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Unlocking the Power of Monetary Policy: A Critical Review of its Influence on Value Creation of Banks

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Abstract: The study examines the intricate relationship between monetary policy and the value creation process within the banking sector. Through a critical lens, the paper assesses how various aspects of monetary policy impact the ability of banks to generate value. By analyzing relevant literature, empirical data, and case studies, the research sheds light on the multifaceted dynamics at play. The study's focus is on unveiling the mechanisms through which monetary policy tools, such as interest rates and quantitative easing, affect banks' profitability, risk management, lending behavior, and overall financial health. This critical review contributes to a deeper understanding of the intricate interplay between central banking decisions and the operational landscape of banks, enabling policymakers, financial institutions, and researchers to make informed decisions and predictions about the consequences of different monetary policy strategies on the banking sector's value creation endeavors.

1. Introduction

After the 2008 financial crisis, the monetary policy implemented by the banking institutions across the world aimed to address the existing flaws of the banking system exposed during the crisis. Apart from the global crises, economic agents[1] and groups have led to shape and expand the scope of such operations in regulating banking activities (Kusi et al., 2019; Garriga, 2016). This resulted in several notable modifications in banking systems in developed as well as in developing countries. Among such significant developments, the establishment of very low interest rates, sometimes even negative rates in developed countries, and purchasing of large amounts of financial assets[2] is considered to be the key enhancement in baking regulations. The second equally important development is strengthening the banking regulation and the adoption of new monetary policy instruments. The motive behind such developments was twofold, the first being to boost economic development and the second to save and strengthen the financial sector. However, the desired objectives seem to have been fulfilled, but the fluctuating and more specifically the low-interest rates were found to be worrisome for bank value and stability.This concluded that the monetary policy proposed and implemented by the central bank

[1]Economic agents are players who intervene in the economy in accordance with the norms set by the economic system and economic institutions.
[2]Cash, equities, bonds, mutual funds, and bank deposits are examples of liquid assets whose value is derived on a contractual right or ownership claim.

significantly affects the interbank financial structure. It determines the short-term and long-term interest rates (bond rates) and their management through different tools. One of the most common and significant tools is the direct purchase of assets which helps to build market expectations. Therefore, understanding the relationship between interest rates and the financial sector's soundness is critical for assessing the impact of monetary policy on value creation. This is especially important because, in some circumstances, such as in developing nations, bank stocks are often seen declining due to higher funding costs than the profitability of banks. The reason for such a situation can be ascribed to several factors like increased non-performing assets, fluctuating regulatory standards, market competition, and decreasing net interest margin (NIM) due to low-interest rates. The value creation of banks further dilutes when low rates sustain for a longer period. However, the aim behind maintaining the lower rates is only to induce money flow in an economy in times of recession, but it does affect the profitability of banks as suggested in earlier studies (Weistroffer, 2013; Alessandri& Nelson 2015; Genay&Podjasek 2014; Busch &Memmel 2015).

The decision regarding the bank rates is decided by the central bank of the country. According to "Decock central bank is a banking system which has either a complete or a residual monopoly of note issue". In India, the central bank is called the reserve bank of India (RBI), which is popularly known as the Indian apex bank. It oversees the level of money present in an economy at a given point of time (money supply) and liquidity pricing[3] apart from dealing with inflation. The apex bank observes the liquidity position in the economy taking assistance of commercial banks. Further, central banks control the money supply and inflation in the economy using different tools like fluctuating the interest rates, bond purchases, and negative interest rates. These tools form the monetary policy of the central banks by which different desired economic goals are achieved. Such monetary policy rates fluctuate in response to the economy's financial circumstances. The committee has been formed to set the rates bimonthly (formerly quarterly) in India. The banks operating in the economy implement rate adjustments as they occurand are often raised to limit the level of liquidity in an economy or vice versa. As a result, the regulatory authority(central bank) is pivotal in liquidity adjustment and inducing fresh currencyin the economy (Nikhil &Deene, 2021).

The rates set by the central bank are for the commercial banks thatoperate on the front end of the monetary process in distributing money throughout the economy, balancing between those who have more money to invest and those who do not. The primary goal of such banks' principal goal is to gather savings or idle cash from the general population by offering a fixed rate of interest. The same money is loaned to the public at a greater interest rate. As per Crowther, "Bank is an institution that collects money from those who have in spare or who are saving it out of their income and offer this money out to those who require it".The decision regarding the rate-setting is based on the monetary policy of the central banks. The central bank provides interest rates as a yardstick, which is used by banks to set the deposit and lending rates respectively and thereby earns the profits called net interest income (NII). The entire operations of banks are based on policy instruments laid by the central bank. Further, such policies affect the performance of banks in their normal course of time. Such influence on performance has been mearsured by various techniques.

The different measures used to evaluate bank performance in relationship to different variables were return on assets (ROA) and net interest margin (NIM) being more prominent among others like net operating profit after tax (NOPAT), return on equity (ROE), net interest margin (NIM) (Abreu & Mendes, 2001; Mir & Shah, 2022; Staikouras&Wood, 2003).Although, every such measure has its

[3] The fair market value of the Common Stock at the time of the Liquidity Event, as calculated by reference to the purchase price payable in connection with such Liquidity Event, multiplied by the Discount Rate, is referred to as the Liquidity Price.

merits in reflecting the required performance.Therefore, Economic Value Added (EVA) has become an efficient tool for managers to measure performance and guide their investment decisions. Several notable firms have used EVA as a performance indicator, and they have also been effective in increasing shareholder value. EVA is getting popularity in India as well. EVA is defined as operating profit after taxes less a charge for capital utilized. EVA may also be viewed as a performance metric in which the returns received are compared to the cost of capital, showing the real required performance of banks. We discuss the origin and relevance of economic value added (EVA) as a performance metric in this research.

The primary aim of the study is to explore and analyze the available literature on monetary policy and to investigate its role in the wealth maximization of the shareholders via value creation. The study would focus on the literature extended to determine the types and methods of monetary policy used in the banking industry. Further, we will also take into consideration the impact of such policies on the profitability of banks in all the framed scenarios by the central bank vis-à-vis contractionary or expansionary policies. Furthermore, the study would attempt to identify the significance of economic value-added (EVA) as a substantial measure of performance in the Indian banking industry which considers all major determinants of performance in its evaluation.

1.1 Monetary Policy definition, objectives, operations and process

Money is termed to be the blood of the economy, its level in the economy needs to be monitored, regulated and controlled to attain the predetermined objectives. The monetary policy framed by the central banks governs the quantity of money accessible in an economy as well as the routes through which the money is induced. The primary purpose behind such regulations is to maintain macroeconomic indicators such as inflation, consumption rate, growth, and general liquidity.According to US Federal Reserve Bank, Monetary policy refers to regulations framed by the major banking authorities of a country to achieveits macroeconomic and microeconomic policy objectives. The different microeconomic goals include the structure of the banking system and its stability, whereas, full employment and stable economic development are included in its macroeconomic objectives. Monetary policy largely influences the short-term and bond rates in terms of yield curve slope. Central banks have direct influence over the short-term rate through the policy rate. However, large scale investments in government securities and expected future policy rates determine the long term interest rates (bond rates) and the pricing of investments. In addition, extremely low short-term interest rates or even negative rates result in a flatter and lower yield curve followed by reduced profits, lower interest margins, and as a result, low profitability from redeemable investments.With the objectives of stabilized prices and stabilityin growth of the economy, such policies are formulated and implemented by the central banks' of the countries.Incase of India, the central bank which is in charge of administering the monetary policy is known as the Reserve Bank of India (RBI). The task of devisingand regulating the monetary policy is clearly mandated in the charter ofthe Reserve Bank of India under the Act of 1934. The main aim behind the act is to promote growth while stabilizing prices. To attain sustainable long-term growth requires price stability, which includes regulated inflation targets every five years. Currently, the said inflation level is at 4 percent consumer price index (CPI) with the inflation target ranging in between 2 percent to 6 percent. before the amendments to the RBI Act in may 2016, the framework utilized to manage inflation was governed by the "Monetary Policy Framework Agreement" Feb 2015 with a mutual concern by the government and the country's central bank. The reserve bank is explicitly granted legal power to oversee the country's monetary policy framework. The framework involves policy rate adjustment based on the evaluation of the current and evolving macroeconomic environment. It also includes settlement of money market rates as well as to adjust liquidity conditions in order to keep money market rates at or near the repo rate. Changes in repo rates are conveyed throughout the financial system via the money market and impact aggregate demand, which is a key predictor of economic growth and inflation. The reserve bank's operational framework anticipates daily liquidity management by suitable measures aimed to keep operating targets accessible and to keepthe weighted average call rate (WACR) around the repo rate

once it is released. The operational structure is fine-tuned and amended in response to changing environment of monetary market while adhering to existing position of monetary rates.

