

INFORMATION DISCLOSURE AND BANKING SECTOR  
PERFORMANCE AND STABILITY

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# INFORMATION DISCLOSURE AND BANKING SECTOR

## PERFORMANCE AND STABILITY

PERIHAN IREN

### **ABSTRACT**

Over the last decade, financial and capital markets have grown very rapidly and the markets have become more complex as a result of increased use of derivative securities. The recent subprime crisis has intensified the debate regarding the need for greater transparency. The purpose of this study is to contribute to this debate by examining the relationship between the quantity and quality of information disclosure regarding a bank's securitization and credit derivative activities and the subsequent impact on bank performance and stability.

The results show a significant relationship between the quality/quantity of disclosure and bank performance/stability. When information on securitization and credit derivative activities are disclosed on call reports and annual reports, performance/stability initially decreases. After a bank establishes certain setup, equipment, personnel and expertise on these activities, performance/stability starts to increase.

The results also show that increases in disclosure/activity have an asymmetrical impact on bank performance and stability compared to decreases in disclosure; bank performance measures are more sensitive to disclosure than stability measures; the financial markets are more sensitive to changes in quantitative measures of disclosure/activity compared to qualitative measures; and the financial markets show the greatest reaction to changes in the level of disclosure/activity by money center banks,

followed by regional banks. The empirical results show that even when the level of financial activity had not changed, an increase in the detail describing the activity was followed by a significant reaction in the market. Examining the bank's annual report, it appears that an extensive discussion of their securitization and credit derivatives activities tends to increase stock price volatility,

Analysis of the effects of the quality of disclosure shows that low quality information decreases performance but has no effect on stability. Also, the results show that highly transparent banks are riskier than their less transparent peers. A comparison of troubled and healthy banks in terms of their information disclosure surprisingly reveals that troubled banks are more transparent than healthy banks. Greater disclosure regarding their securitization and credit derivative activities submitted on regulatory reports, as well as extensive coverage of credit derivatives in annual reports, increases the probability of an institution being classified as a "troubled" bank.

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# **CHAPTER I**

## **INTRODUCTION**

### **1.1. Motivation of the Study**

“... regulation can serve to strengthen market discipline, for example, by mandating a transparent disclosure regime for financial firms.” Ben Bernanke, Fed Chairman  
Speech at the Federal Reserve Bank of Kansas City’s Annual Economic Symposium in Jackson Hole, Wyoming, 2008

Commercial banks are often viewed as being opaque due to information asymmetries but as the above quote suggests, expanded financial disclosure can strengthen market discipline and complement supervisory regulation. However, the positive effects of disclosure may yield diminishing marginal benefits and ultimately negative returns. Thus it is useful to think of an optimum level of public information disclosure. If too much complex information is provided, even a financially sound bank could fail due to irrational depositor panic and massive deposit withdrawals. For example, a bank’s CAMELS rating or the amount that it borrows through the FED’s discount window, are purposely not made public in order not to destabilize financial markets. On the other

hand, to ensure proper discipline and to channel capital to its most productive use the market needs to have relevant, correct and timely information about the risk and returns profile of publicly traded banks.

The recent economic meltdown has heightened the debate regarding transparency since one dimension of the crisis revolves around the lack of sufficient market information. A recent Wall Street Journal article states that... “Today, a shrinking number of huge, integrated financial conglomerates dominate markets. They offer a full range of financial services -- commercial banking, investment banking, insurance, credit cards, asset management, mutual funds, pension funds and so on. But annual reports, 10-K reports and other currently required reporting tools give us little idea of the true extent of their risk-taking activities” (WSJ, 01/03/2008). After the failure of a number of large financial firms (e.g., AIG, Lehman Brothers, Bear Stearns, Wachovia, Washington Mutual), the markets have started to question the lack of transparency more than ever before. For example, a report presented by the Financial Stability Forum to the G7 Finance Ministers calls for enhanced disclosure requirements. The report states that... “Financial institutions should strengthen their risk disclosures and supervisors should improve risk disclosure requirements under Pillar 3 of Basel II” (FSF, 2008).

## **1.2. Research Objectives and Contribution**

The purpose of this research is to identify the effect of information disclosure on commercial bank performance and bank stability. Specifically, the study examines relationship between the quantity and quality of information disclosure regarding a bank’s securitization and credit derivative activities and the subsequent impact on bank

performance. Both accounting measures of performance (i.e. ROE, ROA, Risk-adjusted ROE, Risk-adjusted ROA) and market measures of performance (i.e. stock returns, Sharpe ratio) are used to proxy bank performance. Bank stability is measured in terms of stock price volatility, beta, bank's z-statistic and credit default swap (CDS) spreads.

As mentioned above, the impact of both the quantity and quality of disclosure surrounding the securitization and credit derivatives on bank performance and stability are studied. The focus of this study is on securitized assets, often referred to as "toxic assets", and credit derivative activities, such as credit default swaps, both of which are at the heart of the current financial crisis.

The first phase of the study seeks an answer to the question "Is there an optimum level of information disclosure?" At this level, both the quantity and quality of information disclosed to the market are examined. Bank call reports, annual reports and The Wall Street Journal are closely studied to construct several quantity and quality of disclosure indices. Also, the interaction between quantity and quality of information is questioned. Here, the aim is to see the effect of both higher quantity and higher quality information disclosure on bank performance and stability.

The second phase of the study involves several comparisons. First, the market's reactions to disclosure events are examined through a before and after comparison using a standard event study approach. Then, the most and the least transparent banks are compared in terms of their performance and stability. And finally, a sample of both healthy and weak banks which are heavily involved in securitization and credit derivative activities are examined to identify the extent to which transparency is stabilizing or

destabilizing and increasing or decreasing the performance. Also, a logit model is used to see if a bank's quantity and quality of disclosure lead it to become a troubled bank.

This study contributes to the current policy discussion by evaluating the linkages between market disclosure and bank stability. The examination of the effects of both the quantity and the quality of information disclosure on bank performance/stability makes this study unique. Also, the results of this research help to determine whether more transparent banks are inherently more stable and whether the market can correctly evaluate and properly react to more transparent information flows.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1. Banks and Market Discipline**

Banks play a very important role in modern economies. As described in the early literature, they secure funds from surplus spending units and transmit them to deficit spending units (Klein, 1971); they reduce transaction costs (Benston and Smith, 1976); they simultaneously produce information and other services desired by investors (Campbell and Kracaw, 1980); they provide liquidity insurance (Diamond and Dybvig, 1983); they provide a special service with their lending activity that is not available from other lenders (James, 1987); they create liquidity by splitting the risky cash flows of the underlying assets they hold (Gorton and Pennacchi, 1990); they act as delegated monitors (Diamond, 1996); they improve transaction possibilities over what is available at the market (Rajan, 1998); they create money by issuing deposits on their claims that public accepts as money (Bossone, 2001). More recently, Allen and Santomero (2001) argue that banks' ability to manage risk makes them unique.



In an effort to improve the regulation and supervision of banks, Basel Committee on Banking Supervision developed guidelines and supervisory standards which are known as Basel Accords. The first accord was released in 1998 and known as Basel I. The second updated and expanded accord, Basel II, went into effect in 2008 in Europe and expected to be implemented in the U.S. during 2009. Basel II stands on three pillars. Pillar I deals with risk-based capital requirements. Pillar II focuses on bank supervisory processes. Pillar III complements the other pillars by providing a set of rules to improve public disclosure and enhance market discipline.

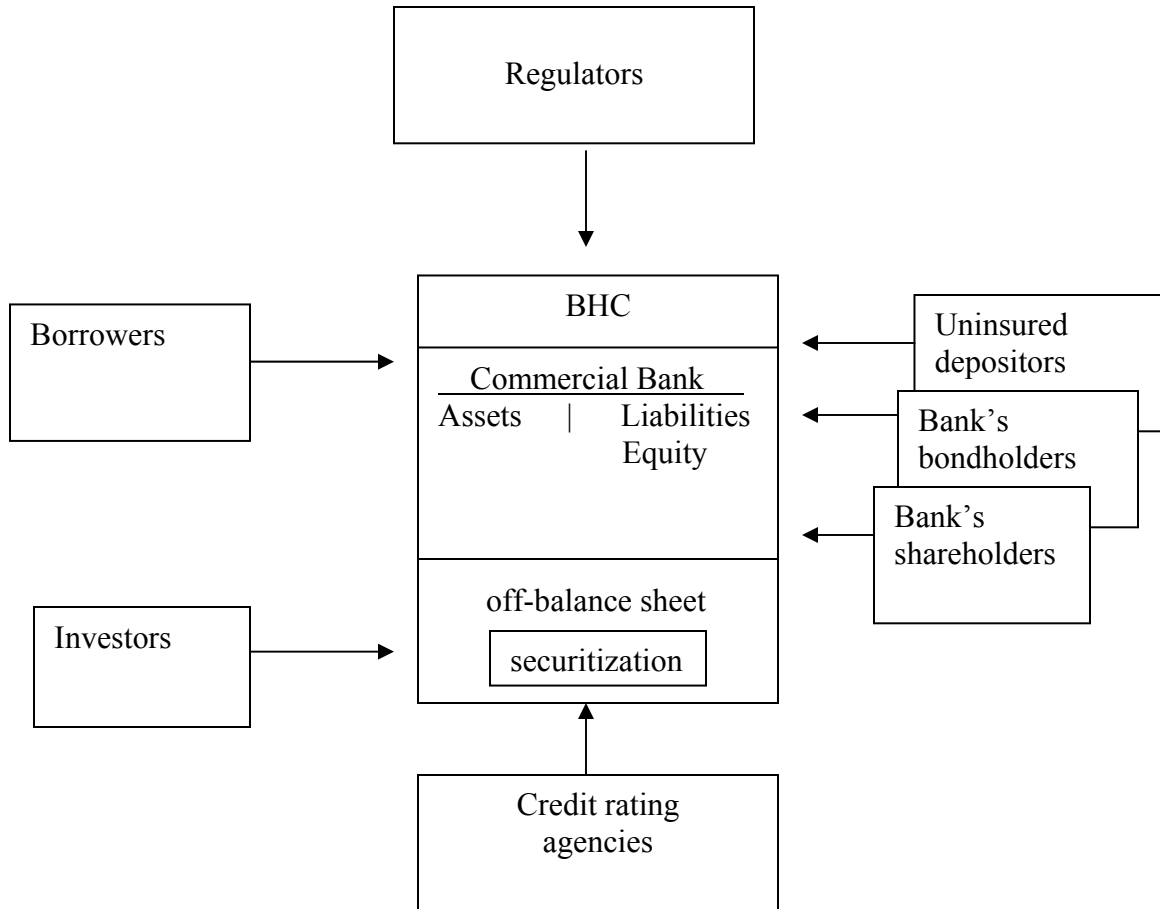
A strand of previous literature has investigated market discipline by examining debt prices, particularly subordinated notes and debentures (SNDs) spreads. Evanoff and Wall (2001) compared the accuracy of four alternative capital adequacy measures with subordinated debt spreads as predictors of future supervisory ratings. They found that sub-debt yield spreads perform as well or better than the capital adequacy measures. Krishnan, Ritchken and Thomson (2005) examined whether subordinated debt issues affect market monitoring. They extracted the credit-spread curve for the banks in their sample. Their results showed that the subordinated debt spread changes are not signals for future rating changes. A follow-up study by Krishnan, Ritchken and Thomson (2006) showed that subordinated debt credit-spread curves predict future credit spreads and bank risk. Deyoung et. al. (2001) studied the relationship between the supervisors' bank exam ratings and the risk premium on subordinated debts. They documented that poor exam ratings are followed by reductions in subordinated debt spreads. Sironi (2003) investigated the European banks' subordinated debt spreads. He found that subordinated debt spreads are sensitive to bank risk, with the exception of those issued by public sector

banks. He and Reichert (2003) found that a common set of factors are useful in explaining the returns of the bank holding companies. They showed that stock, bond and real estate market factors are important in determining the risk premiums for financial institutions.

