

Competition in the Banking Sector: A Literature review

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Abstract

Competition and access to financial services are lauded as key ingredients in the fight against poverty. While competition enhances markets, fosters innovation, productivity and growth, financial inclusion allows the poor to save, access credit and insurance thereby allowing them to not only meaningfully contribute to economic growth that also smooth their consumption. Moreover, competition reduces the cost of finance there by further expanding the availability of financial services. This suggests an important relationship between competition in the banking sector and financial inclusion. Research in this area is still in its infancy and little consensus exists on both whether the relationship is a robust one or not. There is no unanimity on the direction of causality or whether competition in the financial sector is good or bad for markets. This paper examines the literature related to this relationship. The literature suggests that concentration (as a measure competition amongst others) does not imply lack of competition in the banking sector and that the nature of the banking business entails that most banking sectors have evidence of monopolistic competition. The threat of entry allows banks to behave in a competitive manner and size enhances performance rather than hindering competition. Anecdotal evidence however suggests that there is collusion. Both globally and within South Africa, competition commissions have successfully prosecuted cartels in the banking sector. The paper concludes therefore by raising questions about the methodologies employed to examine competition in the banking sector and whether they adequately cover key aspects of competition in the sector.

Key words: Competition, financial inclusion, banking system.

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Literature review

Banking Competition and Access to financial Services

1. Introduction

This paper focuses on reviewing empirical literature on banking competition and then its effect on access to financial services. The idea is not to replicate the excellent work that has already been done on banking competition but rather to make a contribution by identifying the gap in literature. Thus, available to researchers, policy makers and academics. Competition is a complex concept and therefore there have been developments on the methods used to measure it. The measurements are divided into two categories, namely traditional measures and the New Empirical Industrial Organization (NEIO). The traditional measures attempt to measure competition using indirect proxies such as concentration and have been criticised. However, the NEIO rectify the critiques and measure competition from direct proxies such as input prices. However, using the direct measures the empirical literature on banking competition seem to find standard results (monopolistic competition) on the degree of competition worldwide. Both globally and within South Africa, competition commissions have successfully prosecuted cartels in the banking sector. Thus, this causes a course for concern as to whether the current measures of competition are adequate to explain the degree of competition. Literature on whether competition hinders or promote access to financial services limited and provide mixed results. The measurements for access to financial services also have not been ironed out in literature especially in the face of innovation in the financial sector.

The paper start with a brief summary of the importance of competition in banking sector and methodological approaches used in empirical literature and we will show how these approaches have evolved overtime.

2. The role of competition in banking sector

A lot of studies on competition in the banking sector have emphasised the importance of competition in the banking sector stating its implications for pricing, social welfare, access to financial services, efficiency and stability in the banking sector (Claessens and Leavens, 2004; Bikker and Spierdijk, 2009). While on the other hand, there are studies who point out that competition in the banking sector undermines financial stability (Keeley, 1990). The idea behind banking competition is that market power can be harmful in banking or any other industry (Leon, 2015). Competition lowers banking costs for different stakeholders, enhance access to financial services, growth of an economy and increase efficiency as it make managers to reduce costs in order to remain profitable (Claessens & Laeven 2004; Buchs & Mathiesen

2005). In addition, Anti-competitive behaviour in any industry negatively impact on consumer welfare. It also discourages competition in an economy, holding back on development and slowing down progress (Shiroishi and Wu, 2013).

Claessens and Laeven (2004) add that a decline in the level of competition in the banking sector will make provision of financial services costly leading to less financing which impedes economic growth. Cohorts of market power on the other hand contend that market power has benefits for both stability and risk in the banking sector (Kouki and Ali-Nasser, 2014). In addition, low competition can afford incentives to attain information on borrowers and stabilize the financial system. The intention of this paper is to review literature on banking competition and how it affects access to financial services for both individuals and firms. Access to financial services, specifically for SMMEs is important for inclusive growth of any economy, employment creation and thus poverty reduction.

In addition, OECD (2010) argue that banking competition and low entry barriers can play a significant role in improving the conditions of access by fostering lower interest rates and better terms for loans. On the other hand, worldwide literature has not reached conclusion regarding the effect of competition on access to financial services. Therefore, this paper will help identify gap in literature more especially in the case of South Africa where only limited literature exists regarding the competition in the banking sector.

