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Consolidations and Involuntary Huge Equity Alteration Duress: Exposing their Contemporaneous Dynamic Influence on Small Risk Asset Creating Propensity of Merged Banking firms

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Abstract
We investigated how bank consolidations, and sudden involuntary capital variations organically influenced small risk asset creation abilities of Nigerian banking firms based on the framework of Monti-Klein Theory for making effective lending policies. Within the past decade, banks in Nigeria have in many occasions been mandated to change their capital base within a limited time too short for such exercise. As a survival strategy, they resort to involuntary consolidations. We fear that this sudden mergers and involuntary alteration in equity level could blow banks to focus abnormally away from small risk asset creation thereby resulting in small business loans' disequilibrium. The information regarding this likely effect has remained substantially asymmetrical constituting a real gap. In near future, if the gap remains, policy capable of pulling down the entire economy could emerge. While previous papers had attempted to solve this problem, data limitations must have made them derail from the target especially by engaging insufficient bank data, which can only capture the pre-merger implication. In this present paper, we surmounted this bottleneck by using up to 6 years post merger data. Unique to this paper, we selected 24 banks that involuntarily emerged and/or recapitalized after N25billion bank recapitalization-mandate for study using an Ex-Post Facto as a research design. Using data from Central Bank of Nigeria Bulletin and databases of banks we sampled for study, we found that bank consolidations under duress negatively and significantly influenced fully restructured banks' propensity to create small risk assets. Moreover, we found that when change in equity was sudden, unplanned and involuntary, the effect on fully restructured banks propensity to make small loans was organically negative. Specifically, banks whose equity condition positively alters overnight due to involuntary consolidations break a significant proportion of their lending relationship with small business borrowers in the long-run. This means that involuntary consolidations and sudden equity change limit significantly the consolidated banks' ability to create small risk assets. Based on these results, we recommendation that regulatory authority should not seek to increase lending to small businesses by encouraging sudden and involuntary bank capital adequacy through bank consolidations.
Keywords: Mergers, Acquisitions, Consolidation, Small Businesses, Equity Condition, and consolidation duress

1. Introduction

Our focus in this study is on examining how banking firms' consolidations under duress and the consequential involuntary huge capital base growth contemporaneously influence their ability to create small risk assets. Small risk assets in this context are loans issued by commercial banks to small business borrowers. This class of loans is usually prone to high default rate due to informational opaque nature of the borrowers. However, because of the small size inherent of the loans, small banks always transact on them due to the limitation imposed on them by their positions. Generally, size of firms particularly in terms of equity level has always determined the proportion of assets to be allocated to banks' customers. Our interest is to ascertain the relationship between the small risk asset allocation dispositions of emerging merged banks and Nigeria subsequent involuntary consolidation experiences. Already, anecdotal evidence from BGL (2010) seems to suggest that such a sudden and involuntary change in financial positions as it affects capital base and gross asset sizes could make banks abandon their lending relationship with small businesses for higher transaction customers. This suggests to us that huge banks coming out of involuntary mergers and acquisitions may have less preference for small relationship lending deals. An alternative postulation such as Joe and Eric (1997) anyway contradict the above that huge banks are associated with small business loan making. They predicts that mergers and acquisitions tend to offer opportunity for small businesses to profit from because larger banks with greater capital and a more diversified loan portfolio have a greater capacity to lend to risky borrowers and withstand the risks than smaller banks do. While this debate subsists, we desire to contribute to the ongoing debate by taking evidence from Nigerian consolidation experience. From all ramifications, Nigerian environment is a typical prototype of the scenario of involuntary consolidations that deserves researchers' attention.

Normally, equity or capital adequacy ratio grows with time and as such may be gradually driving firms' lending decisions. The velocity of the drive may change if the change in capital adequacy becomes dramatic. Notably,

over the years, starting from 1986 Basel capital Accord, capital controls and recapitalizations have been the remarkable feature of Nigeria banking sector. However, such phenomena have not been so dramatic such that minimum capital requirement suddenly increases by 1150%. In 1990, CBN issued a circular on capital adequacy that mandated banks to increase their minimum capital bases from N10million to N20million. However, the change was only 100% and expectedly did not attract attention. In 1991, CBN also demanded equity change by only 150% as floor capital bases only rose from N20 to N50million. Subsequently, the capital base rose from N500million to N1billion, then from N1 billion to N2 billion and to N25 billion. Therefore, the percentage change has not been as dramatic as the last change resulting in over 1150%. The last change is also unusual in the sense that in most of the previous recapitalization mandates, banks did not meet the mandate through consolidations. We fear that as the last change in equity has been huge and sudden and has been met through consolidations, the implication on bank lending decision could be abnormally reverberating on low credit users. Overnight growth in equity could generate excess liquidity that could make the group lose focus on small profit lending products. False confidence on sudden high positive change in capital adequacy ratio could emerge propelling huge investments likely to draw attention aware from low profit ventures. The key issue arising is that the evolving and forward-looking merged banks may have poor preference for small risk asset creation. Being a kind of information asymmetry, and given that the banking sector in Nigeria had experienced extra-ordinary levels of consolidations with resultant sudden equity alteration, we try to understand correctly the direction on banks' propensity to create small risk assets. Poor understanding of the direction of the effects on bank lending decisions and consequently on borrowers can lead to counterproductive policies capable of ruining permanently the fragile economy. According to Ove and Arksel (2011), the seminar paper by Bernake (1983), claimed that the Great Depression of 1930s in US had a depth of its root in the destruction of corporate relationship with their idiosyncratic customers because of information asymmetries. In near future, if the asymmetric dynamic information relating to the consolidation and sudden equity change persist, Nigerian economy for instance may be plunged into greater depression. Therefore, how consolidations and sudden capital changes affect banking firms' lending decisions cannot be ignored if not for anything for lending policy effectiveness. At least in this way, the current role of small businesses as the bedrock of the economy could be boosted.

