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Basel III Implications on the Banking Industry in the Light of Charter Value Hypothesis

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ABSTRACT

This paper investigates how the adaptation of the new regulations of Base III will affect the banking industry and how the theoretical framework around charter value hypothesis can explain these changes. The empirical study has been based on performance analysis of four major European banks with the purpose of identifying the impact of the new regulations on their finances. The data used for this study is from banks' financial statements and annual reports as well as the European Banking Authorities and the Basel Committee on Banking Supervision. The results show that the impact of Basel III on the banks considered in this paper varies significantly depending on the bank's business model and activities prior to the financial crisis of 2008. Further, Basel III is considered to create a new environment for banking with regards to solvency and liquidity; however it is argued that the accord carries limitations in its approach to risk measurements and its ability to act as a prevention of excessive risk taking leading to financial instability.

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1. Introduction

1.1 Background

In the last two decades, the increased frequency of banking crises has intensified the moral hazard within the banking industry where bank profits are privatized, but their losses are nationalized. Inadequate control of moral hazard in banking has led to increased risk taking- a behavior which has been central in the recent crisis. The practice of restructuring financial instruments, transfer of risk, aggressive accounting and misrepresented credit ratings, has led to massive value extraction rather than creation. Further this has highlighted the shortcomings of the cornerstones of financial stability, namely efficient risk management, corporate governance and financial regulation.

The purpose of risk management is to identify and to evaluate the risks faced by the firm and to monitor and manage these risks in an efficient way. The most important step towards this is the process of identification and measurement of risks. Models based on assumptions such as dynamic trading, continuous liquidity, constant correlations and normal market conditions have failed to obtain quantitative risk management strategies that minimize risk exposure. Ignoring critical dimensions of risk as well as abnormal market conditions, rapid and turbulent changes in the economy, limitations and misuse of risk models, are all factors considered to be key contributors to poor risk management seen during the crisis.

Keeping banks' risk-taking in check is one of the main aims of banking supervisors, an aim that is more emphasized today than ever before. Regulations such as on-site examinations, off-site surveillance and capital requirements are a few examples of the tools used to supervise the pattern and the degree of risk taken by the banks (Demsetz, Saidenberg, Strahan, 1996). The staggering scope of recent crisis, poorly functioning banking systems and their highly negative impact on economic growth, has given rise to a great need for reforms in bank regulation and supervision. The Basel Committee on Bank Supervision has provided extensive guidelines and

supervisory standards for regulation and supervision of banks. The committee's objectives have been to enhance comprehension of key issues concerning the banking system and to provide a forum on banking supervisory matters. [1] It has aimed to ensure the stability of the financial system by creating a sound banking environment. The magnitude of the current financial crisis reflects the failure of this attempt. To fully understand the basis on which the regulatory system is considered to have failed, it is of equivalent significance to understand the environment of the banking industry and the changes it has undergone.

A central development in industrialized countries during the past decades has been deregulation and integration of the financial markets, a development that has created a more competitive market. As competition among suppliers of financial services has given rise to more efficiency in the allocation of financial resources, it has removed constrains on bank risk-taking by eliminating many geographic and investment restrictions (Saunders and Wilson, 2001) The concerns have also been due to the consequences increased competition has had on banks' charter value, which has been identified to be a key determinant of risk-taking of banks (Weisbrod, Lee and Rojas-Suarez, 1992)

1.2 Objective of the Study

In this paper, it is sought to understand the effect that Basel III regulations will have on the banking industry by understanding how the accord is meant to affect bank performance as well as financial stability. To evaluate this, I use the theoretical framework of *charter value hypothesis* to describe the key determinants of risk taking in banking.

1.3 Question at hand

- What changes are to be expected in the banking industry given an implementation of the new Basel III regulations, and how can these be explained by charter value hypothesis?

[1] For more information see: The Basel Committee on Banking Supervision

1.4 Limitations

The main limitations in this study refer to not enough data being available for examination of direct effects on the industry given Basel III regulations, due to the accord being fairly new and not fully implemented. The implications are therefore considered not to be entirely evident as of yet, however changes that are seen during the last few years as a result of an adaptation of the new rules, give fair indications. Further limitation exists with regards to the degree of isolation these implications can be considered to, as the industry is characterized by high complexity and interconnectedness to other aspects of the global economy.

1.5 Methodology

The methodology chosen is a combination of theoretical and empirical research, where theory on charter value hypothesis and bank risk behavior has been applied to the problem at hand, with an intention of understanding the underlying factors of financial stability and how the Basel regulations are meant to achieve this. Further, I have examined how the profitability, liquidity and capital adequacy of four of the largest European banks have been affected by both crisis of 2008 and the pre-adaptation of the Basel III regulations. This is mainly done with focus on their balance sheets, profit & loss statements and key performance ratios.

1.6 Disposition

The paper is divided in five parts. The second part, following introduction, will address the theoretical context around charter value, bank risk taking and regulations based on literature and previous research. The requirements and characteristics of the Basel III agreement will be described here, providing an overview of the developments since the introduction of Basel II. Part three consists of the empirical study, based on performance analysis of four European banks. This is followed by the discussion and further the paper is finalized by conclusion.

2. Theory

2.1 Definition of Charter Value

Guttentag and Herring (1983) define charter value as follows:

-*"the present value of the net income the bank would be expected to earn on new business if it were to retain only its office, employees and customers. (…). [It] depends on the bank's authorized powers, including power to do business within specified areas, the market structure in the area, the expertise of the bank's employees, and the customer relationships it has developed".*

One of the most important policies decided by regulators is to determine at which economic state a bank is to be closed. There are different models that have been introduced and used for this purpose. An example of these is the Acharya-Dreyfus (1989) model which states that a bank should be closed when its asset-to-deposits ratio is below a threshold which is slightly greater than 1. However, in reality banks have great advantages and benefit from economies of scale, reputation, monopoly rents as well as superior information in the financial markets. These are benefits that are foregone when the bank is closed, and are referred to as the banks charter value (Sankarshan, 1996, p. 352). This refers to charter value as the present value of the net income the bank would be expected to earn on new business if it were to retain its mentioned benefits. Further the bank charter value is defined as the value that would be foregone in the event of bankruptcy or closure and therefore represents the bank's private cost of failure (Saibal, 2009). In a highly competitive market most firms are not always able to generate stable profits as the existing competition on the market forces them to lower their prices to levels just high enough to cover all costs. However, the superior advantages such as those mentioned above may have charter value (Demsetz, Saidenberg, Strahan, 1996).

The charter value arises from mainly two sources, namely the market-related and the bank-related sources. The market-related source involves regulatory

restrictions on entry and competition, including banks' exclusive access to protected markets as the charter value is largely dependent on the level of competition, which in turn is dependent on entry costs and required capital levels. Despite exposure to the same competition and regulations, difference in charter value can be expected. This is induced by the bank-related source including factors such as customer relationship, the reputation the bank has acquired as well as the efficiency advantages a bank may have in terms of competence and information they possess.

2.2 Measuring charter value

In financial literature, charter value is measured as the net present value of future rents. Keeley (1990) defines charter value as the ratio of the market value to the book value of assets, also referred to as Tobin's Q.

$$Qi(t) = \frac{E_M^i(t) + L_B^i(t)}{A_B^i(t)}$$

where $E_M^i(t)$ is the market value of equity, $L_B^i(t)$ is the book value of liabilities and $A_B^i(t)$ is the book value of assets, all measures at year t (Nicolo, 2000, p. 10). The ratio represents the market value of a bank to the replacement cost of its assets. The market value of assets is defined as the sum of the market value of equity and the book value of liabilities. The replacement of cost of the assets is defined as the book value of assets. This is a common proxy for charter value and is used in many studies due to the measure containing relevant information about the value that would be forgone in case of a closure. Nicolo (2000) argues that Tobin's Q is an appropriate measure of charter value as it includes the discounted value of rents due to market power, competitive advantages as well as rents due any safety net subsidy.

2.3 Determinants of Charter Value

In banking, the charter value arises from two main sources. Regulatory restrictions on entry to markets and competition are considered to be the "market-related" sources. By executing regulations that restricted entry opportunities and limited

competition in the sector, a privileged market was provided for the banks to operate in and they were given access to profits through monopoly rents. Before 1970s, U.S. banks were prohibited from operating across states as they faced limits on geographic expansion both within states and across the states. The restrictions on expansion and intrastate branching resulted in higher market power for the surviving banks and provided them with the opportunity to build charter value (Demsetz, Saidenberg, Strahan, 1996). Hence, entry in the banking sector and the right to operate on that market are subject to obtaining a charter. Although the regulatory and technological changes have been a central determinant of banks' charter value, the so called "bank-related" sources remain important. Even though banks are faced with the same beneficial effects of market protection against competition and expansion, their charter value can vary. This is induced by the bank-related or bank-specific factors such as having a competitive advantage in dealing with customers, who prefer the convenience of full-service banking at a local branch. The bank-related advantages are also advantages such as efficiency in management that provides the bank to grow at the expense of their poorly managed rivals (Demsetz, Saidenberg, Strahan, 1996). Marketing advantages in selling financial products such as mutual funds and life insurances as well as a bank's unique relationship with many of their borrowers are other examples of bank-related factors that create charter value. Banks' long term relationships also allows them to gain superior information on the creditworthiness and credit risks of the borrowers which leads to a reduction of the bank's costs, making lending activities more profitable. These relationships in combination with the bank's reputation, which generates a favorable business framework, are of great importance for creating charter value (Fisher and Gueyie, 2001, p. 4).

