META ANALYSIS ON THE DETERMINANTS OF COMMERCIAL BANK'S PROFITABILITY: (A CONCEPTUAL FRAME WORK AND MODELLING)

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Abstract

The purpose of this paper is to review the determinants of commercial banks' profitability and to compare or combine results across sets of similar studies and contrasting the significant deviations in those findings by different scholars and to suggest a comprehensive model that incorporates macroeconomic, industry-specific and bank-specific determinants of commercial banks profitability. To achieve these objectives the paper has been designed to gleaned data from various national and international journal articles together with the basic theories relating to the determinants of commercial bank's profitability irrespective of countries or economic level in which the banks are operating.

Most of the research works so far, either in developed or developing counties, regarding the determinants of commercial banks profitability, comes across divergent results with the application of different models (i.e. pooled ordinary least square is mostly commonly applied by scholars in those countries). However, in finance the distribution of the data is often heavy-tailed and skewed with numerous large outliers, which violate the assumptions of classical linear regression. The variables investigated across studies have got uncommon concern by scholars. Most of the scholars used the traditional accounting measures for analysis towards determinants of banks' profitability; ROA and ROE   using multiple linear regression models. Economic measures of profitability are not used due to the lack of data and because the disclosed parameters are subject to internal policies and assessments which cannot be generalized or validated.

I recommend the mixed research approach and panel data with the GMM model estimator   and the inclusion of all banks specific, industry/sector specific and macro economic factors to better understand the determinants of

the variations in the performance of commercial banks irrespective of the level of economic development.

1. Introduction

The main role of a financial system is to lubricate the gears facilitating the economic operations. The banking system plays a major role in transferring funds from the saving units to the investing units. If a financial system is efficient, it should show improvements in profitability, increasing the volume of funds flowing from saver to borrowers, and better quality services for consumers. The financial intermediation provided by the banking sector supports economic acceleration by converting deposits into productive investments (Levine et al., 2000).

A bank is a financial institution that provides banking and other financial services to their customers. A bank is generally understood as an institution which provides fundamental banking services such as accepting deposits and providing loans. There are also nonbanking institutions that provide certain banking services without meeting the legal definition of a bank. Banks are a subset of the financial services industry.

All the banks safeguard the money and valuables and provide loans, credit, and payment services, such as checking accounts, money orders, and cashier's cheques. The banks also offer investment and insurance products. As a variety of models for cooperation and integration among finance industries have emerged, some of the traditional distinctions between banks, insurance companies, and securities firms have diminished. In spite of these changes, banks continue to maintain and perform their primary role— accepting deposits and lending funds from these deposits. Improving access to financial services to private agencies, financial depth in the sub-region has remained very low and not improving over the years. Commercial bank performance has been poor characterized by low levels of private credit, high interest rate spreads, high levels of non-performing loans, poor asset quality, operational inefficiencies, among others (Panayiotis et al 2005: as cited in Francis 2013).

The study of profits is important not only because of the information it provides about the health of the economy in any given year, but also because profits are a key determinant of growth and employment in the medium-term. Changes in profitability are an important contributor to economic progress via the influence profits have on the investment and savings decisions of companies. This is because a rise in profits improves the cash flow position of companies and offers greater flexibility in the source of

finance for corporate investment (i.e. through retained earnings). Easier access to finance facilitates greater investment which boosts productivity, productive capacity, competitiveness and employment. The existence, growth and survival of a business organization mostly depend upon the profit which an organization is able to earn. It is true that when Profitability increases the value of shareholders may increase to considerable extent. The term profitability refers to the ability of the business organization to maintain its profit year after year. The profitability of the organization will definitely contribute to the economic development of the nation by way of providing additional employment and tax revenue to government exchequer. Moreover, it will contribute the income of the investors by having a higher dividend and thereby improve the standard of living of the people (Mukaila, Imoh & Adeniyi 2013).

The World Bank (2006) recognized that there are few signs of sustainable progress arising from financial sector and public enterprise reform. The report called for more wide reforms in the financial sector to achieve higher efficiency in the banking sector. It is the growth and efficiency of commercial banks in many countries that would be important to finance the desired economic growth in the different segments of the economy.

During the last two decades, the banking sector in Africa and in the rest of the developing world has experienced major transformation in its operating environment. In a number of countries, financial sector reforms have been implemented. In these reforms, the role of commercial banks has remained central in financing economic activities in the various segments of the markets especially in Sub-Saharan Africa (SSA). Panayiotis *et al*. (2005*)*, Naceur & Goaied (2001; 2003) among others, showed that both external as well as domestic factors have contributed to growth in performance of SSA banks in the last two decades. On the other hand Kiganda (2014) suggested that Commercial banks appear very profitable in Sub-Saharan Africa (SSA), average returns on assets were about two (2) percent over the last 10 years, significantly higher than bank returns in other parts of the world.

Valentina, Calvin & Liliana (2009) have tried to answer these questions; firstly, why are banks so profitable in Africa? Standard asset pricing models imply that arbitrage should ensure that riskier assets are remunerated with higher returns. Bank profitability should then reflect bank-specific risk, as well as risks associated with the macroeconomic environment (non-diversifiable, systemic risk). Progress has been achieved by many SSA countries in banking, supervisory and regulatory reforms, as well as in the implementation of structural reforms to reduce financial risks and promote financial development. However, banks in most SSA countries still operate in risky financial environments, which include weak legal

institutions and loose enforcement of creditor rights. Hence, risk appears a good explanation for high returns. Weak economic performance also expose banks to risk as low economic growth promotes the deterioration of credit quality, and increases the probability of loan defaults. In addition, other factors can have an impact on bank returns such as market power and regulations can prevent arbitrage, and, consequently keep returns high. While in most SSA countries, there are few barriers to bank entry; aversion to a high risk environment is likely to impose a natural barrier to foreign bank entry.

Secondly, Should high bank returns be seen as a negative feature for financial intermediation in SSA countries? This could be the case if high returns imply high interest rates on loans. Moreover, if high returns are the consequence of market power, this would imply some degree of inefficiency in the provision of financial services. In this regard, high returns could be a negative outcome that should prompt policymakers to introduce measures to lower risk, remove bank entry barriers if they exist, as well as other obstacles to competition, and re examine regulatory costs. But bank profits are also an important source for equity. If bank profits are reinvested, this should lead to safer banks, and, consequently high profits could promote financial stability.

