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The Impact of Industry Structure on Performance and Testing the ‘quiet life’ Hypothesis in the Ethiopian Banking Sector

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Abstract:

The quantitative test on the relationship between industry concentration and performance has rejected the structure-conduct-performance (SCP) relationship. The statistical test has explored a negative and significant relationship in the profit models which is unlike the premise of the SCP that claims for a positive and significant effect of industry concentration on performances. In addition, the competitiveness level in the Ethiopian banking system appear to be unlike the one suggested in the SCP framework which posits for a limited competition in a market system characterized by high concentration. Most importantly the study found that scale efficiency of banks remained a strong determinant of performances. The result along with the rejection of a quiet life scenario in the Ethiopian banking industry confirms that efficiency appears to be a relevant determinant of bank performance. There is an observed scale impact on performances supporting the scale efficiency version of the efficiency hypothesis.

Keywords: structure, conduct, performance, bank, quiet life

1. Introduction

Literature advocates a strong link between financial sector development and economic growth. Countries with better functioning financial institutions and markets grow faster (Levine, 2005). In Ethiopia as well, considering its notable contribution to economic growth, the financial sector has got government attention for more structural transformation. For instance, reform measures to spur the performance of this sector through liberalization measures were enacted and have been implemented since 1991 (Geda, 2006). As literature suggested, it is expected that the liberalization measures can contribute to enhance deepening of the financial sector and ensuring efficient allocation of resources (McKinnon 1973; Shaw 1973). In addition, the recent economic plan of the country, Growth and Transformation Plan II (GTP II) has set bank growth strategies in an attempt to augment their contribution to the economy.

The Banking sector appears to be the major player in the Ethiopian financial market holding more than 95% of the gross financial asset (NBE report, 2012/13). This sector has been victim of different economic system which was influencing its institutional set-up (Harvey, 1996). For instance, the banking system was highly repressed during the command economic system. This has resulted in an institutional framework with a situation of virtually no competition and with total concentration of banking activities in government owned banks. Nevertheless, after the change of the government, a range of reform measures which changed the ownership, the regulatory framework the structure and performance of the banking system were introduced (Lelissa, 2007). Despite the changes, currently the Ethiopian banking industry is highly protected from outside competition through ban of foreign bank entry and the entrance of new local private banks into the market was very restricted (Bezabih and Desta, 2014). Since the 1991 measure, there appears a growth in the number of banks (NBE, 2015/16). But the competition remained insignificant because of the very limited but growing share of new private banks in the banking market and performance (Lera and Rao, 2016). In other words, the banking industry exhibited a high concentration level which might have an effect in both efficiency and performance of banks as presumed in the Structure-conduct-Performance paradigm (Bain, 1951).

The traditional structure – conduct -performance (SCP) hypothesis is used in the literature to analyze firm performance given the structure of the market. The SCP or collusion hypothesis follows the eminent works of Bain (1951) which postulates that market structure influences conduct of firms through prices or investment policies and this in turn translates into performance (Ye. et.al; 2012). This hypothesis asserts that the setting of prices that are less favorable to consumers (lower deposit rates and higher loan rates) in more concentrated market enable them to enjoy high profitable performance (Berger, 1995). This study, therefore, principally intends to systematically identify and measure the effects of concentration on the performance of the Ethiopian banking sector using pane l (longitudinal) data from 1990-2015 and 18 commercial banks.

2. Literature Review

2.1. The Structure-Conduct-Performances (SCP) Hypothesis

Mason (1937) and Bain (1956) formulated a framework for empirical analysis of the effect of market structure on industry performance called the Structure-Conduct-Performance (SCP) model. The central hypothesis of the framework is that observable structural characteristics of a market determine the behavior of firms within that market, and the behavior of firms within a market determines measurable market performance (Bain, 1951). In short, SCP paradigm assumes that market structure would determine firm conduct which would determine performance (Bain, 1956). This is a paradigm that is foundational to industrial organization economics (Barney, 2007). Since its conception, it has been used to analyze markets and industries, not only in Economics, but also in the fields of business management. For instance, the mainline of Michael E. Porter's works on competition (Porter's diamond model) are based on premises derived from this paradigm (Porter, 1981). Lipczynski, Wilson and Goddard (2013, p.6) stated the importance of the SCP paradigm in several ways:

- It allows the researcher to reduce all industry data into meaningful categories;
- It is consistent with the neoclassical theory of the firm, which also assumes there is a direct link between market structure, and firm conduct and performance, without overly recognizing this link;
- by defining a workable or acceptable standard of performance, it may be possible to accept an imperfect market structure, if such a structure produces outcomes that are consistent with the acceptable standard. By implication, market structure can be altered in order to improve conduct and performance.

2.2. Assumptions of the SCP Framework

The SCP framework posits a stable relationship and a line of causality that runs from structure through conduct to performance (Church and Ware, 2000). Consequently, the original SCP paradigm assumes a one-way relationship between structure, conduct and performance. This is the assumption that market structure determines market conduct and thereby affecting market performance (Roth, 2005).

The SCP paradigm asserts that conditions of supply and demand in an industry determine its structure. The competitive conditions that result from this industry structure influence the behavior of companies and in turn dictate the performance of the industry (Smit and Trigeorgis, 2004). Therefore, the model assumes that market structures identified by many firms providing the same products and services, though relatively equal in firm size, are competitive markets generating greater performance (Carlton and Perloff, 2000). Then, the degree of concentration of firms' output in a market affects the extent of competition among these firms in the industry. This is so because of the assumption that a more highly concentrated market structure is more likely to produce more effective collusion (Sathye, 2005). In other words, SCP model suggests that market concentration lowers the cost of collusion between firms and ends in suboptimal profits for all market participants (Bain, 1951).

The paradigm further assumes that equilibrium states and perfect information are found in practice (Ferguson.G and Ferguson.P, 1994). As McWilliams and Smart (1995, p. 309) suggested '*the original SCP-paradigm is based on the assumptions that demand is known and constant and that competition is a state*'. The underlying assumptions of the SCP approach, for example, that firms attempt to maximize profits, that firms have perfect information and that tastes are constant, lead to the conclusion that perfect competition is the ideal market structure (Roth, 2004). The market structure of perfect competition requires five necessary assumptions that include the following: firms sell a homogeneous product; there are a large number of small firms; firms are price takers; there are no barriers to entry and exit in the long run and firms and consumers have perfect information (Beaulier and Mounts, 2008). Obviously, these characteristics are unrealistic for most industries including banking.

The degree of concentration in a market has been considered as one of major structural characteristics in the traditional SCP-paradigm which predicts the level of competition (Meschi, 1997). The SCP assumes that market concentration and level of competition are inversely related as industry concentration encourages collusion (Edwards et al., 2006). Methodologically, such relationship is witnessed when industry concentration and performance are positively related (Allen et al., 2005). In such situations, firms operating in highly concentrated industries will have a higher return than firms operating in less concentrated industries regardless of their efficiency level. Similarly, such scenario will put industry concentration to inversely relate to the welfare of the consumer as well as the number of firms in the industry (Shepherd, 1985). In addition, the price of the firm gets closer to marginal cost if concentration falls which leads to fall in market power as well (Nguyen and Stewart, 2013).

The other assumption of the SCP is that the firm conduct is determined by the structure of the industry, hence; there will be a main linkage running from structure through conduct to performance (Bain, 1956). However, later critics have pointed that various feedback effects are also possible, i.e. from performance back to conduct; from conduct to structure and from performance to structure (Phillips, 1976; Clarke, 1985).

2.3. Components of the Structure-Conduct-Performance (SCP) Framework

As outlined above, the SCP framework is mainly a composition of three core components: market structure, conduct and performance. Nevertheless, these elements are later expanded to incorporate public policy/regulation, demand and supply situations etc.

2.3.1. Market Structure

Conceptually, a market structure is a classification system for the key traits of a market, including the number of firms, the similarity of the products they sell, and the ease of entry into and exit from the market (Trucker, 2010). It mainly comprises the market share of

its firms, and to a lesser extent, any barriers against new competitors (Bain, 1956). Each market structure is somewhere in the range between monopoly (a high market share and entry barrier) and pure competition (low share and barriers) (Shepherd, 1985). Salvatore (1998) identifies four different types of market organizations i.e. (a) perfect competition at one extreme, (b) monopoly at the opposite extreme, (c) monopolistic competition and (d) oligopoly in between. In addition, Shepherd (1985) included the concept of the dominant firm as a firm having 50-100% of the market and no close rival. He further classified oligopoly into two, i.e. tight oligopoly (the leading four firms combined share 60-100% of the market) and loose oligopoly (the leading four firms have 40% or less of the market). Competitive power is one of the basic criteria to distinguish various forms of market. However, it can be maintained that the actual market power depends on the competition or monopoly power. The tilt of this power determines the benefits either to the buyer or to the seller. The concept of a market structure is, therefore, understood as those characteristics of a market that influence the behavior and results of the firms working in that market (Hay and Morris, 1991). The interaction and differences between these behaviors and results allow for the existence of several market structures. Therefore, competition or market power is stated as the reason for the existence of different types of market structure. Thus, how such variation in market structure affects the performance of firms appeared to be the most important question that needs to be addressed in such regard (Mason, 1937). As explained above the main theme of the SCP paradigm appears to investigate the validity and existence of such kind of cause-effect relationships.

In the SCP-paradigm, structure describes the characteristics and composition of markets and industries in an economy (Ferguson, 1994). Structure, therefore, incorporates those set of variables that are relatively stable over time and affect the behavior of sellers and/or buyers. Structure is given a broad meaning covering assortment of different characteristics relation both to individual firms and relationships between firms (Needham, 1970). This distinguished approach of definition depends on whether structure is viewed internal or external to the individual industry (Devine, 1976). On the one hand, structure refers to the relative importance of individual industries (or groups of related industries) within the economy and to patterns of transactions between these industries. On the other, structure is a concept derived from the received theory of the firm which analyses business behavior according to the structure of the market in which it operates. Therefore, structure refers to the level of seller and buyer concentration, the height of entry barriers and the degree of product differentiation within individual industry markets (Shepherd, 1985).