Moreover, an inclusive financial system is considered to be desirable because it enhances both economic efficiency and welfare by providing opportunities for large segments of the population to adopt safe and secure saving practices, as well as facilitating the use of a range of financial services (Sarma and Pais, 2008). Ensuring broad financial services outreach is also important to ensure that the relatively poorer households or small entrepreneurs and small and medium-sized enterprises (SMEs) with inadequate collateral and insufficient credit histories are not left out of the formal credit market. Such financial exclusion could occur because of financial market imperfections such as information asymmetry or high transaction costs or lack of inadequate legal infrastructure to enforce contracts. The credit constraints that arise as a result make it difficult for the poorer households or small entrepreneurs to finance high-return investments, reducing the efficiency of resource allocation in an economy and event.

3. Measuring banking competition

3.1 Introduction

Measuring banking competition has evolved overtime, starting from the traditional measures to the New Empirical Industrial Organization (NEIO). The traditional measures of banking competition have been criticized quite a lot in literature and that led to an introduction new measures (the direct measured) of banking competition which measures competition directly. With traditional approach, we differentiate between the structure conduct performance (SCP) analysis and the studies on efficiency. The New empirical methods aim to measure the level competition directly. We therefore, differentiate between these direct measures of competition.

3.2 TRADITIONAL MEASURES OF BANK COMPETITION

3.2.1 ANALYSING THE STRUCTURE CONDUCT PERFORMANCE THEORY

The structure conduct performance paradigm based on the relationship between banking competition and efficiency originated from the work of (Mason, 1939; Bain, 1951). This paradigm states that firms in highly concentrated market would have a market power and enjoy higher profits. These higher profits would be obtained through charging higher prices on loans and offer lower rates on deposits. Thus, this paradigm, argues that the structure of the market determines the conduct of firms. In addition, in such a market banks may find it easier to collude and enjoy higher interest rate spreads over other firms in the industry (Shepherd, 1982; Goddard, 2001). Collusion is more likely to occur in a highly concentrated industry and these firms can exploit their market power at the expense of social welfare.

This theory has been empirical tested by a number of studies either in support of or critiquing the theory. The argument in contrast of this theory is that, the greater market share may be as a result of better efficiency and lower costs rather than a lower level of competition (Demsetz, 1973). The second argument by Gilbert (1984), Reid (1987), and Vesala (1995) their argument is based one-way causality – from market structure to performance. This argument theory that the structure conduct performance theory does not take into consideration the possibility of a bi-directional relationship between market structure and performance. The third argument was made by (Mullineux and Sinclair, 2000) who basically states that although higher concentration can lead to prices, and as a result a lower demand it does not necessarily lead to higher profits. Their argument is that in a market where there is free entry and exit (contestable) the profits in that market are likely to be zero. Contrary to the general belief that concentration may cause collusive behaviour, Baumol argue that concentration does not imply lack of competition if

there are no hurdles to entry and exit. To analyse the SCP hypothesis, empirical research uses a measure of bank performance, e.g Bank profitability on market concentration. Market concentration normally proxied by the bank concentration ratio or HH index. The regression specified as follow:

$$\pi = \alpha_0 + \alpha_1 HHI_{jt} + \sum_k \gamma_k X_{k,ijt} + \epsilon_{ijt} \dots\dots\dots(1)$$

Where: π is a measure of profitability for I banks, in the banking market j at time t, HHI is a measure for concentration in the market j at time t and x measures the control variables that may influence banking profits.

A number of studies document a positive relationship between concentration and profitability and thus confirming the SCP paradigm. Demirgiic,-Kunt, and Huizinga (1999) document the relationship between interest margins and profitability in a sample of 80 countries for both developed and developing countries. Their findings revealed that banks with high non-interest earning assets are less profitable. Banks that rely on deposit for their funding are less profitable because deposits entail high branching and other expenses. Similarly, Berger and hannan (1989) analyse US retail deposit market. Their study include 470 banks operating in 195 local banking markets over the period 1983 to 1985. Their model includes the following variables:

$$r_{ijt} = \beta_0 + \beta_1 CR_{jt} + \sum \gamma_k X_{k,ijt} + \mu_{ijt} \dots\dots\dots(2)$$

They used both HHI and CR3 proxies for bank concentration and their results showed a negative impact of bank concentration on deposits rates. this means that as the market become more concentrated the deposit rates falls.