1.2 Objectives of monetary policy

In India, monetary policy goals have developed to include preserving price stability and guaranteeing an appropriate supply of credit to the productive sectors of the economy. Maintaining orderly financial markets developed as an extra policy priority as the economy furtherliberalized and became more globalized. Thus, India's monetary policy strives to strike a careful balance between price stability, economic growth, and financial stability. From the mid-1980s to 1997-98, India's monetary policy framework was a monetary targeting framework along the lines advocated by the Chakravarty Committee (1985). Because the money demand function is quite stable, yearly growth in broad money (M3) was employed as an intermediate monetary policy aim to attain the end objectives. Monetary management entailed calculating M3 growth in accordance with predicted GDP growth and a reasonable level of inflation. In practice, however, the monetary targeting strategy was applied in a flexible manner, with 'input' from real-world changes. For example, if real GDP growth was predicted to be stronger, the M3 prediction was increased.

1.3 Monetary Policy Operations

Under the monetary policy framework, a number of surveys are undertaken by the central bank including industrial outlook survey, capacity utilization survey, professional forecasters' survey, and inflation expectations survey are used to produce the forward-looking indicators. These data and models' assessments are used to forecast growth and inflation. Thus, the present monetary policy framework might be described as an upgraded multiple indicators approach. The financial strategies need to be managed in every quarterof the financial year following the overall attitude of monetary policy. It is in a sense referred to as the building blocks of the monetary policy. It comprises the setting of operational goals, the kind, scope, and frequency of various central bank money market actions, the utilization and breadth of the corridor for very short-term market interest rates, and ultimately the manner by which policy goals are announced. The operational purpose must be carefully chosen since it is the first variable in the process of monetary transmission. The aim behind such operations of the central banks is usually to develop reserves and monitor and regulate the base money or bank interest rates. In addition, the operations underlined above affect the core purpose of the central banks which is determined with the help of observing and evaluating the reaction between financial markets and banking institutions.

a) **International Experience:** The primary focus of banks was to build a strong capital base only irrespective of higher opportunity costs on its overaccumulation (Mir & Shah, 2022). However, in the early 1990s, the entire focus shifted to the existing interest rate structure in the monetary mechanism indicating its relevance and importance in a deregulated financial environment. As a result, overnight rates became the most concerned and often pursued operating goal of the monetary policy framework. Few examples of the countries with industrialised example, industrialised nations such as the United States, the United Kingdom, Japan, Canada, and Australia consider the overnight inter-bank rate to be the most important operational aim. For short-term market interest rates, the European Central Bank (ECB) employs a corridor strategy, with its deposit facility providing a floor and its marginal lending facility providing a ceiling.The ECB provides liquidity through its primary refinancing operations to guarantee that the interbank market's demand-supply circumstances maintain a short-term interbank market interest rate compatible with its interest rate objective. While many emerging market economies (EMEs) aim for an overnight interest rate, an interest rate corridor is also preferred. According to the literature on central banks' accounts in the industrial nations, there are five primary causes for improvements in their operating methods in the 1980s and 1990s. First, monetary policy instruments were modified to accommodate the individual monetary authorities' new operational frameworks.Second, with financial deepening taking place almost entirely outside of the central bank's balance sheets, the share of the financial system over which monetary authorities had direct control shrank,

necessitating the use of indirect, price-oriented rather than quantity-oriented instruments to control the non-monetary components of liquidity in the financial system. Third, as financial markets expanded, diversified, and integrated, and as the spreads between rates of return in various currencies narrowed, there was a demand for instruments that could provide flexibility in terms of timing, size, and precision to liquidity management.Fourth, the increasing relevance of expectations in financial markets favoured the use of tools better adapted to conveying monetary policy stance. Fifth, central banks have been under increasing pressure to encourage money market activity and improve monetary policy transmission while highlighting the separation of monetary and government debt management goals. Thus, reserve requirements were gradually reduced during the 1990s, with an increased emphasis on active liquidity management and more openness in policy signals linked to targeted interest rate levels. Most central banks choose open market operations (OMO) as a monetary policy instrument because they enable them to modify market liquidity and impact interest rate term structure.

b) Indian Experience: In line with the aims and policy framework, India's monetary policy operating method has undergone considerable adjustments. The nature of the financial markets and institutional structures heavily influenced the selection of goals, tools, and operational procedures. During the monetary targeting period (1985-1998), while M3 growth provided the nominal anchor, reserve money was used as the operating target and cash reserve ratio (CRR) was used as the principal operating instrument. Besides CRR, in the pre-reform period prior to 1991, given the command and control nature of the economy, the Reserve Bank had to resort to direct instruments like interest rate regulations and selective credit control. These instruments were used intermittently to neutralize the expansionary impact of large fiscal deficits which were partly monetized. The administered interest rate regime kept the yield rate of the government securities artificially low. The demand for them was created through periodic hikes in the statutory liquidity ratio (SLR) for banks. The task before the reserve bank was, therefore, to develop the financial markets to prepare the ground for indirect operations. The year 1992-93 was a landmark in the sense that the market borrowing program of the government was put through the auction process. This was buttressed by phased deregulation of lending rates in the credit market. The Reserve Bank also brought down the SLR to its statutory minimum of 25 percent by October 1997, while CRR was brought down from 15 percent of net demand and time liabilities (NDTL) of banks to 9.5 percent by November 1997. The automatic monetization of deficits was also phased out in April 1997. All these developments resulted in a decline in pre-emption of resources from the banking system from a peak of 63 percent in 1992 to 35 percent by 1997. The Narsimham Committee (1998), however, noted that the money market continued to remain lopsided, thin and volatile and the Reserve Bank also had no effective presence in the market. Therefore, it reiterated the need to transform the call money market into a pure inter-bank market and recommended the Reserve Bank's operations to be market-based. Following these recommendations, the Reserve Bank introduced the liquidity adjustment facility (LAF) in June 2000 to manage market liquidity on a daily basis and also to transmit interest rate signals to the market. Under the LAF, the Reserve Bank's policy reverse repo and repo rates set the corridor for overnight market interest rates. Thus, OMO including LAF emerged as the dominant instrument of monetary policy, though CRR continued to be used as an additional instrument of policy. The call money market was transformed into a pure inter-bank market by August 2005 in a phased manner. Concomitantly, to enable a smooth exit of non-banks, new instruments such as collateralized borrowing and lending obligations (CBLO) were introduced in January 2003. With the introduction of prudential limits on borrowing and lending by banks in the call money market, the collateralized money market segments developed rapidly. Maturities of other money market instruments such as commercial papers (CPs) and certificates of deposit (CD) were gradually shortened to seven days in order to align the maturity structure. Managing large and persistent

capital inflows in excess of the absorptive capacity of the economy added another dimension to the liquidity management operations during the 2000s. Although, initially the liquidity impact of large capital inflows were sterilized through OMOs and LAF operations, given the finite stock of government securities in the Reserve Bank's portfolio and the legal restrictions on issuance of its own paper, additional instruments were needed to contain liquidity of a more enduring nature. This led to the introduction of the market stabilisation scheme (MSS) in April 2004. Under this scheme, short-term government securities were issued but the amount remained impounded in the Reserve Bank's balance sheet for sterilisation purposes. Interestingly, in the face of the reversal of capital flows during the recent crisis, the unwinding of such sterilized liquidity under the MSS helped to ease liquidity conditions. In response to the measures taken to develop the money market, over the years the turnover in various market segments increased significantly. All these reforms have also led to improvement in liquidity management operations by the Reserve Bank as evident from the stability in call money rates, which also helped improve the integration of various money market segments and thereby effective transmission of policy signals. The rule-based fiscal policy pursued under the Fiscal Responsibility and Budget Management (FRBM) Act, by easing fiscal dominance, contributed to an overall improvement in monetary management.