On the other hand, the role of foreign banks in developing countries—and associated policy implications—has been hotly debated. Some argue that foreign banks and particularly large international banks should be allowed to operate in developing countries because they increase the capacity of local banking sectors to lend and support development and introduce international practices and know-how, which spills over to domestic banks and increases the efficiency of financial intermediation. Others maintain that international banks are too powerful and thus their presence deprives the domestic banking industry of a chance to develop. At the same time, several observers note that international banks typically favour large and foreign-owned corporations at the expense of local entrepreneurs Martin& Richard (2005). Furthermore, divergent empirical results are found in this regard; Claessens et al. (2001) found that foreign banks have higher profits than domestic banks in developing countries, while the opposite is true for developed countries. This suggests that increased presence of foreign banks is generally associated with a reduction in profitability and margins for domestic banks. Again In a follow-up paper, Claessens and Lee (2003) focus on financial systems in 58 low-income countries and find that increased presence of foreign banks seems to have had benefits for local banking systems by reducing financial intermediation costs and making systems more efficient and robust. Clarke et al. (2001), using data from a large cross country survey of enterprises, find that foreign

bank penetration improves financing conditions for all enterprises, although it seems to benefit larger firms more.

Thus, the financial system is an important ingredient in any economic environment of a country. The very function of this particular sector has an immense impact on the economic system. Hence, it is very much essential for a country to look after its financial system continuously. The soundness and safety of the financial system could be done by assessing the performance and determinants of performance and act accordingly to curve the situation to the benefit of the individual institutions, financial system and to the economy at large. On the whole, in order to survive in the long run it is important for banks to find out what are the determinants of profitability so that it can take initiatives to increase its profitability.

2. Objectives

Meta-analysis involves combining summary information from related but independent studies. The objectives of a meta-analysis include increasing power to detect an overall treatment effect, estimation of the degree of benefit associated with a particular study treatment, assessment of the amount of variability between studies, or identification of study characteristics associated with particularly effective treatments (Normand 1999).

Thus, the objective of this paper is to:
- ❖ Examine the determinants of commercial banks' profitability and to compare or combine results across a set of similar studies
- ❖ To propose hypotheses to predict the relationships between measures and determinants of profitability of commercial banks
- ❖ Contrasting the significant deviations in those findings by different scholars and lastly put some reflections that lead further research.
- ❖ To suggest a comprehensive model that incorporates macroeconomic, industry-specific and bank-specific determinants of commercial banks profitability.

3. Methodology

In order to achieve the main objective of the paper as Meta analysis it is advisable to gather relevant information for decision making. To do so the review has used journal articles published in either national or international journals accessed mainly from j-store and Google scholar related to the area of study. Hence, the application of Meta analysis techniques enabled the reviewer to compare and contrast the findings of different studies and to come up with certain conclusions and reflections that need further

examination/research on the subject matter and to suggest a comprehensive model to study the determinants of banks' profitability.

4. Reviews of related literature: synthesizing previous studies

To keep its coherence as per the advice of different scholars, this part of the paper has been organized as follows;

1. Review conceptual literature on the major concepts and issues relating to the subject matter.

2. Review of empirical studies on each of the variables of the study and comparison of different studies' models and findings as Meta analysis. Shortcomings and possible contradictions in findings of existing studies would also be discussed and summarized in subsequent section.

3. Summary and reflection

4.1 Review of conceptual studies on the major concepts and issues relating to banks' profitability

4.1.1 Market Structure Theories and Bank Profitability

The traditional theory of the firm was assumed that a firm's objective is simply to maximize profits. In practice this theory is not applicable because of most modern industries , involvement in providing a variety of products/services, and faced with much more complex decisions to be taken in a dynamic and uncertain environment Devinaga (2010). The central assumption of this theory is, the industry structure (measured by market concentration interm of market share ratio) has impact on profitability of banks. The literature on the measurement of market structure (structural approach) divided into two mainstreams, called the structure–conduct–performance (SCP) paradigm and the efficiency structure hypothesis (ESH).

Market structure theory suggested two alternative policy drives inorder to increase profit of the bank industry and for rationalizing market structure in banking industry. The first one lies in limiting the number of banking units in the market through encouraging mergers among existing banks. This is help to increase the bank size for pursuing scale of economics. The second strategy is the sharing common facilities such as ATM with other banks in the industry. Both strategies may be useful in enhancing the competition in the market and improving the overall profitability and efficiency of the market. As explained in the efficient structure hypothesis (ESH), there is no need to encourage mergers, since the efficient entities can improve their market share by providing banking services, which is more economical in the market. Therefore, ESH suggests instead of encouraging bank mergers, the ESH supports policies that may encourage sharing common facilities to avoid duplication of capital cost.

4.1.2 Structure Conduct Performance (SCP) Hypothesis

Market structure conduct and performance (SCP) framework derived from the neo-classical analysis of markets. It first formalized by Mason in 1939 as a method of analyzing markets and firms. The SCP was the central opinion of the Harvard school of thought and popularized during 1940-60 with its empirical work involving the identification of correlations between industry structure and profitability. Most early research explanation for the relationship between the market concentration and profitability based on the structure-conduct performance (SCP) hypothesis, and focused on the interpretation of a positive empirical relationship between concentration and profitability (Goddard et al. 2004).

The SCP paradigm asserts that there is a relationship between the degree of market concentration and the degree of competition among firms. This hypothesis assumes that firms behave or rivalry in the market determined by market structure conditions, especially the number and size distribution of firms in the industry and the conditions of entry. This rivalry leads to unique levels of prices, profits and other aspects of market performance (Berger et al. 1989). The Structure-Conduct-Performance (SCP) hypothesis, which also sometimes referred to as the MP hypothesis, asserts that increased market power yields monopoly profits. A special case of the SCP hypothesis is the Relative-Market-Power (RMP) hypothesis, which suggests that only firms with large market shares and well-differentiated products are able to exercise market power and earn non-competitive profits (Berger 1995).