Literature considers the main elements that influence market structure to include such factors as seller concentration, product differentiation, barriers to entry and barriers to exit, buyer concentration and the growth rate of market demand (Lipczynski, Wilson and Goddard, 2013). Other elements of market structure exist, but they are usually unstable and, therefore, ignored either because they can't be measured or because they are hard to observe (Belleflamme, Martin and Peitz, 2010). These factors; therefore, determine the extent of the market and the competition level. According to Bain (1968), seller and buyer concentrations, firm's size and entry conditions are the basic elements of market structure. These elements in one way or the other influence market integration. Seller concentration or buyer concentration inhibits the free flow of goods and services among markets. This in turn distorts the spirit of a unified or integrated market.

The higher the concentration is, the closer the market would be towards a monopoly structure (Bain, 1968). Mohamed (2013) describes a market as concentrated if there are few number of firms in the production or there is an unequal distribution of the market shares. The more the concentration level of the industry, the higher would be the degree of monopoly and competition loss (Weiss, 1974). Low concentration of an industry indicates less market power held by the leading firms which empower them to consistently charge price above those that would be established by competitive market (VanHoose, 2009). Therefore, the industrial organization studies claim that market power in the hand of single producer or fewer numbers of producers, enable a firm to set price above the marginal cost.

The degree of product differentiation is another important factor since it can refer to an imperfection in the substitutability (to buyers) of the output of competing sellers in an industry (Lipczynski, et al; 2013). Differentiation is important variable affecting market structure since it could strengthen the firm's market position and profit. Moreover, product differentiation can act as an entry barrier (Church and Ware, 2000). This is due to fact that in case of strong brand loyalty, the new entrant might be required to pay the price of convincing consumers to buy his/her product by offering better terms e.g. quality or price or greater advertising (Church and Ware, 2000).

Similarly, if the entry condition is restricted, the biggest firm may control the entire market and this leads to weak performance by other firms (Bain, 1968). These barriers have an effect on conduct as well as on firm performance because entry barriers place influence on the price setting mechanisms of established firms. In other words, the higher the entry barriers, the higher the limit to set prices (Carlton and Perloff, 2000). On the flipside, there are no entry barriers, existing firms in the industry cannot maintain prices above marginal costs and earn above normal profits. Any profits associated with non-competitive pricing would then invite entry which would continue until all profits are competed away (Church and Ware, 2000). Moreover, entry barriers are required in order to exercise market power (Tung et al; 2010). Therefore, entry barriers are one of the determining factors for market concentration.

In sum, market structure is characterized by several factors that determine the level of competition and market power. In other words, the structural elements seem to influence strategically the nature of competition and pricing within the market. Therefore, the firm's conduct should fit the characteristics of the market (Weiss, 1978). This will directly affect the performance of firms in the industry. Therefore, studying market structure enables to derive the conduct of firms in the industry. Other scholars also shared the same view, for instance, George and Singh (1970) and Dahl and Hamxond (1977).

2.3.2. Conduct

In the opinion of Bain (1968), market conduct refers to the pattern of behavior followed by firms in adopting or adjusting to the markets in which they sell or buy. It is the way in which buyers and sellers behave both amongst themselves and amongst each other

(Wang,2010). This happened because firms choose their own strategic behavior, investment in research, in development, advertising levels, collusions, etc. According to Moore (1973), market conduct comprises several methods practiced by traders to attract the customers to the business. It includes several price competition methods and non-price inducements. Purcell (1973) defined market conduct to refer to the actions and behavior of firms within the given structure. Pricing policies, selling cost, non-price competition is all some of the activities of market conduct. Therefore, market conduct resembles the behavioral pattern of firms in an industry. It comprises of various decision-making techniques in determining price, output, sales promotion policies and other tactics to achieve their economic goals (Grigorova et al., 2008). Thus, given the structure of the market, market conduct determines firm performance. Conduct in the SCP paradigm is assumed to be directly influenced by the market structure (Bain, 1956).As conduct involves the behavior (actions) of the firms in a market, the behavior of the firm is, therefore, determined by the structural characteristics of the industry (Mohamed, 2013). Scherer and Ross (1990) suggest that conduct in the SCP paradigm is related to the firms' product strategies, innovation and advertising. It focuses on how firms set prices, whether independently or in collusion with other firms in the market and on how firms decide on their advertising and research budgets and how much expenditure is devoted to these activities (Ferguson ,1994). Conduct also takes into consideration the pricing strategies and product strategies of the firms within an industry, research and development, mergers, legal strategies, etc. and a product strategy where each firm is constantly attempting to develop new brands (Grigorova, 2008). These aspects of conduct are influenced by the structure of the market since the firm's activities are based on the environment it is in to be successful (Mohamed, 2013). Lipczynski, Wilson and Goddard (2013) provide some list of elements of business conduct that are influenced by the structure of the market that include: business objectives, pricing policies, product design, branding, advertising and marketing, research and development as well as collusion and merger. They also provide further explanation on the elements of conduct that include the following:

- The objective that firms pursue often is derived from structural characteristics of the industry, in particular the firm size distribution.
- The extent of a firm's discretion to determine its own price depends to a large extent on the industry's structural characteristics.
- Natural or inherent characteristics of the firm's basic product are likely to influence the scope for non-price competition centered on product design, branding, advertising and marketing.
- Together with advertising and marketing, investment in research and development provides an outlet for non-price competition between rival firms. The extent and effectiveness of research and development investment, and the pace of diffusion are critical determinants of the pace of technological progress
- Collusion is another option open to firms wishing to avoid direct forms of price or non-price competition. Therefore, collective decisions concerning prices, output levels, advertising or research and development budgets will be reached. Collusion may be either explicit (through an arrangement such as a cartel), or implicit or tacit (through a less formal agreement or understanding).
- Horizontal mergers (between firms producing the same or similar products) have direct implications for seller concentration in the industry concerned. Vertical mergers (between firms at successive stages of a production process) affect the degree of vertical integration. Conglomerate mergers (between firms producing different products) affect the degree of diversification. Therefore, each type of merger decision provides an example of a conduct variable that has a feedback effect on market or industry structure.

On the other hand, there is a strong view that firm's conduct is able to influence the market structure. For instance, firms' conduct is able to change market structure through merger process. Different mergers, horizontal, vertical, or conglomerate, are of different influence on the structure of market. This is because mergers between firms could increase market power, by increasing the market share or the entry barriers in an industry (Shepherd and Wilcox, 1979). Shepherd and Wilcox (1979) argue that when a horizontal merger takes place, market concentration increases, competition reduces and the merging firms increase their market power over prices. Concluding from this, one could say that together with structure, conduct defines performance. Hence, firm's conduct is also capable of changing the market structure.

2.3.3. Performance

In the view of Bain (1968), market performance deals with the economic results that flow from the system in terms of its pricing efficiency and flexibility to adapt to changing situation etc. It represents the economic results of the structure and conduct. According to Narver and Savitt (1971), performance was the net result of the conduct and was measured in terms of net profits, rate of return on owner's equity, efficiency with which plant, equipment and other resources were used and so on. Market performance is related to market structural conditions and firms' conduct with regard to pricing and product policies and profitability (Bain, 1956), productive and allocative efficiency (Neuberger, 1997), Growth (Lipczynski et.al; 2013) are regarded as important performance indicators. In terms of measurement, performance is measured by comparing the results of firms along the industry in relation to price, quantity, product quality, resource allocation, production efficiency, etc. (Neuberger, 1997). This is usually applying the accounting measures such as RoA, RoE, NIM etc. which in fact is subjected to several criticisms. On the other front, market performance resembles price level, profit margin, level of investment, reinvestment of profit etc. (Hay and Morris, 1991). In other words, through the level of prices, the level of profit margin etc., one can determine the degree of market integration which has a bearing on both the structure and conduct of firms. Therefore, the economic result of market structure and market conduct represents market performance. From the above observations, it can be maintained that market performance is the combined result of market structure and market conduct.

2.4. *Competing Hypotheses*

There have been two ways of classification on the approaches and methods to assess the level of competition, namely, tests on structural and nonstructural characteristics (Bikker, 2004). The structural methods focus on characteristics such as the level of concentration in the industry, the number of banks, market share, etc. (Bain, 1951). Structural theories consist of the SCP framework and the Efficiency Hypothesis (ESH) (Bikker and Haaf, 2001) and other variants like the quiet life hypothesis (Hicks, 1935) and contestable theory of the firm (Baumol, 1988). As revealed in the previous section, a useful organizing framework to think about competition and market power is provided by the structure conduct performance paradigm. This part of the literature considers other structural and non-structural competing hypotheses.

2.5. *Efficient Structure Hypothesis*

The Efficient Structure Hypothesis (ESH) underscores that market concentration emerges from competition where firms with low cost structure increase profits by reducing prices and expanding market share (Simrlock, 1985). This remains to be a competing as well as alternative rationalization for the link between industry concentration and performance. As proposed by Demsetz (1973) and others (Peltzman, 1977; Gale and Branch, 1982) higher performance of firms is the result of better efficiency. The hypothesis, therefore, the assumed positive relationship between industry concentration-performance is much a result of gains made in market share by firms with superior efficiencies. The final result, then, will be an increase market concentration whose main source belongs to better efficiency. Hence, better profits are not because of collusive activities as the traditional SCP paradigm would suggest (Molyneux and Forbes, 1995). Therefore, firms with superior management or production technologies have lower costs of operation that apparently translated to higher profits.