2.4 Charter Value Hypothesis

Charter value has been known to have a self-imposed disciplinary effect on a bank's risk taking. This relationship has been evaluated by many during the past decades, amongst others by Keeley (1990), who argues that banks with high charter value tend to maintain a more prudent risk-strategy by holding more capital relative to

assets. They tend to avoid excessive risk which could jeopardize their stream of future cash flows. The self-regulating incentive for banks to constrain risk taking, which is provided by valuable bank charter, is a hypothesis termed the *charter-value hypothesis (CVH).* According to the CVH, regulations that lead to a higher value of bank charter through entry restrictions and enhanced profit opportunities increase the incentive for prudent behavior in taking risk. In contrast, it also highlights how deregulatory efforts that increase competition on the financial market, can have a negative effect on charter value and therefore induce higher level of risk taking by the banks (Saunders and Wilson, 2001).

An example that can help to clarify the grounds for the CVH, is considering a small bank which has little capital or no charter value. Given CVH, the bank is more likely to give high-risk loans to, for instance, high-tech startups, knowing that if and when the loans are repaid the bank will make high profits. However if the loans default, the bank has lost little by not having a large value of charter. Assuming that the loans are repaid and profits are gained, as well as having established a valuable and long term lending relationship with the high-tech start-up, the firm becomes profitable and builds a high charter value, since it can expect strong future profits. With charter to lose, the owners of the bank will be less aggressive in lending strategies in the future, and will have the incentive as well as the ability to raise the bank's capital-to asset ratio, and further decrease the likelihood of insolvency. While both regulations on minimum bank capital levels and a high charter value can discourage risk taking, the charter value is considered to be more stable as it is related to operating efficiency and lending relationships, and thereby not as sensitive to changes in the general economic conditions as the capital position of a bank could be (Saunders and Wilson, 2001, p. 185).

2.5 Charter Value's Effect on Risk Taking

The general theory behind the charter value and its effect on bank behavior is that banks that have succeeded in creating charter value will seek to preserve it. As the charter value of banks declines due to deregulations and increased competition,

banks may be induced to take risks. An increasing number of empirical studies have been examining the relationship between charter value and risk, confirming the disciplining effect of charter value on banks' risk-taking. A study by Keeley (1990) documents the decline in charter value of U.S. banks during the 1950s through 1960s and 1970s as the banking industry experienced deregulations and thereby an increase of competition from new banks as well as nonbank financial institutions. He argues that the decline in bank charter value during this period explains the risk taking behavior of banks during the 1980s. The article finds that the average charter value ratio among a panel of large bank holding companies fell sharply in the 1970s and made only partial recovery during the mid-1980s. He argues that the drop in banks' charter value may have reduced bank's incentive to act prudently and is the underlying factor of the increased risk-taking by U.S. banks during this period, leading to a concerning high rate of bank failure (Keeley, 1990).

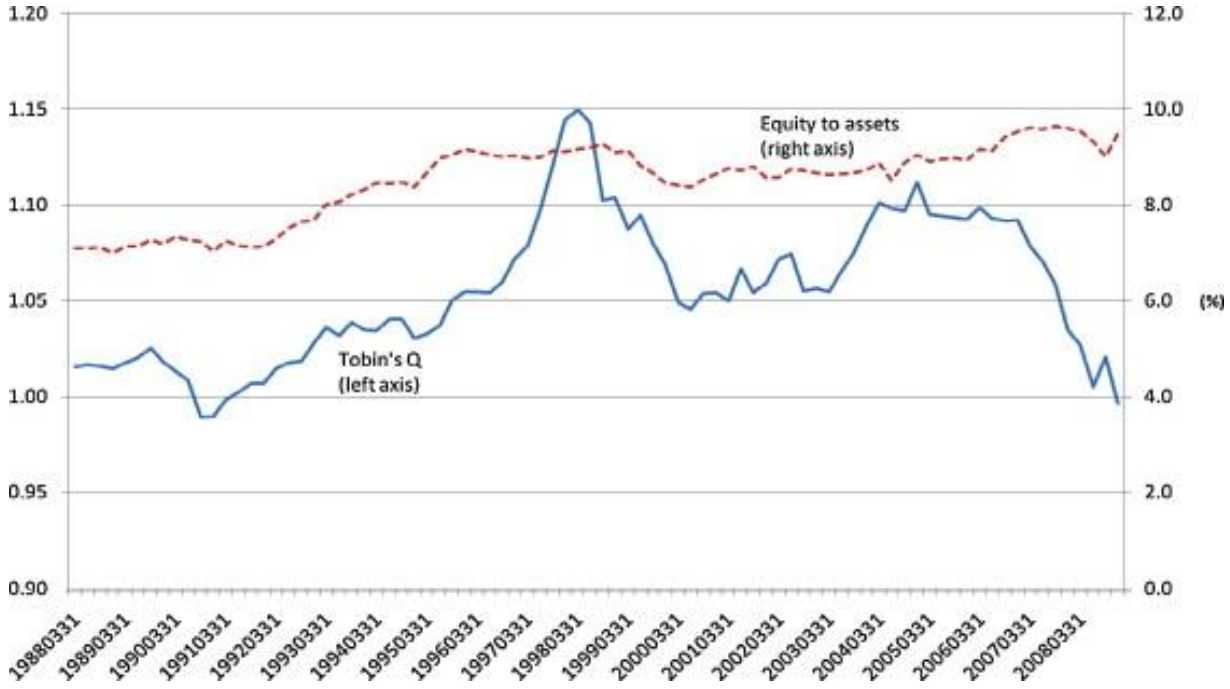

Figure 1: *The figure plots the mean value of Tobin's Q and the equity to asset ratio at all US publically traded banking holding companies between 1988 and 2008.*

Source: Journal of Economics and Business, Volume 63, Issue 5, 2011, 372-391

Demsetz et al. (1996) explores the relationship between the charter value and risk by extending Keeley's empirical analysis by estimating the effect of charter value on different measures of bank risk. The study confirms an inverse relationship between the two and finds that banks with a higher charter value hold more capital and thereby have less asset risk then banks with low levels of charter value. Banks with high charter value are shown to maintain better diversified loan portfolios although holding the same rate of risky loans as other banks. The empirical results suggest that less competitive markets and valuable lending relationships are of importance for more efficient and safe banking (Demsetz, Saidenberg, Strahan, 1996). Extensive literature has provided evidence for deposit insurance and charter value being the two main determinants of bank risk-taking incentives. Gonzales (2005) analyzes the impact of bank regulations on bank charter value and risk-taking, taking into account the deposit insurance available in the 36 different countries. The paper provides empirical evidence for the effect regulatory restrictions have on bank risk-taking through their influence on charter value (Gonzales, 2005, p. 1154)

The dramatic changes in charter values has provided the opportunity to identify the factors that affect bank charter and how these factors are related to shifts in the banking environment. Furlong and Kwan (2006) identify these shifts in the banking environment as four fundamental changes that the banking industry has undergone, all with potential to impact charter value. Restructuring of banks and bank activities due to the geographic expansion is considered to be one of the four major changes observed in the banking environment with a notable impact on banks' charter value. The mid-1980s, all the way into the 1990's, represent an important period for these changes. The large degree of mergers and consolidations in the banking industry during this period is a main aspect of this matter, leading to an increase in concentration in banking at a national level (Laderman, 2005). The growth of activities associated with non-interest revenue, such as securities trading, loan guarantees and services, brokerage services etc. is marked out to be another important factor. Both larger banking organizations as well as medium and smaller banking organizations have had a growth in reliance on fee income rather than

interest income. In a study on the determinants of charter value and its disciplining effects on risk taking of banks, Furlong and Kwan (2006) show that non-interest revenue had a positive and significant effect on charter value. Improved operating efficiency in areas such as risk management and processing of information as a result of adoption of new technologies is considered to be the third fundamental change that the banking environment has undergone. Being an information-based industry, the advancement in information technology (IT) has allowed banks to not only reduce costs of providing traditional banking services, but also to facilitate innovations in financial products and has enabled expansion into new financial services activities. These developments and improvements in operation efficiency captured by banks have led to a rise in their charter values. Supervisory and regulatory changes aiming to reduce bank risk taking and introduction of federal safety nets and deposit insurances is the fourth development that has occurred in the banking industry, leading to changes in how charter is created (Furlong and Kwan, 2005).

2.6 Deposit Insurance

Among industrial countries, policies that either explicitly or implicitly protect bank customers, and in turn the banks themselves from failure, are frequently adopted. This is done through different type of insurance systems, which is argued to result in the banks taking excessive risk (Weisbrod, Lee and Rojas-Suarez, 1992, p. 6). Federal deposit insurance was one of the most important reforms of the banking system, introduced in the 1930s in the United States, as a response to the dramatic increase in bank failures during the Great Depression. It aimed to protect depositors against loss and thereby to restore the lost confidence in the financial system and to avoid crisis such of that during 1930s (Grossman, 1992, p. 801). Today, deposit insurance is one of the most criticized government policies related to bank failures, as it is considered among some economists to incentivize excessive risk taking by banks. When deposit insurance legislation was introduced during the 1930s, the coverage was capped, regulations were imposed to limit risk taking and deposit interest rate ceilings were in place to prevent destructive competition amongst

banks. The rationale for deposit interest ceilings was to prohibit banks from competing for deposits through interest rates, limiting what banks could pay to their depositors, lowering the yield needed, and thereby the risk they would have to carry, to be competitive.