## **2.2. Subprime Mortgage Crisis and Securitization**

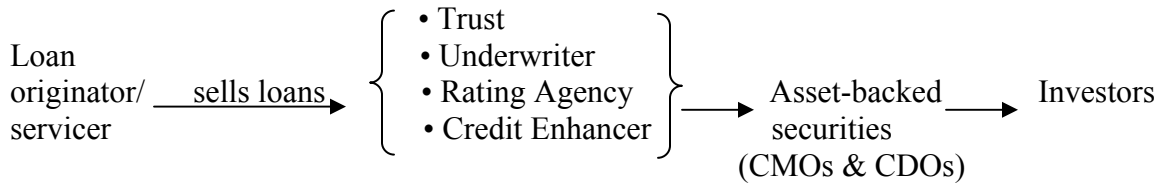
Although most of the literature agrees that market discipline can complement traditional supervisory methods, during the recent subprime mortgage crisis the market failed to understand the risks inherent in banks' securitization and off-balance sheet activities. The global economic crisis which affected the entire financial system was triggered by loose underwriting standards and exacerbated by the large volume of mortgage backed securities (e.g., CMOs) produced via the securitization process and the even large volume of insurance contracts written on these securities. Figures 1 and 2 gives a visual depiction of the inter- relationships that led to the crisis.

**Figure 1. The Key Players**



As mentioned above, securitization lies at the heart of the problem. It is the process of creating securities backed by the cash flows of underlying mortgage and in some cases non-mortgage loans (e.g., auto, credit card, and student loans) and other debt instruments. The securitization process is shown at Figure 2.

**Figure 2. Securitization process**



The securitization process involves a number of different players. The originator initially funds and possibly services the loans. The pool of loans are then sold to a trust. The trustee manages the process and arranges for credit enhancement as needed, the underwriter assists in the sale and the rating agency rates the securities. Banks can either originate the loan themselves or buy it from another lender (i.e. a mortgage broker). Asset-backed securities created through this process are then sold to a broad range of investors.

The search for yield by investors has resulted in the tremendous growth of the securitization process which produced not only higher return but also higher risk assets as mentioned above. Instead of originating and holding the loans, they were purchased and sold to investors. Thus, at least a portion of their risk was transferred to investors purchasing securitized assets. Banks typically borrow short and lend long. On the asset side of their balance sheet, secured and unsecured loans are the major components. Since the loans were originated and subsequently sold to other investors, lenders began to lend aggressively.

The rating agencies which rate the securitized assets failed to do their job appropriately. Their models were inadequate to assess the riskiness of many of these asset backed securities. During the crisis period, the credit rating agencies were slow to

downgrade their ratings for mortgage-backed securities. The downgrades ultimately made during the summer of 2007 were large in scale and unexpected, which dramatically worsened problems in the credit markets.

The conflict of interest problem regarding the credit rating agencies has weakened public confidence in these agencies. The conflict of interest arises from two sources. First of all, the rating agencies are paid by the security issuer rather than the investor in the securities. This might bias the ratings they provide. However, even if the rating agencies were paid by investors, a conflict of interest could exist but this time in the opposite direction, since the investor might want to force the agencies to downgrade the borrower so as to lower their purchase price and maximize their gain. The second source of conflict arises from the fact that the credit rating agencies provide additional services such as advisory and consulting to the firms whose products they rate.

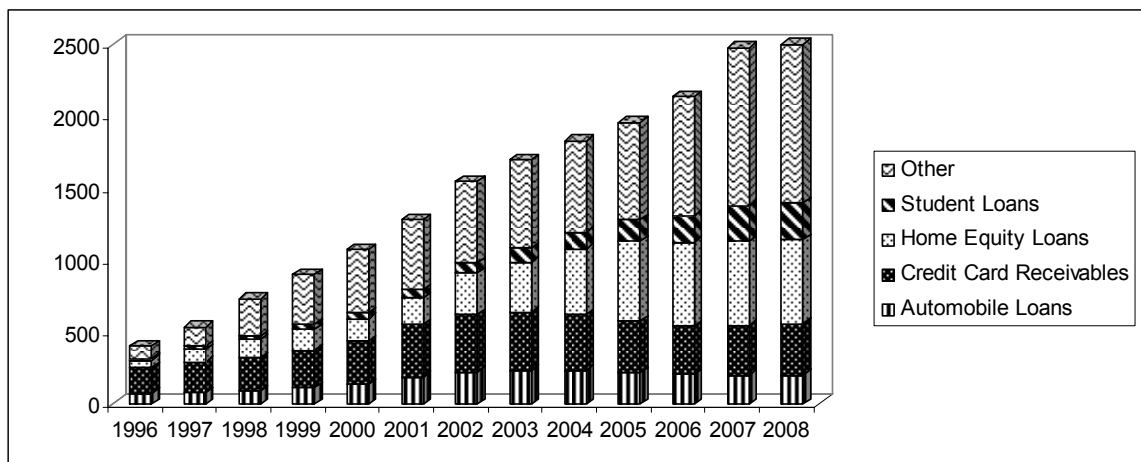
Borrower default has caused capital adequacy concerns in the banking sector. Consequently, investors, large-uninsured depositors, bank shareholders and bondholders have been affected by the wave of loan defaults. Although banking is one of the most heavily regulated industries, regulation was inadequate prior to the crisis. The growing complexity of asset backed securities with their many separate investment tranches has made it difficult for regulators to evaluate their riskiness. This complexity along with the lack of staff has caused regulators to underestimate the riskiness of many securitization practices.

Even though self-regulation is often necessary and frequently desirable, as mentioned before, the lack of accountability undermined the securitization process since

originators were often not held accountable for generating risky loans nor were other participants in the securitization process.

Securitization activities have dramatically grown in importance. As shown in Figure 3 below, securitization activities have increased significantly from \$404 billion in 1996 to \$2.5 trillion in 2008. In 1996, credit card securitization comprised the greatest portion of the total amount of outstanding asset-backed securities. By 2008 its importance has declined, while home equity loans and other securitization (such as first mortgages) activities have increased dramatically. The greatest percentage expansion was in the home equity and student-backed loan categories.

**Figure 3. Total Asset-Backed Securities Outstanding In the U.S. (\$ billions)**

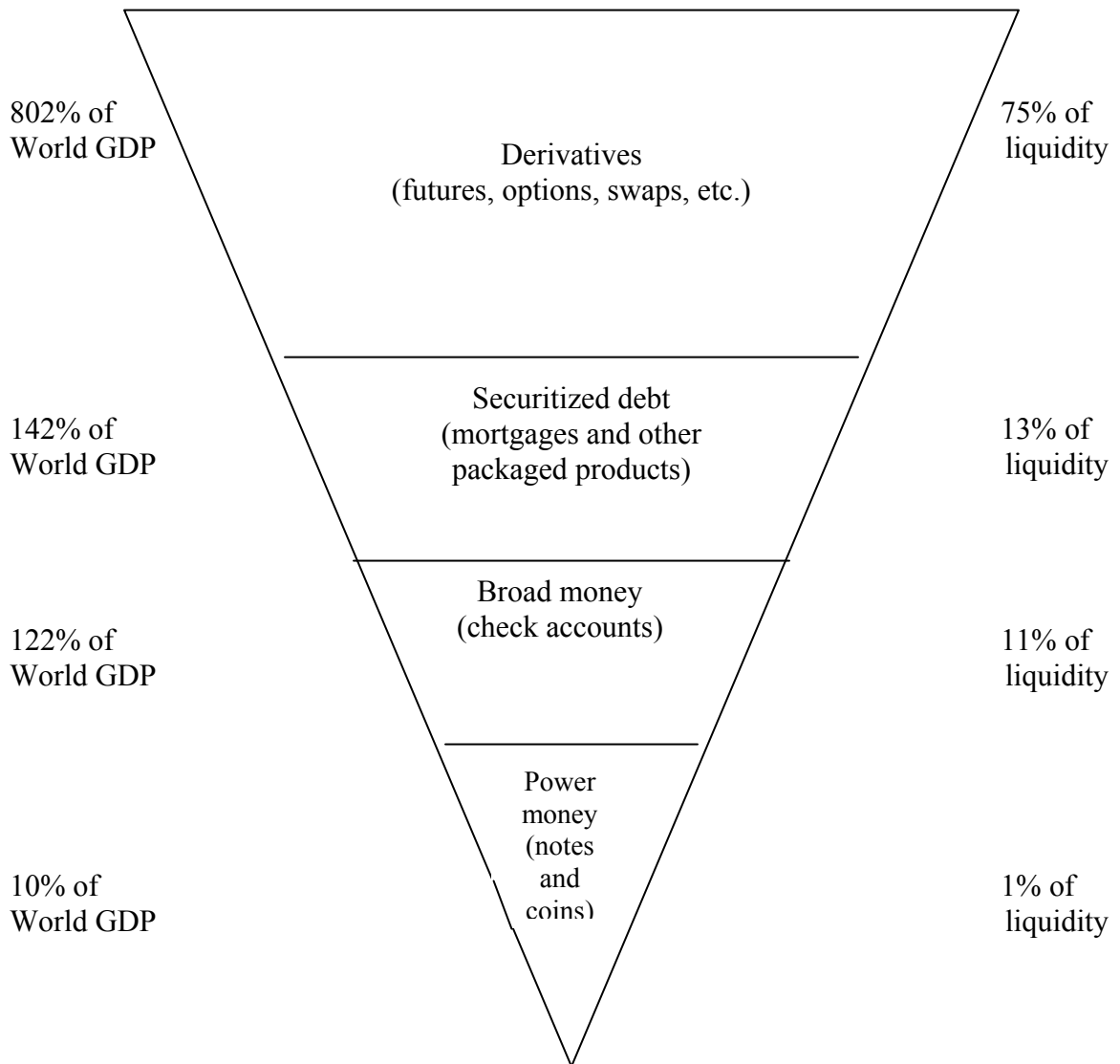


Source: Securities Industry and Financial Markets Association

In a study by Independent Strategy the concept of market liquidity is depicted as an inverted pyramid. As shown in Figure 4, the notes and coins in circulation forms only 1% of the global liquidity pyramid. The broad measure of money (check accounts)

accounts for 11% of total global securities, securitized debt accounts for 13%, and derivatives account for 75% of global liquidity.

**Figure 4. The inverted pyramid of global liquidity**



Source: Independent strategy, 2006

Recognizing that asset securitization can be used for different purposes which will have different effects on a banks' risk exposure, Wu, Yang and Hong (2008) studied the

impact of asset securitization on banks' risk. They used a time-varying risk beta model where a bank's risk beta is a function of bank-specific attributes such as cost of fund, bad loan rate, loan deposit gap, net foreign assets ratio, net short assets ratio, net short fund ratio, securitization balance and risk retention from securitization and asset sale. The common risk factors they took into account are interest rates, market return, exchange rate, liquidity spread, credit spread, term spread and asset-backed security market risks. They found that credit, liquidity and secondary market risks significantly increased as a result of securitization activities.