The ES hypothesis predicts that under the pressure of market competition, efficient firms win the competition and grow, so that they become larger, obtain greater market share and earn higher profits. As a result, the market becomes more concentrated (Sathye, 2005). The firms, therefore, have two options to maximize their profit level: they either maintain their price and reduce firm size or by lowering price and expanding the firm size (Williams et al., 1994). Consequently, higher profits are generated by large firms as a result of their superior efficiency. The main conclusion in these regard is the extra profits generated can be considered as an economic return and not as a return on monopoly (Chortareas et al., 2009; Seelanatha, 2010).

Mathematically as well, the ES hypothesis posits that the positive correlation between performance and concentration is spurious and a positive relationship between market share (MS) and performance should be interpreted as the consequence of efficiency (Simrlock, 1985). Philips (1976) further explained that market concentration and higher profitability may be the result of superior capabilities and economic efficiencies of firms in highly concentrated markets. A very vivid explanation of the theory of ESH is provided by Gale and Branch (1982, p.83) who stated that:

- ...market share, not concentration, is the primary structural determinant of profitability. Market share increases profits through the benefits of scale economies. In contrast, concentration affects profits by facilitating oligopolistic coordination. ...scale economies are far more powerful than oligopoly power in determining profit levels.... Provisions of our antitrust laws based on presumption that concentrated market structures lead to resource misallocation (...) are misguided and may well be leading to decreased efficiency.

The hypothesis has enjoyed significant support in the banking literature (Gilbert, 1984; Berger and Hannan, 1989, 1997; Berger, 1995). Among others, Smirlock (1985) and Molyneux and Forbes (1995) showed that there is a spurious relationship between concentration and profitability but between profitability and the proxy for the firm's efficiency measure (market share). Other studies also diverted attention towards considering the effects of efficiency on structure-performance relationship through explicitly estimating components of efficiency (Berger and Hannan, 1993; Maudos, 1998; Mendes and Rebelo, 2003; Sathye, 2005; Papadopoulos, 2004; Katib, 2004; Fu and Heffernan, 2009; Chortareas et al., 2009; Seelanatha, 2010 etc.). The test of the ES hypothesis has been usually proposed in two different forms, depending on the type of efficiency considered. In the X-efficiency form, more efficient firms have lower costs, higher profits and larger market share, because they have a superior ability in minimizing costs to produce any given outputs. In the scale efficiency form, the same relationship described above is due to the fact that more scale efficient firms produce closer to the minimum average cost point (Berger and Hannan, 1993). Despite the controversies with the SCP hypothesis, the ES hypothesis has been tested in empirical studies in the context of a test of the SCP hypothesis (Weiss, 1974 and Smirlock, 1985). Therefore, ESH can be considered as an alternative interpretation to the SCP paradigm than a standalone model to totally disregard the SCP hypothesis. However, the debate among concentration and efficiency theories has not yet been satisfactorily resolved (Goddard et al., 2007).

As discussed above, the interpretation and implications of the two approaches seem flip sides of one another. The efficient hypothesis claims that industry concentration lowers competition, therefore, competition and efficiency remain inversely related. In other words, unlike the SCP paradigm, this approach has reversed the causality running from efficiency to competition. In contrast, the SCP establishes that a low degree of competition from high industry concentration results in market inefficiency. The view apparently is unlike that efficient theory that posits that a market becomes more efficient as it becomes more concentrated so that anti-concentration measures are unnecessary distortion in the economy (Goddard, 2001).

2.6. *Quiet Life Hypothesis*

As an extension of the structural theorists, both SCP and efficient hypothesis, Hicks (1935) came up to establish a relationship between industry concentration and level of efficiency. The basic premise of the quiet life hypothesis lies on that a banking monopoly

restricts the managers' initiatives to ensure efficiency. Hence, they prefer a quiet life situation free from competition. Therefore, firms operating in an increased concentration not only limit competition but also operate under reduced efficiency level. Therefore, the main focus of the hypothesis is on the effect of market power on efficiency. The view appears similar to the SCP but contrast with the efficiency theory as it presumed that competition is a driver of efficiency. Hicks (1935 p.8) explained the quiet life hypothesis as:

- "...the subjective costs involved in securing a close adaptation to the most profitable output may well outweigh the meager gains offered. It seems not all unlikely that people in monopolistic positions will very often be people with sharply rising subjective costs; if this is so, they are likely to exploit their advantage much more by not mothering to get very near the position of maximum profit, than by straining themselves to get very close to it, the best of all monopoly profit is a quiet life."

In a concentrated market, firms do not minimize costs because of inadequate managerial endeavor, absence of profit maximizing conduct, lavish expenditures to obtain and maintain monopoly power and/or survival of inefficient managers (Berger and Hannan, 1998). Under monopoly or high market power, firms and their managers prefer a quiet life which mathematically is observed under a negative correlation between market power and managerial efficiency. Berger and Hannan (1998, p.454-455) provide several justifications for the relationship between higher levels of market power and lower efficiency levels:

- Firms' discretion to levy high prices beyond the competitive levels discourages managers not to put the expected effort to control their costs. They prefer a quiet life that permits owners to earn price derived economic rents rather than the earning from effective cost control,
- Market power also results in managerial leisure that allows them to pursue objectives other than profit maximization. Such situation enforces managers to choose expense preference behavior or low risk-taking behavior;
- Lack of competitive environment also creates a slack in resources that will wastefully be invested to obtain market power. This action obviously reduces the cost efficiency but profits may be higher as a result of acquired or purchased market power that raises the economic rent.
- Market power also incubates inefficient managers and allows them to persist in the system even without any intention to pursue goals other than maximizing firm value. Thus, ineffective managers whose main focus will be to protect market power resiliently operate in the system even they appear inefficient.

In fact, there are some views which contrast the justifications of the quiet life hypothesis specifically in the context of the banking system. In such regard, Petersen and Rajan (1995) proposed a counter argument to the quiet life hypothesis due to the fact that:

- banks with market power are associated with lower costs of borrowing and transaction monitoring. This advantage improves the efficiency of large banks and leads to a positive relationship between market power and cost efficiency.
- market power also allows banks to enjoy greater profits which may create incentives to behave prudently. This behavior leads to the selection of less risky activities with lower monitoring costs.
- banks with market power are under less pressure to increase the quality of banking services, consequently, decreasing the operating costs.

The above argument contrasts the justifications of Berger and Hannan (1998) who found that quiet life effects in banking remained several times more substantial than the social losses from the mispricing of products arising from market power. However, both explanations assume that the traditional SCP paradigm holds, at least partially. It should, however, need to be noted that the Quiet Life Hypothesis is not a necessary part of the market power paradigm, but is often included in it (Shepherd, 1979).

2.7. Contestable Market Theory

The theory of contestable markets which was first introduced by Baumol, Panzar and Willig (1982) in their book, '*Contestable Markets and the Theory of Industry Structure*' stated that the threat of entry can persuade firms in an industry to moderate their pricing behavior. Such scenario is observed irrespective of the number of firms in the industry. Free entry and exit (from industry without cost) are the cornerstone of the contestable market theory. Therefore, as long as the market is free to enter and exit without cost, it can effectively hinder market monopolist to limit its greed and abandon all likely high profits to enjoy. This is explained in Baumol (1982, p. 3-4) as:

- "A contestable market is one into which entry is absolutely free, and exit is absolutely costless. . . . the entrant suffers no disadvantage in terms of production technique or perceived quality relative to the incumbent, and that potential entrants find it appropriate to evaluate the profitability of entry in terms of the incumbent firms' pre-entry prices. . . . The crucial feature of a contestable market is its vulnerability to hit-and-run entry."

In this sense, contestability theory offers an alternative theory of natural monopoly and the way in which consumers' interests are best served by the firm (Baumol, 1982). Unlike the conventional thinking, the theory doesn't recommend for a regulation of the natural monopoly.

- "The contestability theory breaks the traditional thought in arguing against presumptive regulation of the monopolist. If the market were contestable, the pricing behavior of the incumbent firm would be disciplined by the threat of entry of competitors. In other words, the threat will induce something approaching competitive pricing on the part of the incumbent monopolist." (Bratland, 2004, p.4)

A perfectly contestable market exists only in the presence of potential competitors who constantly seek to enter (exit) the market to take advantage of available profit opportunities (avoid economic loss), suggesting that potential competition is a crucial feature of

perfect contestability (Martin, 2000). Perfect contestability further assumes competitive behavior among incumbents themselves not just with respect to potential entrants. Therefore, contestability theory represents a distinct move away from the SCP approach to industrial organization theory. Amavilah (2012) maintains that true contestability exists if:

- the profit for all firms in the industry remains zero. Therefore, a profit level exceeding zero (or a positive profit) motivates competition;
- efficiency of any kind is not allowable. The system eliminates inefficiency as it associates with a positive short-run profit;
- price for the outputs should always be set equivalent to the marginal cost of production and predatory pricing is not allowable. A price above marginal cost attracts new entrants.

If these conditions are met, market structure, in itself will not be a worry as argued by the SCP theorists. In other words, high concentration will not have pressure on performance and remains a negligible case for regulatory intervention (Spulber, 1989). Regulatory involvement is needed to ensure the above-mentioned conditions: efficiency, price and others (Amavilah, 2012).