3.2.2 SCP paradigm evidence from developing countries

A number of studies for developing countries have also found similar results for example Flamini et al (2009) using GMM for 41 Sub-Saharan countries, finds that higher return on assets is as a result of larger bank size, activity diversification and private ownership. Their results are in disagreement to what most studies have found. Chirwa (2003) in Malawi used cointegration, VECM. In particular, the study tests the relationship between profitability of commercial banks and concentration in the banking sector. Finds a positive long relationship between profitability and market structure. Alley,(1993) for Japanese uses CR and find that high levels of concentration in the Japanese banking sector. He further shows that collusion does take place in the Japanese banking sector. Bello and Isola (2014) for Nigeria using concentration measure (HHI) showed a positive correlation with market performance. While

bank efficiency showed a negative relationship with performance thus, refuting the efficiency-performance hypothesis. Similarly, Nabieu (2013) finds that concentration determines profitability in Ghana, signifying the strong acceptance of the SCP hypothesis. Falkena et al (2004) uses an HH index to assess bank competition in the South African Banking sector. They find that the South African banking sector is highly concentrated and as a result there are high costs and low access to banking services for small and microenterprises. They argue that the lack of access to banking services and high cost may have more to do with a number of structural factors rather than the degree of competition in financial industry. Similarly, Okeahalam (2001) show that due to high concentration in the banking sector in South Africa retail consumers are paying higher prices and that there is a high likelihood that the larger may collude. Thus, implying that SCP paradigm holds in South Africa. On the other hand, Maredza et al (2012) find a positive relationship between concentration and efficiency in the South African banking sector. They conclude that although the banking sector of South Africa is largely dominated by the big four banks, the sector is productive

However, although these studies make a remarkable contribution to literature, they all suffer from the fact that concentration measures infer the level of competition from indirect proxies. As a result, Berger et al (2004) in his review of literature on bank concentration and competition argue that most literature has moved from the old SCP hypothesis to using empirical methods. Their study concludes that broader institutional framework needs to be taking into consideration, like bank regulation, and the structure of the economy. In addition Bikker (2004), maintain that concentration measures are increasingly becoming unreliable when the number of banks is less and may overstate the level of competition in small countries. In his paper he uses Panzer Rosse (1987) and Bresnahan Lau (1982) to test the level of competition in the banking sector. He tests the level of competition before and after the merger and finds a decreasing competition after the merger and higher level of concentration after the merger. Thus, his results confirm the SCP hypothesis. Moreover, Claessens and Laeven (2004) show that the degree of concentration may be a poor proxy for the contestability of the banking sector. Schaeck and Cihak (2010) and Love and Peria (2012) point out that competition measures market conduct while concentration measures market structure.

The New Empirical Industrial Organization (NEIO) tries to measure the market power by directly addressing firms' behaviour. Thus, these measures provided by the New Empirical Industrial Organisation (NEIO) overcomes the limitations found in Structure Conduct

Performance (SCP). These measure include the Panzer Rosse (1987); Lerner Index (1984); Bresnahan Lau (1982).

3.3 THE EFFICIENCY HYPOTHESIS THEORY

In contrast to the structural conduct performance, the efficiency theory argues that competition improves the performance of efficiency firms and weakens the performance of inefficient firms. This theory argues that relationship between the structures of the firm and performance is mainly determined by the efficiency of such firm. Thus, the efficiency hypothesis states that only efficiency can explain a positive relationship between market share and profits (Bello and Isola, 2014). This theory is criticised in literature by Berger (1995) and Berger and Hannan (1997) who argued that market share cannot only be explained by efficiency. As a results Berger (1995) suggested that two measures of efficiency should be use d to explain efficiency in the banking sector. These two measures are X-efficiency and Scale-efficiency. X-efficiency occurs when one bank's costs of producing the same level of output is less than that of a competitor. This may be due to the fact that their management and technology are advanced than that of competition. Thus, X-efficiency firms will control a larger market share due to these advantages (Zouari and Mensi, 2010; Garza-Garcia, 2012). On the other hand, Scale-Efficiency states that the efficiency stems from the fact that if a bank is able to produces at lower costs per unit relative to its competition as a result, reap higher profits. Thus, according to Scale-efficiency it is still likely for banks to have the "same management and technological expertise" but to have one more efficient than the other because, the scale of production results to lower costs and more profits (Berger, 1995).