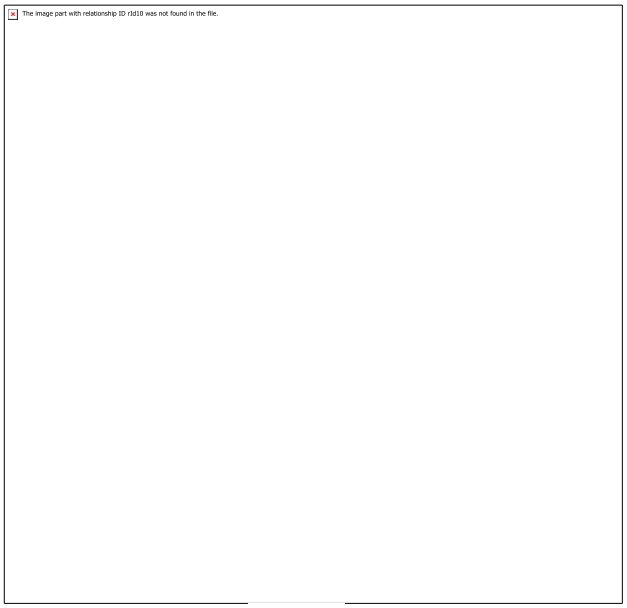


Fig.3

1.1 Policy Formulation Processes

In the past, India's monetary policy process was primarily internal, with only the ultimate outcome of acts being made public. The approach has become more collaborative, interactive, and oriented towards the outside world over time. Internal work procedures have also been redesigned to emphasize technical analysis, coordination, horizontal management, and a stronger focus on the market. The process that leads to monetary policy decisions involves several inputs from internal personnel, market players, researchers, financial market professionals, and the bank's board of directors (Chart 3). Several innovative institutional structures and work styles have been devised to meet the needs of governing in a complex and fast changing economic environment. The process is led by the governor and supported and influenced by the deputy to the governor and the board of directors.Every week, a board committee meets to assess monetary, economic, and financial situations and to provide policy advice. There are several additional standings and ad-hoc committees or organizations that provide crucial policy recommendations. It includes a financial market committee which is formed within the department to take care of regular functions and activities are monitored and controlled while monetary policy strategy meetings are regularly held to review plans. The following are several tools that a central bank use while establishing monetary policy:

a) **Repo Rate**: The central banks provide funds to public and private banks in against to recognized assets kept as collateral under the liquidity adjustment facility (LAF). The central banks charge a rate of interest on such lendings to commercial banks which is called as repo rate.

b) **Reverse Repo Rate**: The rate at which funds procured by central banks from commercial banks in against to qualified assets as collateral on an overnight basis is referred to as the reverse repo rate.

c) **Liquidity Adjustment Facility (LAF)**: The LAF comprises of overnight and term repo auctions. The reserve bank has continuously raised the share of liquidity infused by fine-tuning repo rate auctions of various tenors. The goal of 'term repo' is to assist build the interbank term money market, which allows for market-based loan and deposit pricing and thereby boosts the economy's money supply. The reserve bank holds changing interest rate on reverse repo auctions regularly, depending on economic situations.

d) **Marginal Standing Facility (MSF)**: A provision that allows regulated banks to receive extra overnight money from the reserve bank by drawing on their statutory liquidity ratio (SLR) portfolio up to a particular maximum and paying a punitive interest rate. In the case of unforeseen liquidity shocks, this works as a safety valve for the financial system.

e) **Corridor**: The MSF and reverse repo rates provide the corridor for daily change in the weighted mean call money rate.

f) **Bank Rate**: It is the interest rate at which the central bank is ready to buy or sell bills of exchange or other commercial documents. The publishing of the bank rate is mandated under Section 49 of the Reserve Bank of India Act, 1934. This rate has been linked with the MSF rate and, as a consequence, alters automatically when both the MSF and policy repo rates change.

g) **Cash Reserve Ratio (CRR)**: The minimum required amount that any commercial bank needs to maintain with the central bank as a percentage of its net demand and time liability is called the cash reserve ratio.

h) **Statutory Liquidity Ratio (SLR)**: The proportion of NDTL that a bank must keep in safe and liquid assets such as unencumbered government securities, cash, and gold. The availability of resources in the banking system for lending to the private sector is frequently influenced by changes in SLR.

i) **Open Market Operations (OMOs)**: It refers to the buying and sale of government securities to infuse and absorb long-term liquidity.

j) **Market Stabilisation Scheme (MSS)**: This tool was introduced in 2004. Short-term government securities and treasury bills are sold to absorb longer-term excess liquidity caused by large capital inflows. The funds have been placed in a separate government account at the Reserve Bank.

These instruments are used to achieve monetary policy objectives such as inflation targeting and price stability, full employment, and stable economic development. The money supply can be directly influenced by reserve ratios or open market activities, or it can be indirectly influenced by influencing the cost of borrowing using key interest rates.

1.2 Monetary policy rules

There are mainly three important monetary policy rules which have been widely used by many central banks in the world (T. McCallum, 2002; 2008). They are the Taylor Rule (1993), the McCallum rule and the Monetary Policy Reaction Function.

i) Taylor's rule

John Taylor, a Stanford economist, devised the formula (1993). It was intended to give suggestions on how a central bank should adjust short-term interest rates when the market situation change to accomplish both the short-run objective of economic stabilization and the long-run goal of inflation. Taylor rules, according to AthanasiosOrphanides (The New Palgrave Dictionary of Economics, 2008), are simple monetary policy rules that prescribe how a central

bank should adjust its interest rate policy instrument systematically in response to changes in inflation and macroeconomic activity. "John Taylor presented the following guideline to govern monetary policy in 1993:

$$i = r^* + pi + 0.5\,(pi - pi^*) + 0.5\,(y - y^*)$$

Where,

i is the nominal federal funds rate

r* is the "natural" real central bank interest rate (often taken to be 2%)

pi is the rate of inflation

pi* is the target inflation rate (for example, 2%)

y is the logarithm of real output

y* is the logarithm of potential output".

The two fundamental concepts here are to raise interest rates by half the amount that inflation exceeds its target and to lower interest rates by half the amount that real output falls short of its potential. This notion argues that following a good rule of thumb consistently over time is more likely to provide a good result than aggressive monetary policy manipulation. In recent years, it has become widely acknowledged that central banks have given special attention to Taylor Rule variations.

ii)McCallum Rule

The McCallum rule (McCallum, 2002) defines a target for the monetary base (M0) that a central bank might employ. Bennett T. McCallum of Carnegie Mellon University's Tepper School of Business proposed the McCallum rule. It outperforms the well-known Taylor rule under crisis situations. The rule establishes a monetary base objective for the next quarter (about 13 weeks)."The target is:

$$\boldsymbol{m_{t+1} = m_t - \bar{\Delta} v_{t-16} + 1.5(\Delta p_D + \overline{\Delta q}) - 0.5\Delta x_{t-1}}$$

Where;

$\mathbf{m_t}$is logof M_0 at time t (in quarters).

$\bar{\Delta}\mathbf{v_{t-16}}$is the average quarterly increase of the velocity of M_0 over a four-year period from t-16 to t.

$\Delta\mathbf{p_D}$is desired rate of inflation, i.e. the desired quarterly increase in the natural logarithm of the price level.

$\Delta\mathbf{q}$is the long-run average quarterly increase of the natural logarithm of the real GDP.

$\Delta\mathbf{x_{t-1}}$is the quarterly increase of the natural logarithm of the nominal GDP from t-1 to t".

iii) Monetary Policy Reaction Function (MPRF)

The MPRF was designed by Ben Bernanke and Robert H. Frank (as described in Principles of Economics, textbook, 2012) as an alternate model for Taylor rule for regulating the US Fed's

interest rate (i.e. Federal Reserve Bank rate) behaviour. The MPRF, in its most basic form, is an upwardly sloping connection between the real interest rate and the inflation rate. Bernanke and Frank provided the following example of an MPRF (2012). The Taylor rule, the IS curve, and Okun's law all contribute to the MPRF. The MPRF is provided as:

$$r = r^* + g\,(\pi - \pi^*)$$

Where:

r = target real interest rate (or actual real interest rate)

r* = long-run target for the real interest rate

g = constant term (or the slope of the MPRF)

π = actual inflation rate.