Although researchers, for instance Okafor and Emeni (2008) and Asuquo (2012), have previously attempted to investigate the reality of the effect of consolidations on bank lending to small business borrowers in Nigeria, data limitation may have forced them to investigate only their static effect, without considering how the phenomenon dynamically affect decision to create small risk assets in the long-run. Static effect according to Berger et al (1998), examines the effects of consolidation based on mere combination of pro forma statement of financial positions within one year of consolidation. This is just a short run effect likely to be too short for an informed decision. On the other hand, dynamic effect according to Berger et al (1998) identifies the change in lending that follows from decisions to restructure the institution in terms of its sizes, equity conditions, local competitive positions such as market share or concentration and portfolio conditions such as default risks and loan loss provisions after the consummation of mergers and acquisitions. According to them including Prompitak (2009), the dynamic effects surface at least three years after consolidations since as Focarelli et al (2003) suggest that there is always a delay in efficiency adjustment. This gestation period is also consistent with the results of the interview conducted by the Federal Reserve Board of staff with officials of banks involved in US mergers Berger et al (1998). This by-pass of dynamic effect constitutes a gap in literature particularly in Nigeria. On a wider perspective, there is also a literature gap due largely to the way theoretical foundation on banks' behavior was laid. Many theories for instance, Monti-Klein Banking Firm Theory and Salop Location Model have been employed to explain how banks behave when structures change. However, they were all fundamentally based on general bank lending behavior and were not narrowed down to specifics such as lending to small businesses by fully restructured banks and how lending decision change when the change in equity is associated with sudden. The Monti-Klein theory assumed that borrowers are viewed as a homogeneous group by the banks. This however may not always apply as banks can also view borrowers as heterogeneous groups having different quantities of credit needs. The present study is indeed an attempt to adjust this model by narrowing Monti –Klein Theory down to small business lending. Specifically, we would determine the direction and the extent of the dynamic influence of bank mergers and acquisitions on fully consolidated banks' ability to lend to Nigerian small credit users. We would also ascertain the extent sudden changes in equity condition of fully restructured banks as caused by consolidations dynamically influence their decision to lend to small business borrowers. Therefore, to the best of our knowledge, no study in Nigeria has linked dynamic consolidation with consequential bank financial characteristic in terms of sudden equity alterations to small risk-asset creation behavior of the affected merged banks and how Monti-Klein model could be applied to test its implication particularly on small risk asset creation.

The next phases of this paper are to, first, review the related literatures; second, explain our research methodology; and finally, present, interpret and discuss data and result.

2. Review of the Related Literature

Conceptual and Theoretical Frameworks

Consolidation is a consummation of two or more firms of virtually the same size into a single firm. A merger according to Oye (2011) is a situation where two or more companies combine to form a larger business organization. On the other hand, according to the scholar, an acquisition involves the purchase of controlling shares in another company. Control is an essential element in acquisitions. That explains why Nwude (2005) defines acquisition as the purchase of controlling interest in one company by another company such that the acquired company becomes a subsidiary or a division of the acquirer. Where acquisitions occur between entities according to David, Britton and Ann (2009), the acquiring entity obtains control over the action of the entity taken over. This control, according to them, gives the acquirer the power to govern the financial and operating policies of the acquired, which enables them to obtain benefits from its activities.

Literature maintains that either structure can result in the economic and financial consolidation of two entities. In practice according to literatures, a deal that is an acquisition for legal purposes may be euphemistically called a merger of equal. This is true if both according to extant literatures, Chief Executive Officers (CEOs) agree that merging or combining would do both firm good. However, when the deal is unfriendly, that is when the target company does not want to be bought over and considers the acquirers as threats or black knights; it is usually regarded as acquisitions or takeover. An acquisition or takeover therefore is the purchase of one business or company by another company or other business entity, which may not even be in the best interest of the acquired entity. In this scenario, the purchaser would be willing to pay a price otherwise called purchase consideration for controlling interest or shares of at least 51%. Otherwise, the purchase is to be regarded as a mere significant influence, ordinary investment or joint venture in which case control is not obtained. In some cases, 100% controlling interest can be obtained making the target entity become a fully owned subsidiary without any minority or non-controlling interest in existence. Minority interest or non-controlling interest is the aspect of the target company's shares that do not belong to the acquiring company. This interest always ranges between 1% and 49%. Consolidation occurs when two or more companies combine to form a new enterprise altogether, and neither of the previous companies remain independently. Acquisitions according to scholars are divided into two: private and public acquisitions. This depends on whether the acquirer or merging company (also termed target) is or is not listed on a public stock market. An additional dimension or categorization consists of whether an acquisition is friendly or hostile. An acquisition usually refers to a purchase of a smaller firm by a larger one. Sometimes, however, a similar firm according to Rumyantseva, Grzegorz and Ellen (2002), will acquire management control of a larger and/or longer-established company and retain the name of the latter for the post-acquisition combined entity. This is known as a reverse takeover. Another type of acquisition is the reverse merger, a form of transaction that enables private company to be publicly listed in a relatively short period. A reverse merger occurs when a privately held company often one that has strong prospects and is eager to raise financing buys a publicly listed shell company, usually one with no business and limited assets.