2.8. Empirical Evidences

The SCP framework, which originated from the works of Mason (1939) and Bain (1951) as methods of analyzing industry concentration, has made its focus in the manufacturing sector (Sathye, 2005). It was later (in 1961) introduced into the banking industry following the work of (Schweiger and Mcgee; Atemnken and Joseph, 1999). It has, therefore, remained as a commonly used model to test the casual link between industry concentration and bank performance (Berger and Hannan, 1998). Consequently, several studies intended to explore the link between market power, efficiency and performance of banks were conducted in several countries (Claeys and Vennet, 2008, Deltuvaite et al, 2007, Flamini et. al, 2009, to mention but only a few). In other words, the studies focus mainly relied on testing the validity of the basic proposition of the traditional SCP paradigm that the industry concentration lowers the cost of collusion between firms and results in higher than normal profits. The communalities among the studies tend to encircle around testing the two contrasting market paradigms, the SCP and the efficient market hypothesis. The two competing views are based on the concept of market power, structure conduct, performance and relative market power (RMP) on one hand, and efficiency-based explanations on the other (Chortareas, 2009). The market power hypotheses are based on the premise that banks with a higher market share might earn superior profits due to their market power (Shepherd, 1986). A disintegration of concepts has also been observed in the efficient structure proposition. The relative X-efficiency (ESX) hypothesis states that more X-efficient banks (due to better management or better technology) have lower costs of operation, higher profits and bigger market shares which may result in greater concentration (Demsetz, 1998). Therefore, banks operating at optimal economies of scale will better reduce their unit costs which result in higher unit profits. This in turn may be translated to gain in market share and/or greater concentration. Therefore, concentration remains the result of efficiency rather than market power as presumed in market power theories. Nevertheless, the studies result shows a mixed and inconclusive empirical evidence to point out the supremacy of one model over the other (Gilbert, 1984; Goddard et al., 2001).

2.9. Evidences on a Positive Link between Structure and Performance

The theory surrounding the SCP hypothesis is that certain industry structures are suitable to monopolistic conduct allowing firms to augment prices beyond marginal costs thereby making unusual profits (Bain, 1951). The direct effect of this conduct is a reduced competition and imperfect market structure (Shepherd, 1985). SCP pointed out that changes in industry concentration may have a positive pressure on a firm's financial performance (Goldberg and Rai, 1996). Therefore, the resultant positive link between industry concentration and performance emanates from the anti-competitive behavior of firms with large market share (Berger and Hannan, 1998).

Empirical studies also put forward a positive and statistically significant connection among market structure and bank performance. The basic conclusion from the evidences appears that more concentrated markets attract less degree of competition. The SCP hypothesis, therefore, reigns in situations where the impact of market concentration was found to be significantly positively related to firms' profitability. There are many empirical studies of SCP relationships in the banking industry that support this hypothesis. For instance, Gilbert (1984) survey on 44 studies depicted that thirty-two of the studies were in line with the fact that market concentration significantly and positively related with bank performance. Moreover, a positive link between bank concentration and profitability measure (ROE) was found by Short (1979) in a study which was based on a sample of banks from Canada, Western Europe and Japan. Similarly, Moore (1998) explored the casual link between concentration ratio and profitability using both univariate and multivariate regression tests and found that the bank concentration had positively affected performance. He has added technology variable to the model and found that the positive relationship doesn't altered even when technology variable varies. In addition, the results by Berger and Hannan (1989), and Pilloff and Rhoades (2002) are in line with the SCP predictions of a significant effect of industry concentration on performances.

2.10. Studies Supporting the Efficient Market Hypothesis

The SCP supporters' empirical test is challenged by a thought from the efficient market theorists and mainly of Demsetz (1973) and Peltzman (1977). They argue that banks are able to maximize profits and gain market share by being efficient. Consequently, market concentration increases following a rise in market share, which is a gain from the superior efficiency of the leading banks (Simrlock 1985). Smirlock (1985) and Evanoff and Fortier (1988) attempted to demonstrate that a relationship exists between bank market share and bank profitability but not between concentration and profitability.

As discussed in previous sections, Berger and Hannan (1998) has laid down a methodology to assess impact of such relationship (efficiency- profitability) including direct measures of inefficiencies (X- and scale inefficiencies). The addition of two efficiency measures therefore has resulted in four competing hypotheses. Two market power theories (SCP, RMP) which are based on industry concentration and market share measures and two efficiency theories (ESX and ESS) that are based on managerial and scale efficiency elements. The study of Berger and Hannan (1998) finds that a positive and statistically significant relationship exists between the market share and X-efficiency variables with bank profits. More recent studies (Seelanatha, 2010; Prasad and Radhe, 2011) have followed the Berger and Hannan methodology by explicitly including the efficiency measures in their estimations.

2.11. Studies Conducted in the Ethiopian Banking Sector

Muir (2012) referred Ethiopia's banking system as 'weird' and it's like a throwback to an earlier Africa, the Africa of the 1970s or 1980s. The reason cited by him was related to the high concentration and, hence, the structure of the sector. He stated that the banking system is dominated by two big state-owned banks accounting more than 50% of all lending. Muir's argument also extends towards the ownership structure of Ethiopian banks. He cited that the dominant state ownership revealed in Ethiopia is 'weird' phenomenon as compared the banks in all over Africa.

In the Ethiopian context, the high concentration aspect seems a more general truth than a research topic inviting further investigations. Bank and financial sector related studies usually cite the concentration of the Bank industry as the area deserves attention. However, very limited studies instituted to provide in-depth analysis on the extent of concentration and its impact on bank performances. A notable attempt in such regard is by Lelissa (2007) who has measured the banking concentration using HHI and k-bank (K1,2.). He has found that the Ethiopian banking system is highly concentrated and dominated by the state-owned bank. However, the study lacks to test the impact of such result on the performance of banks.

On the other front, the empirical works in foreign countries reviewed above have supported either the SCP or Efficiency or both paradigms. However, there is lack of such studies in the context of Ethiopia. Bank related studies in Ethiopia can be classified into: performance assessment related, related to the financial liberalization and focused on efficiency analysis.

Performance related studies witnessed the positive trend in bank performance indicators. Study of such a kind includes (Jenber, 2001), who assessed developments in market share, balance sheet, capital adequacy and profitability using data for 1997/97-1999/00. The study pointed out that profitability of the banking industry in general was high in the study period and profitability of most private banks in particularly was encouraging. The other variant of study with regard performance is the attempt to segregate variables impacting bank performances. For instance, studies of Kapur (2009), Benti (2007), Abera (2011) and Nigusie (2012), examined either of the bank-specific, industry-specific, macro-economic or all of the three factors affecting bank profitability in Ethiopia. In terms of variable selection, the studies have used capital strength, bank size and gross domestic product, operational efficiency and asset quality. Some of the studies, however, are focused on private banks and the public banks, which constitute the high share of the industry, were not in the domain of the study. Methodologically, the studies have used multiple linear regression techniques to assess impact of selected variable on the profitability of banks. An exception in such regard is Benti (2007), who has used pane l(longitudinal) data GMM estimator, to assess the impact of the stated variables on private banks' profitability performance. Nonetheless, the analysis is done excluding the stated owned bank.

Bank reform related studies seem to have similar concerns with regard to the gradualism and incomprehensive liberalization measures of the 1990's. Therefore, most of them are intended to indicate for a great need for additional market oriented reforms to further enhance the sector's role. For instance, Geda (2006) assessed empirically the pre-and post reform performance of the commercial banks in Ethiopia. He showed that the financial sector reform has brought lot of changes to the Ethiopian banking industry and criticized the slower pace at which the reform is moving on. Bezabeh and Desta (2014) also suggested the additional policy initiatives to be undertaken by the government to activate the sector. These include: a) reversing the decision prohibiting foreign banks from investing in the country, b) fully privatizing the state-owned commercial banks, c) allowing market forces to determine interest rates and the exchange rate of the Ethiopian currency, Birr (ETB), and d) upgrading the regulatory and supervisory capacity of the National Bank of Ethiopia to facilitate efficiency in the banking market. However, methodologically, the studies are qualitative descriptions supported by trend or point in time data on selected indicators like deposit, loans etc.

3. Methodology

The study explores the relationship between concentration and efficiency measures with bank performances. The model constructed investigates the market power situation in the banking system against its level of impact on both price and profitability measures with a fundamental motive of examining the structure-conduct- performance relationship in the Ethiopian banking system. The model constructed examines the central question and main hypothesis of the study: Ho: market structure has no impact on the performance of banks. The above hypothesis further used to determine which of the stated hypotheses related to market power and efficiency best explained banks' performance. Multiple least square regression technique is employed to test the constructed models using pane l(longitudinal) data. Moreover, various statistical analyses are carried out to test the robustness of some key models.

3.1. Model Construction

In order to test the aforesaid relationship several models based on the theory of structure-conduct-performance has been employed. The model is basically estimated using a linear regression approach consisting of the following equation:

$$Per\%_{i,t} = \beta_0 + \beta_1 con\%_{i,t} + \epsilon_{i,t} \dots\dots\dots (Model 1)$$

Where P_i = measures of performance (profitability/net interest margin), con = estimated coefficient for concentration applying the commonly used concentration measures such as HHI, k-bank concentration ratio.

The above model estimates a simple relationship between bank performances and concentration measures which is the basic model employed during the origination of a quantitative testing on market power and price relationship. Nevertheless, such approach has been criticized in several studies for the mere fact that it has a potential to lead in a different interpretation of the outcome. For instance, a positive outcome is construed in favor of the structure-performance relationship as claimed by the SCP hypothesis. However, others consider it as a good indicator of the efficient hypothesis which asserts that the market concentration is a result of efficiency of large firms. Therefore, the interpretation variation has resulted in the inclusion of more variables to control for the interpretation differences. The approach on top of the problem arose from the good work of Berger and Hannan (1993) that explicitly incorporated four variables, two efficiency indicators and two market power related, in their regression model as explanatory variables. The addition of the four explanatory variables not only resolved the interpretation difference but remained as a good cause for the emergence of four testable hypotheses: SCP, RMP, ESX and ESS whose interpretation is well articulated in the literature review section. Therefore, the above model further expanded incorporating the stated explanatory variables as shown below:

$$P_i = f(\text{lag } P_i, \text{CONC}, X\text{-EFF}_i, S\text{-EFF}_i, MS_i, Z_i) + e_i \dots\dots\dots(2)$$

where P_i is a measure of performance, $\text{lag } P_i$ - one period lag of the performance variable, $X\text{-EFF}_i$ is a measure of X-efficiency, reflecting the ability of banks to produce a given bundle of output at minimum cost through superior management or technology, $S\text{-EFF}_i$ is a measure of scale-efficiency, reflecting the ability of banks to produce at optimal output levels (economies of scale) given similar production and management technology, CONC . is a measure of concentration in market m , MS_i is market share of bank i in market m , Z_i is a set of control variables for each bank i , and e_i is an error variable for each bank i .