Merton (1977) and Kraeken and Wallace (1978) showed that because depositors are insured and thereby protected against failure to the extent of insurance coverage, they are more willing to accept lower rate of return on their deposits, lowering the cost of deposits and resulting in banks to a larger extent financing their activities with deposits rather than equity or non-deposit liabilities. The elimination of deposit rate ceilings in the United States in 1980s, in combination with an increase of the deposit insurance coverage, led to increased competition, lower charter value and further to moral hazard. The problem originates in insured depositors lacking the incentive to monitor and to ask for compensation for risk taking. This is why regulatory framework is vital with regards to deposit insurance and to monitor the extent to which banks fund their high risk activities with deposits. In the absence of deposit rate ceilings, the bank will, without meeting any additional costs, maximize the risk of its loan portfolio to maximize returns and attract depositors. The theory behind deposit insurance affecting bank risk taking and being a source of moral hazard is strongly linked with financial liberalization. Among economists it is commonly believed that deposit insurance is optimal in its role as a policy to prevent bank runs *only* when effective regulatory framework and bank supervision exists. Empirical studies on this subject suggest that where bank interest rates are deregulated and institutional environments are weak, opportunities for moral hazard exist given deposit insurance is available (Demirguc-Kunt and Detragiache, 2001). This is not to say that excessive risk taking strategies are preferred by the equity holders or even intentionally perused by the bank due to existence of deposit insurance per se, but in the light of requirements of high return on equity, it is argued that it has an effect on the risk behavior of the bank, as it can fund high-risk/high-return activities with deposits rather than with equity. However, the presence of high charter value is argued to mitigate moral hazard in

this context by creating alignment between the depositors' and the equity holders' incentives as view on risk and reward changes when the cost of failure is high (Dewatripont and Tirole, 1993).

Milne and Whalley (1998) showed that charter value interpreted as the present value of current and future profits depends on the number of banks allowed in the system, which in turn depend on entry costs and required capital levels. This, in accordance with previous studies mentioned, highlights the importance of competition in a discussion of bank risk taking.

2.7 Competition and Bank Risk Taking

Like other sectors of the economy, in the banking sector attention must be given to the interaction between competition and financial stability. A common assumption in the academic literature is that charter value plays a central role in limiting bank risk taking. As the underlying sources of charter value are entry opportunities, competition and market power, enforced deregulations and increased competition has been considered to have a negative effect on banking stability through its effect on bank charter value. It is considered that more bank competition lowers market power and profit margins, leaving banks with the incentive to invest in high risk assets yielding high private returns for the bank. It is therefore of interest to discuss the relationship between competition and financial stability and further the effect competition can have on bank risk taking.

Since the 1970s, the banking sector has undergone great changes, going from a regulated environment to a wide deregulation during the 1980s, which has led to significantly increased competition within the banking industry.[2] Competition as a result of deregulations and liberalization of the banking system has shown to lower bank charter value and encourage riskier activities such as lowering capital levels, taking on more credit risk in the loan portfolio, or both in an attempt to make profits. This is especially true for banks with low or no charter value, operating in a

[2] See Edwards and Mishkin (1995) for a more complete discussion of the changes in banking since the mid-1970s.

highly competitive market. Keeley (1990) found that increased competition, relaxation of regulatory restrictions in United States during 1970s and 1980s, led to reduction in monopoly rents and eroded charter value as a consequence. This, he argues, was the main contributing factor behind the bank failures in United States during this period. Investigating the underlying elements of the East Asian financial crisis during 1997, Radelet and Sachs (1998) explain how the main countries affected, Indonesia, Korea, Malaysia and Thailand, were all characterized with limited competition on the banking sector as foreign banks were unable to enter the financial market due to protectionism of domestic banks. These barriers were reduced as a result of financial market liberalization, leading to increased competition on the market with foreign banks being allowed entry. Reduced restrictions had a negative effect on profitability and on the charter value of domestic banks, resulting in higher bank risk taking. Simultaneously, lack of regulatory oversight and prudential instruments, such as higher capital requirements etc., further allowed for excessive risk taking and gambling by banks (Radelet and Sachs, 1998).

Suarèz (1994) showed that as the market power of a bank decreases, there is a significant increase in incentive to engage in riskier activities. As the charter value is connected with the bankruptcy costs of a firm, it can induce prudent policies, which increases the bank's solvency. In a study made on bank regulation and its effect on risk taking, Agoraki et al. (2011) found that banks with high market power carry a lower probability of default as well as reduced credit risk. Chan et al. (1986) underlines how the surplus made by banks on high-quality borrowers is capped in high competitive markets. This leads to banks doing less screening for high quality borrowers due to fierce competition, resulting in a negative effect on asset quality. Demsetz et al. (1996) shows a strong relationship between market power and high capital ratio and low asset risk. Salas et al. (2003) provides empirical evidence of liberalization, defined as increased number of competitors on the financial market, had the highest impact on market power and economic profit of Spanish banks. The

study concludes that banks with eroded charter values have lower solvency and experience more credit risk.

A more regulated banking system, resulting in restrained competition, is considered to encourage banks to protect their charter values by pursuing less risky strategies which in turn would ensure the stability of the whole banking system. However, the theoretical literature and the empirical evidence on this topic are somewhat mixed with regards to the relationship between competition and financial stability, creating conflicting predictions. In a paper by Allen and Gale (2004), it is argued that the relationship between competition and financial stability is more complex than the widely-held belief of the "trade-off" between the two. The study implies that even though costs related to financial instability are high, it is not necessary to reduce competition to avoid these costs as the high efficiency gain from increased competition is consistent with the efficiency costs from concentration. It is further explained that as financial instability in forms of crisis occur every decade or so, the inefficiency costs are born continuously (Allen and Gale, 2004, p. 455). The study concludes that the relationship is very case dependent and that different models can provide different results depending on countries and periods considered.

In a study made by Nicolò and Al Jalal (2005), the trade-off between competition and banking stability is examined by studying two different models of a banking firm. The authors use one model embedding the charter value hypothesis, where competition is allowed in deposit markets, but not in loan markets and another model, where competition is allowed both in deposit and loan markets. In both models banks are allowed to both invest in a risky asset and a risk-free government bond, creating a new theoretical environment where new predictions are produced, which otherwise would be invisible unless both loan and bond markets are present simultaneously. As highlighted in the study, the banking industry's portfolio choice, reflecting the quantity of loans, bonds and deposits, will depend on the degree of competition (Nicolò and Al Jalal, 2005). The charter value hypothesis model in this study suggests a positive relationship confirming the trade-off between competition and stability. Further, this implies that the charter value hypothesis model predicts

higher risk of bank failure as competition increases. However, the second model suggests no such trade-off, as it implies a negative relationship between competition and stability. This view implies that in markets with limited competition, banks gain stronger market positions and can thereby increase rates charged on business loans. This in turn increases the credit risk with the borrowers as the cost associated with borrowing increases. This movement in credit risk is further argued to increase the likelihood for borrowers to default, causing problems for the bank itself and therefore lead to more instability. The authors mean that this specific effect can eliminate the trade-off between competition and financial stability imposed by the charter value hypothesis. With regards to asset allocation, the study shows that the equilibrium loan-to-asset ratio will be increasing as the competition increases, a prediction which both models make (Nicolò and Al Jalal, 2005). In a paper by Martínez-Miera and Repullo (2010), the authors present that the relationship between financial stability and competition to be U-shaped, meaning as the number of banks increases, the probability of bank default first declines, but increase beyond a certain point, suggesting there being an optimal level of competition for efficiency versus financial stability.

2.8 Capital Requirement and Charter Value

One of the main elements by which regulations such as the Basel accords are meant to offset risk-increasing incentives, is by setting minimum requirements for bank capital. Generally it is of common practice to hold capital in excess of the required minimum as an insurance against risk. However, it is of interest to assess the bank capital decisions with regards to moral hazard and bank charter value. In a study by Jokipii (2009), the relationship between charter value and excess capital is examined. The study shows that banks with valuable charter will maintain excess capital buffer to protect themselves against negative shocks as the cost of failure is too high. Further, as charter value is below a certain threshold, banks have little or no incentive to hold adequate capital, leading to moral hazard. When capital is depleted and charter value is low, gambling for resurrection in form of excessive risk taking is observed. In a case of positive outcome of the gamble, high returns are

made; on the other hand in a negative outcome a bail out by deposit insurance is guaranteed. Hence, the study concludes that high charter value has a disciplinary effect on capital management and risk taking; however it also shows that the existence of deposit insurance creates additional incentive to carry risk. The study also shows that even though the relationship between charter value and buffer capital is positive, banks with charter values above certain threshold do not necessarily hold more capital, but rather maintain a constant level of buffer capital. This finding supports the paradigm of "too-big-to-fail", where large banks with high levels of charter beyond a certain point, consider themselves partially insulated from failure (Jokipii, 2009).