The assumptions of SCP hypotheses have been applied in different research by various researcher and supported positive relationship between market concentration (measured by concentration ratio) and performance (measured by profits) exists. Furthermore, SCP recognized the competitiveness of small market share banks with large market share is weak as a result the positive relationship between market concentration and performance (profitability) of high market share banks exist (Berger 1989). As explained in the SCP, the market concentration encourages collusion among large firms in the industry, which subsequently leads to higher profits. Hence, SCP pointed out those changes in market concentration may have a direct influence on a firm's financial performance. Firms in more concentrated industries can earn higher profit than firms operating in less concentrated industries earn, irrespective of their efficiency (Goldberg et al. 1996).

The relative market power hypothesis (RMPH) which is a special case of SCP posited that only banks with large market shares and well differentiated service lines are able to exercise market power to gain superior profit on non-competitive price setting behaviour (in this case service

charge). Berger (1995); Berger & Hannan (1989) investigated the profit-structure relationship in banking, providing tests of the RMP hypotheses. To some extent, the RMP hypothesis verified that superior management and increased market share (especially in the case of small-to medium-sized banks) raise profits. SCP, in general, provides two main benefits to studies, which investigate the banks profit behaviour. First, it shows the way to the banks profits are operating. Thus, it explains different forces that restrict or expand the scope of banks' operations in the market. Especially with profitability studies, SCP helps to interpret different sources of productivity and efficiency gains or losses. Second, SCP provides a rational basis for analyzing the market behaviour.

4.1.3 The Efficient Structure Hypothesis (ESH)

The second formulation of theoretical framework for studying determinants of commercial banks profitability is the efficient structure hypothesis. According to the 'efficiency' hypothesis, a positive concentration– profitability relationship may reflect a positive relationship between size and efficiency. It states that efficient banks in the market lead to increase in the firms' size and market share due to the aggressive behaviour. This behaviour of the efficient banks allowed such firms to concentrate and earn higher profits with further enhancing their market share. Those firms can maximize profits either by maintaining the present level of product price or service charge and firms' size or by reducing the service charge and expanding the firm size (Smirlock 1985).

Finally, the ESH stated that the positive relationship between profit and concentration results from the lower cost achieved through superior management and efficient production process. In contrast to SCP hypothesis, the ESH uncertain whether the high profits of large banks are a consequence of concentrated market structures and collusion. As explained by Berger and Hannan (1989), ESH and SPC stand on similar observation on the relationship between concentration and performance (profitability). However, the difference in two theories consisted mainly in ways of interpretation of the relationship.

4.2. Agency Costs Hypothesis: Capital Structure and Agency Costs

Due to the agency costs attached to both debt and equity, an optimal capital structure is obtained in the agency approach by trading-off the agency costs of equity (the benefit of debt) against the agency costs of debt and by minimizing the total agency costs involved in issuing debt and equity (Myers 2001). Jensen and Meckling (1976) used the agency relationship and agency costs to explain the existence of optimal capital structure at the firm level. They argue that separation of firm's control (management) from its

ownership may create conflicts of interest between agents and costs to the firm, defined as agency costs of equity, since managers may be engaged in value non-maximizing activities and/or transferring firm resources for personal benefits. However, debt not only can mitigate the manager-shareholder conflict, but also can reduce the agency costs of equity by means of the following methods. Firstly, It can reduce the agency costs of equity by raising the manager's share of ownership in the firm. Secondly, it can achieve the same goal by reducing the amount of free 'cash available to managers to engage in the pursuits (Jensen, 1986) since debt commits the firm to pay out cash. Debt can create a ―asset substitution effect, which is described as―The equity holder let management invest the more risk projects than debt holders anticipated without their agreement. If the high risk projects are done well, the debt holders may only gain regular returns. Hence, all the other extra benefits are distributed to equity holders. On the contrary, if these projects break down, the debt holders must share the losses jointly with the equity holders. With a view to protecting themselves, debt holders must monitor the firm (imposing monitoring costs) and impose covenants (covenant costs) (Jensen & Meckling, 1976). Besides, debt can cause ―under-investment problems as well, which is described as― After the debt holders lend funds to the firm, if management find out that all the benefits derived from investment projects will be distributed to debt holders only, they will give up all the investment projects profitable to the firm (Myers, 1997; Titman & Wessels, 1988). Both of these problems mentioned above can be described as agency costs of debt, which may result in reducing the value of firm with them.

4.3 The role of diversification and risk preferences

According to Biker and Boss (2008) a first consideration relating to bank profit maximization concerns the concepts of risk and diversification. Shareholders balance their appetite for maximizing expected profits and minimizing costs against the amount of risk they are willing to take. Abstracting from speculative motives, shareholders are generally assumed to be indifferent to the distribution of profits, receiving a return on their investment in the bank either through an increase in the bank's share price or through dividends received. If all banks share the same risk-return preferences, or if the risk-return relationship can be described by some relatively simple homothetic continues function, then there is no serious problem with the fact that we do not know how to control a bank's risk preferences. This is different, however, in a situation where some banks (e.g. cooperative banks) are highly risk averse and not well diversified.

Such banks have different preferences; forego high-risk, high-return opportunities and optimize towards an altogether different maximum profit.

Although control variables aimed at proxying for this risk attitude are frequently used in the literature, comparatively little work has been done on modelling banks' risk-return trade-off.

5. Review and comparison of empirical studies
5.1 Studies USA, UK and Greek

Alexio & voyazas (2009) investigates the effects of bank-specific and macroeconomic determinants of bank profitability, using an empirical framework that incorporates the traditional Structure-Conduct- Performance (SCP) hypothesis. A panel data approach has been adopted and effectively applied to six Greek banks. The evidence generated suggests that for any consistent or systematic size the profitability relationship is relatively weak. Most of the bank-specific determinants were found to significantly affect bank profitability. A more ambiguous picture emerged when the macroeconomic factors were considered.

Besides, in his study, Paolo (2011) examined the determinants of the profitability of the US banks during the period 1995-2007. The empirical analysis combines bank specific (endogenous) and macroeconomic (exogenous) variables through the generalized methods of moments (GMM) system estimator. The empirical findings document a negative link between the capital ratio and the profitability, which supports the notion that banks are operating over-cautiously and ignoring potentially profitable trading opportunities. Variables are: bank size, market concentration, loan capacity, demand for deposits, interest expenses, investment in securities, the bank's risk, plus a series of control variables like the USA Federal Reserve Bank Discount Rate, the NASDAQ Bank Index and the bank's reputation. In addition, Liu, S (2013) focuses on both internal and external variables regarding the profitability of banking sector, including bank-specific variables, industry specific variables and macro economy variables. Deposit to total asset and investment securities at market value to total assets also impact the profitability of the banking sector. The external variables, such as the good will , Federal Reserve discount rate and Herfindahl Hisrschman Index , determine the profitability of banks as well.