From the extant literatures, achieving acquisition success has proven to be tough. Various studies have revealed that 50% of acquisitions were unsuccessful especially in its post-consolidation existence. The acquisition process is very complex, with many dimensions influencing its outcome. According to Douma and Shreuder (2013), serial acquirers appear to be more successful with M&A than companies who only make an acquisition occasionally. The new forms of buyout created since the crises are based on serial type acquisitions, which is a co-community ownership buy out and the new generation buy outs of the MIBO (Management Involved or Management Institution Buy Out) and MEIBO (Management & Employee Involved Buy Out). It is normal for M&A deal communications to take place in a so-called confidentiality bubble wherein the flow of information is restricted pursuant to confidentiality agreements. In the case of a friendly transaction, the companies cooperate in negotiations; in the case of a hostile deal, the board and /or management of the target is unwilling to be bought or the target's board has no prior knowledge of the offer. Hostile acquisitions can and often do ultimately become friendly as the acquirer secures endorsement of the transaction from the board of the acquire company. This usually requires an improvement in terms of the offerand/or through negotiation. According to Douma and Schreuder (2013) in wikipedia, the combined evidence suggests that the shareholders of Acquired firms realize significant abnormal returns while shareholders of the acquiring company are most likely to experience a negative wealth effect. The overall net effect of M&A transactions appears to be positive; almost all studies report positive returns for the investors in the combined buyer and target firms. This implies that M&A creates economic value, presumably by transferring assets to management teams that operate them more efficiently.

Scholars also indicate that there are a variety of structures used in securing control over the assets of a company, which have different tax and regulatory implications. First, the buyer buys the shares, and therefore control of the target company acquired or purchased. Ownership control of the company in turn conveys effective control over the assets of the company, but since the company is acquired intact as a going concern this form of transaction according to scholars carries with it all of the liabilities accrued by the business over its past and all of the risks that company faces in its commercial environment. Second, the buyer buys the assets of the target company. The cash the target receives from the sell-off is paid back to its shareholders by dividend or through liquidation. This type of transaction leaves the target company as an empty shell if the buyer buys out the entire assets. A buyer often structures the transaction as an asset purchase to cherry-pick the assets that it wants and leave out the assets and liabilities that it does not. This can be particularly important where foreseeable liabilities may include future unquantifiable damage awards such as those that could arise from litigation over defective products, employee benefits or terminations, or environmental damage.

Drivers and Motives of Mergers and Acquisition

There are specific factors that drive bank mergers and acquisitions. These factors motivate and encourage banks to get involved in the activities. First among these factors is the desire for value maximization by the consolidating institutions. This is the shareholders' theory of banking consolidation. Banks get involved in mergers and acquisitions because they want to maximize the value of their investors. They pursue this goal by investing to increase market power, which can easily be achieved through consolidations. In the process of merging, the shareholders always make sure that the mergers would result in a positive present value. Through bank consolidation, the involved can also achieve wealth maximization by replacing inefficient management after the acquisitions. Mergers and acquisitions promote economies of scale and scope, which also advance the interest of investors. As institutions merge, their scale of operations widens for instance geographically. Increase in Scale of operation such as productions reduces fixed cost, which in turn bring about increasing returns to scale. In order to benefit from the increasing returns associated with larger scale of operations, shareholders always take advantage mergers and acquisitions to meet their target value. Therefore, an economy of scale is an opportunity for the consolidating institutions to spread fixed costs across a larger volume of output. This opportunity can be achieved through the elimination of duplicating and competing resources, bulk purchases of materials at reduced prices due to discounts. It may be obtained through improved negotiating strength in dealing with suppliers, intensive utilization of production facilities, standardization of materials and products to enable value analysis to be applied, and acquisition of improved technology and know- how from the acquired company. Moreover, banking consolidation also decreases risk through geographic and product diversification. This no doubt increases shareholders values thereby motivating them to consolidate. Apart from value maximization theory, mergers can also occur between institutions for non-value maximization purposes. Mergers can take place because of desire for managerial acquisitions and hubris hypothesis. When an organization needs expertise in management, they can come by it by acquisition of other entities, which would encourage inter-managerial breed. If the subsidiary has specialist knowledge in specific areas of the parent company's production area, they can demand the release of the specialist from the subsidiary company for the task in the acquiring company since they are both under one entity. This need for managerial expertise, therefore, can drive institutional integrations such as mergers and acquisitions. Organizations such as banks can go for acquisitions because of desire to claim mere superiority over their competitors such that even when the acquisitions may not result in positive net present value to the parent shareholders' wealth, the acquirers may go on to purchase the firm. This is the pride theory in mergers and acquisitions- in this hubris hypothesis, the predatory company just want to show off by even paying higher it should have cost it to acquire similar company under normal circumstances. In addition to these firm level motives, banks decision for mergers and acquisition might be influenced by external factor such as industry level differences in the economic environment, laws and regulations (Berger et al 1999). Taking for instance, the laws and regulations, institutions can engage in consolidation because a new law that positively reviewed the minimum capital base was passed. The case of the Nigerian consolidation experience was as a result of N25 billion minimum capital mandate by the Central Bank of Nigeria. This law influenced greatly the banks desire to merge in Nigeria. In 2005, 74 banks out of 89 banks in existence merged into 24. Indeed, the causes of mergers and acquisitions have long been debated in the literature (Folios et al 2011). However, following the neoclassical theory argument, all firm decisions including acquisitions are made with the sole objective of maximizing shareholders wealth. Mergers and acquisitions according to them in this context serve as a means to increase market power, replaces inefficient management, achieve economies of scale and scope among others. Nwude (2003) also states that the reasons behind corporate acquisitions and mergers are operating economies of scale; sources of supplies, finance/leverage, management expertise, increased market share, desire for growth and technological drive are largely the factors that firms

seek to achieve while pursuing policies for merger and acquisitions. The reasons for mergers and acquisitions would be appreciated when one considers the fact that the acquiring company may be seeking to safeguard the source of supply for materials so that it will not be thrown out of business suddenly. Leverage as the scholar noted improves earning per share, over all liquidity, access to capital markets, access to cash resources, acquisition of asset backing which may assist in obtaining loans. These benefits can be enjoyed through business combinations. Banks going for combinations may have such benefits at the back of their minds. Liquidity is an essential bank specific characteristic and no bank can be managed efficiently without adequate liquid assets. Companies fishing for management expertise can also achieve such by opting for acquisition. The motive here is to acquire management team that is highly experienced, aggressive, competent and respected, cross pollination of managerial tactics and expertise or displacement of existing management to ensure continued growth (Nwude:2003).