π* = long-run target for the inflation rate.

g = is a metric that indicates how much unemployment rises when the central bank raises the real interest rate because it believes inflation is too high and has to be controlled.

The Slope of the MPRF is: 1/g

The MPRF is used in conjunction with the Phillips Curve to assess the consequences of economic policy. In a sticky-price model, this framework depicts the equilibrium values of the unemployment rate and the inflation rate.

1.3 Types of Monetary Policy

Monetary policy has an impact on the economy by first influencing interest rates and then aggregate demand. A rise in the money supply lowers interest rates, boosts investment and aggregate demand, and so raises equilibrium production.

a) **Expansion of money supply or expansionary monetary policy**

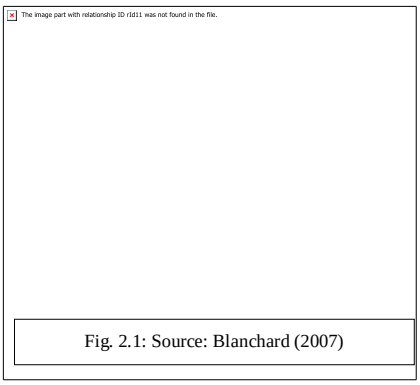


Fig. 2.1: Source: Blanchard (2007)

To stimulate economic activity, an easy or expansionary monetary policy is achieved by reducing statutory bank reserves, lowering key interest rates, and enhancing market liquidity. The IS-LM model may be used to simulate the effects of expansionary and contractionary monetary policy. A rise in the money supply pushes the LM curve to the right, whereas a decrease in the money supply shifts it to the left. Suppose the economy is in grip of recession, and the Government (through its Central Bank) adopts the expansionary monetary policy to lift the economy out of recession. Thus, it takes measures to increase the money supply in the economy. The increase in money supply, state of liquidity preference, or demand for money remaining unchanged, will lead to a fall in the rate of interest. At a lower interest rate, there will be more investment by businessmen. More investment will cause aggregate demand and income to rise. This implies that with expansion in money supply LM curve will shift to the right which is illustrated in figure 2.1 As a result, the economy will move from equilibrium point E to D and with this, the rate of interest will fall from r1 to r2 and national income will

increase from Y1 to Y2. Thus, the IS-LM model shows that expansion in the money supply lowers the interest rate and raises income. It is also called a monetary transmission mechanism, that is, how the IS-LM model shows the expansion in money supply and as it leads to the increase in aggregate demand for goods and services. Therefore, an increase in money supply lowers the rate of interest which then stimulates more investment demand. An increase in investment demand through the multiplier process leads to a greater increase in aggregate demand and national income.

a) Contraction of money supply or contractionary monetary policy

To control inflation, the Central Bank of a country can reduce money supply through open market operations by selling bonds or government securities in the open market and return gets currency funds from those who buy the bonds. In this way, liquidity in the banking system can be reduced. To reduce the money supply for fighting inflation the Central Bank can also raise the cash reserve ratio of the banks.The higher the cash reserve ratio, the more cash the banks must hold with the Central Bank. As a result, banks' cash reserves decline, forcing them to contract credit. The supply of money in the economy decreases as a result of this money. Since 2001, the repo rate and reverse repo rates have been used for controlling the money supply, and the call money rates are used for short-term liquidity adjustment in the money market during the 2post-reform periods. A contractionary or restrictive monetary policy restricts liquidity and raises interest rates, which harms both production and consumption and, as a result, economic growth. Thus, the IS-LM model may be used to demonstrate that a decrease in money supply causes a leftward shift in the LM curve, resulting in an increase in interest rates and a decrease in income level. Figure 2.2 shows how an increase in interest rates reduces investment and consumer demand while also helping to manage inflation.

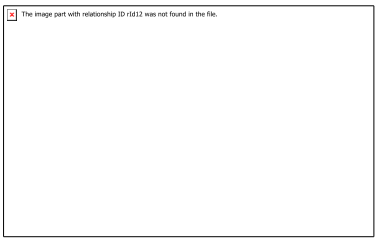


Fig.2.2: Source: Blanchard (2007)

2. Monetary policy and bank profitability

Understanding the link between interest rates and bank profitability is important for evaluating the effect of the monetary policy strategies – as captured by the interest rate structure and the level of bond rates (long-term rates)on the soundness of the financial sector. While monetary policy is not, of course, the only influence on the interest rate structure, it has a major impact on it. The central bank sets the short-term rate and influences long-term rates through direct purchases of securities and by guiding market participants' expectations about the short-term rate. However, such strategies came into force due to the underlying link between monetary policy and bank profitability which has gained prominence following the Great Financial Crisis. There is widespread agreement that central banks' aggressive response at the early stages of the crisis was critical but in recent years, concerns have been growing that the long-term net benefits of prolonged monetary accommodation might be declining due to its side effects (see, e.g. Dale, 2012;Plosser, 2012; Praet, 2012; Rajan, 2013; Bank for International Settlements, 2012). One such side effect is the negative effect of a low-interest rate structure on bank profitability and hence on the soundness of the banking sector. This issue is especially relevant considering that, in some cases such as the European banking sector, bank profitability is below the cost of raising capital, affecting negatively the prices of banks in the stock markets. This low profitability is due to several reasons such as the high volume of non-

performing assets, regulatory requirements, competition from *fintech*and *bigtech*[4] and outstanding pressure of low-interest rates on the net interest margin.

Interestingly, while central banks are the financial environment creators and protect the interest of market participants through monetary policy decisions, banks arealso risk-averse economic agents who seek to maximize profits from the financialintermediation process and functions (Ho & Saunders, 1981; Maudos& De Guevara,2004). Intuitively, the survival and continued existence of banksare achieved through the profits or gains that banks earn through their intermediation functions as supported by the going concern accounting principle.

In practice, banks use the monetary policy rate set by the central bank monetary policy committee to gauge the pricing of the loans and deposits.Following the financial intermediation theory (or dealership theory), banks set loan prices above the monetary policy rate and set deposit prices below the monetary policy rate (Amuakwa-Mensah&Marbuah, 2015; Aboagye et al., 2008; Maudos&De Guevara, 2004).Thus, banks in their bid to maximize profit take advantage of the monetary policy rate in theloans and deposits markets to earn the spread or markup. Simply put, the monetary policy rate is the rate at which the central bank lends to banks and hence to make a profit, banks must set their loan and deposit prices above and below the monetary policy rate, respectively.From the above, several studies (Borio et al., 2017; Altavilla et al., 2018; Aydemir andOvenc, 2016; Genay, 2014; Hancock, 1985a, b; Flannery, 1981) have investigated the relationship between monetary policy and bank profitability mostly in Europe, America andAsia. It is worthwhile to mention that prior studies on monetary policy focus on its effects on bank credit, lending and lending behavior (Amidu, 2006; Amidu and Wolfe,2008; Zulkhibri, 2013), and no indication of how it affects banking profitability.Interestingly, while prior studies (Loayza and Pennings, 2020; Mirzaei et al., 2013; Hancock,1985a, b) show that financial structure and system characteristics vary widely across advanced economies, such findings obtained from advanced economies may beless relevant and applicable in the context of a developing economy like India. Interestingly, Loayza and Pennings (2020) show that the financial structure and systems of developing economies have shallow financial markets, poorer regulatory andgovernance regimes, and constrained fiscal space which translates into lower efficiency andeffectiveness of monetary policy stimulus compared to the financial structure and systems ofadvanced economies. Such loops in the management system have bearing over performance and thereby profitability.

Furthermore, the study by Zimmermann (2019) stated that the link between monetary policy and banking profitability is state-dependent when examiningmonetary policy and profitability across 17 economies, implying that results and implicationsof monetary policy and banking profits vary across states or countries. Furthermore, prior empirical studies (Loayza&Pennings, 2020; Mishra et al., 2014;Mirzaei et al., 2013) shows that monetary policy decision transmissions may be slow, small andineffective in emerging and developing economies due to shallow financial systems, poorregulator systems and weak governance, it provides a strong indication on why the effect of monetary policy and banking profitability should be studied in the Indian context where prior studies (Amidu and Wolfe, 2008; Amidu, 2006) have largely ignored the effect ofmonetary policy on banking profitability. All of these point to the difference in financial systemsacross advanced and emerging economies, which influence the monetary policy decisionoutcomes in these economies. Additionally, with the limited and scanty empirical literature on monetary policy studies in developing economies like India, the need to have a study on howmonetary policy influences

[4]Financial technology (abbreviated fintech or FinTech) is the technology and innovation aimed at competing with established financial techniques in the supply of financial services. Big Technological (abbreviated as bigtech or BigTech) refers to the most prolific and profitable technology enterprises in today's industry.

banking profitability and more specifically value creation is further heightened or necessitated. The findings of the studies from advanced countries may have less relevance and applicability in India due to differences in different factors indicated previously.

