies means that all debt is regarded as part of operations rather than financing. Debt is not considered capital and interest paid on debt is an operating expense (MSDW, 2001, p.11)

2.5.3.1 The Equity Discounted Cash Flow Model to Valuing Banks

The equity approach is the best suitable for bank valuations. This method is easier to use than the enterprise DCF and reflects the fact that banks can create value from the liability side of the balance sheet. Additionally, the enterprise DCF method is typically used for nonfinancial companies in cases where operating decisions and financing decisions are separate. For finance companies it is not possible to value operations separately from interest income and expense, since these are the most important components of the institution's income. Also, financing decisions, e.g. the choice of leverage, are in the center of how banks and other financial institutions generate earnings. Therefore the free cash flow to equity holders should be forecasted and discounted at the cost of equity. As
with any discounted cash flow approach an explicit forecast period is projected and at the end of this period a continuing value is added (Goedhart et al. 2005).

2.5.3.2 Defining Free Cash Flow for Banks

Free cash flow is net income plus non-cash charges less investment needed to grow the balance sheet less allocation of reserves in order to fulfill the regulatory capital requirements. Defining the free cash flow for banks, one has to keep in mind that a bank creates value from both the asset side of the balance sheet as well as the liabilities side. The figure below shows the definition of free cash flow to equity holders in a bank. Cash flow from the income statement is reasonable to identify except that depreciation and provisions for loan losses are not cash flows. The effect of these is to reduce taxes. Nevertheless, it is easier to treat loan loss provisions as if they are an actual cash flow. This is so because information about actual cash flows regarding nonperforming loans are not publicly available. With the cash from operations one has to add the sources from the balance sheet.
This cash flow begins with a cash-in as loans are repaid. The actual cash received is gross loans due less provisions and unearned income resulting in net loans paid. With this number increases in deposits, external debt, and other liabilities, e.g. sale of new equity, are added. Ultimately the uses from the balance sheet are subtracted in order to find the free cash flow to equity. On the uses, side the main cash outflows represent new loans, increases in cash reserves, and securities held (Copeland et al, 2000).

When cash from operations is combined with sources and uses from the balance sheet, the result is free cash flow to equity holders. Mathematically, this is identical to dividends that could be paid to shareholders. As previously mentioned in this chapter, this is also the reason why free cash flows ultimately should be considered as possible dividends to equity holders, and therefore is equal to the maximum potential dividend payment. However, it should be noted that actual and potential dividends are not the same because management purposely
smoothes dividends across time. When calculating the equity cash flow one has to keep in mind that as banks and other financial institutions grow, they will need to increase their equity. Otherwise, their debt/equity ratio would increase, which could cause regulators and customers to worry about the institutions solvency. Increases in equity, reduce equity, cash flow, because these imply the company is setting aside earnings that could otherwise be paid out to shareholders (Gross, 2006).

The equity value of a company is calculated as described as below.

\[
Equity\ value = \frac{\sum_{t=1}^{T} \frac{FCF_e}{(1 + c_e)^t} + \frac{FCF_e}{c_e}}{(1 + c_e)^T}
\]

with \( FCF_e = \) Free cash flow to equity \\
\( c_e = \) Cost of equity

As for non-banking industries, the DCF method is the most widely used approach for measuring the shareholder value of banks. The reason for this could be the high empirical correlation between intrinsic DCF values and market values. Other reasons could include the fact that the DCF method is forward looking, as it derives the value of expected future performance. It is also capital market-oriented, as it uses a discount factor that is based on the market opportunity cost. Compared to the use of multiples or net asset values, the DCF approach is complex, with forecasting future performance representing the most difficult part of the valuation (Gross, 2006).

While the DCF approach is a good tool for measuring shareholder value, its application as a periodical management tool is however limited. Free cash flow to equity in one period does not explain the value created over the period in question (Copeland et al., 2000, p.143) In consequence, periodical performance can only be measured directly by
means of the market value added (MVA), i.e. the difference between the value in t and t-1.