Imperfectly Competitive Banking Firms' Model: Theory of Deposit, Loan, Costs, and Rates

There are varieties of theories postulated all in an attempt to explain how banks behave. Examples of such theories are The Marginal Cost Pricing (MCP) theory based on perfectly competitive market, Salop Location Theory of Salop (1979), based on transportation cost and Monti-Klein Theory of Banking Firms based on imperfect competitive market structures (Prompitak, 2009). Our review would centre on the imperfectly competitive banking firms' market structures, which is the one Monti-Klein Theory of banking firm is based on as banking market now is characterized as an imperfectly competitive, in which case each national market is led by few large banks. The father of this theory was Edgeworth (1888) and he identified the unique features of banks holding less than 100% of deposits as reserve. In this way, banks according to the theory make profits from the positive margin obtained from the difference between risk asset (loan) and deposit interest rates. Klein (1971) and Monti (1972) formalized this theory in relation to bank monopoly, and is popularly known as Monti-Klein model of the banking firm. The unique thing about this theory is that it views banking firms operating in a static setting, where a monopolistic bank is assumed a financial intermediary, which collects savings from households deposits and finances investment needs to firms by lending to them. The decision variables are the amount of loans, the amount of deposits and costs of issuing loans and maintaining deposits. Good combination of these assets and liabilities enables banks to drive optimal profit level. Therefore, the optimizing profit function of banks based on the traditional Monti-Klein model can be expressed as the following equation:

$\pi = r_L(L)L + rS - rD(D)D - C(L, D)$ ……..1

Subject to S+L = D. π is the monopolist bank's profit, which is assumed to be concave. It indicates that it is diminishing returns to scale. r , rL and rD are the returns on security, loan and deposit, respectively. The inverse demand function for loans is given by; $rL(L)$, with derivative $rL'(L)<0$. The inverse supply function of deposits is $rD(D)$, with derivative $rD'(D)>0$. S, L, and D are the amounts of security, loan and deposit, respectively. C is the total intermediate costs of managing an amount L of loans and an amount D of deposits. This is the convex managing-cost function. To maximize the profit, the proportion of total funds allocated to the loan is chosen at the point where the marginal return on loan is equal to the average expected return on investment or equity or government security. The optimal loan-pricing rule presents the equalities between the Lerner's indices (price-cost/price), and inverse elasticity. That is, in the Monti-Klein model, a monopolist bank would set its loan and deposit volumes such that the Lerner's indices equal inverse elasticity (Klein, 1971).

Market Concentration

Traditional Monti-Klein theory has been expanded to accommodate bank competition variable. The assumption that bank operates without a rival is one of its shortcomings. Evidence of this expansion can be seen in the oligopoly models postulated by Freixas and Rochet, (1998). In this version, according to Freixas and Rochet (1998), the Monti-Klein model can be reinterpreted as a theory or model of imperfect (Cournot) competition between a finite number N of banks, n ranges from 1,.. to N. By having the same assumptions as the monopolistic model has, with the additional assumption that every bank has the same linear cost function (which is the function of aggregate loan volume, L, and aggregate amount of deposit, D), the optimal condition for every bank holds just as in the traditional version. The only difference is that the elasticity always written as $\epsilon_L$is multiplied by the total number of banks, N. Because the number of banks reflects the intensity of competition in the market, we can decipher the relationship between competition and the loan interest rate or loans. That is, as the number of banks in the market increases, or when the market is more competitive, a bank tends to reduce its loan price and propensity to lend.

Liquidity Risks

In the refined Monti-Klein model, it is assumed that bank can suffer from liquidity risk, which occurs when the bank has to make unexpected cash payments or when there is an unexpected massive withdrawal of deposits. This risk is defined in the model by the random amount in the volume of deposit withdrawals. If the deposit

withdrawals are larger than the bank reserve, a liquidity shortage results and the bank has to pay some penalty cost for this shortage. Denoting R to be the reserve requirement, the question now is how large should the reserve, R, be in lending to borrowers in order to maximize profit? To determine this, it is being assumed by the authors that net withdrawal is a random variable X. If the realization is greater than R, the bank must pay a penalty r_p. The banks profit is thus:

$\pi(R)= r_L (D-R) + r_P E[\max (0, X-R)]$ ----------2

The first order condition of the equation correlates with the traditional Monti-Klein model giving $r^*L = r+rP,P\{X\geq R\}/1-1/E_L$; and $r^*D= r+rP,P\{X\geq R\}/1-1/E_D$. One can then show that the followings hold from the theory: If r_P increases, then r^*L and r^*D also increases and L decreases while D increases and that if the variance of X increases, then R>0, L decreases. This theory therefore assets that increase in liquidity risk, R leads to decrease in loan L.