### **2.3. Credit Derivatives**

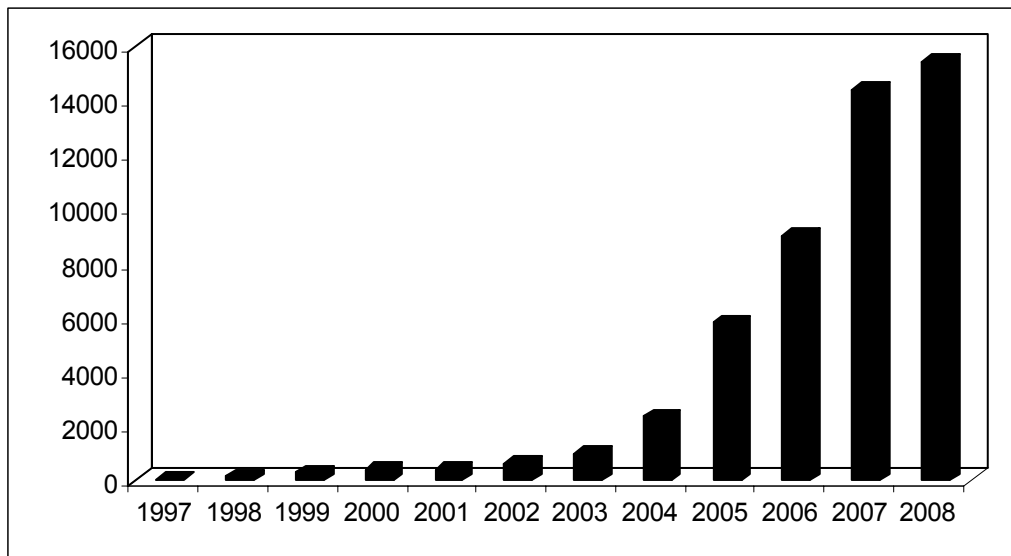
Credit derivatives are insurance contracts where the protection buyer pays a protection seller a certain premium to insure a risky asset owned by the buyer. There are two basic types of credit derivatives: total return swaps and credit default swaps. In the total return swap the protection buyer pays the seller the total return on the risky asset which includes the associated interest payment and the change in the market value of the risky asset subsequent to a pre-determined credit "event", such as a credit downgrade or outright default. In exchange the protection seller pays the buyer a risk-free reference rate plus a spread called the premium. In a credit default swap the protection buyer pays a fixed premium to the seller and generally receives no payment until a credit event takes place. The payment at the time of the credit event is usually the difference between the face value and market value of the instrument, or in some cases, simply the face value of the risky asset. Due to their greater simplicity and flexibility credit default swaps have become much more popular than total return swaps.



Figure 5 shows the dramatic growth in total credit derivatives over the past ten years. For example, in 1997 the total notional amount of credit derivatives outstanding in the U.S. was only \$55 billion, but by 2008 this figure had grown to \$15.5 trillion. On a global basis the notional value exceeded \$50 trillion by 2008.

**Figure 5. Notional Value of Total Credit Derivative Contracts in the U.S.**

**(\$ billions)**



Source: U.S. Comptroller of the Currency

For additional information on how banks use derivatives and the impact of derivative use on bank risk, see Shyu and Reichert (2002) and Reichert and Shyu (2003).

An article at the Wall Street Journal states that credit default swap (CDS) trading has lately been closely examined by regulators and quotes the words of Brian Yelvington, an analyst at debt research firm Credit Sights that “....Transparency provides a great deal of comfort to the market” (WSJ, 11/05/2008).

## **2.4. Transparency**

These dramatic developments have intensified the debate concerning the transparency of the banks and their products. Transparency is defined as “Public disclosure of reliable and timely information that enables users of that information to make an accurate assessment of a bank’s financial condition and performance, business activities, risk profile and risk management practices”. (BIS, 1998)

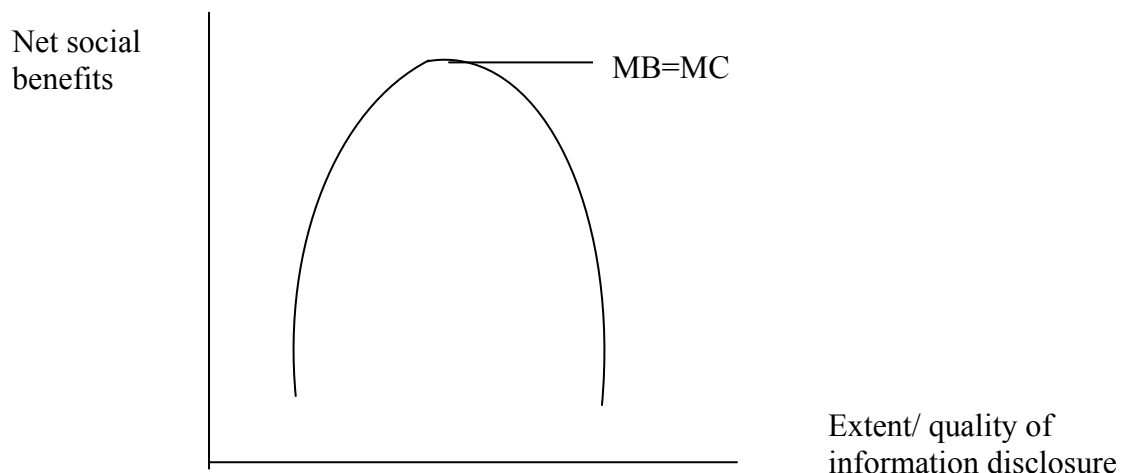
BIS (1998) lists five characteristics of transparent information: 1) comprehensiveness, 2) relevance and timeliness, 3) reliability, 4) comparability and 5) materiality. Information should be comprehensive, in other words it should aggregate and consolidate all information across different activities and legal entities. Only relevant information helps the market to understand the safety and soundness of the bank. Also, if information is relevant, it should also be timely; i.e., disclosed with sufficient frequency and timeliness. In order to be reliable, information should be verifiable, free from material errors, prudent and complete. Besides, information needs to be comparable to allow market participants to compare different institutions. The disclosure of the information should follow consistent accounting policies and procedures and uniform measurement concepts. Finally, information should be material, which means that reporting error or lack of information could negatively influence the assessment or decision of a market participant that relies upon the information.

During the financial meltdown which began late 2007, both capital market (e.g. SEC) and the bank regulatory authorities (e.g. Fed, FDIC, Office of the Comptroller of the Currency) have called for enhanced transparency. However, inappropriate and improperly timed information disclosure may make the banking system as a whole, and

specific financial institutions in particular more sensitive to systemic shocks. The relationship between the degree of disclosure and the net benefits of transparency is depicted in Figure 6. At first, as the level and quality of financial disclosure increases, the net social benefits rise (discussed below). But at some point the optimal amount of information disclosure is reached after which the net benefits of disclosing information decline.

Since information is not free, there are both private and public costs attached to producing it. The optimal amount and quality of information disclosure is found where the marginal benefits of expanded information disclosure equals the marginal costs of producing the information. While the private costs and benefits can be readily defined and measured, the public costs and benefits are more intangible, with no efficient market to price them.

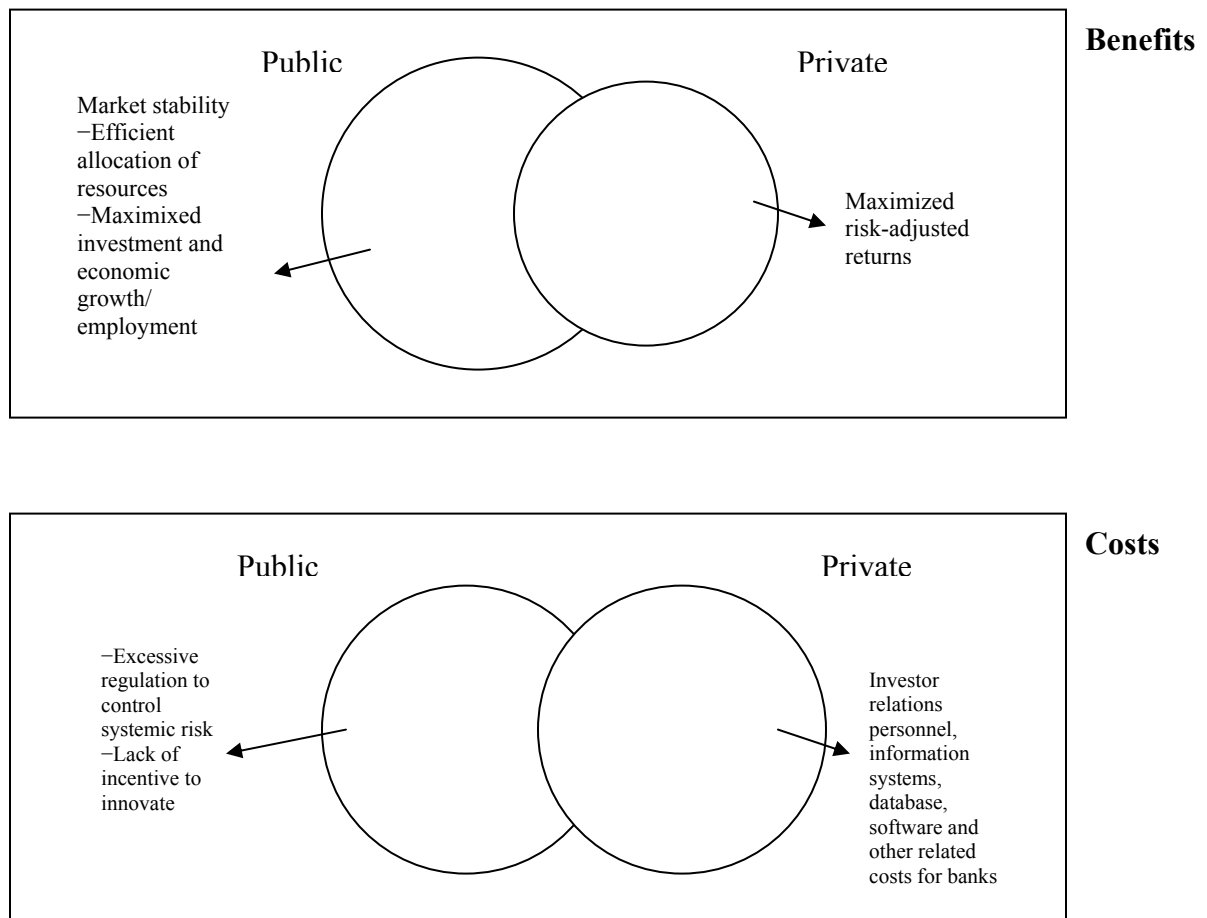
**Figure 6. Information disclosure and benefits of transparency to the society**



Prescott (2008) analyzes whether the supervisory authorities should disclose more information about banks. He presents several models where the bank sends the same report to both regulators and the market; bank sends separate reports to the regulators and the market and the regulators do not share the information; the bank has the option to share the supervisory documents, such as CAMELS rating after receiving from the regulators and the supervisors have the technology to detect a false report. He concludes that the supervisory disclosure makes it harder for the regulator to collect the information.

Figure 7 shows the public and private benefits/ costs of information. While investors seek higher risk-adjusted returns, regulators want to maintain stability in the financial system. Due to externalities, the public benefits of information disclosure are larger than the private benefits of such disclosure alone. An important cost to both private institutions and regulators is the possible loss of reputation. According to JP Morgan Chase “A firm’s success depends not only on its prudent management of liquidity, credit, market and operational risk....but of a reputation for business practices of the highest quality (p.95, 2007 Annual report). A recent article at the Wall Street Journal pointed out that the Swiss Bank, UBS AG is facing withdrawals by wealthy clients due to “reputational” damage (WSJ, 11/05/2008).

**Figure 7. Public and Private benefits/ costs of information**



It is important to make a distinction between market transparency and non-market transparency. Non-market transparency is used for regulatory purposes as some of the information, such as a bank's CAMELS ratings, or its presence on the FDIC's problem bank list, is not publicly disclosed. On the other hand, market transparency denotes the information disclosed to investors operating in a competitive market. Although, full disclosure of problematic banks may cause bank runs and a major banking crisis, a minimum amount of information disclosure is required for investors to fairly evaluate the riskiness of their investments.

Cordella and Yeyati (1998) sought to answer the question of optimal disclosure by developing a model of a monopolistic bank that receives funds from depositors and invests them in risky entrepreneurial projects. They have found that when the bank endogenously chooses the riskiness of its loan portfolio, disclosure reduces risk-taking incentives. However when risk is exogenously determined by the market, disclosing information regarding the bank's asset portfolio increases the probability of bank failure.