Comprehensively, Saeed (2014) examined the impact of bank-specific, industry-specific, and macroeconomic variables on bank profitability before, during, and after the financial crisis of 2008 on 73 UK commercial banks on the basis of availability of required information. The results of regression and correlation analyses shows that bank size, capital ratio, loan, deposits, liquidity, and interest rate have positive impact on ROA and ROE while GDP and inflation rate have negative impact. In addition, a study by Nahang & Araghi (2013), examined the internal factors affecting the profitability of city banks during the years 2009-2012. Internal factors

affecting the profitability of banks, including; deposit amount, the payment facilities, credit risk management, cost management and the amount of liquidity. The results showed that there is a direct relationship between the profitability of the banks with the credit risk management and cost management, and the amount of deposits, loan payments, and the amount of liquidity are negatively and significantly related.

5.2 Studies in Pakistan

On the other hand, a study by Sufian (2012) examines the performance of 77 Bangladeshi, Sri Lankan, and Pakistani commercial banks between 1997 and 2008. The empirical findings suggest that bank specific characteristics – in particular, liquidity, non-interest income, credit risk, and capitalization – have positive and significant impacts on bank performance, while cost is negatively related to bank profitability. As for the impact of macroeconomic indicators, the results suggest that economic growth has positive and significant impact, while inflation has no significant impact on bank profitability. During the period under study, the empirical findings indicate that private investment is positively related to bank profitability, while private consumption expenditure exhibits negative impact. However, the impact is not uniform across the countries studied. In addition, Sufian & Habibullah (2009) to examine the determinants of the profitability of the Chinese banking sector during the post-reform period of 2000–2005. The empirical findings from this study suggest that all the determinants variables have statistically significant impact on China banks profitability. However, the impacts are not uniform across bank types. They found that liquidity, credit risk, and capitalization have positive impacts on the state owned commercial banks profitability, while the impact of cost is negative. They suggested that size and cost results in a lower city commercial banks profitability, while the more diversified and relatively better capitalized city tend to exhibit higher profitability levels. The impact of economic growth is positive, while growth in money supply is negatively related to the state owned commercial banks and city profitability levels.

Similarly, Bilal et al (2013), identify the influence of bank specific and macroeconomic factors on profitability of commercial banks in Pakistan over the period of 2007 to 2011 using linear multiple regression (OLS). Return on assets and return on equity are used as dependent variable. Deposit to assets, bank size, capital ratio, net interest margin and nonperforming loans to total advances are utilized as bank specific measures. Inflation, real gross domestic product and industry production growth rate are macroeconomic factors. By employing descriptive statistics, correlation and regression analysis researcher conclude that bank size, net interest margin, and industry production growth rate has positive and significant impact on

the ROA and ROE. Nonperforming loans to total advances and inflation have negative significant impact on Return on assets while real gross domestic product has positive impact on ROA. In this study Capital ratio has positive significant impact on ROE.

In addition, According to Dawood (2014) a Negative relationship exists between cost efficiency and profitability, liquidity and profitability and Positive relationship exists between capital adequacy and profitability, deposits and profitability, between size of the bank and profitability. His study considers the only internal factors that impact on the profitability of the commercial banks in Pakistan using the ordinary least square (OLS) method to look into the impact of cost efficiency, liquidity, capital adequacy, deposits and size of the bank on the profitability (ROA) of the commercial banks. The empirical findings showed that cost efficiency, liquidity and capital adequacy are those variables in the check of management that decide the profitability of commercial banks operating in Pakistan. Other variables like deposits and size of the bank did not demonstrate any impact on profitability.

Nevertheless, Kanwal & Nadeem (2013) also investigates the impact of macroeconomic variables on profitability of public limited commercial banks in Pakistan for years 2001- 2011. Pooled Ordinary Least Square (POLS) method is used to examine the effect of thee major external factors; inflation rate, real gross domestic product (GDP) and real interest rate on profitability indicators; return on assets (ROA), return on equity (ROE) and equity multiplier (EM) ratios in three separate models. The empirical findings indicate a strong positive relationship of real interest rate with ROA, ROE and EM. Secondly, real GDP is found to have an insignificant positive effect on ROA, but an insignificant negative impact on ROE and EM. Inflation rate on the other hand, has a negative link with all 3 profitability measures. Overall, the selected macroeconomic factors are found to have a negligible impact on earnings of commercial banks.

On the other hand, Gul, Irshad & Zaman (2011) investigates the impact of bank-specific characteristics and macroeconomic indicators on bank's profitability in the Pakistan's banks for the 2005-2009 periods; the result suggests that external factors of the banks have significant impact on the profitability. Javaid *et al* (2011) study the determinants of top 10 banks' profitability in Pakistan over the period 2004-2008 focusing only on internal factors through the use of pooled Ordinary Least Square (POLS) method to investigate the impact of assets, loans, equity, and deposits on one of the major profitability indicator return on asset (ROA). The empirical results have found strong evidence that these variables have a strong influence on the profitability. However, the results show that higher total assets may not necessarily lead to higher profits due to diseconomies of scales. Also, higher

loans contribute towards profitability but their impact is not significant. Equity and Deposits have shown significant impact on profitability.

5.3 Studies in Africa

Francis (2013) using an unbalanced panel of 216 commercial banks drawn from 42 countries in sub-Saharan Africa (SSA) for the period 1999 to 2006, by applying the cost efficiency model, suggests that the explanatory variables are growth in bank assets, growth in bank deposits, capital adequacy, operational efficiency (inefficiency), and liquidity ratio as well as the macroeconomic variables of growth in GDP and inflation. The findings clearly show that both bank-specific as well as macroeconomic factors explain the variation in commercial bank profitability over the study period and findings demonstrate the importance of both bank level as well as macroeconomic factors in explaining commercial bank profitability in Sub-Saharan Africa.