2.5.4 Income approach

The income approach values a bank based on the net present value of future income (best measured by available cash flow) generated by the bank. This future income has two components:

1. Actual cash available to owners each year after meeting all expenses, reserves, and capital requirements necessary to sustain and grow the bank

2. The residual value of the bank at the end of a specified projection period (ten years is typical)

The first component, cash available to the owners, can be thought of as the dividend paying capacity of the business. The second component, residual value, is analogous to the value of the bank’s franchise if it were sold at the end of the projection period. The bank need not be sold, but a residual value must be computed as part of the valuation mathematics. These two sources of income are comparable to the potential benefits of any investment: current income and future income from appreciation of the asset.

2.5.4.1 Measuring Available Cash Flow

Available cash flow in the context of a bank acquisition is the amount of cash available to the owners at the end of an accounting period. This is true cash flow because it quantifies the monetary amounts that can be paid to owners. This is not the same as cash flow in an accounting sense as reported by banks in their annual reports. Available cash flow is driven by the net income of the bank after it adds to capital the amounts necessary to meet regulatory requirements. As a formula:

\[
\text{Available cash flow} = \text{net income} - \text{required additions to equity capital}
\]
This is also the formula for potential dividends. Therefore, the available cash flow from a bank to owners can be thought of as the potential dividends the bank could pay.

This formula is consistent in every bank because all regulated banks come under specific rules with respect to dividends and capital:

- Banks have very specific minimum capital requirements that cannot be violated (at least beyond short periods of time).
- Dividends can be paid only to the extent that capital is not reduced (except with special permission).
- Net income is the basis for determining allowable/potential dividends.

**Overview of Income Approach Model**

The general form of the income approach model that can be used to value a bank is shown below:

\[
\text{Value of bank by income approach} = \text{present value of available cash flow for 10 years} + \text{present value of residual value after the tenth year}
\]

The most crucial aspect of the valuation is the forecast of available cash flows. To arrive at that figure, it is necessary to project the balance sheet and income statement of the bank being valued (Rezaee, 2001).

**2.5.5 Residual income-oriented approaches**

Residual income measures the value created by a company over a certain period. Residual income methods measure economic profit by considering not only the reported accounting expenses, but also the opportunity cost of the capital employed. More precisely, residual income equals the spread between the return on invested capital and
the cost of capital times the amount of invested capital, as illustrated below (Stewart, 1990, p. 137; Copeland et al., 2000, p.143).

Residual income = Invested capital x \((ROIC - WACC)\)

With \(ROIC\) = Return on invested capital

\(WACC\) = Weighted average cost of capital

Alternatively, residual income can be defined as operating earnings less a capital charge for the economic capital used by the company, as depicted above.

Residual income = Operating earnings - \((WACC \times Invested \text{ capital})\)

With \(WACC\) = Weighted average cost of capital

The concept of economic profit is old, dating back to at least 1890 (Copeland et al., 2000, p. 143; Matten, 2000, p. 267) The classical concept underwent a Renaissance in the 1990s, when consulting companies developed and strongly promoted modern residual income models (Rezaee, 2001, pp. 359-360). Among the multitude of performance measures, the most well-known are economic value added (EVA) and economic profit (EP) (Stewart, 1990; Young and O’Byrne, 2000) Both these modern residual income concepts differ from traditional residual income approaches in two ways. In contrast to classical models, EVA and EP focus on operating residual incomes and operating and non-operating activities are separated, as the underlying business risks differ. EVA and EP, like the classical residual income concepts, rely on accounting numbers, and in contrast to classical models, both adjust accounting numbers to correct for accounting distortions (Uyemura et al. 1996, p. 97) EVA and EP differ in their definition of operating earnings, invested capital and cost of equity (Fernandez, 2002, pp. 265-269).
Nevertheless, these differences are very much of a minor nature and the concepts are often identical in practice.