Determining whether more transparency regarding securitization and credit derivatives activities increases the market's ability to reliably and accurately assess a bank's financial condition is a crucial element in resolving the current financial crisis. According to Nier and Bauman (2006) "Market discipline refers to a market-based incentive scheme in which investors in bank liabilities, such as subordinated debt or uninsured deposits, "punish" banks for greater risk-taking by demanding higher yields on those liabilities." As outlined in Pillar 3 of the Basel II accord, regulators see market discipline as a complementary tool for monitoring risk at individual banks and maintaining financial stability.

Penas and Tumer-Alkan (2010) found weak evidence of market discipline using data from Turkish banking market. Using the banks' measures of financial fragility, they have studied the market's ability to monitor bank activities and found that the market reacted negatively to measures of financial fragility. They have also examined how market reacts to the quality and timeliness of the information disclosure and showed that improvements in disclosure requirements increase the informativeness of accounting statements and audited statements with greater lags are not informative.

“Market discipline can only work if market participants have access to timely and reliable information which enables them to assess a bank’s activities and the risks inherent in their activities. Improved public disclosure strengthens market participants’ ability to encourage safe and sound banking practices.” (BIS, 1998) To the extent bank management knows that its activities and risk exposures will be transparent, they have a strong incentive to improve their risk management practices and strengthen their internal controls.

The previous literature found that markets require greater transparency. Tadesse (2005) found that crises are less likely in countries with regulatory regimes that require extensive bank disclosure. Bauman and Nier (2004) studied the relationship between a banks’ long-run average stock price volatility and the long-run average level of disclosure that banks provide in their annual reports and found that expanded disclosure benefits investors. Nier and Baumann (2006) show that banks that disclose more information are subject to more market discipline and have a greater incentive to limit their risk of default. They found that greater information disclosure led banks to hold larger capital buffers. Hirtle (2007) found that greater disclosure is associated with more efficient risk taking and improved risk-adjusted returns.

This research extends the work of Bauman and Nier (2004), Nier and Baumann (2006) and Hirtle (2007). These studies examined the link between the level of disclosure and bank stock price volatility. This study goes one step further and examines the effect of both the quantity and quality of information disclosure surrounding the securitization process and credit derivatives activity on bank performance and stability. Here, bank performance is measured as ROA, ROE, risk-adjusted ROA, risk-adjusted ROE, stock

return and Sharpe ratio; and bank stability is measured as stock price volatility, beta, a bank's z-statistic and credit default swap (CDS) spreads. A number of disclosure indices are constructed based on the credit derivatives and securitization information provided in the FDIC call reports. Besides call report data, annual 10-K reports are examined to identify more transparent banks. Tests are conducted to see if bank stability significantly increases for more transparent banks relative to least transparent banks, as well as before and after certain disclosure event performance and stability. Finally, troubled banks and their healthy peers are compared based on their disclosure levels.



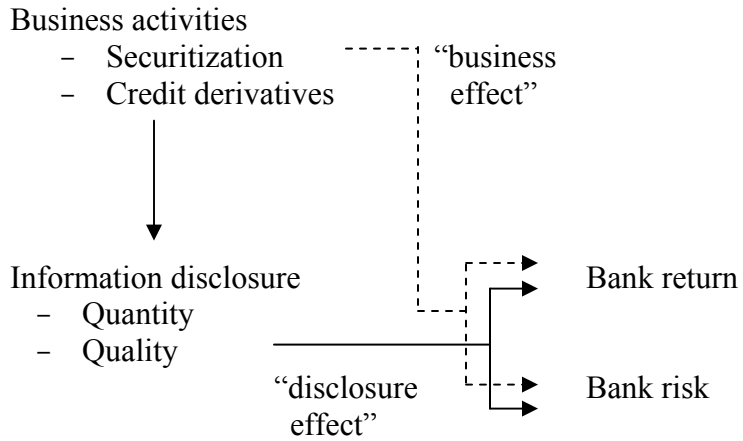
## **CHAPTER III**

### **METHODOLOGY AND HYPOTHESES**

#### **3.1. Conceptual Framework**

Banks engage in securitization and credit derivative activities and then disclose information about them to public. As seen in Figure 8, both business activities (securitization and credit derivatives) and information disclosure might affect bank's performance and stability. Although many control variables are introduced in the models, it is not quite possible to perfectly segregate business activities from information disclosure. Therefore, the results of this study should be evaluated based on the fact that the effects of information disclosure and business activity are intertwined.

**Figure 8. Business Activities and Information Disclosure**



### 3.2. Hypotheses

The following hypotheses are tested:

**H1<sub>A</sub>:** There is an optimum quantity of disclosure that leads to maximum performance and stability.

**H2<sub>A</sub>:** There is a positive relationship between the quality of disclosure and bank performance and stability.

**H3<sub>A</sub>:** The impact of expanded disclosure on both performance and stability is enhanced when the information being disclosed is of higher quality. (+ inter-action effect)

**H4<sub>A</sub>:** Healthy banks have higher disclosure levels than troubled banks.

### 3.3. Methodology

To examine the effect of both the quantity and quality of disclosure on bank performance and stability, two separate model specifications are estimated. The first set measures the effect of the quantity of disclosure while the second set measures the effect of the quality of the information disclosure.

The general equation for both sets of models is as follows:

$$\text{Performance/Stability} = f(\text{Disclosure Quantity/Quality Indices, Control Variables}) \quad (1)$$

The optimal level of disclosure is tested using the following equation:

$$P(S)_i = \alpha_1 \text{DISC}_i + \alpha_2 (\text{DISC}_i)^2 + \sum_{j=1}^m \alpha_j (\text{Control}) + \varepsilon_i \quad (2)$$

where

P= performance;

S= stability;

DISC= quantity of disclosure;

i = individual bank;

j= specific control variable.

The expected signs of the estimated coefficients are as follows:

a) for performance (P):  $\alpha_1 > 0$ , and  $\alpha_2 < 0$

b) for stability ( $\sigma^2$ ):  $\alpha_1 < 0$ , and  $\alpha_2 > 0$

#### 3.3.1. Measures of Bank Performance and Stability

Dependent Variables - Following Hirtle (2007), measures of bank performance and bank stability will be used as dependent variables in separate regressions.

Bank performance is measured by using;

1) Accounting measures of performance, (quarterly)

- Return on equity (ROE) : calculated as net income divided by equity
- Return on assets (ROA) : calculated as net income divided by total assets
- Risk-adjusted returns

- Risk-adjusted return on equity ( $RAR_{ROE}$ ) =  $\frac{\overline{ROE}}{\sigma_{ROE}}$

- Risk-adjusted return on assets ( $RAR_{ROA}$ ) =  $\frac{\overline{ROA}}{\sigma_{ROA}}$

Rolling standard deviations of ROA and ROE are calculated using eight preceding quarters.

2) Stock market performance measures, (daily)

- The level of total returns  $R_1 = \frac{P_1 - P_0 + D_1}{P_0}$
- Sharpe ratio ( $S_p$ ) =  $\frac{R_p - R_f}{\sigma_{(R_p)}}$

Several measures of bank performance are used in this study. Although it might seem that accounting measures of performance are not directly affected by the changes in disclosure, it actually can have an indirect impact. For example, the market may perceive a more transparent bank more/less risky and require a lower/higher cost when raising capital, which consequently impacts the accounting measures of performance. To see if such an effect exists, accounting measures of performance along with market measures of performance are used in this research.

Bank stability is measured using four variables:

1) Stock price volatility as measured by the standard deviation of a bank's total stock return

2) Market beta. Beta is calculated from Capital Asset Pricing Model (CAPM) and shows the sensitivity of the bank's stock return to the market return:

$$R_{it} - R_{ft} = (R_{mt} - R_{ft}) \beta_i + \varepsilon_{it},$$

where

$R_{it}$  : the return on bank i during time t,

$R_{ft}$  : the return on the riskless asset during time t,

$R_{mt}$  : the return on the market proxy on time t.

3) The bank's probability-of-default (z-statistic) which is calculated as follows (Boyd and Graham, 1986; Stiroh, 2004): (quarterly)

$$Z = \frac{\overline{ROA} + \overline{E/A}}{\sigma_{ROA}}$$

$\overline{E/A}$  is the mean equity to assets ratio. Rolling standard deviations of ROA is used in calculating the Z value. Z- statistic shows how many standard deviations a bank is away from insolvency. A higher Z-score indicates an improved risk-adjusted performance or lower probability of default.

4) Bank's credit default swaps (CDS) spreads, (daily)

### 3.3.2. Quantity of Disclosure

Independent Variables - To measure the quantity of information, several disclosure indexes are constructed. The index measures the level of detail that banks disclose on their securitization and credit derivative activity. The types of information considered in the construction of the index are listed at Appendix A.

Based upon the information presented in Appendix A the following three activity disclosure indices are calculated as follows:

1) Total Activity Binary Index (TABI) – is simply the sum of the 11 securitization and 4 off-balance sheet activity items. If there is no reported information for any of the corresponding categories within each of the 15 broad financial activities, a value of 0 is assigned to those activities. A value of 1 is assigned if there is at least some activity reported. Thus, the value of TABI will range from 0-15. Similarly, the TABI index can be divided into two sub-indices; one for securitization activity (SABI) and one for credit derivative items (DABI). The value for SABI index would range from 0 to 11 and the value for DABI index would range from 0 to 4.

2) Subcategory Binary Index (SBI) – takes the various subcategories within each of the broad financial activities into consideration. For example, as seen in Panel A of Appendix A (Securitization), all activity categories include a number of specific subcategories. When constructing the SBI index, the total number of sub-categories that report data are counted. As before, no data is recorded as 0, while the presence of data is recorded as 1. For example, in Panel A of the Appendix A the first activity (securitization activities) has a total of 7 subcategories. If a bank reports values for four of these six sub-categories, the activity is assigned a value of 4. This same procedure is employed for all 11 activities, producing a maximum value of 69 for the securitization index (SSBI). The same procedure is followed for Part B of Table (Credit Derivative Activities) where a maximum index value equal to 12 is possible (DSBI). The maximum value for all of

Appendix A (both securitization and derivative activities) is the sum of the two activity sub-categories or 81 (69+12) (TSBI).

3) Total Quantitative Index (TQI) – adds the reported numerical values for each of the possible 81 activities in Appendix A for a given bank and divides this aggregate value by the bank's total assets at the time of the call report. In addition, two quantitative sub-indices, Securitization Quantitative Index (TSQI) and the Derivative Quantitative Index (TDQI) are calculated in a similar fashion.

4) Annual Report Index (ARI) – The fourth quantitative measure of disclosure is based upon the banks annual 10-K reports. Each bank's 10-K is examined to determine the bank's level of securitization and credit derivatives disclosure activity. The focus here is on the extent of information provided regarding the objectives and strategies being followed by management and the potential risks facing the bank.

The annual reports are pulled from the SEC's EDGAR database. Each bank's annual report is analyzed thoroughly. Several keywords regarding the securitization and credit derivatives are counted in the text. Two indices are formed based on the annual report data: Securitization Annual Report Index (SARI) and Credit Derivatives Annual Report Index (DARI). Keywords counted to construct SARI are securitization, asset-backed securities, mortgage-backed securities, collateralized debt obligations, collateralized mortgage obligations and collateralized loan obligations while the keywords counted to construct DARI are credit derivatives, credit default swaps, total return swaps and credit options.

Banks are required to disclose certain information in their call reports. However, disclosure in annual reports is voluntary. SABI, DABI, TABI, SSBI, TSBI, TSQI, TDQI and TQI indices are based on call report data, while ARI indices (SARI and DARI) are based on annual report data. Consequently, SABI, DABI, TABI, SSBI, TSBI, TSQI, TDQI and TQI indices are also a measure of the level of securitization and credit derivative activities the banks are employing. Over the sample period, there have been changes in the required level of disclosure in call reports. Table I shows the minimum and maximum values for indices. There have been four major changes in the detail of the information given in the call reports. In each breakpoint, even though the banks are employing the same level of the activity, they were required to disclose more details about their securitization and credit derivative activities. Hence, the indices based on call report data are measuring both the level of activity and disclosure of the banks in the sample.