Another study on the determinants of profitability of listed commercial banks in developing countries specifically focusing on Malawi during the period 2009-2012 using internal-based and external (market)-based profitability measurements by Lipunga (2014), employed correlation and multivariate regression analysis. Return on Assets (ROA) and Earnings Yield (EY) are used as proxies of internal and external profitability respectively. The results of the regression analysis suggest that bank size, liquidity and management efficiency have a statistically significant impact on ROA however capital adequacy has insignificant effect. On the other hand results suggest that earnings yield is significantly influenced by bank size, capital adequacy and management efficiency, whereas liquidity is found to have insignificant influence on Earnings yield.

Ayanda et al. (2013) examined profitability determinants in the banking sector of the Nigerian economy, First Bank of Nigeria Plc only as a case study. Results revealed that contrary to views of some authors, Bank Size (Natural Logarithm of Total Asset and Number of Branches) and Cost Efficiency did not significantly determine bank profitability in Nigeria. However, Credit Risk (Loan Loss Provision-Total Assets) and Capital Adequacy (Equity-Total Assets) were found to be significant drivers which affected bank profitability both in the long run and short run respectively. Also, while Liquidity affected bank profitability in the short run, Labour efficiency (Human Capital ROI and Staff Salaries-Total Assets) only affected bank profitability in the long run. But as for the external or macroeconomic variables which determined bank profitability, it is suggested that only Broad Money Supply growth rate was found to be a significant driver both in the long run and in the short run.

Whereas Ongore & Kusa (2013) showed that bank specific factors significantly affect the performance of commercial banks in Kenya, except for liquidity variable. But the overall effect of macroeconomic variables was inconclusive at 5% significance level. The moderating role of ownership identity on the financial performance of commercial banks was insignificant. Thus, it can be concluded that the financial performance of commercial banks in Kenya is driven mainly by board and management decisions, while macroeconomic factors have insignificant contribution. While Syafri (2012) suggested that loan to total assets, total equity to total assets, loan loss provision to total loan have positive effect on profitability, while inflation rate, the size of bank and cost-to-income ratio have negative effect on profitability. Economic growth and non interest income to total assets have no effect on bank profitability.

Similarly, Kiganda (2014) suggested that macroeconomic factors (real GDP, inflation and exchange rate) have insignificant effect on bank profitability in Kenya with Equity bank in focus at 5% level of significance and concluded that macroeconomic factors do not affect bank profitability in Kenya, Implying that internal factors which relate to bank management significantly determine bank profitability in Kenya. The study therefore recommends that banks to adopt policies that enhance managerial efficiency for higher profits to be realized.

On the other hand Guru et al. (2002) investigate the determinants of bank profitability in Malaysia. They used a sample of seventeen commercial banks during the 1986 1995 period. The profitability determinants were divided in two main categories, namely the internal determinants (liquidity, capital adequacy, and expenses management) and the external determinants (ownership, firm size, and economic conditions). The findings revealed that efficient expenses management was one of the most significant in explaining high bank profitability. Among the macro indicators, high interest ratio was associated with low bank profitability and inflation was found to have a positive effect on bank performance.

Besides, Ben Naceur and Goaied (2008) examine the impact of bank characteristics, financial structure, and macroeconomic conditions on Tunisian banks' net-interest margin and profitability during the period 1980-2000. They suggest that banks with relatively high amount of capital and overhead expenses tend to exhibit higher net-interest margin and profitability levels, while size is negatively related to bank profitability. On the contrary, the empirical findings in Indonesia, by Sufian and Habibullah (2010), indicated that income diversification and capitalization are positively related to bank profitability, while size and overhead costs exert negative impacts. The impact of economic growth and banking sector concentration are positive during the pre-crisis and crisis periods.

Most literatures are used banks specific, industry specific, and macro economic factors as a determinant of banks profitability. Belayneh (2011) pointed out Ethiopian commercial banks that increase their equity have a lower cost of capital and thus are more profitable. Bank size, loan, and noninterest income of Ethiopian commercial banks are also positive and highly significant factors of profitability. Credit risk is the main significant factor, which challenges the profitability of banks in Ethiopia. Fixed deposit and non-interest expenses are also the major causes that hinder Ethiopian banks profitability. In relation to industry specific factors, he used market concentration as the only industry specific determinants for Ethiopian commercial banks. He stated that market concentration has a negative and highly significant impact on Ethiopian banks profitability. He used Hefindihal Hirchman index and the result shows that a better competition in the market and erodes the price making power of a single bank (Commercial Bank of Ethiopia) and in turn reduces the banking sector profitability. Finally concerning with the macroeconomic variables Belayneh (2011), said that the only significant factor of Ethiopian commercial banks profitability is real GDP growth. According to the author, the current real economic growth of the country makes commercial banks to be more profitable. Contrary, inflation rate and lending interest rate played insignificant role in Ethiopian commercial banks profitability.

Besides, Habtamu (2004), the profitability status of commercial banks, tested by the profitability ratios, evidenced that the banks are operating at profit. Particularly, the efficiency of the private banks is by far better than the government owned bank, Commercial Bank of Ethiopia. Besides their performance, he stated that a competition in the banking sector was started when private banks enter in to the market. The private banks become more competitive as evidenced by a larger share they gain in the deposits. The prevalence of competition in commercial banks in Ethiopia is also evidenced when the commercial bank of Ethiopia, the 60 years old, lost its share in total assets possession and its share in total deposits concentration. However, the form of competition was initially on non-price (service) that means providing better services and followed by limited price competition when national bank of Ethiopia sets only the ceiling and floor for interest rate. In Habtamu (2004) recommendations, he stated that both price and non-price competition in the banking system should be strengthened.

Furthermore, a paper by Abebaw and Depaack (2011) was also investigate the impact of bank-specific characteristics, macroeconomic conditions and financial market structure on Ethiopian commercial banks" profits, measured by return on average assets (ROA). A balanced panel data set of 62 observations, covering the period 2001- 2008, provided the basis

for the econometric analysis. The results under this study show that capital strength, represented by the equity to assets ratio, bank intermediation ratio represented by banks loans to total assets and bank size represented by assets, are the main determinants of Ethiopian banks profits. With regard to Size measures, Abebaw and Depaack (2011) size of bank has a positive effect on profitability supporting the economies of scale argument. The impact of overhead to net interest income and nonperforming loan ratios are negative and significant. When he assesses the external factors, they have a relatively small impact on the profitability of Ethiopian banks. He concluded that none of these measures was significant. Thus, overhead, capital strength and bank intermediation and size measures are important determinants of bank profits in Ethiopia. This shows that the key for success in profit for banks rely on individual bank characteristics implying proper management of activities by individual banks is indispensable to be profitable. As far as bank specific Factors are concerned, the ratios of operating expenses to operating income and operating expenses to total assets are commonly used to measure Managerial efficiency of the banks. Indranarain (2009), Bourke (1989) and Molyneux and Thonton (1992) stated that Higher the efficiency level of a bank, higher its profits level. Hence a positive relationship is expected between efficiency and profitability of banks. The analysis of the quality of a management is based on the experience of the management and their track record in terms of their vision and competence in running the bank.