Default Risk

According to Freixas and Rochet (1998), Monti-Klein model has been extended to the case of risky loans. That is to the case of default risk where loans may become irrecoverable in the case of complete default. The problem is adapted from Dermine (1986), where borrowers are permitted to default. In this extension, it is supposed the bank has lent quantity of loan **L** to a firm or borrower that has invested it in a risky asset with a net unit return **Y.** The net return to the bank will be min (r_L, **Y**). When Y< r_L, and there was no collateral, the firm or borrower defaults, and the bank seizes the firm's asset that is worth (I+**Y**)L. Just as the Monti-Klein model shows, the bank would always default if Y falls below some threshold Y*. Since risk is assumed to be neutral and the bank limited liability company, the bank chooses the volumes of L* of loans and D* of deposits that maximizes its profit. Should this profit become negative, the bank would default. The first order condition would be characterized by L* and D* condition as in the Monti-Klein model and on the contrary L* depends in general on what happens on the deposits side so that the separation property is lost. The profit of the banks becomes;

$\pi(L, D, \mathbf{Y})=[\min(rL(L), \mathbf{Y})-r]+r-rD(D)]D$ ----------3

In conclusion, comparative statistic shows that spread increases with default risk that is high leverage result in high spread, spread (S) increases with risk (δ) that is High risk $\Rightarrow$ high spread, and the global risk premium sT increases with T.

Bank Capital

Equity position of banks is very significant in determining how banks behave in terms of maximizing their profit. Going from the traditional theory of capital by Klein (1971), the bank is assumed to have a preference ordering over the average rate of return on equity, which can be represented by a utility function that is linear. Based on this, the decision of the firm is always to optimize expected utility or, equivalently according to the scholar, the rate of return on equity. In this framework, bank has two basic sources of funds. First, the capital invested in the bank by the owners and second, funds that were obtained by the issuance of various types of deposits. Undercapitalization of banks then has effects on bank lending behavior.

Empirical Review

Lance and Franco (2005) maintained that the general conclusion of several empirical studies is that mergers between large banks reduce the combined banks' level of small business lending while mergers between small banks tend to increase the combined level of small-business lending. Hans and Nancy (2005) found that mergers generate short-term and long-term effects on borrowers' probability of losing a lending relationship on credit availability. According to them, mergers have heterogeneous impacts across borrowers' types including borrowers of acquiring and target banks, borrowers of differing size, borrowers with single versus multiple relationships and borrowers with differing relationship intensities. Peek and Eric (1997), found that the acquirer has a lager portfolio share of small business loans than its target. According to their finding, acquirers tend to recast the target in their own image, causing small business loan-portfolio share of the consolidated bank to converge toward the pre-merger portfolio shares of the acquirers. Berger et al (1998) found that the static effects of banking consolidation reduced small business lending. These reductions, according to them, are mostly offset by the dynamic reaction of other banks in the market. For Nicolas (1996), strong evidence suggests that there are several reasons that can lead to discounting the popular notion that consolidation in the banking sector leads to a constricted flow of credit to small businesses. As regards bank financial characteristics, Okafor and Emeni (2008), found that such a change due to consolidation had negative effects on bank lending to small businesses in Nigeria consistent with the findings of Asuquo (2012). Scholars had found that overall market concentration position influences loan interest rates, although it appears it has little or no significant effect on credit availability. Sapienza (2002), found that increase in market concentration increases the loan interest rate by 59 basis points consistent with Agelini, et al (1998) who found non-significant effects of local credit market concentration on the likelihood of firms being credit rationed. Market concentration is found to have a positive

and significant impact on level of personal loans (Kahn, Pennacchi and Sopranzetti 2000).

In the context of bank pricing/lending behavior, the Monti-Klein model has been applied to a number of studies. Therefore, Monti-Klein model remains a suitable model for examining the impacts of bank mergers and acquisitions and can be applied for sudden equity changes on credit creation. Unfortunately, in the context of Nigerian banking sector, this good framework has not been applied to analyze how consolidation and equity alteration can affect bank lending to small businesses. The theory therefore forms our theoretical framework.

3 Methodology

Research Design

The research engaged Ex-Post Factor research design by carrying out a ten-year (2001 to 2010) cross-sectional trend study of the Nigerian banking industry. The periods under study were divided into two, which were periods from 2001 to 2004 and the period from 2005 to 2010. The period 2001 to 2004 covers four-year pre-merger time while the period 2005-2010 covers a six –year post- merger era. To separate the impact of pre merger from post-merger, and in order to capture the time effect or the trend effect on bank lending, we created a dummy variable *mer*, which takes the value 0 for pre-merger period and 1 for post merger period. 24 commercial banks that emerged successfully through the N25billion minimum recapitalization exercises that took place between 2005/2006 were selected for study. Hence, they form both the population and sample for this study. Data were obtained from the Central Bank of Nigerian Statistical Bulletins and were analyzed using multiple regression analysis technique with the aid of E- View.

Econometric model

As we earlier maintained, the effects of bank mergers and acquisitions on bank lending can be dynamic. Based on this, we model for restructuring dynamic effects. The model adopted for the study is the Monti-Klein Banking firm model, which we briefly described in details above. The model is based on an imperfectly competitive market structure, which means that banks can exert some power of monopoly. The decisions variables are loans, deposits, liquidity risk, default risk, costs, security or assets and equity. The problem faced by banks is how to combine loans to maximize profit. The following equation is expected to hold as banks try to maximize profit.