Generally, from the reviewed literature, we found blended findings on the relationship between monetary policy and the performance of banks, where the majority of studies show a positive relationship and some other findings indicate a negative relationship between the said variables. Further, a few studies also found no association among the discussed variables. The mix in the findings is due to several reasons, one of the most important factors is the nature of economies where such studies were conducted apart from the size and phase of economies like emerging, developing, and developed. The results of such studies were separated based on their findings, which are provided in the following section.

2.1 Positive Relationship between Monetary Policy and Bank Profitability

Recent examples from this strand of literature include a large number of works that show a positive relationship between the short-term and long-term interest rates and bank profitability in majority of the countries across the globe. However, the nature of such monetary policies has remained either contractionary or expansionary. The contractionary policy focuses on the increase in interest rates (short term and long term) which contracts the money supply in the economy, while, the expansionary policy represents low-interest rates which boosts money flow in the economy. The studies that found positive relationships in both cases are discussed herewith.

Albertazzi and Gambacorta (2009) used aggregate data for the banking sector in 10 OECD[5] countries and found a significant positive relationship between monetary policyand net interest income (NII). These findings were supported by Bolt et.al., (2012) using bank-level data and allowing for asymmetrical effects over the business cycle. The results were also in favor of the findings of Cruz-Garcia et al. (2019) who took 32 OECD countries into their studyand found a positive and non-linear relationship between interest rates and bank profitability. However, the effect of the flattering of the yield curve (bond rates) is less economically significant than that of the impact of interest rates on net interest margins. Angori et al. (2019) analyzed the impact of interest rates and the slope of the yield curve on net interest margins in the euro areaand found a positive and non-linear relationship between them. Further, English (2002) stated that the bond rates affect the fund based profitability significantly and positivelythrough a conventional vision. In the same vein, Altavillaet. al., (2018) found a positive effect of interest rates on non-interest income and provisions. Furthermore, Borioet. al., (2017) also found a positive effect of both the level of short-term interest rates and bond rates on bank profitability for a sample of 14 advanced economies. These authors also analyze the possible non-linear relationship between the monetary policy and bank performance, finding that the effects on net interest margins are much stronger at lower levels of interest rates and where there is a flatter yield term structure.

In addition, the results regarding the effect of monetary policy on the different components of bank profitability are also analyzed, showing that the effect on net interest income offsets the effect on non-interest income and provisions. Pérez and Ferrer (2018) study the effects of these two variables on bank profits and balance sheet structure in Spain during the 2000–2016 period, finding a positive non-linear relationship between interest rates and profit measures, especially the

[5]The Organisation for Economic Co-operation and Development (OECD; French: Organisation de Coopérationet de DéveloppementÉconomiques, OCDE) is a 38-member international economic organisation formed in 1961 to promote economic advancement and global commerce. It is a forum of nations that describe themselves as devoted to democracy and the market economy, and it provides a platform for its members to share policy experiences, seek solutions to common challenges, identify good practises, and coordinate domestic and international policies.

net interest income. These results are in line with those obtained by Borio et al. (2017). In terms of long-run associations, Alessandri and Nelson (2015) found that the long-term relationship between monetary policy and profitability is positive in the case of the United Kingdom. The same type of investigation conducted in the German banking system by Busch and Memmel (2015) demonstratesthat banks' net interest income benefits in the long-term horizon from interest rate increases. Aydemir and Ovenc (2016) found the same results for the Turkish banking system from 2002 to 2014, that the relationship between both the short-term interest rate, the slope of the yield curve,and bank performance is positive in the longrun.

Another strand was added to the literature discussed above in terms of the relationship between low or negative monetary policy and bank profitability. Weistroffer (2013) studied the case of Japan in which ultra-low interest rates were prevailing and stated that banks have been able to survive ultra-low interest rates for a long period, but they faced a severe decline in the net interest income and pressures to reduce costs. The loss of profitability was compensated by lending to the domestic sovereign[6] and expanding credit abroad, without assuming excessive credit risk. Genay and Podjasek (2014) studied the effect of the interest rate level and the slope of the yield curve on profitability in the United States, finding that a low-interest rates scenario is associated with decreases in bank profitability in the shortterm, although in the long term a boosted economic activity could compensate for this effect.

Sääskilahti (2018) analyzes the relationship between low-interest rates and retail bank interest margins in the Finnish retail banking market, allowing for non-linearities and finding that the market interest rates are positively related to the net interest margins of both new operations and stock of operations. Claessens et al. (2018) supported the above findings by obtaining strong evidence of the negative impact of low-interest rates and the flattening of the yield curve on net interest margin and profitability. Such findings were further supported by the findings of Arce et al. (2018) stating that those banks whose net interest income is adversely affected by negative rates are lowly capitalized and take less risk. However, no differences in banks' credit supply are found. In the same vein, Bikker and Vervliet (2018) found that low short-term interest rates compress net interest margins and reduce the levels of credit loss provisions for the United States banking sector, being the effect non-linear. The effect on net interest income offsets the effect on provisions. Molyneuxet. al. (2019) investigate the influence of negative interest rate policy on bank net interest margins and profitability for a dataset of banks from 33 OECD countries. These authors found that bank margins and profits fell in NIRP[7] adopter countries compared to countries that did not adopt the policy.

Further, Claessens et al. (2016) found a positive impact of the interest rate level on the NIM for the period of low than for the period of high interest rates. Even more pronounced differences between high (normal) and low interest rate environment have been identified for Slovenia - during a period of normal interest rates (defined as a 3-month money market rate above 1%) the interest rate has a negative effect on the NIM: the higher the interest rate, the lower the NIM recorded by banks. With the changeover to a period of low interest rates, this relationship reverses: banks can generate a higher NIM when the interest rate is higher. Following the hypothesis advanced by Samuelson (1945), known as the 'Samuelson effect', changes in interest rates affect bank performance, and more specifically profitability, via their effect on bank's interest margins. In other words, when

[6]Domestic sovereign refers to bonds that can be issued in the government's domestic currency or in a foreign currency.

[7]NIRP acronym for negative interest rate policy. It is intended to incentivize banks to lend money more freely and businesses and individuals to invest, lend, and spend money rather than pay a fee to keep it safe.

interest rates are very low, banks' revenues from loans decline, while banks' interest expenses from saving deposits do not decrease to the same extent, because banks' portfolios consist primarily of demand and transaction deposits. Some works of the related previous literature, most of them mentioned above, deal with the effects of a low interest rate environment on bank profitability just for a specific country: Weistroffer (2013) for the Japanese case, Genay and Podjasek (2014) and Bikker and Vervliet (2018) for the United States, Alessandri and Nelson (2015) for the United Kingdom, Busch and Memmel (2015) and Entrop et al. (2015) for Germany, Ahtik et al. (2016) for the case of Slovenia, Sääskilahti (2018) for Finland, Aydemir and Ovenc (2016) for Turkey, Pérez and Ferrer (2018) for Spain.

2.2 The negative relationshipbetween monetary policy and bank profitability

While we identify a significant direct proportionality between the policy rate and bank performance in the former section, consequently, this link is found to have inverse outcomes as well and is stated in the present section. A study conducted in US federal banking environment stated interest payment on reserves exceeded the policy rate, except for a few quarters, and as a result, banks did not expand lending, instead, held large amounts of excess reserves. This practice produced greater bank profitability and reduced bank liquidity risk and credit risk, without increasing systemic risk. In contrast, upsurges in rates raised bank costs and increased bank distress due to the negative effect of such policy in long run (Akcay&Elyasiani, 2021). However, in the short run,Alessandri and Nelson (2015) state that increases in market rates compress interest margins due to the presence of loan pricing frictions. Aydemir and Ovenc (2016) also found that the relationship between both the short-term interest rate and the slope of the yield curve with profits is negative in the short-run for the Turkish banking system during 2002–2014. These findings were further supported by Kohlscheen et al. (2018), who found that higher short-term interest rates reduce profitability by raising funding costs in 19 emerging market economies.Banarjeeet. al., (2015) found a negative significant impact during the crisis period.