3.2. Model Variables

The independent and dependent variables are a direct derivatives of the four variables indicating market power and efficiency. A direct measure of efficiency scores describing the managerial and scale efficiency as it computed using the Data Envelopment Analysis (DEA) are further used to test the structure-performance relationship. This is supported by additional explanatory variables explaining market concentration (such as the HHI and CR) and market power (Market share). With regard to market structure, the study has given more preference to HHI as proxy of market concentration since; it considers the market shares of all firms in the market. Furthermore, other control variables which emerged from interview and the literature are used to build the model. The control variables have been incorporated to represent risk and ownership. The definition and the expected relationship are framed based on the literature work and interview findings. These are displayed on the below table:

Variables	Definition
Dependent	
ROA	ability of a bank’s management to generate profits from the bank’s assets
ROE	the return to shareholders on their equity
NIM	residual of interest income resulted from efficient decision making of management
Independent	
ROA t-1, RoE t-1, NIMt-1	One period lag of the return on assets, return on equity and net interest margin
HHI	Measure of industry concentration level considering market share of banks
MS	Measures market power of each bank
XEFF	Managerial efficiency level as produced in the DEA score
SEFF	Scale efficiency of banks as computed in DEA score
LNDP	Measure of banks risk taking behavior
Dummy ownership	Bank ownership type; 1 for state banks and 0 for private banks

Table 1: Definition of Variables
Source: Authors Computation(2016)

3.3. Data and Samples

The information about all variables is gathered from published financial statements of local commercial banks and the NBE database. The data collection is done for all banks in the industry spread over 18 cross -section (banks) and time period for 1999-2015. This has resulted in an unbalanced pane l(longitudinal) data set of 193 total observations. The bank efficiency scores are estimated based the DEA model applying the intermediation approach whose rationale of choice is explained in the conceptual model.

3.4. Descriptive Statistics and Trends

The model estimation follows a trend and descriptive statistics analysis on the selected variables. The two commonly used measures of profitability performances, RoA and RoE were all positive and large indicating the good profitability records of the banks in the industry. Variation wise a closer distribution is revealed if one considers the standard deviation for RoA which indicates that even the most profitable bank is not far by more than 1 standard deviation from the mean profit record of the industry. Therefore, despite noted exceptions in some periods, the Banks capacity to generate profit from their asset holdings is almost comparable across banks. Nevertheless, the scenario could be reversed in case of RoE, where the variations reach 12 standard deviations. This witnesses the fact

that there is variation across the industry in terms of their capital holdings as a buffer to potential risks and a cushion in case of liquidity problems. The situation also provides an indication on regulatory involvement in the relation to capital requirement which has been repetitively subjected to revisions to a growing level. The situation could potentially be aggravated due to the recent requirement from the regulator for banks to increase their capital level to Birr 2 billion regardless of the growth in their asset holdings. Such regulatory involvement therefore is enforcing some banks to hold excess capital as compared to their risk profile of the asset bases.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
HHIDP	193	3524.59	7618.85	4830.5657	1137.04026	1.163	.175	.296	.348
HHILN	193	2054.50	6926.30	3867.1206	1161.66249	.941	.175	.654	.348
XEFF	193	.27	1.00	.8421	.12551	-.905	.175	1.904	.348
SEFF	193	.27	1.00	.9143	.11385	-2.306	.175	7.650	.348
MSLN	193	.16	82.76	9.0465	16.48154	2.991	.175	8.017	.348
MSDP	193	.12	87.09	8.8078	19.34728	2.973	.175	7.338	.348
OWN	193	.00	1.00	.1762	.38195	1.713	.175	.946	.348
ROE	193	.00	90.82	18.9962	12.87965	1.697	.175	6.461	.348
ROA	193	.00	5.25	2.2333	1.10661	-.312	.175	-.252	.348
NIM	193	.00	10.16	4.5473	1.80649	.265	.175	-.055	.348
LNDP	193	29.69	162.23	69.1821	21.34469	1.545	.175	3.762	.348
ROAT1	193	.00	5.25	2.2250	1.10573	-.294	.175	-.254	.348
ROET1	193	.00	90.82	18.9806	12.88018	1.701	.175	6.468	.348
Valid N (listwise)	193								

Table 2: Descriptive Statistics
Source: Authors Computation (STATA 12)

On the other front, one of the price performance measures, the net interest margin shows that the net yield from earning asset holdings and specifically of the lending business is on the high side. The less variation record as witnessed by a standard deviation measure shows that the variation in earning due to price difference is not material and doesn't affect the yield from earning assets. Therefore, price related competition seems not widely observed or is easily adjustable creating a convenience for banks to enjoy a high net positive yield from their exposure in interest yielding assets and interest bearing liabilities.

The industry concentration as measured by the Herfindahl Hirschmann Index (HHI) on average stood at 4830 and 3867 in the deposit and loan market, respectively. The level stood in a high concentration range. The measure signals a high concentration scenario widespread across the banking system which will be a good starting point to explore further the effect of such market structure on performance of banks. Trend wise, the HHI has been in the decline path specifically during the period 1999-2007 which has reduced from 7618 to 4326 and later moved to the growth path due to the increased market share of the CBE. The gradual decrease in market position of the CBE following the entry of new private banks however shortly reversed due to the banks aggressive move to gain the lost market share in the past period. In addition, the good growth record of early entrant banks also contributed for the upward move in the concentration measure. Despite noted fluctuations in the HHI measure the recent period records show stability witnessing the fact that the contribution of recent entrants to the system has negligible effect to alter the market concentration towards diversifications. Therefore, in spite of the growth path trend in the private banking system, the market position of the big state owned banks remains unaffected and even has been growing at higher rate aggravating the market concentration.

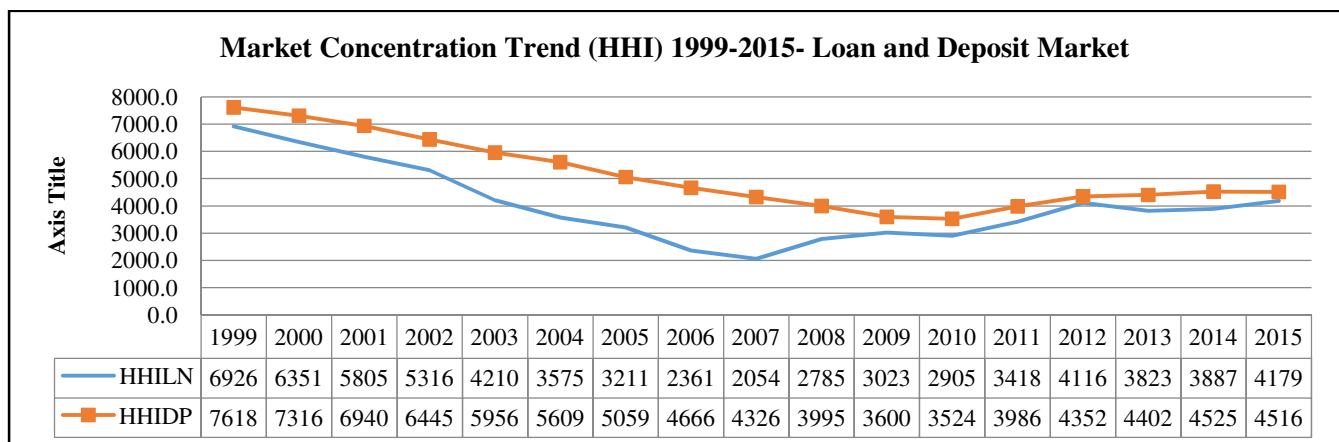


Figure 1: Trend in Industry Concentration of Ethiopian Banks from 1999-2015
Source: Authors Computation (2016)

A separate view on each market also substantiates similar scenario, where the trend in the high rate of depletion in the loan market concentration during past periods due to strong performance of the private sector, has now remained sluggish. The trend even is growing at a higher rate narrowing the wider gap observed as compared to the concentration at the deposit market.

Similarly, on the market power front, the three-bank ratio shows that around 76% and 84% of the loan and deposit market, respectively, is taken by the top three banks. In other words, the other 15 banks shared only 24% and 16% of the loan and deposit businesses, respectively. The finding is in line with the HHI measure and witnesses a high concentration/market power scenario which is exceptionally high even as compared to other banks in Africa (for instance, Fosu (2013) find the five-bank concentration ratio of African banks to equal 71%). The ratio witnesses the existence of a high market power scenario that reign in the system if exploited could potentially lead to a market collusion situation that have implication on the competitiveness and performance of the industry.

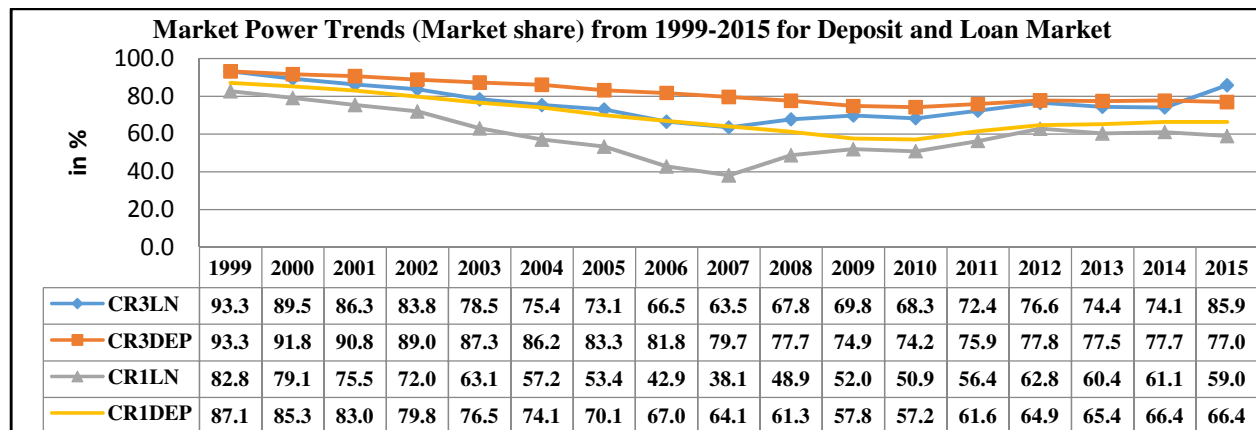


Figure 2: Market Power Trends of Ethiopian Banks from 1999-2015
Source: Authors Computation (2016)

Trend wise, the share of the top three banks has been in decline at slower pace during the periods 1999-2007 with a shift towards incremental growth revealing an instantaneous increment during the recent years. The trend observed is comparable in both markets with practical pronouncements in the loan market.