2.9 Basel I, II, III

As banks were becoming more active on the international market, and finical crisis showed to no longer being confided to one country[3], there was a necessity for an international regime to protect global financial systems and their depositors and to create a level of playing field. In response to this, the central governors of the G10 countries established a Committee on Banking Regulations and Supervisory Practices at the end of 1974. Since then the Committee has expanded both its membership and jurisdiction.

Basel I was an international accord issued in 1988 by the Basel Committee on Bank Supervision, designed to minimize credit risk and to ensure that lenders were sufficiently well capitalized by introducing a minimum level of capital requirements. The level of capital requirement was determined with regards to classification of the banks' assets. All assets on a bank's balance sheet were given weights from 0%, representing the safest assets such as government bonds, to 100%, representing the most risky assets held by the bank. All internationally operated banks were required to maintain a minimum of 8% capital of which 4% was to be Tier 1 capital, i.e. the purest form of capital primarily consisting of common stocks, preferred stocks or disclosed reserves.

[3] The collapse of the Franklin National Bank of New York (USA) and Herstatt Bank (Germany) in 1974, are examples of how consequences of financial crisis started to spill over country borders.

As banks became more sophisticated in their operations during the 1990s, they found ways to reduce risk weighted assets (RWA) without actually reducing real risk. This development, in combination with the Basel I's lack of differentiation of risks, created a divergence between Basel I risk weights and actual risk exposure. It was therefore decide to introduce a new capital standard, namely Basel II, aiming to better align and integrate capital requirement regulation with efficient risk management practices and to eliminate regulatory arbitrage. It put much more emphasis on the bank's internal methodologies and provided more flexibility. Basel II consists of three complementary pillars. Pillar I is on regulatory calculations of capital requirements for not only credit risk (as Basel I covered) but also market and operational risk. Pillar II is the supervisory review process, where both the bank's total capital adequacy given its risk portfolio, as well as the bank's management of capital are assessed. This section goes beyond the mechanistic calculation of minimum capital, but attempts to create an understanding and assessment of the bank's risk profile and to establish a strong risk management culture within the bank. It allows lenders to model and assess their own capital requirement levels using the Internal Rating Based (IRB)[4] approach and further to create internal processes and strategies for maintaining their capital. It also focused on market risk, an area which was previously unregulated by Basel I. Supervisors should review and evaluate the bank's internal assessment together with their ability to monitor risk, and further take appropriate measures if the bank's results are not satisfactory. Pillar III is on market discipline. In order to maintain transparency for counterparties and investors, banks are required to provide detailed information on their activities, risk profile and their risk management.

Recent global economic crisis and financial instability highlighted the shortcomings of Basel II and has created a further need for a restructured approach to risk and regulation in banking, giving rise to the Basel III accord. Basel III is an agreement meant to promote a more resilient banking sector through stronger capital and

[4] The IBR approach requires banks to specify the probability of default for each individual credit, assess the loss associated with default, and the expected exposure at default. The methodology requires highly complex modelling and aggregation.

liquidity rules. It is, compared to its predecessors, identified by an enhanced level of complexity. The philosophy behind the new accord is to maintain the spirit of Basel II with regards to capital requirements, and to further ensure that financial institutions operate at lower risk levels and possess higher levels of equity to account for potential losses.[5] The new regulatory framework is to be implemented gradually to allow banks to comply with the new requirements and to contain the real impact on the economy. The Basel 3 framework has been translated into law by means of two separate legislative instruments, namely a Directive (CRD 4) and a Regulation (CRR), which will be directly binding and applicable within each European Union Member State. The first proposal of the new regulation was introduced in July 2011. Following EU Parliament approval, the CRD 4 was formally published in July 2013 and applies from January 1, 2014. Implementation of parts of the accord will be phased all the way to 2019.

Basel III requires banks to hold a Common Equity Tier 1 capital ratio (CET 1) of 4.5%, in contrast to the previous 2% under Basel II. Further this includes contractual terms that allows write off or conversion to common shares, in case the bank is judged to be non-viable. This is meant as a contribution of the private sector to resolve any future banking crisis and to reduce moral hazard behaviour. Further there is a capital conservation buffer requirement of 2.5%, resulting in total common equity requirement to 7%. There is also an element of countercyclical buffer within a range of 0-2.5% comprising common equity, imposed when authorities recognize an unacceptable build-up of systematic risk due to credit growth. The minimum Tier 1 Capital ratio requirement has increased from 4.5% to 6% from 2015 onwards. Minimum Total Capital requirement is held at 8%, excluding the conservation buffer of 2.5%- resulting in a total of 10.5% to be met in 2019. The capital instruments that no longer qualify as non-core Tier 1 or Tier 2 capital are phased out over a 10 year period beginning 2013. Basel III also includes requirements on more rigorous credit analysis of externally rated securitisation exposure. It takes into account counterparty credit risk, by including more stringent

[5] For more information: http://www.bis.org

requirements for measuring exposure, as well as higher capital for inter-financial sector exposure. The accord includes minimum requirement on liquidity coverage ratio of 100% by 2019, together with a net stable funding ratio, which is yet to be defined. The liquidity coverage ratio requires banks to have sufficient quality assets to withstand a 30-day stressed funding scenario defined by the Basel Committee. The net stable funding ratio is a structural ratio, meant to provide incentives for sound funding sources. [6]

[6] Basel Committee of Banking Supervision, Basel III, A Global Regulatory Framework for More Recilient Banks and Banking Systems, Revised Version June 2011

3. Empirical Study

Performance analysis of banks has become of increased importance for both internal as well as external parties, such as the shareholders, depositors, regulators, credit rating companies, the market and its participants. It is of outmost relevance to measure the efficiency and profitability of a bank's operations, both due to key stakeholders' interest, but also because of the central role banks play in world economy and for financial stability, and last but not least for assessment of regulatory impact. Financial statements and key ratios are a common tool for evaluating the financial performance of banks with regards to profitability, liquidity, asset quality and credit performance.

In order to depict the impact of the crisis and the pre-adaptation of the Basel III requirements, I have selected four European banks to study over the immediate five year period following the crisis of 2008. These four banks are four of the largest European banks, each with roots in one of the top four economies in Europe by GDP size. Further they all have international presence with investment banking as part of their business.

Bank	Country	Total Assets (YE 2013)
Deutsche Bank	Germany	€1,611 bn
BNP Paribas	France	€1,800 bn
Royal bank of Scotland	UK	€1,229 bn
UniCredit	Italy	€846 bn

Table 1: *Banks included in this study. Source for data presented: Bank Annual Reports*

Below, the Tobin's Q, measuring bank charter value, is presented for each of the above mentioned banks.

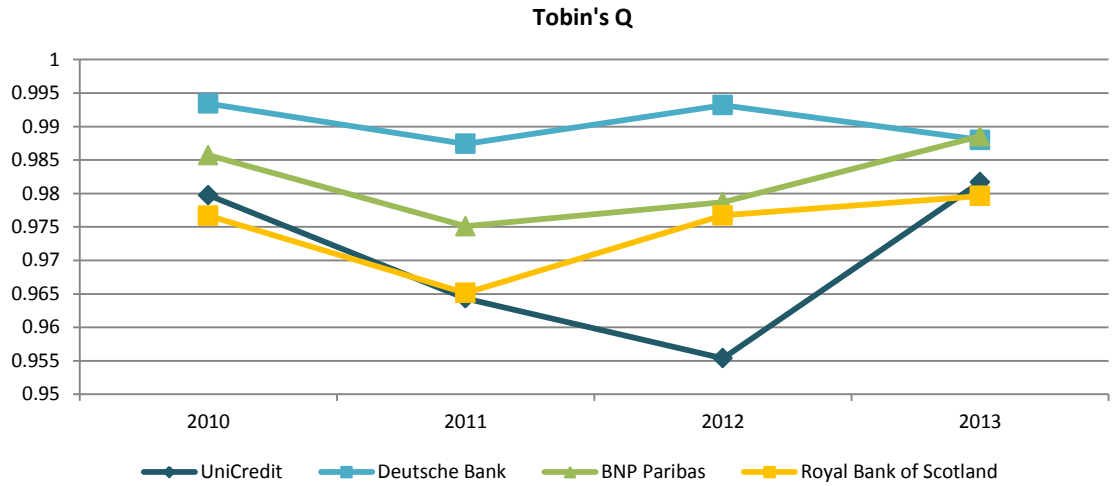

Figure 2: *Tobin's Q calculated for each bank as per YE data. Source: data used for calculations are from bank Annual Reports*

3.1 Profitability

Profitability ratios are meant to evaluate a firm's ability to generate earnings. They are of vital concern to stockholders and are broadly used as a performance measure. The most common measures on bank profitability are the following:

Return on Assets (ROA) = Net Profit / Total Assets

Return on Equity (ROE) = Net Profit / Total Equity

Return on Deposits (ROD) = Net Profit / Total Deposits

The (ROA) is a well-established metric, indicating how much net income is generated per $ of assets, i.e. measuring how efficiently banks use their assets for generating profits. (ROE) is another important measure of a bank's performance, as it is an indicator of not only profitability, but also growth potential. Given profits are not paid out as dividend but are retained within the company, and given that ROE levels are maintained, a company's maximum growth rate is the same as its ROE ratio, without any additional loans. This is a central ratio for shareholders and for valuation of banks, as traditional cash flow models are more difficult to construct for financial institutions. (ROD) is a popular measure for financial analysts as it reflects

the bank's ability to utilize the customer's deposits for generation profits. Further, each bank's earnings per share development (EPS) is shown throughout the period.