2.3 No relationship between monetary policy and bank profitability

A few studies in the literature were found in contrast with the above studies, stating no significant relationship between monetary policy and bank profitability. English (2002) finds no evidence of the existence of any effect of interest rates or the slope of the yield curve on net interest margin for many countries (Australia, Canada, Germany, Italy, Japan, Norway, Sweden, Switzerland and the United Kingdom).Scheiber et al. (2016) analyzed the case of Denmark, Sweden and Switzerland, the risks of side effects of the negative interest rates on bank profitability and particularly on net interest income. These authors conclude that negative interest rates have not resulted in a significant reduction of net interest income so far, since the decline in interest income has been compensated for by declines in interest expenses. Similar resultswere found by Turk Ariss (2016) in the case of Denmark and Sweden. Altavilla et al. (2018) study a panel of European banks, revealing no evidence of any significant effect of interest rates on profitability when controlling for current and expected macroeconomic conditions. However, they find a positive effect of interest rates on the non-interest income and provisions. The studies by Dietrich and Wanzenried (2011) for Switzerland and van Ommeren (2011) for a sample of 12 European countries did not find a statistically significant effect of interest rates or the yield curve on banks' NIM.In 2017, Berger and Bouwman found that monetary policy has statistical significance concerning bank profitability, however, economically minor effects on liquidity creation were found during normal times by small banks and these effects are even weaker during financial crises. They further added that monetary policy has very little effect on medium and large banks' liquidity creation during both normal and crisis periods.

3. Monetary Policy and bank performance amid financial constraints

Other different factors that affect the relationship between monetary policy and bank profitability were also taken into consideration while reviewing the literature. Results supported the argument that the beneficial effects of accommodative ECB monetary policy on euro-area banks' risk profile outweigh any negative sideeffects, highlighting the significance of the risk profile of banks (Soenen&Vennet, 2022).Banerjee, et al. (2015) found that low-interest rates had a significant impact on the NIM during the non-crisis period.The researchers provided evidence that the bank lending decisions and performance of eurozone banks are not unconventional monetary policy (UMP)[8] driven, implying the limited ability of the ECB to enhance the effectiveness of banks' lending channels and to affect banks' profitability during the crisis.Apart from this, they also revealed a significant impact of banks' loan loss provisions on profitability.Olatunji and Ekpenyong (2013) analyzed the relationship between monetary policy and the balance of payments in Nigeria. The results indicate that monetary policy instruments have a positive relationship with the balance of payment position of the country. In the same vein, the study by Ajayi and Atanda, (2012) evaluating the impact of monetary policy on bank performance in Nigeria indicates that monetary policy instruments are not effective to stimulate credit in the long-run, and that bank rate, inflation rate, and exchange rate are positively related to banks credit, but liquidity ratio and cash reserves ratio is negatively related to a total credit of the banks. The study was carried out between the periods 1978 and 2008, and Engle-granger two-step co-integration approach was employed.Amassoma, Wosaand Olaiya (2011) also analyzed the impact of monetary policy on macroeconomic variables in Nigeria for the period of 23 years from1986 to 2009, they found that monetary policy has a significant effect on the exchange rate, but it was insignificant in its effect on price instability. It was further concluded with a recommendation that there is a need to align fiscal policy with monetary policy to maximize the growth potential of monetary policies. Similarly, Hancock (1985) shows that an increase in interest rates boosts bank profitability, as lending rate elasticity is larger than the deposit rate elasticity. Trying to bridge a link between UMPs and interest margins is imperative to understanding the effect of the non-standard monetary policies on the lending interest rates that banks charge borrowers.

It is established in the literature that UMPs, particularly via LSAPs, decrease long term interest rates and thus decrease the difference between the federal fund rate (deposit interest rate) and lending interest rates (Gagnon et al., 2011; Swanson, 2011; Krishnamurthy &Jorgensen, 2011; Fawley& Neely, 2013; Bauer&Rudebusch, 2013). Therefore, due to the documented larger elasticity of the lending rate compared to the deposit rate (Hancock, 1985), the reduction of lending interest rates could consequently lead to a faster decrease in revenues than interest expenses arising from deposits. This in turn would depress net interest margins and affect negatively bank performance. Banerjee et al. (2015) showed that the banks' risk tolerance is a principal factor influencing long-term loan credit standards. It was also identified that the spread of the COVID-19 pandemic has a statistically significant negative effect on banking sector credit risk, financial distress, banking sector profitability, and solvency. Furthermore, after analyzing the euro area banking sector, we found that liquidity increased. Hence, it means that banks have enough funds to support sustainable economic growth, but on the other side, Teresienė, staniulėnienė and Kanapickienė (2021) in their study revealed that commercial banks do not want to take credit risk because of their risk tolerance. The

[8]A non-standard monetary policy—or unconventional monetary policy—is a tool used by a central bank or other monetary authority that falls out of line with traditional measures.

findings showed the mixed effect of the COVID-19 pandemic on financial stability: while the overall financial distress decreased and banking sector liquidity increased, the profitability and solvency decreased to some extent.

Surprisingly, the link between monetary policy and bank profitability is an under-researched area across the developing countries in general and in India in particular. From the aforesaid studies, the literature predominantly reports a positive relationship between the monetary policy rate and bank profitability. The relationship between monetary policy and bank profitability has largely shown a significant positive association, however, some studies as mentioned above indicated a negative relationship between the said variables, while a few studies stated no significant impact of monetary policy on bank profitability as well. In addition to this, some studies show a bi-directional impact of monetary policy on the performance of banks. The majority of the studies indicate a positive relationship between the variables of interest, while some other studies found a negative nexus between them, such mixed results were observed in long run as well as in the short run respectively.

4. Bank performance and its measures

The performance of a bank can be interpreted in terms of the overall profitability of the bank. Profitability can be defined as the bank's ability to reap profits from all the business activities of the concern. It is related to the efficiency of the bank and shows how optimally the management of banks can make profits by using all the available resources in the market. According to Harward and Upton (1991) profitability is related to the utilization of investment to earn returns. However, it should be noted that profitability is not synonymous withthe term efficiency, rather is regarded as a measure of efficiency and the guide to appraising the performance of banks. Prior literature has used different proxies for measuring profitability. For instance, studies like Alemu (2105) and Athanasoglou, Brissimis, and Delis (2008) typically measured performance by return on assets (ROA), Bahiru (2014) and Systems (2013) used return on equity (ROE), while as, studies like Prayudi (2010) and Systems (2013) used net interest margins (NIM), profit after tax (PAT), earnings per share (EPS) and level of NPAs to measure the performance of banks. However, ROA and NIM are the most widely used measures of bank performance.

It may be noted that for any bank, ROA mainly depends upon banks' policy and the general factors related to the economy of the particular country and the regulations of the government. From the literature, it can be found that researchers regarded ROA as the best measure of bank performance (see, for example, Alemu, 2015; Hassan & Bashir, 2003; Systems, 2013 among others) because ROA represents the ability of banks to generate returns on its assets portfolio (Rivard& Thomas 1997). On the other hand, some studies have taken NIM as a performance indicator as this ratio measures the disparity between the interest earnings generated by the bank and the amount of interest expended on its depositors. This variable is defined as the amount of net interest income earned divided by the total earnings of the banks. This ratio provides relevant information about the operational efficiency of banks.Ahmad et.al, (2009) and Abdioglu and Buyuksalvarci (2011) used net interest margin as the measure of performance evaluation of banks. Other studies that included net interest margin as the measure of performance include Awadhi &Hamdi (2012), Bahiru (2014), Demirguc-Kunt& Huizinga (1999), Elizabeth &Ellot (2004), Gul et al., (2011), Goldberg et.al, (1996), Romdhane (2012), Smirlock& Michael (1985) and Yu et al., (2005).