A separate review on the market power of the big bank applying the one bank ratio has not changed the trend and composition in market trend. The above shows that the change in trend and market power position observed in the banking system is much a reflection of the market share rank of the big bank than the other additions to the system. This provides a good justification for the usually cited argument for the prevalence of state dominated banking system or a dominant bank scenario in the Ethiopian banking system.

As can be observed in the upcoming section, the managerial efficiency measure, XEFF, is on average 84% showing that with the existing level of activity, some banks could have been more productive just by increasing their managerial and technological capacities. Correspondingly, the descriptive statistics on scale efficiency shows an improved efficiency level of the banking system (mean 91%) as compared to the managerial efficiency (84%). The variation observed, however, is significant in most cases witnessing the existent of banks in the system which could have improved performances through operating at suitable scale of operation. The detail on efficiency score is shown in the next section.

The dummy variable, ownership type carries a value of 0 for private banks and 1 for state owned ones. The descriptive statistics for the dummy variable on average is closer to zero due to the existence of more number of private than public banks. The measure of banks risk taking behavior, Loan to Deposit ratio (LNDP), confirms that intermediation business has remained as a core engagement of the banking system. The average LNDP witness that deposit conversion in the form of loans has been strong over the periods and lending remained as the core activity of banks. Further look at on the risk-taking behavior of banks also skewed towards a high risk-taking initiative as reflected in a heated intermediation business even sometimes lending exceeding resource mobilization endeavor. Furthermore, the level signals the high demand for credit in the industry which eased the conversion of deposits to loans. The high risk-taking behavior perhaps will not be a surprise considering the limited areas of engagement for banks due to the underdeveloped financial system and lack of other supporting markets. Nevertheless, the variation in such variables is strong still explaining the difference in risk taking behavior and the tendency of some banks to make a shift towards other channels of businesses for earning.

Additional variables to measure the level of competition were also incorporated in the model through systematically adding their one period lag of the dependent variables. The lag in profitability ratios, RoAt-1, and RoE t-1, have comparable statistical behavior with the basic variables (without lag). The coefficient of the lagged dependent variable therefore represents the level of profit persistence. According to Berger at al. (2000), the persistence of profits in banks is the tendency of a firm remaining in the same profit distribution. This is because without market power, relatively high performance by a firm would be eliminated reasonably quickly as other firms enter its local market (Berger et. al., 2000).

3.5. Pearson Correlation

The estimated correlation coefficients show that there is a very little correlation among variables included into the model. Furthermore, the correlation in most of variables is significant witnessing a genuine relationship among the explanatory variables. For instance, market concentration measures in loan and deposit markets have established a significant positive correlation with the efficiency measures. This remains in line with the previous analysis related to high efficiency performance record of banks with significant market share holdings. The positive correlation among ownership and concentration also relates with the better efficiency performance of state owned banks which are dominating the banking business as observed in their market share. Efficiency measures have revealed a mixed output with a noted significant and positive relationship of the scale efficiency with concentration and negative relationship with the x-efficiency measure. The above correlation among other strengths our argument for the predominance produces of the scale efficiency to explain the efficiency variation among the different banking classes.

Correlations ^c														
		HHIDP	HHILN	XEFF	SEFF	MSLN	MSDP	OWN	ROE	ROA	NIM	LNDP	ROATI	ROETI
HHIDP	Pearson Correlation	1												
	Sig. (2-tailed)													
HHILN	Pearson Correlation	.841**	1											
	Sig. (2-tailed)	.000												
XEFF	Pearson Correlation	.111	.119	1										
	Sig. (2-tailed)	.124	.098											
SEFF	Pearson Correlation	.168*	.225**	.725**	1									
	Sig. (2-tailed)	.019	.002	.000										
MSLN	Pearson Correlation	.127	.064	-.175*	-.012	1								
	Sig. (2-tailed)	.078	.376	.015	.869									
MSDP	Pearson Correlation	.112	.051	-.189**	-.022	.987**	1							
	Sig. (2-tailed)	.122	.480	.009	.764	.000								
OWN	Pearson Correlation	.113	.052	.410**	.227**	-.061	-.090	1						
	Sig. (2-tailed)	.117	.474	.000	.001	.396	.214							
ROE	Pearson Correlation	-.257**	-.254**	.205**	.110	-.059	-.061	.318**	1					
	Sig. (2-tailed)	.000	.000	.004	.128	.416	.399	.000						
ROA	Pearson Correlation	-.401**	-.296**	.164*	.133	-.138	-.112	-.160*	.652**	1				
	Sig. (2-tailed)	.000	.000	.023	.064	.056	.120	.026	.000					
NIM	Pearson Correlation	-.161*	-.002	-.042	-.167*	-.108	-.109	-.218**	-.143*	.023	1			
	Sig. (2-tailed)	.025	.979	.565	.020	.136	.131	.002	.047	.752				
LNDP	Pearson Correlation	.184*	.092	.008	.016	.289**	.283**	.226**	.145*	-.052	-.171*	1		
	Sig. (2-tailed)	.010	.201	.907	.823	.000	.000	.002	.044	.474	.018			
ROATI	Pearson Correlation	-.394**	-.275**	-.115	-.040	.037	.051	-.216**	-.079	.156*	.234**	-.209**	1	
	Sig. (2-tailed)	.000	.000	.110	.581	.607	.483	.003	.273	.031	.001	.004		
ROETI	Pearson Correlation	-.252**	-.240**	-.079	-.050	.018	.016	-.151*	.006	.060	.133	-.158*	.652**	1
	Sig. (2-tailed)	.000	.001	.273	.489	.804	.823	.036	.929	.409	.065	.028	.000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

c. Listwise N=193

Table 3: Correlation Matrix
Source: Authors Computation (SPSS 20)

An interesting relationship is also observed between banks' risk-taking behavior, LNTA, with concentration measure which are significantly and positively related. The observed relationship suggests that banks with high risk exposure tend to contribute to concentration through increasing their market share. The correlation remains meaningful considering the use of market concentration measures based on loan and deposit market share. On the other hand, bank ownership is not significantly correlated with concentration but remains significantly related with scale efficiency measures. In general, the correlation among explanatory variables is not serious.

As explained by Gujarati, 2003, if the pair-wise correlation between two regressors exceeds 0.8, a serious problem of multicollinearity will arise. Estimated pair-wise correlation coefficient for explanatory variables shows such relationships between HHIDP and HHILN. The study treats the two variables in separate models to explore the effect of each variables representing market concentration on performances. The other variables however have a lower correlation coefficient not to pose a multicollinearity problem. This will be further tested using the Variance Inflation Factor (VIF) in the subsequent section.

3.6. Model Pre-tests

3.6.1. Outliers and Missing Values

Outliers and missing values may have an undesirable influence on the estimates produced by the regressions. Therefore, before running the regression models a univariate statistic showing summary for missing and extreme values is computed. The result shows that there are no missing values that are likely to lower the quality of pane l(longitudinal) data, but the data for some variables holds extreme values. For instance, the univariate statistics of variables presented in the table below shows that there are six extreme values in the dependent variable, mainly related to the higher extreme. Therefore, in order to reduce the potential bias caused by the outliers, winsorized¹ through replacing the top and bottom values of by the value at the 5th and 95th percentiles respectively. Nevertheless, the study opted to retain the extremes observed in the concentration and market share as the measures reflect the real market structure development in the Ethiopian banking system.

	N	Mean	Std. Deviation	Missing		No. of Extremes ^a	
				Count	Percent	Low	High
HHIDP	193	4830.5657	1137.04026	0	.0	0	23
HHILN	193	3867.1206	1161.66249	0	.0	0	15
XEFF	193	.8421	.12551	0	.0	2	0
SEFF	193	.9143	.11385	0	.0	6	0
MSLN	193	9.0465	16.48154	0	.0	0	18
MSDP	193	8.8078	19.34728	0	.0	0	17
OWN	193	.1762	.38195	0	.0	.	.
ROE	193	18.9962	12.87965	0	.0	0	6
ROA	193	2.2333	1.10661	0	.0	0	1
NIM	193	4.5473	1.80649	0	.0	0	1
LNDP	193	69.1821	21.34469	0	.0	0	9
ROAT1	193	2.2250	1.10573	0	.0	0	1
ROET1	193	18.9806	12.88018	0	.0	0	6
a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).							
b. . indicates that the inter-quartile range (IQR) is zero.							

Table 4: Univariate Statistics

Source: Authors Computation(2016)

The obvious outlier in such regard is the significant market share holding of the big commercial bank. Therefore, since the study's theme is to explore the impact of a dominant bank situation on performances, the identified extreme values on explanatory variables are retained.