6. Hypotheses

Hypothesis may be defined as a tentative proposition suggested as a solution to problems or as an explanation of some phenomena. Hypothesis can also be defined as a testable, tentative, probable explanation of the relationship between two or more variables that create a state of affairs or phenomenon.

The formulation of an appropriate hypothesis goes hand-in-hand with the selection of research problem. A hypothesis is an expectation of what the researcher beliefs that he/she might find in the data. It provides a directly testable relational statement and facilities extension of knowledge. Hypothesis should always be in declarative sentence form, and should relate either generally or specifically variables to variables. Hypotheses are formulated usually either from a research problem statement, an existing theory or the findings of previous studies.

Thus, Based on the aforementioned literature, the following null hypothesis has been developed.

1. Bank Size does not significantly determine Bank Profitability

2. Capital Adequacy does not significantly determine Bank Profitability
3. Credit Risk does not significantly determine Bank Profitability
4. Liquidity Risk does not significantly determine Bank Profitability
5. Labour Efficiency does not significantly determine Bank Profitability
6. Management Efficiency does not significantly determine Bank Profitability
7. Inflation does not significantly determine Bank Profitability
8. Real GDP does not significantly determine Bank Profitability

7. Summary and Reflections

While the results on bank specific and macroeconomic factors are explicit and point to one directional effect to bank performance, the results on the impact of industry specific factors are mix and in most cases insignificant to explain the behaviour of banks.

The purpose of this paper is to examine the determinants of commercial banks' profitability and to compare or combine results across a set of similar studies and contrasting the significant deviations in those findings by different scholars and to suggest a comprehensive model that incorporates macroeconomic, industry-specific and bank-specific determinants of commercial banks profitability.

Table 1: Selection of variables most commonly used by previous researchers
Sources: Review of literature

S. no.	Authors	Dependent variable		Independent variable							
		ROA	ROE	Bank Size	Capital Adequacy	Credit Risk	Liquidity Risk	Labour Efficiency	Management Efficiency	Inflation	Real GDP
1	Paolo 2011		✓	✓	✓						
2	Bilal et al 2013	✓	✓	✓	✓	✓			✓	✓	
3	Liu 2013	✓		✓	✓				✓		✓
4	Dawood	✓		✓	✓	✓		✓			
5	Belayneh 2011	✓		✓	✓	✓				✓	✓
6	Habtamu 2004	✓									
7	Abebaw 2011	✓		✓	✓	✓					
8	Indranian 2009	✓						✓			

No	Author										
9	bourk 1989	✓						✓			
10	Molyneux 1992	✓						✓			
11	Thonton 1992	✓									
12	Lipunga 2014	✓			✓		✓		✓		
13	Ayanda 2013	✓	✓	✓	✓	✓		✓			
14	Ongore 2013	✓			✓						
15	Kusa 2013		✓				✓		✓		✓
16	Syafri2012	✓		✓		✓			✓	✓	✓
17	Guru et al. (2002)	✓							✓	✓	
18	Ben Naceur 2008	✓			✓						
19	Goaied 2008		✓	✓					✓		
20	Sufian 2010	✓									
21	Habibullah (2010)			✓	✓						✓
22	Francis 2013	✓	✓	✓	✓		✓		✓	✓	✓
23	Sufian 2012	✓				✓	✓			✓	✓
24	Sufian & Habibullah	✓			✓	✓	✓				
25	Alexiou &Sofoklis 2009	✓		✓		✓	✓	✓		✓	✓
26	Kanwal & Nadeem 2013	✓	✓							✓	✓
27	Kiganda 2014	✓								✓	✓
28	Javaid 2011	✓		✓	✓		✓				

No	Author Year											
29	Saeed 2014	✓		✓	✓		✓			✓	✓	
30	Nahang & Araghi 2013	✓				✓	✓		✓	✓		
31	Gul, Irshad & Zaman 2011	✓	✓	✓	✓							✓

As comprehended in the discussion above, empirical research generally investigates determinants of banks' profitability on different levels and directions. The main direction of interest of this paper is, to suggest a comprehensive model that incorporates macroeconomic, industry-specific and bank-specific determinants (of which the bank-specific determinants mainly relate to the balance sheet structure). Nevertheless, research also focuses on specific determinants, such as the relationship between regulation and profitability or the relationship between the ownership structure and profitability. Most of the research works so far either in developed or developing counties regarding the determinants of commercial banks profitability comes across divergent results with the application of different paradigms (i.e. pooled ordinary least square is mostly commonly applied by scholars in those countries).

Besides, most of the studies are based on time series data obtained from the annual reports of commercial banks (i.e. focusing on the balance sheet structure or bank specific) determinants of banks' profitability. In addition, the variables investigated across studies have got uncommon concern by scholars; some scholars suggest bank specific factors which are under the control of banks managers as the main statistical significant determinants of banks performance, while others suggest that macro economic factors should be given more attention and advice that bank managers should set their mined in line with the economic decision or conditions of the country since banks and a given economy are highly integrated. Furthermore, part of scholars suggests that recently the inclusion of macroeconomic factors such as GDP, inflation rate and interest rates is advisable to determine the more robust model so as to investigate the determinants of commercial banks' profitability.

Here as to me, one thing has been forgotten by most of the researchers. That is from the reviews of more than 30 journal articles almost all of the findings are based on OLS which is not recently recommended to capture the persistent nature of financial data, but here I want to forward my appreciation for those researchers who already apply panel data by the model called generalized method of moments (GMM).