However, Ithas been argued that these traditional accrual based earning measures are often incompetent, manipulativeand misleadinginexplainingvaluecreation(Armitage,Wong&Douglas,1995; Kaur&Naratng,2009; Palliam,2006).Such measures do not properly reflect risk and therefore reinforce behavior that is either too aggressive (that is, aims to maximize earnings) or too conservative (aims to prevent

dilution of returns). While the incremental ROE of each individual loan can be used as a clear economic signal for decision-making as well as the EVA, it is not realistic to expect that the incremental ROE for each loan can be calculated and used for *ex-post* performance measurement (Dennis, Uyemura, Charles Kantor, and Pettit, Stern Stewart & Co, 1996). Therefore, this study utilizes economic value added (EVA) as the proxy for value creation. The emergence, concept and scope of economic value added (EVA) are explained in the following sections.

4.1 Emergence of economic value added (EVA) as a measure of value creation

In 1990s, Stern Stewart & Company came out with a new metric "Economic Value Added (EVA)" that, according to them, drives stock prices, creates wealth, and can explain the changes in shareholder value in a better possible way than other traditional performance measures (Stewart,1994). They claim EVA is the performance measure that comes closer to measuring the true economic profitability of a company and is directly linked to the shareholders' value. In empirical evidence by Stewart (1994), it was amplified that EVA is about 50% better than traditional earning-based measures in explaining changes in shareholders' value on a contemporaneous basis. It is against this backdrop, that scholars have devoted considerable time and effort to the investigation of the claim, of whether EVA is a better measure to explain market value added (MVA) than traditional learning-based measures. However, the empirical literature debating which measure of performance is superior in explaining the MVA creation offers conflicting findings (Anderson, Bey& Weaver, 2004; Athanassakos, 2007; Awan, Siddique&Sarwar, 2014; Hasani&Fathi, 2012; Kaur&Narang, 2009; Largani&Fathi, 2012; Palliam, 2006; Shen, Zou& Chen, 2015).These conflicting findings have resulted in the creation of two distinct camps; one camp belongs to those researchers who argue that EVA dominates traditional earning-based measures in explaining MVA (See e.g., Ahmed, 2015; Awan et al., 2014; Bhatnagar, Bhatnagar& Bhatia, 2004; Feltham, Issac, Mbagwu&Vaidyanathan, 2004; Medeiros,2005; Parvaei&Farhadi, 2013; Sparling &Turvey, 2003; Tortella&Brusco, 2003). Contrary to this, the other camp belongs to those researchers who found traditional earning-based measures to dominate EVA in explaining MVA (See e.g., Kaur&Narang, 2009; Mangala&Joura, 2002; Pandya, 2014; Peixoto, 2002; Ramadan, 2016; Ramana, 2007; Sharma& Kumar,2010; Sharma & Kumar, 2012; Venkateshwarlu& Kumar, 2004).

In addition, these studies have been mostly focused on samples from developed nations. Concerning the emerging Indian market, fewer studies have examined the premises as to which metric is superior in explaining MVA. Further, the studies conducted in Indian markets predominantly found EVA as a better metric than other earning based metrics, for instance, Kukreja and Giridhar (2005), Mangala and Joura (2002), Singh and Garg (2004) and Singhand Mehta (2012), found EVA to be a superior metric than traditional measures in explaining MVA.

4.2 Basic concept of economic value added (EVA)

Economic Value Added (EVA) is the difference between an enterprise's net profit after tax and the entire cost of capital spent in the enterprise's operation over a certain period (Sabol and Sverer, 2017). It is not a new notion, but rather an extension of residual income and economic profit that symbolizes the potential to create business value (Sharma and Kumar, 2010). The EVA is positive when the firm's post-tax net operational profit exceeds the entire capital cost of the investment, and the value generated by the company increases the shareholder's wealth (Sabol and Sverer, 2017). On the other hand, the EVA is negative, the operating revenue is insufficient to pay all capital expenses of the company, including debt and equity capital costs, resulting in a decrease in shareholder wealth. (Mamun and Mansor, 2012).

The formula for EVA can be expressed as:

$$EVA_t = NOPAT_t - WACC_t \times TC_t$$

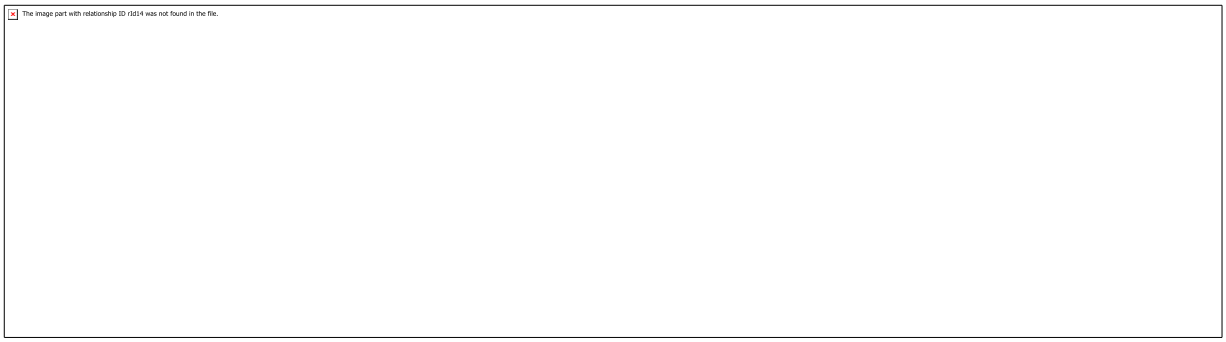
NOPAT, WACC, and TC are the three basic components of EVA. NOPAT denotes the enterprise's net profit after tax operation, that is, the total of net profit after tax and interest expenditure, which represents the company's profitability after the capital structure is eliminated (Sharma & Kumar, 2010). All net operating profit after tax calculation elements might be acquired from the company's financial statements. The residual portion after deducting the expenditures and expenses incurred throughout the manufacturing and operation processes, as well as the income tax, is the company's operational income (Mamun&Mansor, 2012). As a result, NOPAT might be interpreted as the true profitability of the company's assets. The weighted average cost of capital (WACC) is the average unit cost computed by dividing the total cost of capital by the weight of debt and equity costs. The assessment of the cost of equity capital is the essential difficulty in computing WACC (Jakub et al, 2015). The Capital Asset Pricing Model (CAMP) is the most extensively utilised (Sabol&Sverer, 2017). TC denotes the company's total invested capital, which includes both debt and equity capital (Sabol&Sverer, 2017). Debt capital, for example, refers to short- and long-term loans made by creditors other than commercial obligations such as accounts payable, notes payable, and other payables (Jakub et al, 2015). The cost of equity is made up of common stock and the equity of minority shareholders. Implementing Figge and Hahn's (2004, 2005) model, which concludes that the return on resources must pay the cost of these resources, might yield economic value. The cost of capital of a corporation is used to calculate how much value a company has produced after deducting its cost of capital. As noted before, the value that surpasses a company's capital is its economic value added. The next stage is to determine whether there is a positive relationship between shareholder value and overall bank value. The relationship is established by a correlation study of the main metrics EVA, WACC, and ROE. EVA is used to determine the performance of a financial institution.

According to Fiordelisi and Molyneux's (Fiordelisi and Molyneux, 2010) hypothesis, a variety of factors influencing shareholder value in European banks are examined. According to this, a chart of value drivers that effect shareholder value may be drawn, as illustrated in fig. 2.3. The model clearly shows that the cost-income ratio, which is defined as operational expenditures divided by net interest income, is a key driver. Furthermore, deducting taxes, operational expenses, and loan loss provisions from net interest income allows for the calculation of net income and, as indicated in the residual income model, return on equity, which is a significant driver in bank valuation models (Koller, Goedhart, &Wessels, 2010). The cost-to-income ratio, as illustrated in Fig. 2.3, incorporates the business's operational expenses in relation to net interest income. The capital ratio, which illustrates the equity required for the assets outstanding, indicates the proportional proportion of equity needed to fund a company's assets. The cost of equity is determined by the asset-liability mix, whereas growth reflects an increase in assets and liabilities. Loan losses in this situation refer to predicted future losses on outstanding loans.

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 profits subtracted from its capital charge over the same period. To affect the EVA banks have three bottoms to push: net operating profit, the opportunity cost of capital, and invested capital. According to Visali, Roxburgh, Daruvala, Dietz, Lund, &Marrs (2011) general view on shareholder value creation, the core driver in banks is economic profit, where ROE and cost of equity are the main drivers in determining shareholder value. Revenue growth is the most common value driver toVisali, Roxburgh, Daruvala, Dietz, Lund, &Marrs (2011). What is more Visali, Roxburgh, Daruvala, Dietz, Lund, &Marrs (2011) represented the main key performance indicators that will build the view of achieving shareholder value.