In contrast, Seelanatha, (2010) show that efficiency plays an important role in determining bank performance in Sri Lanka. That performance is not dependent on market concentration or market power of an individual firm. Bello and Isola (2014) for Nigeria using concentration measure (HHI) showed a positive correlation with market performance. While bank efficiency showed a negative relationship with performance thus, refuting the efficiency-performance hypothesis. On the other hand, Maredza et al (2012) find a positive relationship between concentration and efficiency in the South African banking sector. They conclude that although the banking sector of South Africa is largely dominated by the big four banks, the sector is productive

3.4 Testing the direct measures of bank competition

3.4.1 Evidence in developed countries

Following the SCP paradigm are studies that employed direct measures of bank competition. For developed countries Hondroyiannis et al (1999); De Bandt and Davis (2000) for Germany, Italy and United States; Bikker and Haff 2002 analysing 23 European countries; Coccorese (2004) for Italian banking industry; and Parera et al (2006) all these studies find evidence of monopolistic competition with different countries.

3.4.2 Evidence in developing and Emerging countries

On the other hand, Wolfe and Amidu (2012) for 55 emerging and developing countries uses Lerner index. They find that market power increases if banks use internal funding to diversify into non-interest income generating activities. In addition, the study finds that high profitability is associated with high degree of market power. Their findings are in support of the SCP paradigm. Turk-Ariss (2009) assess the degree of market power in the Middle East and North Africa region (MENA) using Panzer Rosse (1987) method and find that the MENA region is characterised of monopolistic competition regardless of the high level of concentration. Using Panzar Rosse and Lerner index, Sahut et al (2012) for Islamic banks and conventional banks operating in the same market in the MENA region find similar results as that of Turk-Ariss (2009). For Zambia; Simpasa (2013) also find similar results; and a recent study by Abel and Le Roux (2016) for Zimbabwe also find the evidence of monopolistic competition. Similarly, Abdul-Majid and Sofian (2008) investigate the degree of competition and market structure in the Islamic banking industry in Malaysia over the period 2001-2005. Their results show that the Malaysian banking sector is neither a perfect competitive nor monopoly market. This implies that the Malaysian banking sector is monopolistic in nature. Korsah, Nyarko and Tagoe (2001) assess the level of competition in the Ghanaian banking industry after the implementation of financial liberalisation. Their finding reveal that the level of competition in the Ghanaian banking sector is increasing due to financial liberalisation in the country and that their banking industry is oligopolistic in nature and that allows the banks to enjoy supernormal profits.

In the same context, Bikker and Spierdijk (2009) assessed the level of competition in 101 countries including developed and developing countries using a Panzer Rosse (1987). They find that the level of competition varies across countries. For a third part of the countries their study fail to reject either a monopoly nor perfect cartel, while for the other third part, their study fail to reject perfect competition. However, they find that in almost all region

monopolistic behaviour seem to dominate. They further explain that the difference in the level of competition across countries can be explained by antitrust regulation, contestability, cross-sector, GDP growth and socialist legal history.

For South Africa include the work of (Mlambo and Ncube, 2011; Simbanagavi et al, 2014; Simatele, 2015). All of these studies find evidence of a monopolistic competition in the South African banking sector. In addition, (Claessens and Leaven, 2005; Bikker and Spierdijk, 2009; Bikker et al, 2012) included South Africa in their cross-country analysis and their result were consistent to that of the authors above. Fosu (2013) using H-statistics to assess the overall extent of banking competition in African sub-regional banking market between the period 2002-2009 and finding show that African banks generally demonstrate monopolistic competitive behaviour.

4. Cases of Anti- Competitive behaviour with the South African Banking Sector

Evidence show that competition in respective banking for almost all countries worldwide including South Africa. However, this study sets to quote cases of conviction of Anti-competitive behaviour that have been found in the case of South Africa and also high level of concentration in most countries in Africa. However, we do acknowledge the fact that literature says that concentration does not imply lack of competition.

In 2015 the government threatened to take actions against banks for charging high fees. It has also been said that compared to other countries South Africa's banking charges are the most expensive (Sunday times, 2015). The high fees charged has implications for financial exclusion which also seemed to be a major problem for developing countries.

Recently, the competition commission of South Africa fined 17 banks which were suspected of forming a cartel. The Commission found that implicated banks used Bloomberg chatrooms to enter into arrangements to fix prices of the rand-dollar exchange and divide the market by allocating customers since at least 2007. It also emerged that a number of the traders identified in the Commission complaint were not new to forex rigging. With Citibank already having admitted guilt, it confirms the pervasiveness of continued greed within the banking sector. The blatant regard for others and their wellbeing is beyond measure considering that such behaviour by the banks had the potential to collapse national and global financial systems. Furthermore, such actions have led to immeasurable pain to ordinary people as evidenced by the deep recession of 2008-09, which was triggered by banks conducting their business recklessly (Competition Commission, 2017).