On the other hand, most of the scholars used the traditional accounting measures for analysis towards determinants of banks' profitability; ROA and ROE using multiple linear regression models, OLS. Economic measures of profitability are not used due to the lack of data and because the disclosed parameters are subject to internal policies and assessments which cannot be generalized or validated. Among other assumptions of OLS to give unbiased, consistent and efficient estimates, it is a prerequisite that the data follows a normal distribution with unknown mean and variance and that the kurtosis of the distribution equals three. In finance, the distribution of the data is often heavy-tailed and skewed with numerous large outliers, which violate the assumptions of OLS. Second, OLS assumes that the explanatory variables are exogenous (uncorrelated with the error item) and homoskedastic.

Similarly, academic research points out that some independent variables could suffer from endogeneity. For instance, Berger (1995) questions whether the equity-to-asset ratio influences banks' profitability or vice versa. Besides the equity-to-asset ratio, incorporating profit persistence into an econometric model, proposed by research of Goddard et al. (2004) will incorporate a source of endogeneity. Autocorrelation and endogeneity will give biased and inconsistent coefficients in a pooled OLS regression. Nowadays academic researchers are better of Appling the GMM to alleviate the very nature, persistency, of financial data and the assumptions of OLS. In sum, further research is required to compromise the limitations of the linear regression model OLS, quantitative approach; to incorporate some additional variables in line with the secondary data, as primary information using mixed approach.

In sum, i recommend the GMM model estimator with panel data and the inclusion of all banks specific, industry/sector specific and macro economic factors to better understand the determinants of the variations in the performance of commercial banks irrespective of the level of economic development. Thus, a comprehensive model that incorporates macroeconomic, industry-specific and bank-specific determinants of commercial banks profitability is estimated below based on the findings of the different studies synthesized here before. I have observed the most commonly used variables to determine the profitability of banks' irrespective of the level of economy in which a country belongs. These are CAMEL model (capital adequacy, asset quality, management quality, earnings quality and liquidity as bank specific factors), concentration and ownership as industry specific factors, and inflation, GDP and interest rate as macroeconomic factors. Hence as per the recommendations of the most recent studies in the area, the following model is appropriate so as to capture

the persistence nature of financial data (i.e. which suffers from endogeneity and autocorrelation problems).

$$\pi_{it} = \alpha + \delta\pi_{i,t-1} + \sum_{j=1}^{J}\beta_j X_{it}^j + \sum_{l=1}^{L}\beta_l X_{it}^l + \sum_{m=1}^{M}\beta_m X_{it}^m +$$
$$u_{it}, \ u_{it} = \mu_i + v_{it\dots} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (1)$$

Where π_{it} *t-1* is the one-period lagged profitability and δ is the speed of adjustment to equilibrium. The explanatory variables are divided into $1 \times k$ vectors of bank-specific$\left(X_{it}^j\right)$, industry-specific $\left(X_{it}^l\right)$ and macroeconomic variables$\left(X_{it}^m\right)$, where k refers to the number of slope parameters for the different variables classes. Finally, the model includes a one-way error disturbance term u_{it} capturing a bank-specific or fixed effect (μ_i) and a remainder or idiosyncratic effect that vary over time and between banks(v_{it})[12]. Besides, with panel/cross sectional time series data, the most commonly estimated models are probably fixed effects and random effects models. Fixed effects regression methods are used to analyze longitudinal data with repeated measures on both independent and dependent variables. They have the attractive feature of controlling for all stable characteristics of the individuals, whether measured or not. This is accomplished by using only within-individual variation to estimate the regression coefficients. The fixed effects model as well as the random effects model would be employed to identify the determinants of profitability of commercial banks due to the fact that the former takes into account the firm-specific effect and the later considers the time effect (Kalluru & Bhat, 2008). But here still it is impossible to decide either the fixed effect or random effect model is appropriate, rather this will be decided after the data has been collected and regressed with these models and latter apply the Hausman statistical test to determine an appropriate model for the given data by testing the obvious null hypothesis that is HO: the random effect model is appropriate at 5% level of significant. If the result of this test shows that the Hausman statistics is less than the P-value (0.05), reject the null and accept the alternative hypothesis that is fixed effect model is appropriate and vice versa. In conclusion, ether fixed effect or random effect model would be appropriate to study banks profitability with panel data.

Lastly, as shown in table 2 above, the most important measure of profitability is return on asset which is used by more than 87% of scholars from the total articles reviewed here above. Besides, according to the

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[12] According to Baltagi (2005) the disturbance term in panel data could be either a one-way or two-way error. The methodology in this analysis incorporates a one-way error disturbance terms since the analysis assumes that there is no time-specific error but only a cross-sectional error relating to the unobserved characteristics between banks

literatures reviewed, the most commonly used determinants of banks' profitability are; bank size, capital adequacy ratio, credit risk, liquidity risk, efficiency (labour and management), inflation rate and real GDP. This implies that bank specific and macro economic factors are the main determinants of commercial banks profitability, though it is difficult to marginalize since the number of articles reviewed are limited. Given the limited number of articles reviewed, I suggest the following model as an appropriate best efficient model to capture the persistence nature of financial data, as it was explained so far.

$$\pi_{it} = \alpha i + \delta\pi_{i,t-1} + \sum_{j=1}^{J}\beta_j X_{it}^{j} + \sum_{m=1}^{M}\beta_m X_{it}^{m} + u_{it}, \ u_{it} = \mu_i + v_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where π_{it} *t-1* is the one-period lagged profitability and δ is the speed of adjustment to equilibrium. The explanatory variables are divided into $1 \times k$ vectors of bank-specific $\left(X_{it}^{j}\right)$ and macroeconomic variables $\left(X_{it}^{m}\right)$, where k refers to the number of slope parameters for the different variables classes. Here, the model includes a one-way error term u_{it} , capturing a bank-specific or fixed effect (μ_i) and a remainder or idiosyncratic effect that vary over time and between banks (v_{it}). Given, the model stated in equation (2) above it can be specified as follows.