**Table I. Minimum and Maximum Values for Indices**

	<b>SABI</b>	<b>DABI</b>	<b>TABI</b>	<b>SSBI</b>	<b>DSBI</b>	<b>TSBI</b>
June 2001- December 2001	0-10	0-2	0-12	0-62	0-2	0-64
March 2002- December 2002	0-10	0-4	0-14	0-62	0-6	0-68
March 2003- December 2005	0-11	0-4	0-15	0-69	0-6	0-75
March 2006- December 2008	0-11	0-4	0-15	0-69	0-12	0-81

It should be noted that the analyses in this study are based on the assumption that the current accounting system is adequate and the effects on performance and stability can be understood by just looking at the quality and the quantity of the data disclosed. However, the literature establishes that current accounting systems are mixed systems and hence produce different values for the investment book (fair value) and the banking



book (amortized cost). IMF (2008) shows that mixed and total fair value systems have different impact on the volatility of the bank performance. Thus, the results of this analysis should be assessed on the basis of the current accounting system.

### **3.3.3. Quality of Disclosure**

To measure the quality of the information, the market's reaction to announcements concerning revisions in a bank's provision for loan losses and projected earnings are studied. Provisions for losses are intended to reflect the likelihood of future loan losses. Revisions to earnings projections and loan losses may reflect exogenous factors such as volatile interest rates and economic conditions. Alternatively, self interest can motivate revisions. For example, banks may have short term incentives to hold insufficient levels of loan loss reserves. According to Gunther and Moore (2003: p. 157) ... "Risk-based capital requirements allow banks to count allowance for loan and lease losses (ALLL) only in Tier-2 capital and only up to 1.25 percent of risk-weighted assets. By not making the necessary provisions, banks with asset-quality problems can raise reported net income and retained earnings, thereby boosting Tier-1 capital and potentially avoiding the restrictions supervisors typically place on troubled banks."

If bank examiners detect that a bank's loan loss reserves level is lower than appropriate, the bank will be instructed to increase its loan loss reserve to a minimum required level. Thus, revisions to loan loss reserve announcements may reflect the quality of the data disclosed by the bank. Revisions in earnings projections may also reflect changes in economic conditions, an attempt to manipulate earnings, or an inability to monitor and predict changes in the bank's competitive environment, credit risk, and

operating expenses. Also, SEC's investigations about a bank's failure to reveal actual knowledge might be a sign of the quality of the data disclosed to public.

A sample of announcements articles relating to loan loss revisions, earnings announcements and SEC probes are extracted from The Wall Street Journal Index (WSJI). Each article is studied to identify the bank's motives for changing its provisions of loan losses, its projections of future earnings or the nature of the formal investigation by the SEC. The following keywords are used in the search: disclosure, disclose, disclosing, disclosed, actual knowledge, actual, reveal, reveals, revealed, SEC, probe, probes, transparent, transparency, scrutiny, scandal, red flag, fails, failed, failure, violation, violations, revision, revisions, loan loss and loan losses. Based on these reports, a comprehensive Quality Index (QualIndex) is constructed as  $[1 - (\text{quality related articles} / \text{total articles about the bank})] * 100$ . The index ranges from 0-100. Almost all of the articles appeared in search for the banks in the sample convey negative information about the bank-even when they are not related to loan loss revisions, earnings announcements or SEC probes. Therefore, in addition to QualIndex, total number of quality related articles and total number of articles appeared when the bank's name is searched in the WSJ index are also used to proxy quality of disclosure.

#### **3.3.4. Control Variables**

Following Nier and Baumann (2004) and Hirtle (2007), the control variables included in the model are bank size (log of total assets), risk profile (ratio of risk-weighted assets to total assets and the bank's risk-based capital ratio), balance sheet composition (loan to deposit ratio and loan to asset ratio), leverage ratio, revenue

composition (non-interest income as a share of total operating income), and the bank's efficiency ratio (non-interest expense to total revenue). Both the disclosure indices and control variables are lagged one period to deal with a potential endogeneity problem

### **3.3.5. Interaction Effects**

It seems likely that both the quantity and quality of the information disclosure may interact, since the market may be particularly concerned about banks with both a low level as well as low quality of information disclosure. Alternatively, the market may be concerned about low quality and a low level of disclosure between healthy and weak banks. Interaction terms are included in the model to test for such effects.

### **3.3.6. Peer Comparisons**

Several approaches will be used to estimate the impact of both the quantity and quality of disclosure: 1) a before-and- after approach is utilized, 2) a comparison is made between high versus low disclosure banks, and 3) a comparison is made between weak versus healthy banks.

#### **3.3.6.1. Before-and After-Comparison**

To see how market react to information flows about a bank's transparency and healthiness issues, a standard event study methodology is used. The Wall Street Journal index is investigated thoroughly for transparency and trouble related articles for the banks in the sample. First the bank's name is searched and the search is then narrowed by using

keywords<sup>1</sup>. The resulting set of articles are then read one by one to see if they are really about the transparency issues or about the troubles a bank is facing. The dates of the related articles are recorded and used as event dates.

Event dates are grouped under three categories. The first category is the dates when an article about a bank's transparency problems (i.e. disclosing wrong or lacking information to public) is revealed on Wall Street Journal. There are a total of 68 articles on transparency for the banks in the sample between 2001 and 2008. The second category is the dates when an article about a bank's financial soundness appeared on Wall Street Journal. There are a total of 105 articles on troubles about the banks in the sample. Last category is the dates when a significant amendment to annual reports is announced. There are 44 amendments for the banks in the sample during the period from 2001 to 2008. However, not all the amendments are very significant. Some are intended to correct typos in the annual reports or to include the omitted signatures of the accounting firms or to make some minor changes to the graphs or tables. After eliminating the nonsignificant ones, 9 significant amendments are identified<sup>2</sup>. The days these amendments were announced are used as event dates.

It should also be noted that not all the 68 article dates for transparency and 105 article dates for trouble are used as event dates because some articles appeared on the same date and some were published at dates which fall into the estimation period of an earlier event (article). Any abnormal returns surrounding the earlier events contaminates

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<sup>1</sup> These keywords (disclosure, disclose, disclosing, disclosed, actual knowledge, actual, reveal, reveals, revealed, SEC, probe, probes, transparent, transparency, scrutiny, scandal, red flag, fails, failed, failure, violation, violations, revision, revisions, loan loss and loan losses for transparency; charge-offs, trouble, problem and write downs for trouble) are the same as the ones as the ones used in determining the quality index and the troubled bank sample.

<sup>2</sup> For example, Huntington Bankshares Inc's amendment to 2002 Annual report restated the net income from \$363 million to \$333 million.

the estimates of price reactions by increasing the volatility of the returns over the estimation period and biasing the results against finding any abnormal returns for the later events. Therefore, first events are separated as a sub-sample. The full sample is also used as a robustness check. In all cases, events those are very close to each other (i.e., one month) are excluded because the articles following the first one are not “new” information to market any more.

#### 3.3.6.1.1 Stock Returns

The standard market model is used to estimate the abnormal return (AR) for bank  $i$  on day  $t$  as follows:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \quad (3)$$

where

$R_{it}$  = observed return on bank  $i$  on event day  $t$ ;

$R_{mt}$  = return on S&P 500 index on event day  $t$ ;

$\hat{\alpha}_i$  and  $\hat{\beta}_i$  = estimated regression parameters for bank  $i$ .

Market model parameters are estimated for an estimation period of day -201 to day -2, where day 0 is the event day. Daily abnormal returns are then cumulated to form cumulative abnormal returns (CARs) over several event windows.

#### 3.3.6.1.2. CDS Spreads

Besides the stock price responses, it is interesting to see the CDS spread reactions to disclosure events. Five year CDS spreads data is obtained from Bloomberg and

available only for 6 banks in the sample<sup>3</sup>. However, data for National City Bank is available only through June 2008 with a lot of missing data points. Therefore, National City Bank is not included in the analysis.

As a proxy for the market, two CDX indices by Markit are used. Markit publishes several bond, equity, credit and loan indices. For the purpose of this analysis, two different credit default swap indices are utilized. The first index is a general market index (CDX) for credit default swaps and it includes 125 large firms. The second index is the financials index (CDXFIN) and it includes 25 financial firms<sup>4</sup>. A common measure of a bank's risk is its certificates of deposit (CD) spreads. Since neither of the Markit indices include any banks, six-month certificates of deposit (CD) spreads are also used as a proxy for the market to test for the robustness of the results.

Initially, the CDS spreads for the 5 banks are plotted over the event period to visually observe abnormal behavior of CDS spreads around the event days. Afterwards, as with stock price data, a standard event study is conducted. And finally, a cross-sectional regression model is run for all 5 banks. The model is as follows:

$$CDS_i = CDX_i + TimeTrend + Crisis + \sum E_i \quad (4)$$

where

$CDS_i$  = Return (change) on CDS spread on day i,

$CDX_i$  = Return (change) on CDX spread on day i,

$TimeTrend$  = Time trend variable,

$Crisis$  = Dummy variable which takes value of 1 for all days after 1/1/2007, 1 otherwise,

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<sup>3</sup> Banks with CDS spread data are Citigroup, Bank of America, JP Morgan, Wachovia, Wells Fargo and National City Bank.

<sup>4</sup> Most of the firms constituting the CDXFIN index are insurance companies.

$E_i$  = Dummy variable which takes value of 1 for the event day and one day before the event day, 0 otherwise.

This regression model allows us to see the effects of all events, including the ones removed from the sample to prevent event clustering. The model is run with different specifications (with or without the time trend and crisis variables). The results are robust to all specifications.

### **3.3.6.2. High vs. Low Disclosure Banks**

Bank performance and stability measures are compared for highly transparent banks (i.e., banks with a high disclosure index value) and their less-transparent peers. Standard tests of significance are used to compare differences in average post-disclosure performance between these two groups.

To fix the most and least transparent banks samples, all banks are ranked based on their disclosure indices. The list of most and least transparent banks is given at Table II. Banks those are consistently at the top 1/3<sup>rd</sup> of the list are included in the most transparent banks sample. Similarly, banks those consistently have the lowest disclosure index values and belong to the bottom 1/3<sup>rd</sup> of the list are included in the least transparent banks sample. Then, these two samples are compared using standard tests of significance.

**Table II. The Most and Least Transparent Banks Samples**

*A. Most Transparent Banks Sample*

<b>BHC NAME</b>	<b>SSBI</b>	<b>DSBI</b>	<b>TSBI</b>	<b>TQI</b>	<b>SARI</b>	<b>DARI</b>
BANK OF AMERICA CORPORATION	42.06	7.13	49.19	0.84	118.68	19.42
WACHOVIA CORPORATION	39.80	6.50	46.30	0.43	107.74	3.81
CITIGROUP INC.	39.13	7.16	46.29	0.93	129.61	27.13
JPMORGAN CHASE & CO.	37.19	7.94	45.13	2.26	149.29	46.81
NATIONAL CITY CORPORATION	18.00	3.87	21.87	0.03	130.00	0.00
WELLS FARGO & COMPANY	16.26	5.94	22.19	0.64	65.58	6.97
SUNTRUST BANKS, INC.	13.39	5.81	19.19	0.46	46.03	6.58
KEYCORP	11.55	4.45	16.00	0.11	89.26	11.10
PNC FINANCIAL SERVICES GROUP	7.74	4.45	12.19	0.05	79.00	18.35

*B. Least Transparent Banks Sample*

<b>BHC NAME</b>	<b>SSBI</b>	<b>DSBI</b>	<b>TSBI</b>	<b>TQI</b>	<b>SARI</b>	<b>DARI</b>
COMERICA INCORPORATED	0.00	2.61	2.61	0.00	1.29	0.35
NORTHERN TRUST CORPORATION	0.00	2.45	2.45	0.00	13.71	5.16
BB&T CORPORATION	0.00	1.32	1.32	0.00	28.42	0.13
COLONIAL BANCGROUP	0.71	0.00	0.71	0.00	31.23	1.81
ASSOCIATED BANC-CORP	0.90	0.52	1.42	0.00	5.52	0.00
FIRSTMERIT CORPORATION	1.61	0.00	1.61	0.01	13.10	0.00
SOUTH FINANCIAL GROUP	1.68	0.00	1.68	0.01	18.39	0.26
FIRST CITIZENS BANCSHARES	1.87	0.00	1.87	0.01	6.58	0.00
INTERNATIONAL BANCSHARES CORP	2.16	0.00	2.16	0.00	0.81	0.00

**3.3.6.3. Weak versus Healthy Banks**

A comparison similar to that described above for high vs. low disclosure banks are made between matched samples of weak vs. healthy banks.