As cash flow-oriented models, residual income models can be categorized into entity and equity approaches. As stated earlier, the equity approach is more appropriate for valuing banks (Damodaran, 2009) when calculating the residual income of banks, operating income includes the income and expenses from debt financing. Invested capital is defined as economic equity, and cost of capital equals cost of equity. Consequently, residual income for banks is calculated as follows:

\[ RI = \text{Adjusted net operating profit after interest and taxes} - (\text{Average economic equity in year } t \text{ and } t-1 \times \text{Cost of equity}) \]

Some authors consider residual income models as having limited relevance, as they lack a forward-looking perspective. This is the case of the residual income in a single period, but not for the valuation of a company based on expected residual incomes in the future. In terms of residual income, the value of a company can be expressed as the amount of capital invested plus a premium equal to the present value of the value created each year, as illustrated below (Copeland et al., 2000, p. 144)

\[ \text{Value} = \text{Invested capital} + \text{Present value of expected residual incomes} \]

Consequently, the equity value can be calculated as illustrated below
NOPAIt is derived from operating income adjusted for transactions that are not cash effective and accounting manipulations. Economic equity is estimated as the sum of equity and equity equivalents. Comparing residual income and DCF approaches we see that residual income is a useful measure of understanding a company’s operating performance in any single year, and that free cash flow is not (Copeland et al., 2000, p. 143). Residual income can be used to measure the value of a bank’s equity, as well as the periodic performance of a bank. Consequently, residual income is a useful concept of value-based management, as it serves as a tool for multiyear financial planning and periodic performance controlling and can be easily communicated.

From a theoretical perspective, the residual income and DCF approaches lead to identical results given the same assumptions. In consequence, residual income can be understood as an extension of the DCF approach that improves the measurement and management of shareholder value creation (Matten, 2000, p. 254). However, this theoretical identity in
practice essentially does not exist. The focus on accounting income is usually considered the most significant shortcoming of the residual income approach. However, due to the cash adequacy of net income in banking, this problem is less critical in the case of bank valuation. In addition, book equity should be more reliable for banks than for industrial companies as depreciation is typically marginal in the case of banks (Damodaran, 2004, p. 27). Nevertheless, hidden reserves distort the value of equity, and the correction of these distortions is complex and problematic from an outside-in perspective. Similarly, hidden reserves are often only partly or not, all included due to limited data availability. In consequence, residual income is overestimated, as the required return on hidden reserves, i.e. equity equivalents, is not accounted for.

In general, all the valuation approaches discussed in the previous sections are applicable to banks. The basic principles apply just as much to banks as they do to other firms.

The DCF model can be applied to banks using an equity approach. It is the most widely used method for measuring the shareholder value of banks as it is for nonbanks. The advantages of the DCF method are that it represents an intrinsic value that is both market-oriented and related to internal bank performance. Moreover, it provides a bank-level as well as a business unit-level valuation. It does not provide, however, a direct measure of periodical performance as does the residual income approach (Gross, 2006).

The application of the residual income model to banks necessitates the use of an equity method similar to DCF models and multiples. The residual income approach is, above all
else, a good tool for value-based management. By providing an estimate of value creation on a year-by-year basis, value creation is directly tied to operating performance and competitive advantage. Like the DCF approach, it can be applied to banks at the firm or business unit level, and compared to the DCF approach, its advantage is ease of use in daily decision processes (Gross, 2006).

In the long-term, the DCF and residual income model lead to similar results if the assumptions underlying the two models are similar. The terminal value assumption in residual income approaches, however, is more reasonable. At the end of the day, the question of whether the DCF or residual income approach is to be preferred depends above all on the purpose of the shareholder value estimate and the data set. In the case of pure valuations, DCF and residual income are both appropriate measurement methods, and the choice of one over the other in many cases merely depends on the data availability. Whereas DCF and residual income are both viable options in the case of individual bank valuations, the residual income approach is more preferable for large-scale samples. If the purpose of the valuation is to establish metrics for value-based performance management, residual income is without a doubt the superior method. In summary, residual income is preferred over DCF in the majority of cases when valuing banks. (Gross, 2006).