3.6.2. Unit Root Test

The fisher options ADF pane l(longitudinal) unit-root test is computed to mitigate the impact of cross-sectional dependence(Levin, Lin, and Chu,2002) The main advantage of using the test is that the test can handle unbalanced pane l(longitudinal)s and the lag lengths of the individual augmented Dickey-Fuller tests are allowed to differ(Choi, 2001) . The Fisher-type test uses p-values from unit root tests for each cross-section with the hypothesis of Ho: All pane l(longitudinal)s contain unit roots and Ha: At least one pane l(longitudinal) is stationary. The test rejected the null hypotheses. The Fisher-type test uses p-values from unit root tests for each cross-section with the hypothesis of Ho: All pane l(longitudinal)s contain unit roots and Ha: At least one pane l(longitudinal) is stationary. The test rejected the null hypotheses as shown in the summary table:

¹There are different ways of dealing with outliers, such as winsorisation, exclusion, or retention. In this study, since the number of observations is not large, and the extreme values are likely to seriously bias the estimates, either exclusion or retention seems to be inappropriate. In this study, all winsorizing are done based on full sample rather than on balanced sample i.e. on the 193 cases.

Variables	Lag	p-value	Inv chi-sq
RoA	0	0.0000	204.1
RoE	0	0.0000	114.7
HHID	0	0.000	133.5
HHILN	0	0.0009	62.7
MSLN	0	0.0003	67.1
MSDP	0	0.0004	125.4
XEFF	0	0.0000	149.2
SEFF	0	0.0000	297.3
Ownership	0	0.0000	1.000
LNDP	0	0.0000	74.7

Table 5: Fisher Type Unit Root Test
Authors Computation (2016)

3.7. Regression Results

3.7.1. Hausman Test

Both the F-test and the LM test with large chi-square result rejects the null hypothesis, hence, the fixed and random effect models appear better than pooled OLS. The Hausman test taking the coefficients of the fixed and random models supported the null hypotheses that H_0 : difference in coefficients not systematic. The chi-square result is with probability higher than 0.05 supporting our initial hypothesis that the individual-level effects are adequately modeled by a random-effects model. Therefore, the estimation result has been done through the random effect model.

3.7.2. Rules for Testing the Hypotheses

Market Power Hypothesis - if either of the market power hypotheses holds true, then the expected signs of the coefficients for structural measures should be positive and greater than zero, that is $Conc > 0$ or $MS > 0$. The main research question of the study is to explore whether market power which results from high market concentration and relative market share or efficiency is important in determining overall performance of the banking sector. As shown in the table below, the market concentration measure (HHI) has established a negative and significant relationship with both profitability measures (RoA and RoE). Nevertheless, it's not significantly related with the price variable (NIM). The estimated coefficients for market power and concentration variables in all models are consistent to reveal a negative association with both price and profitability variables.

	Model 1	Model 2	Model 3
	RoA	RoE	NIM
LAG	.587719 (0.0089)*	0.4105 (0.0138)*	.65423* (0.0230)
HHILN	-.0002875 (0.0000)*	-.0031657 (0.0000)*	.0001346 (0.1990)
MSLN	-.0090811 (0.0000)*	-.0492583 (0.0047)*	-.0026079 (0.0817)
XEFF	1.337642 (0.128)	-1.367384 (0.0898)	.663684 (0.0056)*
SEFF	0.364892 (0.0198)*	0.98291 (0.0015)*	-.619851 (0.0012)*
OWN	-.5186258 (0.0570)	.29665 (0.0514)	0.640881 (0.0450)*
LNDP	.0032849 (0.0780)	.1365837 (0.0138)*	.0225556 (0.1954)
CONS	1.930947 (0.0316)*	8.867438 (0.0228)*	5.818448 (0.0000)*
Adjusted R2	42.32%	38.25%	33.45%
Walid Chi2	51.16 (0.0000)*	46.87 (0.0000)*	28.18 (0.0000)*
F-test	8.2 (0.0000)*	6.8 (0.0000)*	5.2 (0.0000)*
LM test	9.6 (0.0000)*	4.3 (0.0000)*	7.6 (0.0000)*
Hausman Chi2	216.0 (0.0645)	138.24 (0.5674)	108.32 (0.2055)

Table 6: Regression Results, * significant at 5% level of significance
Source: Authors Computation (STATA 12)

The result rejects both hypotheses (SCP and RMP) and supports the conclusion that neither collusive power from large banks nor high market power of individual banks has a significant influence on performance of the Ethiopian banking industry. This study rejects the traditional structure-conduct-performance hypothesis which claims that competitive conditions that result from industry structure influence the behavior of companies and in turn dictate the performance of the industry (Smit and Trigeorgis, 2004).

The study result, however, shows that the current performance of banks is not significantly influenced by market power and collusive power of large banks. Even performance measures tend to move in opposite direction with the existing market structure and market share distribution. Market abuses resulting from collusive behavior appear insignificant to affect the prices paid to resources as well as the interest earned from loans. This remains to be one of a surprising result in a market structure like the Ethiopian banking system (tight oligopoly²) where few large banks were predominantly taking the lead in major market areas. Such scenario theoretically supported to result in high concentration due to the less cost of collusion for existing firms. Nevertheless, this has not been supported in both price and profit models where the higher concentration in the market has not lead to higher prices and greater than normal profit. Hence, acting on the concentration variable will not be a driver to improve bank performances. This has been one of the critical findings brought to the interview session with bank managers and regulator staff in an attempt to look for good justifications as shown in the next chapter. The negative and significant association, however, portrays that bank performances could be further improved through correcting the market structure towards diversification.

Efficiency structure hypotheses- if efficiency structure hypotheses hold true, then expected signs of the coefficients for efficiency measures are greater than zero and positive. The signs of coefficient for structural measures are zero, that is: $XEFF > 0$, $SEFF > 0$, $Conc = 0$ and $MS = 0$ because more efficient banks are more profitable.

The first regression applied on profitability measures provided statistically significant evidence that the main cause of better performance is the scale efficiency of banks. The empirical findings show that scale of operation remained a pre-condition for banks to have superior performances. In other words, banks operating at suitable return scale have been driving better efficiency which is translated to high profit performances. This is in support of the scale efficiency version of the efficient hypotheses which claims that firms in optimum scale produce goods and services at relatively lower cost. The cost advantage; therefore, result in better profitability performances. Nevertheless, the regression on NIM model pointed out a statistically significant negative relationship between scale efficiency and NIM indicating that scale efficient banks charge lower net interest margin than less scale efficient banks. These results predict that banks with high scale efficiency are capable of earning higher profit lowering their interest rates on their earning assets and/or paying high interest rates on mobilized resources. Surprisingly, this is in line with the practice as observed from the result of the qualitative study where big banks were found to charge a relatively lower interest rate during credit extension. On the other front, managerial efficiency variables have shown mixed relationship with the applied profit performance measures but remain insignificant in all models. For instance, the managerial efficiency established a statistically insignificant positive relation with RoA but it has a statistically negative and insignificant relation with RoE. The insignificant relationship rejects the managerial efficiency version of ESH. However, an interesting prediction is that banks can augment their profit records from their asset by increasing their managerial capabilities. This however is not much observed on the RoE; whose denominator mostly fall under the discretion of regulatory environment. In contrast, the managerial efficiency has maintained a positive and significant relationship with NIM supporting the managerial efficiency version of ESH. Therefore, managerial efficient banks can gain higher NIM through in placing better management on their earning assets and interest-bearing liabilities. This is in line with the expected vital involvement from management in some critical operations that have a bearing on net interest margin such as maintaining strong asset quality and controlling cost of fund through establishing reliable deposit mixes. Therefore, creating a favorable credit management and resource mix framework appear to be a strong determinant to ensure a higher NIM than embedding price related measures to boost intermediation margins.

3.7.3. Competition/Contestability of the Banking Sector

The coefficient of the lagged variable for both RoA and RoE is between 0 and 1 suggesting for the persistence of profit. The lagged measure coefficient, however, is at the middle of 0 and 1 witnessing the modest competitiveness of the sector. The coefficient of the lagged profitability RoA_{t-1} and RoE_{t-1} , is the speed of adjustment to equilibrium profits (Athanasoglou et. al., 2005). Therefore, a value of this coefficient between 0 and 1 suggests that profits persist, but eventually returns to the natural level. A value close to 0 suggests that the speed of adjustment is very high meaning that the banking industry is highly competitive, and when the value is close to 1, the speed of adjustment is very low suggesting an industry with a low competitive structure. The traditional structure performance hypothesis assumes that the degree of market concentration is inversely related to the degree of competition (Edwards et al., 2006). Similarly, the study result finds a negative statistical relationship of market structure with performances which signifies that competitiveness of the sector could be improved through altering the existing structure of the banking system

3.7.4. Impact of Controllable Variables (Risk and Ownership) on Performances

The coefficients of control variables seem to be mixed with the results of the regressions. The regression results on the RoA model pointed out that state-owned bank have earned relatively lower profitability as compared to their asset holdings. Nevertheless, the RoE

²Salvatore (1998) identifies four different types of market organizations i.e. Perfect competition at one extreme, (b) Monopoly at the opposite extreme, (c) Monopolistic competition and (d) Oligopoly in between. In addition, Shepherd included the concept of the dominant firm as a firm having 50-100% of the market and no close rival. He further classified oligopoly in two to as tight oligopoly (The leading four firms combined 60-100% of the market) and loose oligopoly (The leading four firms have 40% or less of the market).

model predicts that state owned banks performed well in the usage of their equity as compared to the private owned banks. It implies that state owned banks are operating with relatively lower capital level enjoying the discretion to decide on the pertinent capital level. This is unlike the situation at private banks whose capital holding decisions is attached to regulatory interest. In both models, however, the relationship is statistically insignificant. On the other front, the state-owned banks have lower interest margin than private-owned banks. It implies that state-owned banks are in a better position of managing their interest expenses. The relationship is statistically significant and remained to be one of an unexpected result inviting opinion during the interview session. However, the result could not be a surprise if one takes into account the high share of demand deposits bearing closer to zero interest expenses. This has been also suggested in the interview and the favorable deposit mix of state owned banks is mainly a result of the implicit relationship of state owned banks have with public enterprises.