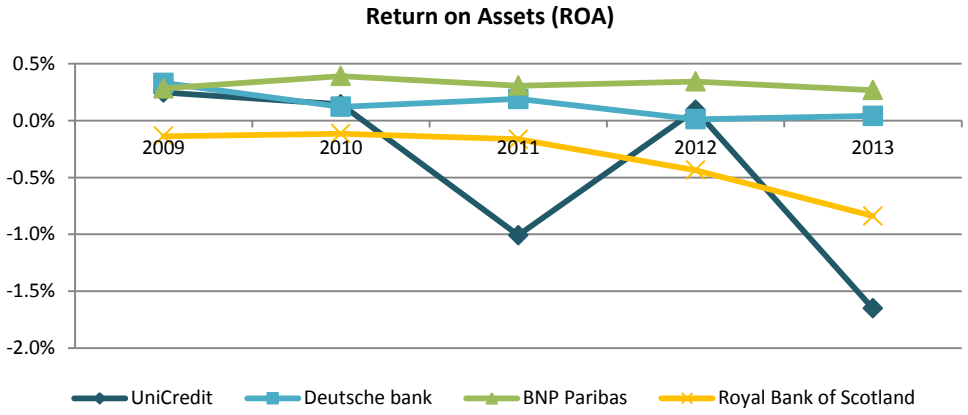

Figure 3: *Return on Assets. Source: Calculations based on data from bank annual reports*

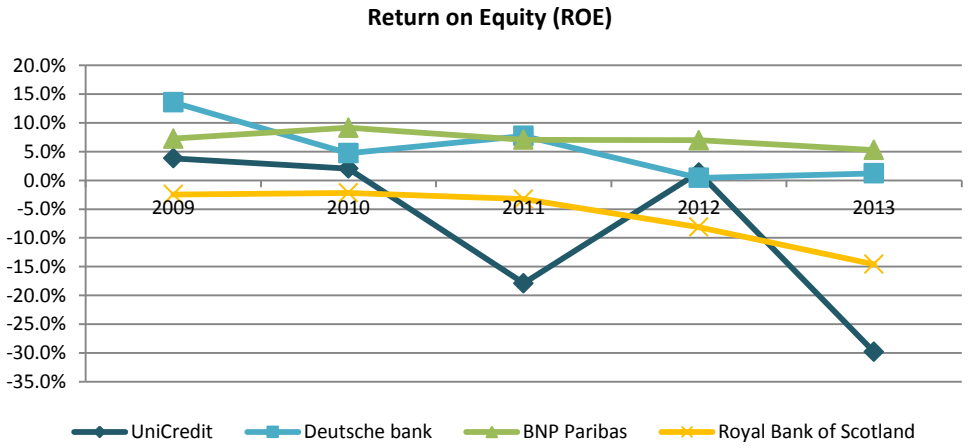

Figure 4: *Return on Equity. Source: Calculations based on data from bank annual reports*

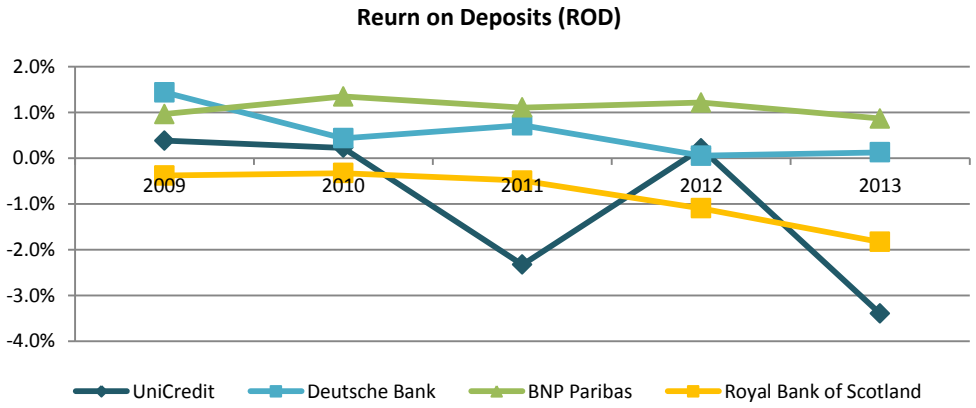

Figure 5: *Return on Deposits. Source: Calculations based on data from bank annual reports*

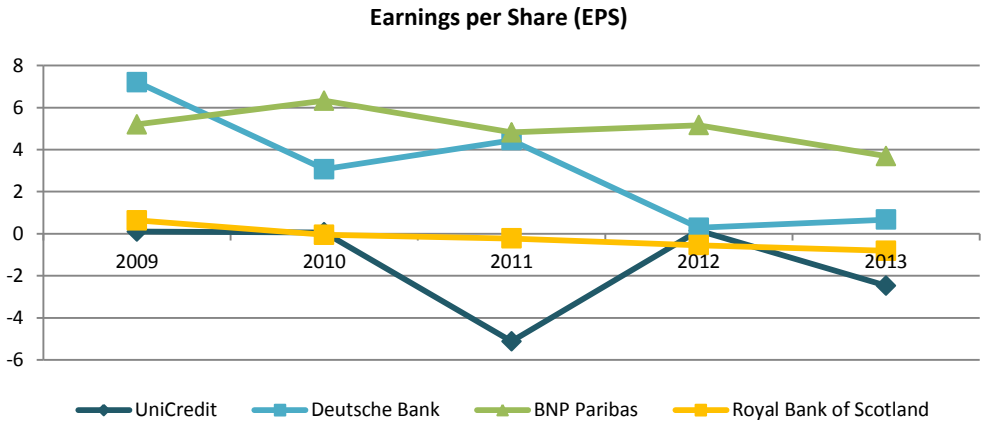

Figure 6: *Earnings per Share. Source: Calculations based on data from bank annual reports*

3.2 Liquidity

Liquidity ratios for a bank demonstrate the bank's ability to meet its short-term financial obligations in an effective manner and provide an indication of how large margin of safety it possesses. The below are the liquidity ratios used in this study.

Total Loans to Total Assets (LtA) = Total Loans / Total Assets

Total Loans to Total Deposits (LtD) = Total Loans / Total Deposits

Liquid Assets to Customer Deposits (LAtD) = Total Liquid Assets / Customer Deposist

(LtA) measures the portion of the assets being tied up in loans; the higher this ratio, the less liquid is the bank. (LtD) is commonly used for assessing liquidity and credit risk. The ratio is an indicator of how large portion of the bank's loans are funded through deposits. This ratio can be an indication of several factors; however in the context of liquidity, a too high (LtD) ratio represents low liquidity and vulnerability to any sudden changes in its deposit base. Conversely if the ratio is too low, it's an indication of the bank keeping too much unproductive capital. (LAtD) represents the percentage of short term financial obligations that can be met with the bank's liquid assets, here defined as cash. This is an important ratio for measuring how well a bank can absorb an economic shock and its ability to meet sudden withdrawals.

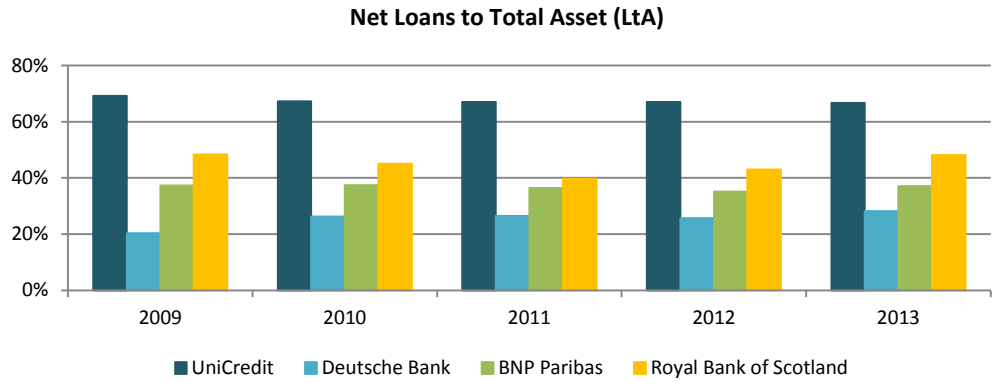

Figure 7: *Net Loans to Total Asset. Source: Calculations based on data from bank annual reports*