5. Effects of bank competition on access to finance services

Banking competition can be looked at through its effect on access to financial services also known as financial inclusion which is a major focus for this paper. Financial inclusion has emerged as one of the major problems that developing economies are facing. Financial inclusion is referred to as the state to which household individuals and firms are not denied access to basic financial services (Gopalan and Rajan, 2015). A link exist between financial inclusion and banking competition through the role of financial intermediation played by commercial bank in an economy. However, literature have not find agreement in terms of this relationship.

The general belief that competition in the banking sector or any other sector is good has been challenged. According to *information hypothesis*, greater bank competition strengthens financing obstacles and generates higher loan rates. This hypothesis is based on the notion that lower competition encourages incentives for banks to invest in soft information. As a result, a higher level of competition lowers investments in banking relationships and leads to deteriorated access to credit. Thus, consensus regarding whether competition leads to greater access to financial services or it is detrimental for financial services is still not reached.

Most of the existing empirical studies on the link between competition and access to finance use concentration measures as proxies for competition and yield mixed results. Using data from the US, Petersen and Rajan (1994, 1995) find that SMEs are more likely to obtain financing when credit markets are concentrated. Similarly, using a survey dataset of German manufacturing firms, Fischer (2000) finds that more concentration leads to more information acquisition and greater credit availability. On the other hand, using enterprise survey data for 74 countries, Beck, Demirguc-Kunt, and Maksimovic (2004) find that in more concentrated banking sectors firms of all sizes face higher financing obstacles and the impact of concentration decreases with firm size. Chong, Lu, and Ongena (2012) also find a positive association between concentration and credit constraints, using a survey on the financing of Chinese SMEs combined with detailed bank branch information.

In contrast to previous studies that equate high concentration with lack of competition, recent papers that use direct measures of banks' pricing behavior provide less ambiguous findings on the link between competition and access to finance. Using the Panzar and Rosse H-statistic (1982,1987), which captures the elasticity of bank revenues to input prices, Claessens and Laeven (2005) find that competition is positively associated with countries' industrial growth in a sample of 16 countries over the period 1980-1990. The authors argue that this suggests

that more competitive banking sectors are better at providing financing to financially dependent firms. Exploiting a very rich dataset on Spanish SMEs and using the Lerner (1934) index – the difference between banks' prices and marginal costs relative to prices - as a measure of competition, Carbó-Valverde, Rodriguez Fernandez, and Udell (2009) also find evidence that competition promotes access to finance. At the same time, the authors find that their results for the Lerner index are not consistent with results using concentration measures as proxies for competition. They conclude that concentration is not a good measure of competition.

Rajan, (1995) found that more competition may channel less financing to firms because they have less incentive to invest in close relationships with firms. His findings support the information hypothesis. They argue that banks are faced with a large number of risky borrowers; in particular, small firms are risky, since they have little credit history. In a market where there is high competition, banks would charge higher prices to adjust for the risk they are facing with these small firms. But this would attract many applicants (adverse selection) and borrowers have incentive to take on riskier projects (moral hazard). "If a bank has market power, the higher risk can be compensated for by sharing in the future profit streams of the firm, instead of by increasing rates. Because a successful firm will not be "lured away" by a competitor, the bank will benefit by lending to the firm again in the future. Therefore, the bank is more willing to offer credit, and at a "subsidized" rate, to establish the lending relationship. Credit availability, and growth, can thereby improve in banking markets that exhibit market power".

While Beck, Demirguc-Kunt and Maksimovic (2003) found that low competition increases difficulty to attaining finance. In addition, the World Bank (2012) argued that lack of competition in South Africa's banking sector hinders access to financial services. Moreover, as argued by Hannan (1991) and Corvoisier and Gropp (2002) borrowers in markets with low competition face higher costs for loans. The high cost of borrowing have a negative effect on small businesses that still needs to grow which goes a long way to affect the growth of the economy and employment. Cost of retail banking services are seen as a major obstacle to overcoming the challenge of financial exclusion in South Africa (OECD, 2010).