In addition to standard tests of significance, logit regressions are run to see if a bank's disclosure level leads it to become a troubled bank. Also, all the regressions those test the effects of quality and quantity of information on bank performance and stability are run again but with a troubled bank dummy to see the marginal effect of being in the troubled bank list.



The sample of weak (troubled) banks is based on two sources. The first is the list of failed banks published by the FDIC. Large banks from this list are included in the troubled banks sample<sup>5</sup>. Also, banks those received large amounts of TARP money are determined. Although there are many institutions such as AIG, Goldman Sachs and Morgan Stanley which received considerable amount of money from the government, they are not included in the troubled bank sample since they are not commercial banks and they are subject to different regulations. Here, one should be aware of the existence of some banks which were not really in trouble and were not in need of bailout but had received TARP money. Therefore, a second source - the Wall Street Journal index- is used to determine the troubled banks. The index is searched for the following key phrases “charge-offs”, “trouble”, “problem” and “write downs”. Large banks whose names are appeared in the news as being in trouble are included in the sample.

The list of the troubled banks sample is given in Table III. (Note: This is not the same as the FDIC’s “problem bank list” since the identity of the banks on the FDIC list is not disclosed to the public). The column titled “Number of total articles (2006-2008)” gives the search result when a bank’s name is searched in the Wall Street Journal Index for the 2006-2008 period. This number reflects how many times a banks’ name was mentioned in the news. Some of those articles may not be really about the bank, but maybe referring the bank’s name as a peer in an article about another bank. Thus, this number doesn’t really reflect the number articles about the bank’s troubles. Hence, after those total articles are determined, a keyword search is done. For example, after

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<sup>5</sup> A total of 47 banks failed during the 2001-2008 period. Most of the banks were small and were not involved in securitization or derivatives in any meaningful way. Therefore, these banks are excluded from the sample. Colonial Bank which has failed on August 14, 2009 is included in the troubled bank sample based on the number of articles which were stating the troubles the bank was facing.

searching for Citigroup in the Wall Street Journal Index to find out the total number of articles about the bank (1832), certain keywords are searched. The keyword “trouble” for Citigroup turns out a total of 60 articles. All these 60 articles are read to see if the article is about a trouble Citigroup is facing. It should be noted that here a subjective judgment is used to determine which articles are really about trouble.

**Table III. Troubled Bank Sample**

<b>Institution Name</b>	<b>Total Assets (\$000: December 2008)*</b>	<b>TARP money received ((\$000)</b>	<b>TARP money/ Total Assets (%)</b>	<b>Number of Total Articles (2006-2008)</b>	<b>Number of Articles Stating Trouble</b>	<b>Number of Trouble Stating Articles / Total Articles (%)</b>
JP Morgan Chase	2,180,000,000	25,000,000	1.15	1240	4	0.32
Citigroup	1,940,000,000	45,000,000	2.32	1832	24	1.31
Bank of America	1,820,000,000	15,000,000	0.82	1132	5	0.44
Wells Fargo	1,310,000,000	25,000,000	1.91	213	5	2.35
Wachovia	670,639,000	N.A.	N.A.	451	25	5.54
PNC	291,000,000	7,579,200	2.60	70	2	2.86
U.S. Bancorp	267,000,000	6,599,000	2.47	41	4	9.76
Suntrust	189,000,000	4,850,000	2.57	68	3	4.41
National City	151,165,000	N.A.	N.A.	84	11	13.10
Regions Financial	146,000,000	3,500,000	2.40	28	3	10.71
Fifth Third	120,000,000	3,408,000	2.84	59	3	5.08
Keycorp	105,000,000	2,500,000	2.38	40	4	10.00
Comerica	67,912,580	2,250,000	3.31	22	1	4.55
M&T Bank	65,815,757	600,000	0.91	17	2	11.76
Zions Bancorporation	55,339,951	1,400,000	2.53	21	1	4.76
Colonial Bancgroup	25,816,306	N.A.	N.A.	6	2	33.33

\*Wachovia is purchased by Wells Fargo on October 3, 2008 and National City is purchased by PNC on October 24, 2008. Therefore total assets figures shown in this table for those two banks are by the end of September 2008.

\*\*Wachovia and National City remain in the sample through September 2008.

## CHAPTER IV

### DATA

#### 4.1. Data Sample

The sample period is from June 2001 to December 2008. Considering that smaller banks are not heavily engaged in securitization and off-balance sheet activities, they are excluded from the sample. The sample consists of bank holding companies which have total assets greater than \$10 billion at December 2008. Table IV shows the total number of bank holding companies with assets greater than \$10 billion during the sample period.

**Table IV. Number of Bank Holding Companies with Assets Greater than \$10 Billion**

	2001	2002	2003	2004	2005	2006	2007	2008
Number of BHCs with assets more than \$10 billion	89	97	98	99	102	78	71	74

Source: Federal Reserve's Y-9C reports

By December 2008, there are 74 BHCs with assets greater than \$10 billion. Ten foreign BHCs are dropped from the sample since US activities for these BHCs represent

only a part of their overall activities. In addition, two BHCs whose activities are primarily non-banking in nature and fourteen BHCs with insufficient data for the whole sample period are removed from the sample<sup>6</sup>. Out of the sample of resulting 50 banks, 14 banks with zero disclosure on securitization and derivative activities are removed from the sample<sup>7</sup>. Finally, 7 banks with very low activity are dropped<sup>8</sup>. The sample is fixed with the resulting 27 BHCs. The list of the banks in the sample is given in Appendix B.

#### 4.2. Data Sources

The stock price data for BHCs are downloaded from University of Chicago's Center for Research in Security Prices (CRSP) database. Data concerning securitization and credit derivative activities are extracted from bank's Y-9C reports available from the Federal Reserve Bank of Chicago and 10-K reports which are available at SEC Edgar database. Data on CDS spreads are obtained from Bloomberg. Data on CDS indices are kindly provided by Markit. Data on CD spreads are collected from St. Louis Federal Reserve Bank. The data sets are merged using PERMCOs. Data about transparency issues are extracted from Wall Street Journal Index.

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<sup>6</sup> Ten foreign BHCs which are removed from the sample are Utrecht Holdings (Netherlands), Taunus Corp (Germany), Barclays Group (Britain) and HSBC Holdings Inc (Britain), Popular Inc. (Puerto Rico), Compass Bancshares (Spain), RBC Centura Banks (Canada), W Holding Company (Puerto Rico), First Bancorp (Puerto Rico), Bancwest (France). Two BHCs whose activities are primarily non-banking in nature are State Street Corp and Metlife Inc. In addition, seven BHCs with insufficient data are Webster Financial Corporation, Capital One Financial Corporation, Compass Bancshares, Sterling Financial Corporation, ESB Acquisition Corp., Bank of New York Mellon Corporation and Marshall & Ilsley Corporation, Harris Bankcorp, First National of Nebraska, First Banks, FBOP Corporation, Citizens Financial Group, Harris Financial Corp, Arvest Bank Group.

<sup>7</sup> Fourteen banks with zero disclosure are Bank of Hawaii Corporation, City National Corporation, Valley National Corporation, UMB Financial Corporation, Synovus Financial Corporation, Whitney Holding Corporation, Bancorpsouth, Cullen/Frost Bankers, Citizens Banking Corporation, Unionbancal Corporation, Cathay General Bancorp, Wilmington Trust Corporation, New York Community Bancorp, TCF Financial Corporation.

<sup>8</sup> Seven banks with low securitization and derivate activities are Commerce Bancshares, Bok Financial Corporation, Banknorth Group, Privatebancorp, Fulton Financial Corporation, Wintrust Financial Corporation, UCBH Holdings.

### **4.3. Descriptive Statistics**

Table V gives the descriptive statistics. The average total assets for the BHCs in the sample for the June 2001- December 2008 period is around \$ 227 billion. Banks in the sample have an average annualized ROA of 1.04% and an average annualized ROE of 11.84%. In general, banks in the sample have very high loan to deposit ratios, as well as high levels of risk weighted assets to total assets ratios.

Average value for SABI index is 4.65 while the highest attainable index value is 11. BHCs in the sample have an average of 1.49 for DABI index and 6.13 for TABI index. Average value for SSBI index is 10.98, DSBI index is 2.31 and TSBI index is 13.3. These numbers show that on average banks have low disclosure index values based on their call reports. The averages for annual report indices show that banks generally communicate more about securitization rather than the credit derivatives in their annual reports.

**Table V. Descriptive Statistics**

This table shows the descriptive statistics for hypothesis, dependent and control variables. SABI is securitization activity binary index, DABI is credit derivative activities binary index, TABI is total activity binary index, SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index, TQI is total quantitative index., SARI is securitization annual report index, DARI is credit derivatives annual report index and QUAL is quality index. Total Articles shows the total number of articles those appear when a bank's name is searched in WSJ index and Transparency Articles shows the total number of transparency issues related articles. Total assets is in millions (\$). ROA and ROE are annualized. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Stock return is calculated as (price at the end of the period-price at the beginning of the period)/ price at the beginning of the period. Afterwards these figures are annualized