ROA= αi + $\delta\pi_{i,t-1}$+ β₁ BS + β₂ CAP + β₃ CR +β₄ LR+ β₅ LE + β₆ ME + β₇ INR + β₈ RGDP + ε

Where;
ROA= return on asset
αi = bank specific effect
$\delta\pi_{i,t-1}$ = lag dependent variable
β= coefficients
BS-bank size
CAP-capital adequacy
CR- credit risk
LR-liquidity risk
LE-labor efficiency
ME- management efficiency
INR-inflation rate
RGDP-real gross domestic product
ε - The error term

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Appendix

Table 1: Summary of results across similar studies

	Authors	model	DV	IV	sign	Significant level
1	Paolo 2011	pooled ols with (GMM) technique	ROE	size	-ve	Significant
				market concentration	-ve	sig
				DD for Deposit	-ve	sig
				interest Exp	-ve	sig
				capital ratio	-ve	sig
2	Bilal *et al* 2013	pooled ols		size	+ve	sig
			ROA & ROE	capital ratio/CAP	+ve	sig
				NPL/advance	-ve	Insignificant
				depo/asset	+ve	insig
				inflation	-ve	sig with ROA/ins

						withROE
				RGDP	+ve	sig with ROA/ins withROE
				NIM	+ve	sig
3	Liu 2013	pooled ols	ROA	CPA	+ve	sig-nonlinear
				size	+ve	Significant
				loan& lease/total asset	+ve	sig
				depo/total asset	+ve	sig
				SEC	+ve	sig
				discount rate	+ve	sig
4	Dawood	pooled ols	ROA	efficiency	-ve	sig
				liquidity	-ve	sig
				capital adequacy	+ve	sig
				deposit	-ve	NE
				size	-ve	NE
5	belayneh 2011	pooled ols	ROA	equity capital	+ve	sig
				size	+ve	sig
				loan	+ve	sig
				non-int. Income	+ve	sig
				credit risk	+ve	sig
				fixed deposit	-ve	sig
				non-int. expense	-ve	sig
				real GDP	+ve	sig
				inflation & lending rate	-ve	insig
6	habtamu 2004	pooled ols	ROA	profitability ratios	+ve	Not explained
7	Abebaw 2011	pooled ols	ROA	equity/TA	+ve	sig
				size	+ve	sig
				loan/TA	+ve	sig
				OHS/net int. Inc.	-ve	sig
				NPL ratios	-ve	sig
8	Indranian 2009	pooled ols	ROA	efficiency	+ve	sig
9	bourk 1989	pooled ols	ROA	efficiency	+ve	aig
10	Molyneuk 1992	pooled ols	ROA	efficiency	+ve	sig
11	Thonton 1992	pooled ols	ROA	efficiency	+ve	sig
12	lipunja 2014	pooled ols	ROA	size	+ve	sig
				mgmt efficiency	+ve	sig
				liquidity	+ve	sig
				capital adequacy	+ve	insig
			earnings yield	size	+ve	sig
				capital adequacy	+ve	sig
				mgmt efficiency	+ve	sig
13	Ayanda 2013	Pooled ols	ROA	size	NE	
			ROE	cost efficiency	NE	
				credit risk	-ve	Significant
				capital adequacy	+ve	sig
				broad money supply	+ve	sig
14	Ongore 2013	pooled	ROA	capital adequacy	+ve	sig

		ols				
15	Kusa 2013	pooled ols	ROE	mgmt efficiency	+ve	sig
			NIM	asset quality	-ve	sig
				liquidity	+ve	sig
				GDP	+ve with ROE&NIM	sig
					-ve with ROA	sig
16	Syafri2012	pooled ols	ROA	loan/TA	+ve	sig
				equity/TA	+ve	sig
				loan loss provision/TA	+ve	sig
				inflation, size	-ve	sig
				cost-to inc. ratio	-ve	sig
				GDP & non interest income	+ve	sig
17	Guru et al. (2002)	pooled ols	ROA	expense mgmt	+ve	sig
				interest ratio	-ve	sig
				inflation	-ve	sig
18	Ben Naceur 2008	pooled ols	ROA	high capital	+ve	sig
19	Goaied 2008	pooled ols	NIM	high OHS exp	+ve	sig
			ROE	size	-ve	sig
20	Sufian 2010	pooled ols	ROA	income diversification	+ve	sig
21	Habibullah (2010)			capitalization	+ve	sig
		pooled ols	ROA	size	-ve	sig
				GDP	+ve	sig
				bank sector concentration	+ve	sig
22	Francis 2013	pooled ols	ROA	growth in bank assets	-ve	sig
			ROE	growth in bank deposits	+ve	sig
			NIM	capital adequacy	+ve	significant
				operational efficiency	-ve	sig
				liquidity ratio	-ve	sig
				GDP	-ve	sig
				inflation	-ve	sig
23	Sufian 2012	pooled ols	ROA	liquidity	+ve	sig
				non-interest income	+ve	sig
				credit risk	+ve	sig
				capitalization	+ve	sig
				cost	-ve	sig
				GDP	+ve	sig
				inflation	No	not sig
24	Sufian & Habibullah	pooled ols	ROA	liquidity	+ve	sig
				credit risk	+ve	sig
				capitalization	+ve	sig
25	Alexiou&Sofoklis	pooled	ROA	inflation	+ve	sig

	2009	ols	ROE	private consumption	+ve	sig
				GDP	+ve	insig
				size	+ve	sig
				credit risk	+ve	sig
				productivity	-ve	sig
				efficiency	-ve	sig
				liquidity	-ve	sig
26	Kanwal & Nadeem 2013	pooled ols	ROA	inflation	-ve	sig
			ROE	GDP	+ve with ROA	insig
			Equity multiplier	interest rate	+ve with ROA,ROE&EM	sig
27	kiganda 2014	pooled ols		real GDP	+ve	insig
			ROA	inflation	-ve	insig
				exchange rate	+ve	insig
28	Javaid 2011	pooled ols	ROA	size	-ve	sig
				capital ratio	+ve	sig
				liquidity	+ve	sig
				asset composition	+ve	insig
29	Saeed 2014	pooled ols	ROA	size	+ve	insig
			ROE	capital	+ve	sig
				loans	+ve	insignificant
				deposit	+ve	insig
				liquidity	+ve	insig
				GDP	-ve	sig
				int. Rate	+ve	insig
				inflation	-ve	insig
30	Nahang & Araghi 2013	pooled ols	ROA	size of deposit	-ve	sig
				size of credit	-ve	sig
				credit risk mgmt	-ve	sig
				cost mgmt	-ve	sig
				liquidity	-ve	sig
31	Gul, Irshad & Zaman 2011	pooled ols	ROA	size	+ve	sig
			ROE	capital	-ve	In sig
				loan	+ve	sig
				deposit	+ve	sig
				GDP	+ve	sig
				inflation	+ve	sig

Sources: Review of literature