2.6 Studies relating to Value Drivers

It is quite helpful to identify and use value drivers in decision making and corporate objective for value maximization. Value drivers are the operating factors with the greatest
influence on the operating and financial results and they also incorporate the entire
decision making dynamic. Value drivers help make the strategy real at all level of
specificity that is meaningful and actionable. Value drivers include aspects of the
operating decisions and are used to understand non-financial operating measures. Value
drivers occur in all parts of the company (Knight, 1998).

According to Rappaport (1986) there are seven critical value drivers in determining the
value of any business: sales growth, operating profit margin, incremental fixed capital
investment, incremental working capital investment, cash tax rate, cost of capital and
value growth duration. However, he mentioned that for the operating decisions these
factors are broad and in order to be useful, there is a need to determine the micro value
drivers that influence the above seven macro and value drivers.

Dalborg (1999) identified three fundamental drivers of value creation. These are
profitability, growth, and free cash flow. According to him, normally the value of a
company is determined by its current profitability, expectations for profit growth and he
added also that free cash flow could be considered to be a determinant of value in certain
situations.

Since the mid-2007 where the financial crisis started, it has been illustrated that bank
performance has a substantial influence on the efficient capital allocation and the overall
economy (French et al. 2011). Academia has for some time had this in mind, and quite a
few papers have focused on how banks are able to increase their profitability. Studies like
(Athanasoglou, Brissimis & Delis 2008) (Brissimis, Delis & Papanikolaou 2008) (Lepetit
et al. 2008) (Berger et al. 2004) (Berger, Mester 2003) (Salas, Saurina 2003) are
considering a wide range of factors that they believe affect banking profitability. Lepetit
et al. (2008) investigate the relationship between risk and product diversification and find that bank with a higher non-interest income ratio display higher risk than pure retail banks. Other aspects of risk are the degree of leverage and the impact on profit and efficiency. Both (Berger, Bonaccorsi di Patti 2006) and (Margaritis, Psillaki 2010) (Cummins, Lewis & Wei 2006) have analyzed this relationship and find that, controlled for everything else, higher leverage (e.g. a lower tier 1 ratio) increases the bank efficiency and therefore bank profitability. Further, in relation to changes in the leverage ratio, (Kwan, Eisenbeis 1997) and (Demirguc-Kunt, Huizinga 2004) recognize that a positive loan and deposit growth affects profitability positively. Finally, studies have also focused on different sources of profits like e.g. (Cummins, Lewis & Wei 2006) or (Gillet, Hubner & Plunus 2010) who both investigate the relationship between operational risk and the corresponding reaction on the stock market.

As it has just been described, there is a large amount of literature focusing on how profitability might be affected by various factors. However, the empirical literature on how shareholder value can (Marshall 1891) be affected by various factors is somehow limited. Only a few studies have tried to find a relationship between bank productivity, bank efficiency and shareholder value, but they generally come up with positive results. (Fiordelisi 2007) defines a measure called shareholder value efficiency where banks producing the highest economic value add are described as the value-efficient banks.
Spivey and McMillan (2003)\textsuperscript{50} examined the relationship of numerous non-market measures of value creation with the market based value creation measure (shareholder return) for a sample of 3279 small publicly-traded houses. For this purpose, each company’s shareholder return was estimated using stock price and dividend information. The study used three different dimensions of non-market value creation measures like accounting profitability measures (EPS, ROE, ROIC, ROA, Asset utilization, Net Profit Margin and EVA), cash flow performance measures (Cash flow per share, and cash flow return on sales) and growth measures (like growth rates for capital employed, EPS and sales). The study revealed that the relationship between certain non-market measures of value creation and small entrepreneurial types of businesses do exist. Statistically significant positive correlations were found between the shareholder return and the profitability measures of ROE, ROA and ROIC. However, these relationships were found to exist only for companies that reported positive earnings. Stronger relationships were found to exist between the shareholder return and the cash flow performance measures of earnings growth and sales growth. Further, the sales growth was found to be correlated for companies that had positive earnings and companies that reported negative earnings.