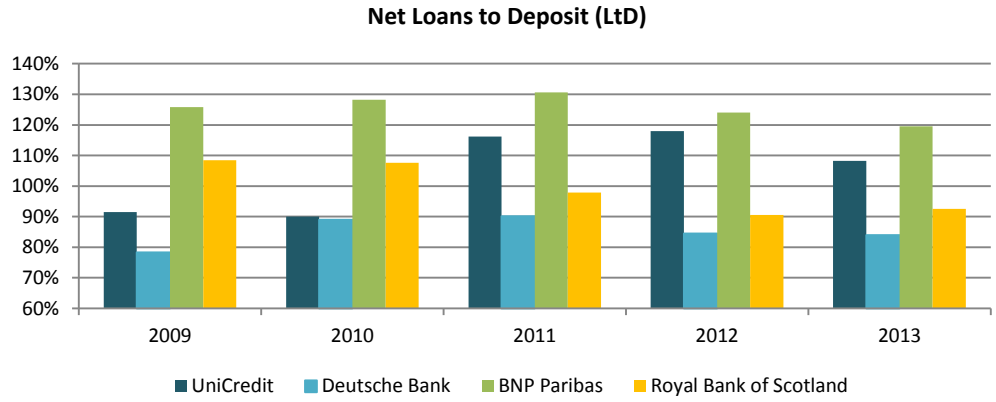

Figure 8: *Net Loans to Total Deposits. Source: Calculations based on data from bank annual reports*

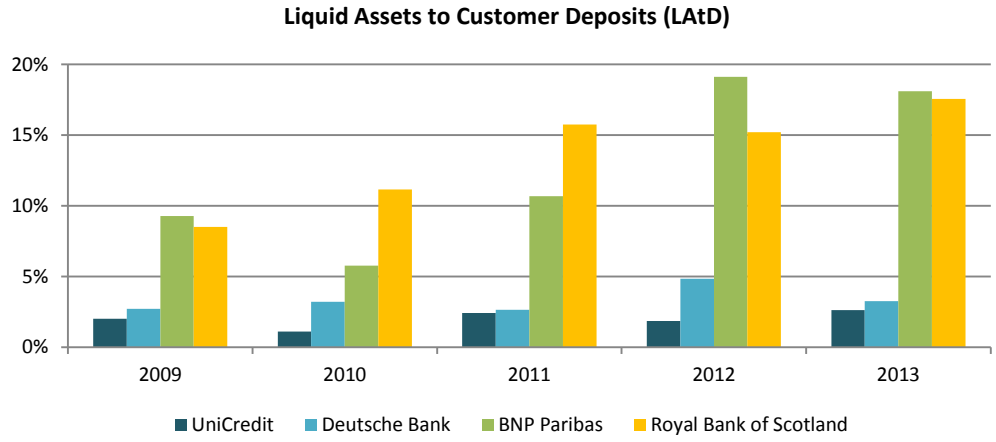

Figure 9: *Total Liquid Assets to Customer Deposits. Source: Calculations based on data from bank annual reports*

3.3 Efficiency

The efficiency ratio measures how efficient the bank is in utilizing overhead expenses in generating profits. Together with the operating margin, they provide a good indication of productivity. A low ratio is desirable as it means lower overhead expenses in relation to the bank's income, indicating higher efficiency. The efficiency ratio in short term also provides a good insight to if the management has a more strict focus on maximizing profitability (a lower ratio) or if the focus is more on utility (a higher ratio), in terms of larger staff, presence in more locations etc.

Efficiency Ratio (Cost/Income Ratio)= Non-Interest Expenses / Operating revenue

3.4 Capital Adequacy & Risk Exposure

In the framework of the Basel III regulations, the highest quality of capital is known as Common Equity Tier I (CET1). This category includes common shares issued by the bank that meet the requirements of the classification made for regulatory purposes, stock surplus, retained earnings etc. [7] The CET 1 ratio is a measurement of the bank's core capital relative to its risk-weighted assets, and is the primary measurement of the bank's capital strength as per Basel III definition and requirement. The CET 1 ratio must be a minimum of 4.5% of risk-weighted assets at all times and should be available to absorb losses without the bank being obliged to cease trading. The Basel III regulations require further Additional Tier 1 capital and Tier 2 capital such as instruments issued by the bank that are neither secured nor covered by a guarantee of the issuer as well as stock surplus resulting from the issue of the mentioned instruments. This category of capital offers a lower level of protection for depositors and other creditors. It only comes into play after the CET 1 capital has been lost. The assets on the bank's balance sheet are assessed with regards to risk exposure and degree of risk. Items such as cash and short term loans to governments are considered to have 0 percentage risk weighting. Claims on

[7] For more detailed information on the specific elements of Common Equity Tier 1 Capital, please see *Basel III: A Global Regulatory Framework for More Resilient banks and Banking Systems*

banks and public sector have a risk weight of 20 percent, residential mortgages a risk weight of 50 percent and other credit exposure set at 100 percent. The aim of the risk weighting process is an attempt to capture the riskiness of various types of exposures that banks have with regards to both on- as well as off-balance sheet activities.

3.5 Results

3.5.1 Deutsche bank

With regards to profitability, Deutsche Bank shows somewhat more stable performance, although with declining trends. The ROA ratio has decreased from 0.3% in 2009 to 0% by end 2013, showing a decline of efficiency in using assets to generate profits. The decline would have been greater had the bank not increased its assets throughout the period of 2009-2012. The ROE confirms the downward profitability trend, going from 14% in 2009 to 1% in 2013, due to overall decreased profits in combination with the equity increasing with regards to capital strengthening attempts. In 2013, the bank decided to execute a capital increase by issuing 90 million new shares. Due to the issuance of new shares, de-risking activities and increased net income, the bank's Common Tier 1 capital ratio improved substantially to 12.8%. The Common Equity Tier 1 ratio increased 7.8% to 9.7%, fully fulfilling Basel III requirements. In order to reinforce its funding base and to reduce funding cost, the bank has concentrated its core funding in the most stable sources, such as retail and transaction banking deposits, capital markets issuance and equity, representing 66% of the bank's funding in total. The rationale behind this is to lower volatility by focusing on classic banking rather than capital intensive assets in investment banking. Deutsche Bank has also accelerated de-risking of their portfolio, by limiting their sovereign and corporate bond exposures in European countries strongly affected by the financial crisis. The risk weighted assets have been lowered from € 106 billion in 2012 to € 58 billion by end 2013. The EPS value has been decreasing since 2009, going from € 7.2 to € 0.3 in 2012, landing on € 0.7 by end 2013, confirming the downward profitability trend. The C/I ratio has increased from 72% in 2009 to 89% in 2013, reflecting the decline in

profits relative to the costs of generating profits. As for the liquidity, Deutsche Bank has the lowest LtA ratio, averaging around 25%, as well as the lowest LtD ratio, averaging around 87%. Both measure indicate relatively high liquidity, which enables the bank to meet its financial obligations in due time, one of the main objectives of the Basel III accord. However, in terms of pure liquid assets defined in this study as cash, the bank scores low on its (LAtD) ratio. This needs to be considered in the light of Deutsche bank having easy access to capital markets and a strong governmental economy.

3.5.2 UniCredit

UniCredit is Italy's largest bank, and one of the most badly hit banks by the financial crisis. Large write-downs of loans and large impairments of goodwill, especially in 2013, are attributes of the rapid decline in results. In the stress test performed by EBA[8] (2011) UniCredit had the second largest shortfall of € 8 billion in the Eurozone, after the Spanish bank Santander. The bank holds over € 40 billion of Italian government bonds with large liquidity problems, which reflected through the liquidity measures presented in this study. The LtA ratio is very high closing to 70% throughout the period, indicating a large share of the bank's assets are tied into illiquid loans. The strong reliance on interbank lending and on ECB underlines the liquidity problem. The LAtD ratio is the lowest in comparison to the other banks, showing a low level of liquid assets in relation to customer deposits. To further improve its capital and liquidity position, UniCredit has taken several capital enhancement measures since 2009, amongst others through direct raise and retained earnings. The bank's profitability has been declining since 2009. The ROA ratio has decreased from positive 0.3% in 2009 to -1.0% in 2011 and -1.7% in 2013. The decrease in lending to the private sector due to persistent weakness in demand for loans in the group's key countries and the continued high levels of risk aversion is reflected on the bank's balance sheet, where total assets have decreased in 2012 and again in 2013. This, in combination with a constant decline in net profit, with exception of 2012, is the underlying factor to the noticeable decline in efficiency in

[8] European Banking Authorities

use of assets. The ROE has followed the same pattern, going from just below 4% in 2009 to around -30% in 2013, indicating far less profitability compared to its peers. The share value has lingered around 0% with spikes towards negative values mainly due to large write-downs and impairments.