$\pi = r_L(L)L - rD(D)D - rIF - C(L, D) - r_p E\{\max(0, X-R)\} - \mu r L(L)L$ 4

The above model is subject to reserve requirement condition, $R=\alpha D$ and limitation imposed by the statement of financial position- $R+L=IF+D$. r, rL and rD are the returns on security, loan and deposit, respectively. The inverse demand function for loans is given by; $rL(L)$, with derivative $rL'(L)<0$. The inverse supply function of deposits is $rD(D)$, with derivative $rD'(D)>0$. S, L, and D are the amounts of security, loan and deposit, respectively. C is the total intermediate costs of managing an amount L of loans and an amount D of deposits. This is the convex managing-cost function. To maximize the profit, the proportion of total funds allocated to the loan is chosen at the point where the marginal return on loan is equal to the average expected return on investment or equity or government security. The optimal loan-pricing rule presents the equalities between the Lerner's indices (price-cost/price), and inverse elasticity. That is, in the Monti-Klein model, a monopolist bank would set its loan and deposit volumes such that the Lerner's indices equal inverse elasticity (Klein, 1971). R is the reserve requirement and X is a random variable denoting net withdrawal. The level of the withdrawal indicates how the bank is guided by the liquidity risk. r_p is the penalty for exceeding the withdrawal limit or for liquidity default. IF and μ represent interbank financing rate and the default risk likelihood-the default probability of a loan. Since the interest of this paper is on credit availability, L in the above equation is then to be made the subject. This means the problem of banks is to select loan package that would maximize their profit. They can do this by wise pricing. Therefore, the equation can be adjusted thus:

$L^S = \pi + rD(D)D + rIF + C(L, D) + r_p E\{\max(0, X-R)\} + \mu r L(L)L$ 5

$\pi = r$; L^S denotes loans to small business borrowers.

The model is therefore specified thus:

$$Sbl_{it} = \beta_1 r_{it} + \beta_2 equ_{it} + \beta_3 bcr^4_{it} + \beta_4 gta_{it} + \beta_5 dep_{it} + \beta_6 liqrsk_{it} + \beta_7 npl_{it} + \beta_8 Cost + \delta mer + m \quad \ldots\ldots\ldots 6$$

Where

$\boldsymbol{B_1}$ is the vector coefficient of interest rates **r** that would maximize bank profit. $\boldsymbol{B_2}$ is the vector coefficient on the independent variable -bank equity (***equ***). $\boldsymbol{B_3}$ is the vector coefficient on independent variable- bank concentration of 4 top banks (***bcr*** ^{4}) measuring market share. $\boldsymbol{B_4}$ is the vector coefficient on independent variable- bank gross asset (***gta***). $\boldsymbol{B_5}$ is the vector coefficient on independent variable -bank deposit (***depa***). $\boldsymbol{B_6}$ is the coefficient of liquidity risk (***liqrsk***). $\boldsymbol{B_7}$ is the coefficient of default risk (***npl***). $\boldsymbol{B_8}$ is the slope of intermediation cost (**cost).** $\boldsymbol{\delta}$ is the vector coefficient on merger dummy to be estimated separately with *m* since other non- dummy variables were based on fixed effect. $\boldsymbol{m_{it}}$ is the stochastic error or the unobservable individual level effects or the constant. Other specified variables are explained in table 1 below.

Table 1: Explanation of Variables

Variable	Symbol	Description	Source
Small Business Loans	***Sbl***	This stands for bank loans to small business borrowers. It is a measure of aggregate bank loans to small-scale businesses. These loans are used as proxy for small risk assets. The variable is transformed into natural logarithm.	Central Bank of Nigeria (CBN) Statistical Bulletins
Lending Rate	***R***	This equals the average lending rate that maximizes banks' profit.	**CBN Bulletin**
Concentration Ratio of 4 Biggest Banks	***Cr4***	This is the bank concentration ratio/ index of four biggest firms in the Nigerian banking industry measured in terms of total assets. Concentration ratio determines the market share of banks in the domestic banking market setting. Hence, it used in order to feature the bank's market structure, or in other words, the competitive environment in which the banks operates (Prompitak, 2008). To calculate the concentration ratio, we measure the individual market shares of the selected banks. Thus we apply the formular: $\sum_{i=1}^{4} C_i$, C = the concentration ratio of each selected top bank= individual assets/ total industry assets, i=1,…4, N= the number of the banks =4,	**CBN Statistical Calculation and Author Computation**
Variables	**Symbols**	**Descriptions**	**Source**
Bank Size/ gross Total asset	***Gta***	This variable stands for bank gross assets. It measures bank size effects on credit policy of banks. It is transformed into natural logarithm to enhance normality and linearity. The essence of this variable stems from the evidence that mergers between two banks do not always give arithmetic result of 2+2 =4. At times in consolidation, 2+2 can be 3 or 6, for instance. These asset diversifications or divestitures can affect bank-lending behavior differently.	**CBN Statistical Bulletin**
Equity	***Equ***	This stands for bank financial characteristic/condition. It is measured as the ratio of bank equity to total assets. Equity is the aggregate of the shareholders fund. This variable capture the effect on loans to small businesses because of the way the new institutions restructure itself that may alter its equity condition. This change in equity over a period could significantly affect the banks propensity to lend.	**CBN Statistical Bulletin and Author Computatio n**
Non-performing loans	***Npl***	This is portfolio condition variable. It captures the effect of post-consolidation default risk on loan supply of banks. It is measured by the ratio of provision for non-performing loan to total loan. This variable is expected to have a negative effect holding all other variables constant, as higher non-performing loans impose the risk of loss. It is expected that as the bank increases provision for non-performing loans, their liquidity may fall.	**CBN Statistical Bulletins and Authors**
Deposit Demands	***Dep***	This is a variable that stands for ratio of total deposit to asset. It is an independent variable that measures industry market size or bank deposit market-demand. We transformed it in logarithm and expressed it in percentage to remove the variations that would result from the size differences. This variable captures bank deposit characteristics and indicates changes in bank financing.	**CBN Bulletins and Author**

Source: Author

Table 1; Explanation of Variables Continues

Variables	Symbols	Descriptions	Source
Liquidity Risk	***Liqrsk***	measures the effect of liquidity risk on bank lending behavior. Liquidity risk is the ratio of bank loans to total deposits expressed in percentage. The fear of	**CBN Bulletin and Authors**
		unexpected withdrawal can affect the manner in which bank can lend to borrowers. This variable is featured to capture the effects of changes in deposit in relation to lending to small businesses.	
Intermediating Cost	**Cost**	This is the intermediation costs. That is the cost of issuing loans and maintaining deposits. It is an omitted variable for multi-co linearity reasons.	**CBN Bulletins**
Merger Dummy	***mer***	This is a dummy merger variable. It is featured to capture pre-merger and post-merger effects on bank lending behavior. It takes the value 1 for post-merger periods and 0 for pre-merger period. By estimating this dummy, we would be able to compare the pre-merger and post-merger effects.	