Pandey (2005)\textsuperscript{51} empirically explored the significance of profitability and growth as drivers of shareholder value, measured by market-to-book value (M/B ratio). The study


used data of companies listed on the Kuala Lumpur Stock Exchange for the period from 1994 to 2002. Profitability was defined as economic profitability i.e. spread between return on equity and risk adjusted cost of equity. Using panel data and employing GMM (Generalized Method of Moments) estimator, the findings showed a strong positive relationship between economic profitability and M/B ratio. Growth, on the other hand, was negatively related to M/B ratio. However, the economic profitability-growth interaction variables had a positive coefficient indicating that growth associated with economic profitability influenced shareholder value positively. This finding was further supported when the analysis was done separately for the positive spread firms and negative spread firms. Moreover, the results also indicated a negative relationship between M/B ratio and firm size and positive relation with business risk, financial risk and capital intensity.

Beccalli, Casu & Girardone (2006)\(^5\) tests the stock return on various efficiency measures and generally find a positive correlation between the two. However, the studies are limited to only focusing on the relationship between a single factor and shareholder value creation instead of testing a larger set of factors that might affect shareholder value (like cost of equity, growth, risk etc.).

Gross (2006) states that shareholder value has become the pre-eminent performance measure in many industrial companies and it has significantly affected how some banks

in recent years have tried to optimize their business. The objective of the paper by Gross (2006) is to find the metrics that are able to quantify the story behind shareholder value and to understand the fundamental drivers of value. The findings in (Gross 2006) suggest that only the cost efficiency and the risk capabilities are relevant drivers for shareholder value in banks. Whereas, both the business mix and the branch structure driver is difficult to make any reliable conclusions on, due to their ambiguity. The regression results for the business mix suggest that an increased income diversification is value destroying in the short-term. Results for the underlying income cost and risk structure of the bank is somewhat controversial as well. Looking at the branch structure, there is no empirical evidence for the value impact of changes in the branch structure and it is therefore concluded that it has no direct impact on value. Potential value implications are instead driven by the interdependence of the branch structure and the different value drivers (Gross 2006).

Fiordelisi, Molyneux (2010) tried to cover some of the gaps within the “shareholder value in banks” literature. First, a broad range of factors that impact shareholder value in European banks was analyzed. This was followed by a causality test of the factors where there is controlled for the trade-off between various value determinants (Fiordelisi, Molyneux 2010).

The shareholder value creation measure used by (Fiordelisi, Molyneux, 2010) is the economic value added (EVA) which is defined as a bank’s net operating profit subtracted its capital charge over the same period. In order to affect the EVA banks have three
bottoms to push: Net operating profit, opportunity cost of capital and invested capital. The value drivers suggested by (Fiordelisi, Molyneux, 2010) can be observed in figure 2.6.1.
Figure 2.6: The Value Drivers according to Fiordelisi and Molyneux (2010)
From this value driver tree different key performance indicators are evaluated. Firordelisi and Molyneux (2010) suggest the based on the earlier profitability literature such as (Berger, Mester 2003) (Lepitit et al. 2008) and (Becali, Casu and Girardone 2006), cost efficiency, revenue, efficiency and income diversification expected to have an impact on the income structure of the bank.

2.7 Empirical Studies Dealing with Shareholder Value Creation in Indian Banks

Very few studies dealing with the shareholder value creation in Indian banks have been carried out. In the following pages, these studies have been discussed.

Verma (2000)\textsuperscript{53} examined an appropriate way of evaluating bank’s performance and also found out which Indian banks had been able to create shareholder wealth since 1996-1997 to 2000-2001 with the help of EVA and MVA (Market Value Added) which tell what the institution is doing with investor’s hard earned money.

Parasuraman (2000)\textsuperscript{54} discussed the EVA position of 14 major public sector banks, 7 new private sector banks, 5 old private sector banks and 2 foreign banks. Among the strength indicators, deposit, return on assets, interest income as a percentage of total assets, interest yield spread as a percentage of total assets and EVA were considered. The study concludes that EVA is an important measure to judge a bank's performance in view of the current scenario of banks. EVA has been found to have a high degree of correlation with ROA, but not with any of the other measures. It signifies a fact that


banks realize the importance of measuring EVA measuring separately even if they do well in other fields.