(Fig. 2.3: Value creation and its elements)

According to Visali, Roxburgh, Daruvala, Dietz, Lund, and Marrs (2011), revenues, cost-income ratio, taxes a firm must pay, risk-weighted assets, which are bank assets or exposures outside the balance sheet, and tangible common equity (TCE) refer to the subset of equity that is not preferred capital and non-intangible assets are all risk-weighted. The TCE is a seldom used metric for assessing a company's



financial position. It denotes how much common stock holders would get if a firm liquidates.

4.3 EVA or traditional measures: A review

Stern, Stewart and Company (Stewart, 1991; Stern et al., 1995) claims to have invented (and trademarked) the EVA metric to enhance the way firms analyse everything from corporate strategy to divisional performance. Scholars have vigorously contested the efficacy of EVA as a performance indicator for explaining MVA, but the findings have been equivocal. Much of this discussion has concentrated on whether EVA is a better statistic for determining a company's worth than standard accrual-based earnings measurements (Anderson et al., 2004). EVA and MVA are said to be intrinsically related since MVA represents the current value of future EVA (Ehrbar, 1999). Corporate management' heightened interest in EVA and MVA reflects their worries about creating value for shareholders. Managers and academicians have been focusing on discovering which statistic best describes the MVA in the effort to increase shareholder value (Lehn &Makhija, 1996; Serra et al., 2011; Visaltanachoti, Luo& Yi, 2008). Stern Stewart & Co. (1996) supported this thesis by stating the correlation of MVA with all performance measurements; they discovered that EVA is substantially connected with MVA, indicating that it is a superior performance indicator than other standard metrics (see, fig. 2.4).As a result, the findings of empirical investigations present two distinct perspectives. One perspective belongs to researchers who discovered EVA overwhelming the earning-based metrics in explaining MVA (See e.g., Ahmed, 2015; Awan et al., 2014; Bhatnagar et al., 2004; Kukreja&Giridhar, 2005; Medeiros, 2005; Parvaei&Farhadi, 2013; Singh &Garg, 2004; Singh & Mehta, 2012; Tortella&Brusco 2003). In contrast, the second thought belongs to the researchers who discovered that earnings measurements outperform EVA in explaining MVA (See e.g., Kaur&Narang, 2009; Pandya, 2014; Peixoto, 2002; Poornima et al., 2015; Ramadan, 2016; Ramana, 2007; Sharma & Kumar, 2010; Sharma & Kumar,2012; Venkateshwarlu& Kumar, 2004).

(Fig.24: Source: Stern Stewart & Co, 1996)

Traditional earning-based performance indicators of company performance lag EVA for the following reasons, according to the research. Earnings-based measurements do not account for the cost of equity and solely show a company's interest costs. As a result, determining whether the company adds value for shareholders becomes challenging (Visaltanachoti et al., 2008). EVA considers all information in the income and position statement, providing a comprehensive picture of profits earned and the expenditures connected with their development (Young &O'byrne, 2001). It is easier for a company to convey its performance using a single metric rather than multiple (Dierks& Patel, 1997). Adopting a single metric by companies directs an organisation toward an unified objective and tends to decrease disputes originating from messages conveyed by diverse performance measurements. Companies that have implemented EVA as an essential component of management control systems (Chen & Dodd, 2002), internal performance metrics, and the foundation for incentives have witnessed considerable improvements in investment, financing, and operational operations, which tends to boost shareholder value (Kleiman, 1999). Furthermore, the association between wages and MVA is low, but the link between stick returns and EVA is strong (Chen & Dodd, 1997; Lehn &Makhija, 1996).

This is where much of the management accounting literature concentrates. For example, O'Hanlon and Peasnell (1998) and Sheikholeslami (2001) look at EVA as a way to reward divisions within the corporation that provide a good EVA. EVA is also used to forecast the performance of the stock market and make investment decisions. Freedman (1998), Garvey and Milbourn (2000), Farsio et al. (2002), and Griffiths (2004) are among the papers in this field (2006). Stern et al. have created a database that evaluates US corporations based on EVA and other metrics to help investors make investment decisions. Stoughton and Zechner (2007) lay the economic groundwork for EVA by establishing a theoretical model of optimum capital allocation with asymmetric knowledge and applying it to a multi-divisional organization in which managers are evaluated based on the value they bring to the firm.

The London Business School (LBS) and First Consulting define value added as:

[(adjusted operating profits less a charge for shareholder equity)/ (factor inputs)]

Data from 25 European banks collected between 1987 and 1990 demonstrate that just five provide value added in an average year. Kay (1993) evaluates 11 European banks using a similar criterion, with eight demonstrating positive value contributed. Boyd and Gertler (1994) use definitions and data from the US national income accounts from 1947 to 1987 to examine value contributed in the banking industry as a percentage of total value added by all financial intermediaries. Banks' percentage of value contributed increased somewhat over time. Using EVA, Fiordelisi (2007) creates a shareholder value efficiency frontier. He concludes that it is superior to either relative cost or profit efficiency metrics of performance based on data from France, Germany, Italy, and the United Kingdom (1997-2007). Banks from these nations are 36 percent value inefficient on average. Millar (2005) is the sole research that compares EVA to the more well-known performance indicators, ROAA and ROAE, for 16 British banks from 1998 to 2003. He is referring to the LBS definition of EVA. Millar discovers that, on average, UK banks increase value over this time, which may be owing to low 10-year government bond rates and a period of relatively good economic development in the UK, which bolstered bank earnings.Millar's Generalized Least Square (GLS) regressions using panel data and a Fixed Effects (FE) model show that when EVA is used as the dependent variable, it outperforms both ROAA and ROAE. The traditional measurements have far lower t-ratios, and their overall fit (as evaluated by adjusted R2) is only slightly better - 99 percent vs 94 percent for the EVA equation. Furthermore, using EVA as the dependent variable, inflation, real GDP growth, unemployment, and the output gap are shown to be significant with the predicted signals, but in the ROAA/ROAE regressions, no macro indicator has any explanatory power. Thus, bank performance looks to increase in a low-inflationary environment with a

zero output gap (on average), declining employment, and rising GDP growth rates. The financial ratios that perform best in all calculations are the cost-to-income ratio (a considerably negative coefficient) and NIMs (positive and considerable). Although the increase in the number of branches improves performance, the capital adequacy coefficient is notably negative. In the ROAA/ROAE regressions, the size coefficient, evaluated by total assets, is considerably negative, indicating that smaller banks perform better.

The Economic Value Added (EVA) could make up for the shortcomings of traditional performance evaluation indicators and meet the management objectives of banking industry on maximizing shareholder value. EVA is considered as one of the innovations with a long-standing pedigree in conventional management accounting thought but also assumes wider societal relevance (Chiwamit et al., 2014, p145). EVA measures the added value of corporate wealth. It has been registered to form a financial management system, incentive system and decision-making mechanism led by the concept of economic value added (Stewart 1991). EVA is defined by Stewart (1991) as "the difference between the profits each unit makes from its operations (NOPAT) and the charge for capital that each unit incurs via the utilisation of its credit line." Unlike traditional performance statistics like as ROA and ROE, EVA looks at the company's residual profit, or the net value after subtracting the direct cost of borrowed capital and the indirect cost of equity capital (Sabol and Sverer, 2017).

This reflects the core of economic profit. Furthermore, EVA redefines the firm's profit from the standpoint of shareholders, taking into account the cost of all capital spent by the company (including equity capital), which is nearly identical to the criteria of maximising shareholder wealth. Furthermore, in order to calculate EVA, the organisation must correct the financial information that business managers may falsify, bringing the EVA indications closer to the enterprise's true performance (Mamun&Mansor, 2012). Furthermore, the use of EVA might construct an effective incentive compensation structure, integrating operating success with EVA to eliminate agency difficulties and encourage managers to focus only on the company's capital appreciation and long-term economic advantages (Worthington & West 2001; Fatimi et al, 2003).As a result, we contend that the application of EVA has the potential to align managerial interests and incentives with shareholder desires (Sabol&Sverer, 2017; Chiwamit et al., 2014; Bouwens&Spekle, 2007).

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