Source; Author

4 Results and Discussions

The raw data we obtained for this study are presented in table 2 below. Our analysis however in respect of the data will be based on the regression output as we displayed in table 4.

Table 2: The Raw Data Obtained

Year	NPLOAN	BAC4	BTDEP	BTA	SBLOANS	EQUITY	BLOANS
2010	107961.6	8361953	9784542	17331559	12550	3829448	9611990
2009	93086.2	8828001	9150037	17522858	16366	2961363	9667877
2008	32436.8	5951779	7960166	15919559	13512	2642647	7799400
2007	28757.7	3810984	5001470	10981693	41100	1625291	4820696
2006	14036.6	2426729	3245156	7172932	25713	1061594	2609289
2005	64153.1	1236126	2036089	4515117	50672	717903.7	1991146
2004	61998.7	897337	1661482	3753277	54981	412860.6	1519243
2003	41254.3	640546	1337296	3047856	90176	536422.7	1203199
2002	47476.2	480409	1157111	2766880	82368	500805.3	948464.1
2001	45004.2	261303	947182	2247039	52428	364020.5	844486.2

Source: Author Data Picked From CBN Statistical Bulletin. NB: Figures in millions of Naira. BTDEP = Total Bank Deposit, BTA =Total Bank Asset, SBLOAN= Total Loans to Small Businesses. BAC4= Sum of the Bank Assets of 4 top banks, EQUITY= total shareholders fund, NPLOANS= Non-performing loan (bad loan). The table presents the data as handpicked from the central bank of Nigeria statistical bulletins for a ten-year period.

Likewise, the descriptive statistics are displayed in table 3 below. The descriptive statistics are computed from the operational measures of the variables as displayed in table 4 below. Although, other variables are important our area of emphasis is on **equ**. To avoid the problem of multi co linearity, some variable were omitted. In equ, we can see that the equity value is 16.4%. Considering the minimum and maximum values, which are 11.00% and 22.095%, it is clear that changes in small business loans must have been driven by the changes in equity condition of banks. The difference between the maximum and the minimum more than doubled implying the change was sudden and would likely blow banks' lending orientations. The standard deviation is less than 0.1. This means the deviation from the real mean would not poorly affect the regression result.

Table 3: Summary of Descriptive Statistics

	Sbl	*Cr4*	*Npl*	*Dep*	*Equ*	*Gta*	*Liqrsk*
Mean	4.5504	30.585	2.4704	1.6671	16.4000	7.7200	92.899
Median	4.6595	30.605	2.1725	1.6553	16.40000	7.6478	93.912
Maximum	4.955	50.38	5.3290	1.7517	22.0950	8.5416	105.65
Minimum	4.099	11.63	0.416	1.6214	11.0000	6.8893	80.405
Std. Dev.	0.3166	0.0127	0.0 1950	0.0422	0.0282	0.6330	0.0784

Source: Author from E-View
Note: ***sbl, cr4, npl, dep, equ, gta and liqrk were as previously defined.***

Table 4: ***OPERATION MEASURE OF THE VARIABLES FOR REGRESSION ANALYSIS***

Gta	**Sbl**	**depa**	**Equ**	**cr^4(%)**	**Npl**	**Liqrsk(%)**
7.238838	4.098654	56.45506	22.09523	48.25	1.1232	98.23648
7.243605	4.213956	52.21772	16.9	50.38	0.9628	105.6594
7.201931	4.130726	50.00243	16.6	37.39	0.4159	97.98037
7.040669	4.613846	45.54371	14.8	34.7	0.5965	96.38558
6.855697	4.410165	45.24169	14.8	33.83	0.5379	80.40567
6.654669	4.704773	45.09493	15.9	27.38	3.2219	97.7927
6.574411	4.740214	44.2675	11	23.91	4.0809	91.43901
6.483994	4.955093	43.87661	17.6	21.02	3.4287	89.97253
6.44199	4.915761	41.82006	18.1	17.36	5.0056	81.96829
6.351611	4.719567	42.15245	16.20001	11.63	5.3292	89.15775

Source: CBN reports of various years, CBN statistical Bulletins and Author computations. NB: cr^4 = the concentration ratio of biggest banks measured in relation to total deposit, **dep**=Log10 of Total Bank Deposits, **gta**= log10 of total bank gross Asset, **sbl** = Log10 of bank loans to small business borrowers, and **equ**= ratio of bank equity to total asset. **npl**= ratio of non-performing (Bad) loans to total loans, **liqrsk**=ratio of total loan to total deposits.

Regression Coefficients

The table below presents the regression result for this study. This regression output was determined using the operation measures of the variables as shown in table 4 above.