Both profit related regressions have exhibited positive sign for the estimated coefficient for variable represented risk, LTDP. The regression results confirmed the positive relationship between risk and the bank's profitability indicating that a heated intermediation forces banks to earn superior profit. This seems justifiable considering that fact that build-up of the lending portfolio has a double edge advantage of earning high interest income on one side and minimizing the opportunity cost of holding excessive liquid assets through lowering idle and non-earning funds on the other. Therefore, positive relationship between profitability and risk can be expected. The results provided statistically insignificant evidence to support the above relationship in case of the RoA model and remained significant in the RoE. The NIM model; however, has a statistically negative association with risk. Despite, the contribution of a high LTDP to boost earning and minimize opportunity costs as said herein above, a heated intermediation could cause a problem in the intermediation yield. This is because a high-risk scenario will place pressure on asset quality and deposit prices/mixes that have a downward effect on the NIM unless they are managed and controlled well. The relationship however is not statistically significant due to the lower level of asset quality problems in the Ethiopian banking industry.

3.7.5. Testing the Quiet Life Hypotheses

After witnessing the existence of market power whose effect on performance... To support the market power hypotheses, additional relationships are tested:

$$XEFFit = f(CONt, MSit, SEFF, Ze) + eit \quad (4)$$

$$SEFFit = f(CONt, MSit, XEFF, ze) + eit \quad (5)$$

These conditions as testing are called the 'quiet life' hypothesis. This hypothesis predicts a reverse causation, that is, as firms enjoy greater market power and concentration, inefficiency follows not because of non-competitive pricing but more so because of a relaxed environment that produces no incentives to minimize costs (Hicks 1973). In this case, the signs on the coefficients on CONC and/or MS should be significantly negative. Thus, banks with greater market power are less efficient due to relaxed environment and slack management.

As explained above, the first condition of test for the relationship between market power and performance failed to support the SCP Hypotheses. Therefore, the finding from the test of the quiet life will now have a sole purpose of exploring the link between market power and efficiencies. The test for the quiet life hypothesis similarly mainly has rejected the existence of a quiet life scenario in the Ethiopian banking industry in most of the scenarios; however it has ensured a mixed result in the market share measures. . The coefficients of the market concentration measures in both markets remained positive and statistically significant in all models. This suggests that the high industry concentration has positively impacted the scale and managerial efficiency of banks. The banks operating in highly concentrated markets therefore remained cognizant on their efficiency through controlling their scale of operations and improving their managerial efficiencies. On the other front, the market share variables has resulted in a mixed output where it has positively associated with scale efficiency but remained negatively associated with the managerial efficiency measures. Banks enjoying a high market share consider the scale of operation as an important determinant of their performances but their management engages in a quiet life behavior. Nevertheless, the lack of a significant positive association between market share variable with performances constrains to generalize on the reluctance of managers of banks with high market share on cost control.

	Model 1	Model 2	Model 3	Model 4
	XEFF	SEFF	MSLN	CONC
HHILN	.6250 (0.0156)*	.01440 (0.0010)*	-1.62020 (0.0998)	
MSLN	-.0018717 (0.0845)	.012961 (0.0650)		1.03888 (0.0988)
XEFF		.7456281 (0.0000)*	0.41926 (0.000)*	-.11132 (0.0845)
SEFF	.7281218 (0.0000)*	-.0233486 (0.37520)	0.347953 (0.0000)*	0.31982 (0.0285)*
OWN	.0731552 (0.0142)*	-.0233486 (0.37520)	-1.029979 (0.0966)	-1.1191492 (0.0956)
LNDP	-.0015542 (0.0380)	.018833 (0.0130)*	-.2786637 (0.0030)	-.30786 (0.0060)*
CONS	.2303744 (0.0000)*	.1933794 (0.0000)*	18.45111 (0.0090)*	23.22482 (0.0100)*
Adjusted R2	58.96%	60.02%	32.5%	28.33%
Walid Chi2	267.15	260.66	26.8	29.25

	Model 1	Model 2	Model 3	Model 4
	(0.0000)*	(0.0000)*	(0.000)*	(0.0000)*
F-test	2.4 (0.0000)*	4.5 (0.0000)*	6.2 (0.000)*	5.9 (0.0000)*
LM test	7.2 (0.0000)*	6.3 (0.0000)*	8.4 (0.000)*	9.2 (0.0000)*
Hausman Chi2	89.1 (0.0000)*	5.2 (0.0720)	3.4 (0.1811)	7.4 (0.8524)

Table 7: Regression Result

Source: Authors Computation (STATA 12)

In sum, in several points, the findings on the test of quiet life remains consistent with the analysis on efficiency at the next section where big banks were on the frontier and taking the lead in both scale and managerial efficiency indicators. Nevertheless, the unique relationship observed between market share and efficiency has been forwarded to the interview session for further justifications from bank managers and regulator staff.

3.7.6. Testing the Effect of Market Structure on Efficiency

A necessary condition for the efficiency structure hypotheses to hold is that efficiency affects market structure. To fulfill the necessary condition, following two equations are also tested:

$$\begin{aligned} \text{ii.} \quad & MS_{it} = f(\text{CON}_{it}, \text{SEFF}_{it}, \text{XEFF}_{it}, Z_{it}) + e_{it} \\ \text{iii.} \quad & \text{CON}_{it} = f(\text{MS}_{it}, \text{SEFF}_{it}, \text{XEFF}_{it}, Z_{it}) + e_{it} \end{aligned}$$

In both equations, the signs of coefficients for efficiency measures should be positive because more efficient firms will have larger market shares.

The testing on the two supplementary regressions has supported the scale efficient version of the ESH hypothesis. The scale efficiency has established a statistically significant and positive relationship with both market power and concentration measures. Therefore, the regressions have provided the conditional support for the existence of efficient hypotheses in the Ethiopian banking market. As explained in the ESH version of market structure hypotheses say that efficiency influences market share of the firm and concentration. Therefore, efficiency rather than market power is found to be a driver of performance and an essential element to build up market power.

3.8. Robustness Test (Specification Tests after the Result)

3.8.1. Normality and Linearity

The normality test using skewness and kurtosis tests shows that the variables used in the model are normally distributed.

Variable	Obs	Pr(skewness)	Pr(kurtosis)	Adjchi2(2)	Prob>chi2
RoE	193	0.0000	0.0000	63.45	0.0000
RoA	193	0.0000	0.0000	66.7	0.0000
NIM	193	0.0000	0.0000	72.34	0.0000
HHILN	193	0.0000	0.0000	73.5	0.0000
XEFF	193	0.0000	0.0000	68.52	0.0000
SEFF	193	0.000	0.0003	56.25	0.0000
MSLN	193	0.0000	0.0000	78.25	0.0000
OWN	193	0.0000	0.0006	68.45	0.0000
LNDP	193	0.0000	0.0005	58.62	0.0000

Table 8: Normality of the Variables

Authors Computation (STATA)

3.8.2. Multicollinearity Diagnosis

The test applied for multicollinearity is the Variation Inflation Factor (VIF) where $VIF = 1/\text{tolerance}$ and $\text{tolerance} = 1 - R^2$, $R^2 =$ coefficient of determination. The results from the VIF table suggest that VIF is not greater than 10 for any of the explanatory variables. Hence, irrespective of the significance level of multicollinearity, it appears to be not serious and can be ignored.

Variable	Obs	VIF	1/VIF
HHILN	193	2.28	0.437993
XEFF	193	2.13	0.469558
SEFF	193	2.34	0.427542
MSLN	193	2.17	0.461883
OWN	193	3.20	0.312925
LNDP	193	5.19	0.192807
Mean VIF		2.88	

Table 9: Multicollinearity Test

Authors Computation (STATA)

3.8.3. Heteroskedasticity

The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity is applied to verify the existence of heteroskedasticity. The test shows that at 5% level of significance, the p-value is higher showing that heteroskedasticity is not significant in the model. The small value of chi-square also supports the constant variance of the error term.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Indp

chi2(1)=2.11

Prob > chi2 =0.0878

3.8.4. Autocorrelation

To test for the existence of autocorrelation the Durbin Watson test is used. The test statistic can vary between 0 and 4 with a value of 2 indicating that the residuals are uncorrelated. A value greater than 2 indicates a negative correlation and a value less than 2 depict a positive correlation. The result has shown that the D-statistic appear closer but exceeds 2 depicting negative correlation. As suggested by Field (2009), values less than 1 or greater than 3 are a cause of concern. Hence from Field's rule of thumb it can be inferred that autocorrelation is not serious.

Durbin-Watson d-statistic (9, 23) = 2.987678

4. Conclusions

The research is an empirical study that explores the impact of industry structure and efficiency situations on performances incorporating various factors. It has used a quantitative approach to examine the relationships among proxies of industry concentration, efficiency, control factors with bank profit and price performances. It has used a census of 18 commercial banks operating in Ethiopia between the periods 1999-2015. It has used a panel (longitudinal) regression combining both cross-section and time elements that established 193 total observations. The empirical result has rejected the Structure-Conduct-Performance (SCP) hypothesis which posits a positive and significant relationship between industry concentration and performances measures. The SCP postulates that banks in a concentrated market through their market power, influence price which ultimately contributes positively to their performances. Nevertheless, the finding in this study shows a converse effect of concentration and market power on bank performances. The negative relationship suggests that bank performances can be improved through ensuring a diversified banking structure rather than posing influence on price related performances. On the other front, unlike the traditional SCP which claims an inverse relationship between bank concentration and competitiveness, both the quantitative and qualitative studies have confirmed a growing competition in the Ethiopian banking sector. Therefore, industry concentration is explored to be a less strain towards competition. Most importantly the study found that scale efficiency of banks remained a strong determinant of performances. The result along with the rejection of a quiet life scenario in the Ethiopian banking industry confirms that efficiency appears to be a relevant determinant of bank performance.

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