Thampy and Baheti (2001)\(^{55}\) studied the economic profits of commercial banks in the public and private sectors during 1990’s. It also moves the benchmark of performance of banks from accounting profits to economic profits and shareholder wealth creation. The study has been restricted to 12 commercial banks consisting of 4 public and 8 private sector banks. The period covered under the study is three years, starting from 1995-96 to 1997-98. The beta has been calculated on the basis of daily stock price data with Bombay Stock Exchange BSE 200 Index returns during January 1, 1997 to March 31, 1998 as the proxy for the market returns. The study shows that the performance of the Indian banks as measured by EVA is not very satisfactory. The results of the study reveal that the commercial banks under consideration have not created any positive EVA due to: (a) banks could be overcapitalized and (b) returns are very poor from the banking business. It also suggests that bank should improve and strengthen their credit assessment technique and monitoring mechanism to bring down the non-performing assets so as to improve the earning capacity.

Singh (2005)\(^{56}\) tested the robustness of new tools of shareholder wealth measurement- EVA and MVA taking a sample of 28 Indian banks over a five year period from 1999- 2003. He found that in India, EVA did not happen to be a better wealth


measurement tool as compared to traditional performance measures. But he found a significant statistical relationship between EVA and MVA.

The BCG study (2008)\textsuperscript{57} found that for the five year period between 2002 and 2007, the total shareholder return (TSR) for public sector banks was 42\% and more than half, 0r 22\% was contributed by the change in valuation multiples. On the other hand the TSR for the same period for private sector banks was 67\% and more than two thirds of it, or 40\% was contributed by fundamental value i.e. asset growth and profitability improvement.

Sorrel and Bhanawat (2009)\textsuperscript{58} conducted the analysis of the Indian banking industry using EVA. They selected a sample of 14 public sector and 12 private sector banks listed on Bombay Stock Exchange. The financial data of these sample units for four years, viz., 2003-04 to 2006-07, were used for the analysis and comparison. Equity approach was followed to compute EVA. Average EVA for all public sector banks under study for the whole period of analysis was found to be Rs. 774.57 Cr. The corresponding figure for the private sector banks was Rs. 393.47 Cr. This finding contradicts with that of some earlier researches (Parsuraman, 2000; and Thampy et al., 2000), which concluded that Indian banks do not create any value for their shareholders. The difference between the mean values of EVA for public sector and private sector banks, however, was not found significant (value of ‘t’ 0.0096 <

Among public sector banks, State Bank of India (SBI) ranked the highest in terms of an average EVA (Rs. 6193.24 Cr), while Canara Bank was the only one with negative average EVA (Rs. 1390.20 Cr). ICICI Bank Ltd. stood highest among private sector banks with regard to average EVA (Rs. 2036.12 Cr), while no bank in this category had negative average EVA for the entire period of the study.

Sivakumaran and Saravanakumar (2011)\textsuperscript{59} computed EVA and compared with the respective share prices of 39 banks of the BSE-BANKEX for a period of seven years beginning from FY 2004-05 to FY 2010-11. They find that there is no relationship between EVA and share prices, but EVA is the true profit that the bank is able to generate which also considers opportunity costs of the capital invested in the business. The study adds that EVA is the one of the measure, which is used to measure the performance of the bank, but it cannot be used to forecast the share price of the bank.

Dhond and Kaptan (2011)\textsuperscript{60} using EVA analyzed the performance of four Indian banks viz, SBI, BOI, ICICI and HDFC for three consecutive financial years F.Y.’s 2006-07 to 2008-09. They found that all the selected Banks have been creating an EVA and value addition for its shareholders throughout 3 years.

2.8 Concluding remarks

A review of pertinent literature on shareholder value creation in banks is thus presented in this section. Specifically, valuation methods and their applicability to banks have been discussed in-depth. This section ends with summarizing the studies done on shareholder value creation in Indian banks. It thus highlights that the area of shareholder value creation in Indian banks has not been deeply explored and studied. Hence, further empirical studies are warranted to explore this highly complicated issue in more depth.