3.5.3 BNP Paribas

BNP Paribas has its roots in France, where it is the largest publicly traded bank by assets since its merger with Banque Nationale de Paris in 2000, and is one of the largest banks in Europe. With its acquisition of the Italian bank BNL in 2006 and the Belgian Fortis in 2009, BNP Paribas has expanded its retail banking significantly. The financial crisis of 2008 timeline is often considered to have begun as BNP Paribas froze three of their funds in August of 2007, as they could no longer value the subprime collateralized debt obligations (CDOs) they owned. However, as the third largest bank in Europe, BNP Paribas is seen as one of the stronger European banks with a strong performance throughout the credit crisis. The bank has generated profits year after year since the crisis, with relatively limited write-downs of loans and limited exposure to the sub-prime backed debt. It has had an overall asset base decrease of around 12% comparing 2013 numbers to 2009, with continuous high credit worthiness rating. In contrast to many of its peers, the bank has had a balanced business model with its core business being retail banking, representing two thirds of the bank's activities. Investment banking activities have been limited and seen as add-on to its core business of retail. It's traditional and conservative way of banking together with its prudent behaviour and sound business model have protected the bank from the struggles met by many of its peers. However, with a € 12 billion Italian sovereign debt and € 125 billion of other Italian credit exposure by end 2013, BNP Paribas has had some exposure to an Italian sovereign default. Write-downs on loans and securities from mainly Italy, together with the slow economic recovery of the bank's largest market, France, as well the recent money-laundering charges, have hurt its performance to some extent. The ROA has been constant throughout the period, averaging around 0,3%. The ROE has been positive with limited volatility but with a slight declining trend,

going from 7.3% in 2009 to 5.3% by end of 2013. It has by far the best and most stable EPS results of the four banks in this study, with very limited changes, indicating strong performance. The bank has a high LtD ratio, just below 130% until 2011, with a slight decrease in the following years ending at 120% in 2013 due to lower demand of loans. The ratio indicates limited liquidity and a lower level of contingency, making the bank vulnerable to any changes in the deposit market. However, this is representative of the bank's risk-averse business model in traditional retail banking and regional focus, which supports its high loan-to-deposit ratio. It is also of importance to evaluate the changes in loan to deposit ratio against the background of other changes in the bank's composition of assets and liabilities. During 2011 and 2012, the banks started its adaptation of the new regulations, evident in their most liquid asset base, cash, almost doubling during this period, resulting in a high LAtD ratio indicating high liquidity in its purest form.

3.5.4 Royal Bank of Scotland (RBS)

After several government bailouts, RBS still remains weak not only due the overall banking environment, but also to a large extent because of their activities prior to the crisis. RBS had an extremely aggressive strategy of expansion prior to the crisis, starting with a hostile takeover of NatWest in 2000, which came to be a success story for the bank at that point in time. This was shortly followed by further acquisitions of Royal Insurance, Churchill Insurance and Charter One amongst others. The continuous acquisitions and underperformance of the bank's shares during this period with special regards to the acquisition of the Dutch bank ABN Amro in 2007, together with its exposure to the subprime market in US , its high exposure with regards to its leading position in retail and commercial banking in Northern Ireland and its excessive borrowing, had weakened the bank to an extent that it could not even slightly withstand the turbulence of the 2008 crisis, leading to the UK government taking a 58% stake in the bank as part of a capital raise scheme in 2008. In 2009 the second rescue plan was launched with the government increasing its stake to 81% by a further large capital injection. In 2009 RBS made record by unveiling the biggest losses in British corporate history, announcing a €

32 bn loss for 2008, mainly linked to large write-downs on the ABN Amro acquisition. Furthermore, RBS Group is one of the best examples of banks which operated with low levels of capital prior to the financial crisis of 2008, with a Core Tier 1 ratio of 4% at its worse. Throughout the period after the crisis, the bank has focused its attention to strengthening its capital position by both direct capital raise as well as de-risking of its portfolio by asset sales and large write-downs. Its Core Tier 1 Ratio has increased from 6.1% in 2009 to 10.9 % by 2013. RBS has introduced comprehensive measures to get back on track in supporting the British Economy, rather than burdening it. To strengthen its balance sheet with increased focus on lending in UK, the bank has started to exit from the US market and is significantly shrinking its investment banking activities, concentrating more on making small-business-lending its core business. Alongside these developments, the bank has had a strong need to improve its ever dark performance, why efficiency and cost control are central areas in need of improvement. Looking at the performance results since 2009, the Group has made substantial losses, starting with a negative ROA of -0.1% in 2009 dropping to -1% by 2013. The ROE shows the same negative development in the performance with negative values for the entire period, ending at -15% in 2013. The Group's returns are low compared to its costs of equity, also compared to comparable European peers. The bank is still suffering greatly from its recent history. In 2013, the bank's pre-tax loss was € 9.9 bn compared to € 6.2 bn in the previous year, resulting in the sharp decline in ROA and ROE. Its cost to income ratio has increased gradually, ending at 64% in 2013, indicating decline in efficiency, with high operational spending generating low value. RBS's LtD ratio has gone from 154% at its worse in 2008 to 94% in 2013, with an objective to keep the ratio at 100%, delivering a stable risk profile and balance sheet. Liquidity ratio LAtD has improved but should be considered in the light of the 23% decrease of customer deposits during the five year period, simultaneous to liquid funds increasing. LtA ratio is kept around the 50%, however this is due to assets decreasing with the same rate and magnitude as loans during this period, reflecting a 40% decrease of both posts in 2013 compared to 2009.

4. Discussion

The last couple of years have been a transition period for the banking industry. Operating challenges, slow economic growth, low interest environment in combination with higher litigation expenses and most of all tougher regulations, have been the main attributes of the banking industry post financial crisis of 2008. Commercial banking in Europe has gone through significant decline in credit volumes as a consequence to a lack of demand for credit, resulting in a decline of loan growth. Total investment banking volumes has continued to decline due to reduced profitable business segments as well as new stricter regulation. The recent regulatory requirements of Basel III are expected to re-shape the financial market landscape, however as history has shown, the success of the international Basel accords with regards to capital standards has been limited. Basel II was aimed to be the foundation of a sounder and safer banking industry, strengthening the international financial system, its stability and its ability to support sustainable economic growth. It brought a new dimension into the regulatory coverage of bank risk taking, where it moved beyond credit risk and attacked areas previously uncovered by its predecessor, such as market risk and operational risk. However it is evident that the accord has failed to achieve its main objectives in regards to financial stability. In a simplistic way Basel III can be described as "more of the same- but better". More liquidity is required for more resilience, more extensive risk management for robustness, and more supervision to ensure further transparency. One thing is for sure, the new regulation will hit banks hard. The stricter definition of capital and capital quality, together with an increase of RWA for trading book positions and direct counterparty risk exposure, decrease the capital ratios of banks significantly. In addition to this, banks are required to increase their capital ratios by 2019 and they are forced to reconsider their liquidity position as well as their sources of funding. Even though new regulations are indeed necessary, the question is whether Basel III is the answer and will it be sufficient to ensure future financial stability. There are several reasons why an increase of capital ratio might not be

successful at limiting excessive risk taking on its own. As a higher capital ratio goes hand in hand with higher cost of capital, which means that in order to generate higher return in an attempt to offset the increased cost, banks can come to carry more risk. If access to capital markets is too expensive, which is plausible in short- to mid-term, banks will be incentivized to generate capital by riskier activities. Higher cost of capital and higher compliance cost will increase the price of debt, consequently resulting in decreased lending.

As the theoretical framework suggest, charter value erosion goes hand in hand with reduced profitability of banks. Due to higher capital requirements, higher costs and lower margins in capital and investment banking as well as retail banking, profitability performance is reduced for all four banks in this study. The extent, to which profitability is hurt due to tougher regulations, varies between the banks, mainly dependent on their starting position in terms of business models, exposure of risk in their portfolios, together with the economic environment in their countries. UniCredit for example has had one of the weakest starting points going into the crisis, with significant sovereign debt exposure and low liquidity. BNP Paribas has also had sovereign debt exposure and has also suffered from deposit drains in France; however the bank has had an overall strong position in retail banking, with continuous growth in the segment throughout the crisis period by acquiring Fortis in 2009. Deutsche Bank has had great benefits of the strong German economy and a stable government with high accessibility to capital markets, in combination with a sound business model. RBS on the other hand, with its aggressive expansion strategy and the long list of acquisitions between 2000-2007 of which many made no economic sense, together with its exposure to Northern Ireland and to subprime debt in the US, went into the crisis with no leg to stand on. Going forward, even in state of recovery of the financial environment, RBS Group is faced with considerable operational and financial challenges in the road of becoming ready for re-privatization. Six years after the crisis, and RBS is still struggling. High political pressure, weak performance, lack of capital and an

investment banking division which today contributes to approximately 10% of the group profits compared to 60% back in 2009, all indicating a long road to recovery.

Another key determinant of charter value (and profitability) discussed in this study is competition, why the competitive environment and entry costs to the market are fundamental in building profitability and charter value. As theory suggests, in a situation of perfect competition, profits go to zero. Regulation reduces competition by erecting barriers to entry, boosting profitability for the firms that are able to meet the regulatory requirements. Several national and international developments during the 1970s created features of instability in the financial sector, generating a challenging economic environment which put the banking industry to test. More volatility was introduced in the currency market as the exchange rates of some of the world's major currencies were allowed to float. Oil price changes with roots in political embargoes had a significant effect on the price levels, variations in interest rates were experienced due to inflation and monetary policy actions. The banking sector itself was dramatically changed due to increased competition as entry restrictions were lifted and regulatory restrictions were loosened, resulting in not only more players but also an expansion of the banking activities. The technological revolution in itself meant innovations in financial products, leading to profits being generated through new channels. Despite new sources of business and the gained efficiency due to technological development, the increased market volatility and competition led to marginalized profits and thereby increased bank risk-taking in order to boost profits, evident in banks' loan portfolios growing. This is a development which has been repeated during the period prior to the latest financial crisis. The real long term implications of Basel III on competition of banks, defined as the number of banks operating, are yet to be seen. However, tougher regulations will have implications for competitive landscape between banks of different sizes. As theory suggests, regulation has a negative effect on competition, leading to more consolidation of banks, with large banks absorbing smaller banks who cannot keep up profitability due to the regulations imposed on them. In the light of CVH, this will have a positive effect on charter value build up by the banks remaining active on the

market. Furthermore, the jurisdictional differences in implementation of the accord are of great concern. As Basel III is not of legal force, but rather a set of standards with the expectation of members to adapt and implement the requirements, there are inconsistencies to be expected. These inconsistencies between different jurisdictions, specifically on calculating risk-weighted assets, have already been observed by assessments conducted by the committee itself. This could have an impact on competition among internationally active banks. In addition, differences in tax legislations, access to capital, cost of capital as well as accounting rules will contribute to this effect. With regards to decrease in competition due to tougher regulations, and charter value build up, it is of relevance to consider the U-shaped relationship between the two. Too high levels of pressure put on the market with competition being strangled; leading to too high concentration will have negative effect on charter value and could contribute to the "too-big-too-fail" problem.