Fangacova et al (2015) uses HHI, CR5 and Lerner & H-stats for 20 selected European countries. They find that bank competition increase cost of credit. Their findings are in line with the information hypothesis. Which states when there is more competition banks will have less incentive to invest in relationship building (Rajan and Peterson, 1995). Both the measures

employed in their study provided similar results. Ryan, O'Toole and McCann, 2014 studied 20 selected countries in Europe using Lerner index. Their results showed that more market power leads to increased obstacles for SMEs. This corroborate the market power hypothesis. Beck et al (2004) studied 74 countries both in developed and developing country. Using surveys they find that low competition hinders access to finance in countries with low levels of economic and institutional development. The negative impact of low competition is high on small and medium firms. For China Chong et al 2013 using Herfindahl–Hirschman index and concentration ratio. They find that a string banking competition is related to lower chances of SMEs being faced with credit constraints.

Beck et al (2008) looked at 62 Countries 15 countries in Eastern Europe and Central Asia, 14 in Sub-Saharan Africa, 9 in Western Europe, 9 in Latin America and the Caribbean, 5 in the Middle East and North Africa, 5 in South Asia, 4 in East Asia, and 1 non-European developed country (Australia using Surveys and finds that higher levels of barriers to banking such as minimum account balances, fees and documentation requirements are associated with lower levels of banking outreach. They further find that these barriers are higher in concentrated banking industry, providing the only available evidence on the mechanism by which concentration can lead to lower penetration. Marin and Schwabe (2013) in Mexico employed OLS and the HHI measure for concentration. They find that in markets where there is high concentration, people are less likely to have use to basic financial services. The authors suggested that competition policy should be considered an important instrument in the mission for financial inclusion and development. Beck et al. (2007) the credit constraints that arise as a result make it difficult for the poorer households or small entrepreneurs to finance high-return investments, reducing the efficiency of resource allocation in an economy and eventually negatively impacting economic growth and poverty alleviation. Clarke et al (2006) for 35 selected countries in developing economies uses surveys to analyse competition and financial constraints. Their results suggest that all enterprises, including small and medium-sized ones, report facing lower financing obstacles in countries having higher levels of foreign bank presence. Carbo et al (2009) for 14 European countries uses Panzer Rosse and Lerner index to assess the link between competition and financial obstacles. Their study found that the determination of bank competition may differ depending on the measure of competition chosen in assessing bank competition. Thus, using more than one measure of bank competition may give better results.

Zarutskie (2006) using US data finds that concentration in the banking sector improves access to credit whereas Chong Lu and Ongena (2012) using surveys on financing enterprises for 74 china finds that concentration is bad for access to financial services for Chinese SMEs. Similarly, Claessens and Laeven (2005) use Panzer Rosse measure of competition for 16 countries over the period 1980-1990. They find that competition enhance access to financial services for financially dependent firms and help industries to grow fast.

At the same time, demirguc-kunt and Martinez peria 1998 using data for 209 banks in 62 countries show that barriers such as (minimum account balance, loan balances, account fees, and documentation required to financial access) are higher in countries where there are more restrictions on bank activities and entry, less disclosure and media freedom. And also that for customers barriers are higher where the banking system is state owned and lower where there is more foreign participation.

Gopalan and Rajan (2015) on the other hand found that competition is good for financial inclusion; however, the impact changes in the face of high concentration. This argument reignites the debate on the measurement of competition, as in most systems concentration is assumed to be a sufficient proxy for competition.

6. Conclusion

This paper reviews literature on banking competition and then its effect on access to financial services. The theory of financial intermediation suggests that banking sector plays an important role in channelling funds from surplus to deficit units. Which then should promote economic development through financial inclusion and job creation. The literature on banking competition has evolved overtime. Moving away from using the traditional measures of banking competition to using new measures which are assumed to explain competition directly. however, these new measures seem to find similar results (Monopolistic competition) for almost all the countries. These results lead us questioning if these measures are adequate to capture the level of competition in banking sector of different countries. The basis for this question stems from the fact that some evidence suggests that there is collusion both globally and with South African banking sector. Just recently, the South African competition commission successfully prosecuted cartels with the banking sector.

Most literature on the relationship between bank competition and access to financial services uses concentration proxies to measure competition and the findings yield mixed results. Also the few studies that have employed direct measures of bank competition find mixed results.

The issues of measuring financial inclusion have not been ironed out in literature (Pande, 2005; Brune et al, 2011; Allen et al (2013) and Amidzic, Massara and Mialou, 2014). However, due to changes in the financial sector overtime, especially with regards to financial innovation, Sarma (2008; 2010; 2012) and Chakravarty and Pal (2010) suggested that financial inclusion should be assessed in such a way that include different banking sector variables to show the degree of accessibility, availability and usage.

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