Table 5: Dynamic Regression Coefficients

Dependent Variable: SBL				
Included observations: 10				
Variable	Dynamic	Std. Error	t-Statistic	Prob.
Gta	-0.931261	0.166854	-5.581305	0.0051
Dep	7.454653	0.796398	9.360461	0.0007
Npl	-0.103358	0.042090	-2.455621	0.0700
Liqrsk	0.004153	0.005968	0.695827	0.5248
cr4	-0.015214	0.006882	-2.210717	0.0916
Equ	-0.021558	0.012940	-1.665946	0.1711
Mer	-0.470583	0.139022	-3.384952	0.0096
M	4.832750	0.107686	44.87812	0.0000
R-squared	0.588856	Mean dependent var		4.550400
Adjusted R-squared	0.912851	S.D. dependent var		0.316677
S.E. of regression	0.093486	Akaike info criterion		-1.618301
Sum squared resid	0.034959	Schwarz criterion		-1.436750
Log likelihood	14.09151	Durbin-Watson stat		2.341478

Source: Author from E-View; Data used for the Estimation from the CBN Bulletin Displayed in Appendix
Gta= gross total asset; a control independent variable. *Dep*= deposit; the ratio of total deposit to total assets, *npl*= non performing loan= (Total Non-Performing Loans/Total Loan), liqrisk=liquidity risk, *cr4*= concentration ratio

of 4 largest banks in terms of assets, *equ*= equity=Total Shareholders Fund/ Total Gross Asset, *mer*=merger dummy variable, m=unobservable individual level effect

Interpretation and Discussion of Result

Based on the regression output, the R^2, which indicates the proportion of the dependent variable behavior accounted for by the explanatory variables, is high. 96.1% of the bank lending is accounted for by the changes in the explanatory variables. The high value of the coefficient of determination shows the model fits well. The model can be fit thus: Sbl=7.45$depa$ -0.0215equ-0.015bcr^4-0.93gta+0.004npl-0.103$liqrsk$.

The result shows that banking firms' consolidations negatively influenced banks' ability to lend to small business borrowers and the effect is significant (δ= -0.47; p-value < 0.05) inconsistent with the finding of Hakimi and Khazri (2012) who found no effect of bank consolidations on small businesses. This implies that small business borrowers are not substantially benefiting from banking consolidations in the long run. This has adverse implication in an economy where banking consolidations are subsequent; lending to small business borrowers would plummet while huge borrowers may benefit. Then continual consolidations may lead to monopolistic competition, which could negatively affect demand for loans as the suppliers are going to take advantage of this by increasing the lending rate to make abnormal profit always associated with monopoly firms. Consistent with Monti-Klein prediction, changes in deposits had a positive relationship with credit availability. This implies that if consolidations decrease credits to small businesses, increase in deposit or deposit growth would likely counter such decrease. Moreover, such credit imbalance could be removed by the dynamic reactions of other non-players, which may choose to pick those credits that are no more attractive to the evolving banks. Default risk, liquidity risk and bank concentration all indicate negative dynamic effect. Ultimately, these variables restrict banks from making significant loans to small businesses. We can see that concentration does not always result in bank efficiency inconsistent with the traditional Monti-Klein theory. This suggests caution in making of policy. The assumption of Efficient Structure Performance may not hold in relation to bank lending to small businesses.

Consistent with the finding of Berger et al (1998), mergers between big banks tend to reduce credit availability to small credit users contrary to the postulation of Joe and Eric (1997). We found that sudden change in restructured banks' capital negatively affects loans to small businesses although the effect is not significant (β= -0.021558, p-value > 0.05). This means that sudden changes in bank equity do not encourage fully restructured banks to lend to small business borrowers. This support the prediction that bank mergers will lead to fewer services offered to small businesses because the economies of scale and scope expected to be realized lead to the pursuit of larger mostly corporate customers. This authenticate the prediction that time-consuming relationship customers that require extra-time and effort to infer private information regarding credit quality will be abandoned in favor of more financially transparent public corporations that do not require such time and effort. This finding has significant implication for decision making in Nigeria since is not totally consistent with few of the domestic work in this perspective. Take for instance, the finding is not consistent with the finding of Okafor et al (2008), who found that bank size, bank financial characteristics (equity) of recapitalized banks positively related to small business lending. In our case we found net effect of recapitalized merged and non-merged banks negative. Based on the coefficient (β) reported above, ceteris paribus, for every 1% increase in the consolidated banks' equity, fully restructured banks may decide to cut 0.022% of their asset as loans to small businesses. In subsequent consolidating conditions among banking firms, small business borrowers are going to suffer substantially. We can infer from the outcome of the analysis that exceptionally high- based capital banks may result in banks' exceptional concentration, which would affect bank relation with informational opaque customers. Our analysis has proved that as bank equity increases, banks would likely allocate less of their resources to small credit borrowers. Increase in shareholders' funds through banking consolidations therefore negatively affected banks' decision to lend to small business borrowers. Promulgating laws that will bring about sudden equity alteration through mergers and acquisitions in Nigeria could discourage the emerging huge banks from lending to small business borrowers.

Summary, Conclusion, and Recommendations

The study indicated that banking consolidation had non-significant, but dynamic negative influence on Nigerian banks' ability to lend to small business borrowers. Although the influence is not statistically significant, the economic significant of the effect cannot be ignored. Moreover, it was found that sudden changes in bank equity of huge recapitalized banks negatively affected banks' decisions to allocate loans to small business borrowers such that for every 1% increase in shareholders fund, banks decided to decrease loans to small businesses by 0.022%. Therefore, based on the merger dummy time effect, one can confidently announce that the overall long-term effects of bank mergers and acquisitions are negative on the welfare of small business borrowers. Overnight change in capital base should not be encouraged among Nigerian banks especially that pursued through

consolidations. However, we anticipate that if Micro-finance banks are to be sensitized on the possible small credit market created by bank mergers and acquisitions and the consequential sudden equity alterations, the equilibrium could be maintained in the end.

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