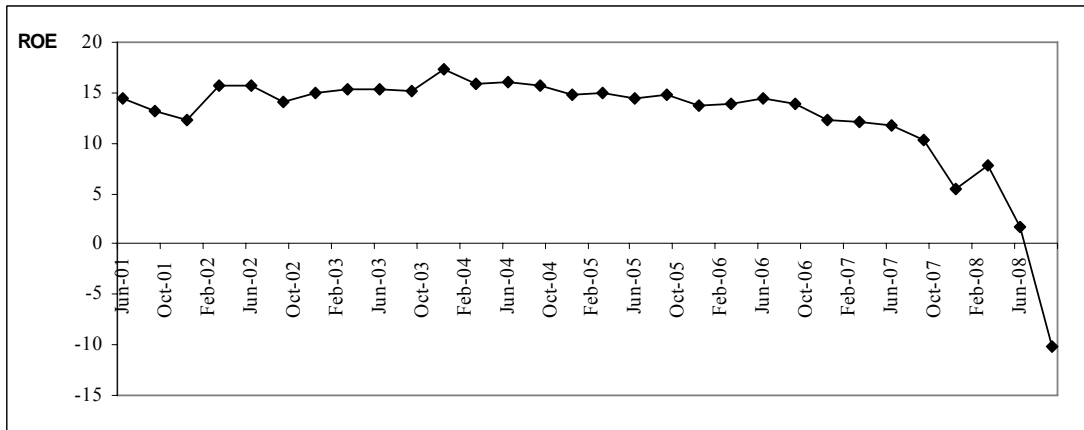
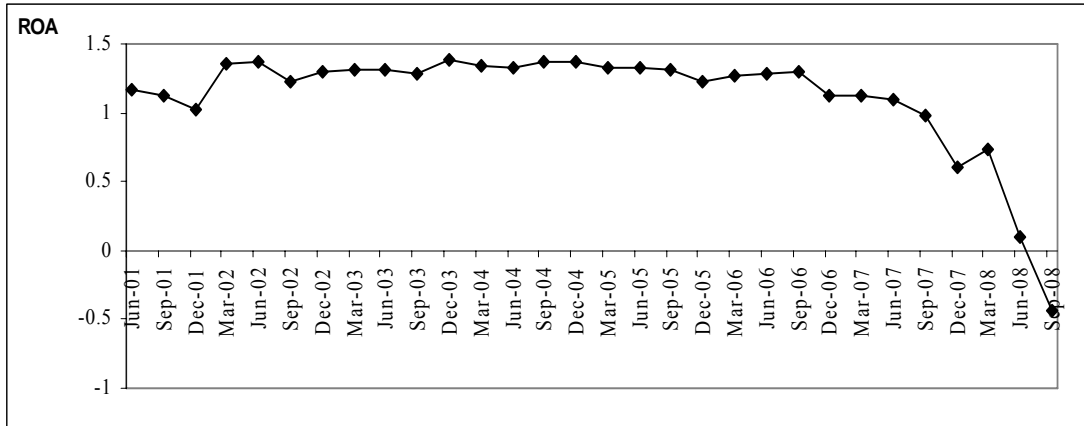
		Mean	Median	Max.	Min.	Std. Dev.	Obs.
<b>Hypothesis Variables</b>							
SABI	(0-11)	4.63	5.00	11.00	0.00	3.55	835
DABI	(0-4)	1.59	0.00	4.00	0.00	1.79	835
TABI	(0-15)	6.23	6.00	15.00	0.00	4.73	835
SSBI	(0-69)	11.36	6.50	52.00	0.00	13.42	835
DSBI	(0-12)	2.48	0.00	12.00	0.00	3.15	835
TSBI	(0-81)	13.84	7.00	62.00	0.00	15.71	835
TQI	N.A.	0.27	0.02	6.31	0.00	0.67	835
SARI	N.A.	55.97	43.00	286.00	0.00	50.53	835
DARI	N.A.	5.78	0.00	90.00	0.00	13.44	835
QUAL	(0-100)	99.11	100.00	100.00	0.00	6.83	835
Total Articles	N.A.	14.43	2.00	256.00	0.00	33.22	835
Transparency Articles	N.A.	0.08	0.00	9.00	0.00	0.50	835
<b>Dependent Variables</b>							
ROA(%)		1.04	1.25	6.03	-16.09	1.43	835
ROE(%)		11.84	14.29	55.18	-261.85	17.33	835
Stock Return(%)		3.83	8.87	355.15	-465.59	65.42	835
Volatility of Stock Return(%)		30.82	20.87	321.66	6.73	29.70	835
Sharpe ratio		0.17	0.18	5.57	-5.61	1.69	835
Beta		1.04	0.95	7.50	0.07	0.51	835
Z statistic		290.45	198.31	1713.12	1.44	279.77	646
<b>Control Variables</b>							
Total Assets (\$ in millions)		227,229	57,326	2,360,000	2,629	424,553	835
Risk weighted assets /Total assets (%)		80.93	80.72	122.30	50.36	12.79	835
Risk based capital ratio (%)		12.36	12.11	20.18	10.07	1.35	835
Loan to deposit ratio (%)		101.41	103.48	164.16	45.84	17.89	835
Loan to assets ratio (%)		64.57	68.45	85.14	27.17	12.94	835
Leverage ratio		10.49	10.21	18.21	5.78	1.94	835
Revenue composition (%)		28.88	27.73	83.82	-21.94	12.15	835
Efficiency ratio (%)		43.82	41.99	212.07	7.73	12.03	835

The Qual index on average is 99.1% which shows that on the whole, banks convey high quality (free from material errors and on purpose omissions of important facts) information to public. Qual index is closely related to the number of transparency related articles which is not very high for the banks in the sample. However, the number of total articles that appears in search for a specific quarter is on average 14. Although not all these articles are related to revisions in loan losses, earnings revisions or SEC probes, most of them convey negative information about the banks; therefore this number is used as a robustness measure to the quality of information.

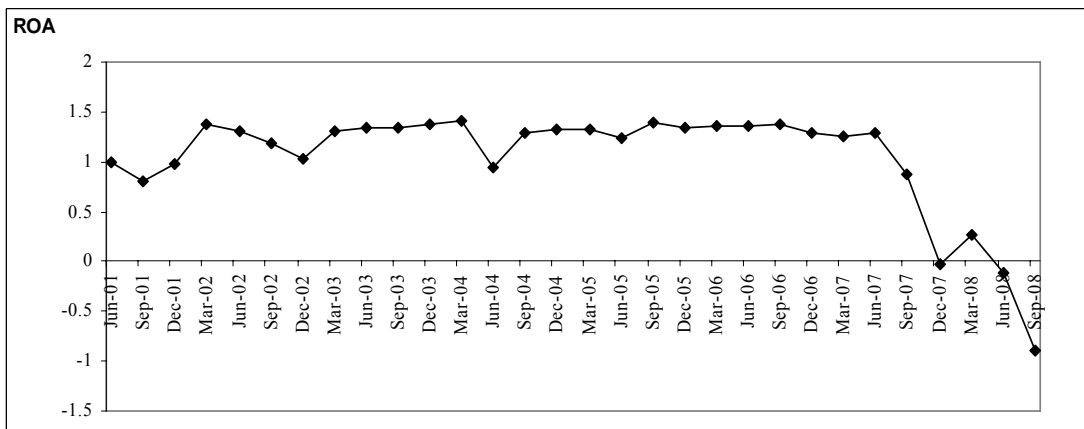
Figure 9 shows the graph of average ROA and ROE during the sample period. Part (a) of the graph shows the un-weighted average ROA and ROE for June 2001-September 2008 period. Part (b) of the graph shows the weighted average ROA and ROE. Banks are ranked according to their average total assets and assigned into three different size groups- small, medium, big. ROAs and ROEs for different size groups are shown at part (c) of Figure 10. As can be seen from the graph, bigger banks have more volatile ROAs.

**Figure 9. ROA and ROE**

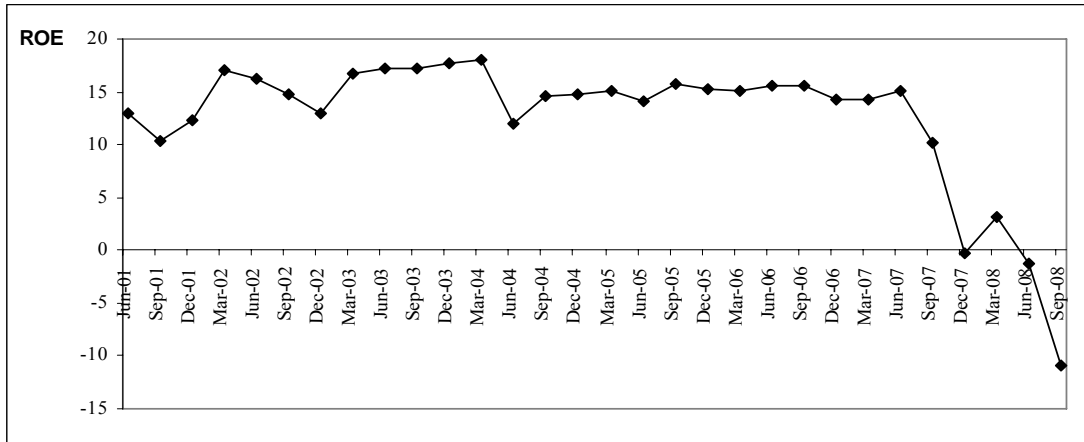
**(a) Unweighted ROA and ROE**



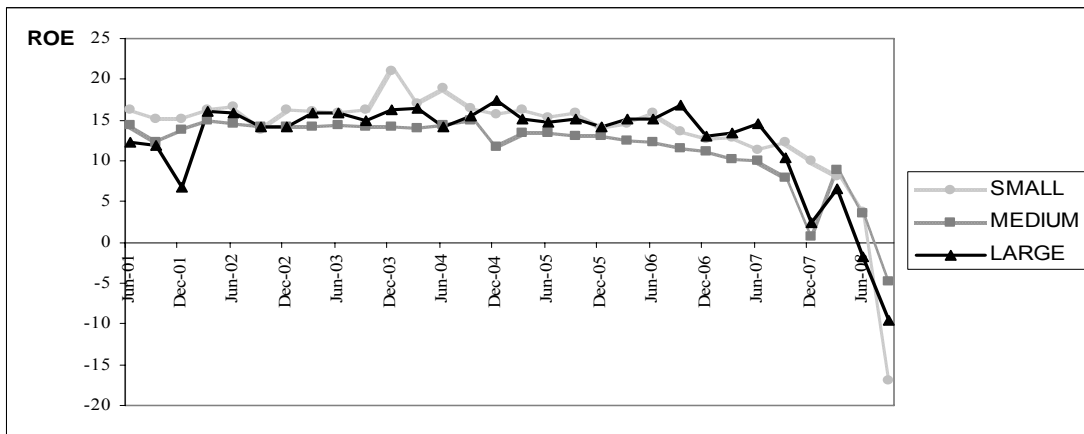
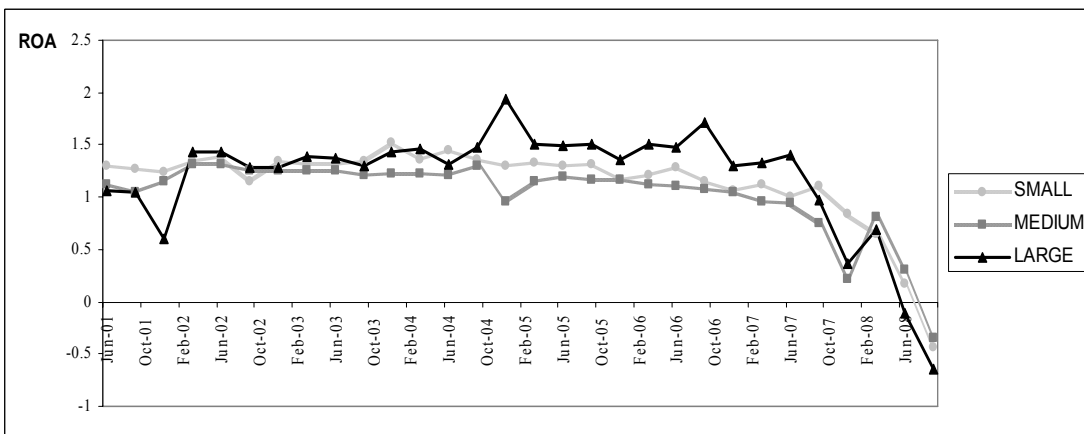
**(b) Weighted ROA and ROE (weighted by total assets)**







(c) ROA and ROE by size groups



## **CHAPTER V**

### **RESULTS**

#### **5.1. Quantity of Disclosure**

##### **5.1.1. Call Report Indices**

##### **5.1.1.1. Call Report Disclosure and Performance**

Table VI shows the results of the regression which tests the relationship between disclosure/activity measured by call report indices and bank performance.

When performance is measured by ROA and ROE, no significant results are found. But when performance is measured by Risk-adjusted ROA and Risk-adjusted ROE, there is a significant relationship between disclosure/activity and performance (When risk-adjusted ROA is the performance measure, the coefficient on SSBI is -0.9311, on  $SSBI^2$  is 0.0166; and the coefficient on TSBI is -0.8683, on  $TSBI^2$  is 0.0137. When risk-adjusted ROE is the performance measure, the coefficient on SSBI is -0.9706, on  $SSBI^2$  is 0.0142; and the coefficient on TSBI is -0.908, on  $TSBI^2$  is 0.0127). However, the signs of the coefficients are just opposite of the expected, which shows that as the

level of information disclosure/activity increases, bank performance decreases up to a certain point and afterwards starts to increase. This might be explained by the economies of scale. There are several costs –such as personnel, computer, software, etc.-attached to employing securitization and credit derivative activities. If the levels of these activities are low, their costs may outweigh their profits. However, once a bank is at a certain size, it can handle a higher level of these activities, manage the costs more efficiently and make more profit. Also, when investors become more familiar with an instrument, they find the information about it more valuable. Investors of those banks which involve heavily in securitization and credit derivatives activities appreciate the information on those activities.