The most dangerous aspect of Basel III and the factor which can contribute to the accord failing its objectives is its ignorance in addressing the main reason why Basel II failed, namely the definition of risk and calculation of risk weights. Capital requirement in itself is not where the problem lies. Keeping capital against riskier assets was one of the main components of Basel II, and still this didn't hinder instability within the financial system. The risk associated with the assets held by banks and financial institutions were calculated based on ratings assigned by the rating agencies, which meant high rating was considered to be equal to low risk. One thing that the recent financial crisis has come to show is that ratings are not an adequate indicator of risk in a complex financial system. This is why it is of importance to recognize that the factors that brought banks such as Bank of America and Citigroup to their knees, were not primarily first hand exposure to the sub-prime loans, it was the risk they (and many other banks) were exposed to through debt which were backed by these loans. The banking environment has its roots in the interconnectedness of financial arrangements, both between banks themselves, as well as with derivative counterparties, having a direct effect on consumption and investment decisions. This is why any disruption within the sector

has significant effects on the economy. As the financial crisis of 2008 was evolving, the full spectrum of the problem was not recognized in the early stages. The direct response from governments, in US and as well as in Europe, was firstly to tackle the liquidity problems that could occur in a case of a run. This was ensured through central banks pumping liquidity into the system by holding worthless assets accumulated by banks against providing credit at reduced interest rates. Secondly, the focus was on banks cleaning up their balance sheets by getting rid of the toxic assets in their portfolios. This resulted in banks writing down assets, and further governments making significant capital reinjections in order to save the banks from bankruptcy. The problem of capturing actual risk in a banking system that has moved away from the "buy-and-hold" way of banking, where credit assets were hold to the point of maturity, to a "originate-and-sell" way of banking, where credit risk is transferred through securitization, is central in a discussion of regulation. Assets with high credit risks being packaged into products and sold on meant an automatic discount of the risk for the receiver of the products, leading to a skewed assessment of actual risk. The existence of CDS contracts and tax arbitrage make the capital requirement rules insufficient as the contracts provide an opportunity to reduce (o rather discount) risk by moving the risk outside of the bank sector. Shadowing bank systems, such as insurance companies, hedge funds etc. are not regulated to the same extent as banks are, which results in banks transferring risk and expanding leverage in a manner that counteracts the intent of Basel risk-weighting approach.

Furthermore, the approach encourages portfolio concentrations in assets such as government bonds, mortgages and lending between banks, all identified as low risk and therefore low weighted. As we now know, this has been one of the biggest issues during the financial crisis. In the four banks analyzed in this study, sovereign debt exposure has been central to how bad the banks have been hit throughout the crisis. UniCredit for example have had a very high exposure to Italian debt, reflecting the low asset quality, high capital shortfall and poor performance throughout the crisis. The Basel accord does not take into account that in some jurisdictions sovereign bonds are not risk-free or low-risk and could even carry great exposure to

default risk. This is a concerning aspect of the one-size-fits-all approach and reflects the existing limitations in integration between regulation and supervision.

Pro-cyclicality of the Basel system has been ignored previously. This has been a problem as capital and leverage ratios are dependent on current market values and risk measurements being point-in-time, leading to underestimation of risk in good times and overestimation of risk in bad times. The same applies to counterparty credit assessment, and external credit ratings, which are widely used by banks in evaluating risk. This is an area that has been addressed by the new accord, requiring banks to assess both counterparty risks as well as off balance sheet risks and to hold more capital against these. However, measuring risk by the IRB approach and by putting banks themselves in charge of the assessment, one must account for the subjectiveness of the process. Inputs for modeling risk can be manipulated to reduce regulatory capital required.

Further, the assumption of the negative relationship between higher equity and risk is given under restrictive and monotone assumptions, not capturing the adaptive system which financial markets are characterized by. In general, firms tend to not hold too large amounts of equity relative to debt, as it is too expensive and it gives incentives to take higher risks to be able to satisfy required returns by the shareholders. The higher cost associated with holding too large portions of equity, can also be passed on to customers through higher interest rates and thereby less lending. As it is seen in the previous section, all four banks experience increased pressure on their return on equity due to increase capital and liquidity costs, as expected. It is therefore vital to monitor long term risk behavior as high returns will be expected in line with recovery and economic growth.

Where Charter value hypothesis can come to play a central role, is in *preservation* of high capital ratios. As stated by the theory, banks with high charter value tend to keep more capital relative to assets, and maintain more prudent risk strategies and more diversified loan portfolios. It is one thing to introduce new regulations for capital and liquidity requirements, and another to ensure that banks keep higher

capital ratios and quality capital in the long run. This can only be done by keeping profitability steady, as too low performance and erosion of charter value will incentivize banks to take on more risk to generate profits. As discussed in previous sections, an underlying source of charter value and is the level of competition. Lowered market power and squeezed profits in a highly competitive market erode charter and lead to activities being directed towards high risk- high reward rather than maintenance of capital adequacy. Given Basel III's imperfections, especially with regards to risk-weighting and the banking system's nature, where risks are non-transparent and easily disguised and transferred, as well as the complexity of the system, monitoring such activities will be difficult. Different implementations of the accord will only add to this problem. However assuming implementation of Basel III will lower competition to some extent, which is very plausible; it will result in increased market power, build-up of charter value, and thereby lower risk of default- justifying the trade-off between competition and financial stability as assessed in the theoretical framework. Also, assuming that the effect on competition is not too extreme, i.e. the competitive environment is not completely strangled, which is equally plausible as the last statement, there should not be value loss due to lowered efficiency levels on the market.

5. Conclusion

Banks play a central role in the economy as they are the main source of liquidity in the financial system and therefore a necessity organ for commerce. This position alone, creates a need to ensure that they withstand downturns in the economy by having sufficient capital to cover unexpected losses and thereby insolvency. But further, a learned lesson from the recent financial crisis is that even though lack of liquidity and solvency were two central areas of concern as bad times became reality, the actual root of the problem lies with the risk behaviors of banks over the last decades. Furthermore, regulations failed to ensure financial stability and act as *prevention* to excessive risk taking and unsound short sighted way of banking. This has led to attention being directed towards regulators and existing regulations and their shortcomings. In this paper, the question at hand was to examine what changes are to be expected in the banking industry given an implementation of the new Basel III regulations, and how these can be explained by the charter value hypothesis. On the basis of theoretical framework around charter value and its key determinants, Basel III implications on banking industry have been examined. As the adaption of the new regulatory requirements have already started, focus of the empirical work was placed on four of the largest European banks and their finances, aiming to capture how performance and strategic way forward have been impacted since. It is fair to conclude that adaptation of the new requirements have implications of different magnitudes, depending on how badly the banks were hit during the crisis. Their business models, risk behaviors and activities prior to the crisis of 2008, have not only been dominant factors for their survival abilities during the crisis, but are also crucial for their path to recovery and ability to adapt to the new environment of tougher regulations. From the four banks studied, it is evident that performance is pressured as the new regulations demand better asset quality, higher liquidity and reduced exposure to complex structured assets. Further, retail and private banking are becoming more and more attractive for European banks, evident for the banks studied in this paper. The new regulations have led to

shrinkage of investment banking activities and financial market trading, as well as to a weaker international presence of European banks as many are focusing their attention to domestic markets. As more stable revenue generation is promoted, banks with concentrated activities in retail and private banking, as shown for BNP Paribas here, are less impacted compared to banks with large investment banking activities. As a result of tougher regulations on the market, competition is expected to decline and concentration to grow. In the long run, this effect might be a necessity for regulation to be effective. On one hand, as we have seen in this study, returns and profitability will be affected negatively by adaptation of Basel III. On the other hand, regulated markets will lead to higher margins due to entry barriers and concentration, automatically boosting profitability and creation of charter value. This effect will be a necessity for prudent behavior, as cost of risk will increase and banks will seek to preserve value as well as comply with regulation by limiting excessive risk taking. This means that the co-existence of strict regulations and low profit margins due to high competitiveness on the market could sooner or later lead to banks being incentivized to take on more risk in order to both provide high returns as well as to comply with regulations. This is central in the light of regulation leading to financial stability rather than to an appetite for risk due to constrained profitability. To conclude, Basel III will set a new scene for banking, and it will create the premises for solvency and liquidity when we get into difficult economic times. Its biggest weakness lie in its limited strength in preventing the actual rise of financial crisis originated from banking. This problem goes beyond having enough capital and high liquidity to endure economic shocks. It involves creating and promoting in-built mechanisms for preservation of value and efficient risk management in the pursuit of long term financial stability.

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