**Table VI. Disclosure/Activity and Performance**

This table shows the regression results for disclosure/activity and performance. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index and TQI is total quantitative index. In Panel A ROA; in Panel B ROE; in Panel C risk-adjusted ROA; in Panel D risk-adjusted ROE; in Panel E stock return; and in Panel F Sharpe ratio is used as the performance measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. ROA**

<b>Hypothesis variables</b>	<b>Exp.</b>	<b>ROA</b>				
		(1)	(2)	(3)	(4)	(5)
SSBI	+	0.0001 (0.0002)				0.00008 (0.0002)
SSBI <sup>2</sup>	-	-0.000001 (0.000005)				-0.000001 (0.000005)
DSBI	+		-0.0007 (0.0006)			-0.00076 (0.0006)
DSBI <sup>2</sup>	-		0.00008 (0.00006)			0.00008 (0.00006)
TSBI	+			0.000017 (0.0002)		
TSBI <sup>2</sup>	-			0.0000005 (0.000003)		
TQI	+				-0.0024 (0.0027)	
TQI <sup>2</sup>	-				0.00083* (0.0005)	
<b>Control variables</b>						
Bank size (log assets)		-0.011*** (0.0029)	-0.0114*** (0.003)	-0.011*** (0.0029)	-0.0113*** (0.0029)	-0.0114*** (0.0030)
Risk weighted assets/total assets		-0.0218 (0.0156)	-0.0165 (0.0152)	-0.0198 (0.0159)	-0.0219 (0.0151)	-0.0173 (0.016)
Risk based capital ratio		-0.0024*** (0.0005)	-0.0026*** (0.0005)	-0.0024*** (0.0005)	-0.0026*** (0.0005)	-0.0026*** (0.00054)
Loan to deposit ratio		0.0049 (0.0071)	0.0056 (0.007)	0.0051 (0.0070)	0.0066 (0.0069)	0.0051 (0.0071)
Loan to asset ratio		-0.0288 (0.019)	-0.0326* (0.019)	-0.0297 (0.0191)	-0.0311* (0.0189)	-0.0318* (0.0191)
Leverage ratio		-0.00012 (0.00043)	-0.00013 (0.00041)	-0.00009 (0.00043)	-0.00012 (0.00042)	-0.00012 (0.00043)
Revenue composition		0.0244*** (0.0078)	0.0257*** (0.00781)	0.0244*** (0.00781)	0.0249*** (0.00776)	0.0255*** (0.00784)
Efficiency ratio		-0.0374*** (0.00611)	-0.0371*** (0.00613)	-0.0371*** (0.0061)	-0.0365*** (0.00609)	-0.0373*** (0.00615)
<b>Intercept</b>		0.2813*** (0.0597)	0.2893*** (0.0599)	0.2808*** (0.0596)	0.3026*** (0.0688)	0.2896*** (0.0601)
<b>AR(1)</b>		-0.0510 (0.0347)	-0.0500 (0.0347)	-0.0520 (0.0347)	-0.0486 (0.0347)	-0.0496 (0.0347)
<b>Crisis Dummy</b>		-0.0067*** (0.0014)	-0.0068*** (0.0015)	-0.0068*** (0.0014)	-0.0070*** (0.0014)	-0.0068*** (0.0015)
<b>R-squared</b>		0.2574	0.2588	0.2574	0.2611	0.2590
<b>Durbin-Watson statistic</b>		1.7700	1.7732	1.7696	1.7687	1.7735

**Panel B. ROE**

		ROE				
	Exp.	(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	-0.00026 (0.0027)				-0.00051 (0.0027)
SSBI <sup>2</sup>	-	0.00001 (0.00006)				0.000015 (0.000061)
DSBI	+		-0.0065 (0.0077)			-0.0067 (0.0078)
DSBI <sup>2</sup>	-		0.00063 (0.0007)			0.00064 (0.0007)
TSBI	+			-0.00072 (0.0025)		
TSBI <sup>2</sup>	-			0.000016 (0.000045)		
TQI	+				-0.0427 (0.0317)	
TQI <sup>2</sup>	-				0.012** (0.0060)	
<b>Control variables</b>						
Bank size (log assets)		-0.146*** (0.0359)	-0.1494*** (0.0362)	-0.1467*** (0.0361)	-0.1489*** (0.0351)	-0.1492*** (0.0363)
Risk weighted assets/total assets		-0.1161 (0.1876)	-0.0927 (0.1834)	-0.1036 (0.1909)	-0.1531 (0.1763)	-0.0785 (0.1923)
Risk based capital ratio		-0.031*** (0.0064)	-0.0322*** (0.0063)	-0.0313*** (0.0064)	-0.0327*** (0.0061)	-0.0321*** (0.0065)
Loan to deposit ratio		0.0746 (0.0857)	0.0759 (0.0844)	0.0771 (0.0852)	0.0874 (0.0819)	0.0755 (0.0859)
Loan to asset ratio		-0.2882 (0.229)	-0.309 (0.2291)	-0.2975 (0.23)	-0.2955 (0.2209)	-0.311 (0.2308)
Leverage ratio		0.0032 (0.0052)	0.0029 (0.0050)	0.0032 (0.0052)	0.00296 (0.0049)	0.00322 (0.0052)
Revenue composition		0.3322*** (0.0944)	0.3417*** (0.0947)	0.3342*** (0.0946)	0.3549*** (0.0928)	0.3418*** (0.095)
Efficiency ratio		-0.5079*** (0.0742)	-0.5089*** (0.0744)	-0.5065*** (0.0741)	-0.5277*** (0.0735)	-0.5081*** (0.0747)
<b>Intercept</b>		3.7045*** (0.8354)	3.7899*** (0.8356)	3.7181*** (0.8327)	3.8056*** (0.8092)	3.7731*** (0.8401)
<b>AR(1)</b>		-0.0393 (0.0347)	-0.0379 (0.0347)	-0.0395 (0.0347)	-0.0347 (0.0347)	-0.0383 (0.0348)
<b>Crisis Dummy</b>		-0.0814*** (0.0176)	-0.0814*** (0.0181)	-0.0813*** (0.0175)	-0.0831*** (0.0175)	-0.0814*** (0.0182)
<b>R-squared</b>		0.2518	0.2524	0.2519	0.2563	0.2525
<b>Durbin-Watson statistic</b>		1.8762	1.8784	1.8766	1.8768	1.8787

**Panel C. Risk Adjusted ROA**

	Exp.	RAR(ROA)				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	-0.9311*** (0.2202)				-0.9384*** (0.2211)
SSBI <sup>2</sup>	-	0.0166*** (0.00433)				0.0169*** (0.0043)
DSBI	+		-0.082 (0.5572)			-0.2776 (0.552)
DSBI <sup>2</sup>	-		0.0175 (0.0504)			0.0354 (0.0503)
TSBI	+			-0.8683*** (0.2063)		
TSBI <sup>2</sup>	-			0.0137*** (0.00347)		
TQI	+				-0.9139 (2.2168)	
TQI <sup>2</sup>	-				0.2914 (0.3808)	
<b>Control variables</b>						
Bank size (log assets)		-3.1113 (2.7052)	-3.1305 (2.8228)	-3.0372 (2.7183)	-2.9876 (2.7828)	-3.3764 (2.7816)
Risk weighted assets/total assets		-28.098** (13.550)	-29.521** (13.991)	-23.658* (13.605)	-31.615** (13.891)	-27.230** (13.833)
Risk based capital ratio		-0.3524 (0.4142)	-0.218 (0.4164)	-0.3633 (0.4132)	-0.2266 (0.416)	-0.3787 (0.4159)
Loan to deposit ratio		-3.2169 (5.5001)	-4.4419 (5.4843)	-3.165 (5.5034)	-4.5637 (5.4818)	-3.2547 (5.5089)
Loan to asset ratio		23.9544 (16.285)	24.5555 (16.412)	22.2767 (16.293)	26.5672 (16.489)	23.6704 (16.319)
Leverage ratio		0.4119 (0.3505)	0.3547 (0.3456)	0.4302 (0.3493)	0.3686 (0.3453)	0.4107 (0.3508)
Revenue composition		1.0878 (4.1302)	0.6192 (4.1705)	1.2896 (4.1299)	0.5662 (4.2181)	1.219 (4.1352)
Efficiency ratio		1.09 (2.5541)	1.1617 (2.5725)	1.0762 (2.5527)	1.1317 (2.5811)	1.1382 (2.5536)
<b>Intercept</b>		74.045 (55.3566)	73.7507 (57.681)	69.6506 (55.3865)	78.7155 (64.6297)	78.4088 (56.8049)
<b>AR(1)</b>		-0.8080*** (0.0388)	-0.8180*** (0.0387)	-0.8082*** (0.0388)	-0.8151*** (0.0387)	-0.8108*** (0.0388)
<b>AR(2)</b>		0.1296*** (0.0388)	0.1370*** (0.0387)	0.1285*** (0.0388)	0.1363*** (0.0387)	0.1325*** (0.0388)
<b>Crisis Dummy</b>		-5.0216*** (1.0301)	-4.8825 (1.0474)	-4.8659*** (1.0297)	-4.8978*** (1.0460)	-5.0157*** (1.0337)
<b>R-squared</b>		0.7732	0.7675	0.7734	0.7675	0.7735
<b>Durbin-Watson statistic</b>		1.9144	1.9170	1.9167	1.9157	1.9205

**Panel D. Risk Adjusted ROE**

	Exp.	RAR(ROE)				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	-0.9706*** (0.2544)				-0.9758*** (0.2553)
SSBI <sup>2</sup>	-	0.0142*** (0.00502)				0.0148*** (0.0050)
DSBI	+		-0.0155 (0.6485)			-0.2318 (0.642)
DSBI <sup>2</sup>	-		0.0371 (0.0586)			0.0512 (0.0582)
TSBI	+			-0.908*** (0.2395)		
TSBI <sup>2</sup>	-			0.0127*** (0.0040)		
TQI	+				-1.2555 (2.6402)	
TQI <sup>2</sup>	-				0.3589 (0.4565)	
<b>Control variables</b>						
Bank size (log assets)		-5.9119** (3.0316)	-6.5533** (3.1697)	-5.712* (3.0527)	-5.849* (3.1334)	-6.6068** (3.1152)
Risk weighted assets/total assets		-37.9326** (15.7621)	-40.335** (16.3037)	-32.062** (15.8575)	-41.1532** (16.1214)	-37.7553** (16.1225)
Risk based capital ratio		-0.018 (0.4883)	0.1418 (0.4901)	-0.0184 (0.4877)	0.1538 (0.4898)	-0.0626 (0.4904)
Loan to deposit ratio		1.4364 (6.5137)	-1.0012 (6.5107)	1.2015 (6.519)	-0.9831 (6.5156)	1.2706 (6.5119)
Loan to asset ratio		19.2243 (19.0179)	22.6599 (19.1991)	17.7374 (19.0476)	24.4403 (19.2638)	19.0284 (19.0367)
Leverage ratio		0.2504 (0.4116)	0.2633 (0.4048)	0.3061 (0.4102)	0.287 (0.4049)	0.2507 (0.4113)
Revenue composition		1.5376 (5.2019)	1.1422 (5.2421)	1.7908 (5.2016)	1.1001 (5.2811)	1.7553 (5.2122)
Efficiency ratio		-0.1307 (3.2565)	-0.1189 (3.2737)	-0.1901 (3.2528)	-0.1577 (3.2817)	-0.0314 (3.2578)
<b>Intercept</b>		127.6069** (62.0632)	137.1434** (64.804)	119.3468** (62.1702)	139.5054* (72.724)	140.325** (63.6273)
<b>AR(1)</b>		-0.6632*** (0.0391)	-0.6719*** (0.03914)	-0.6655*** (0.0391)	-0.6706*** (0.0391)	-0.6647*** (0.0391)
<b>AR(2)</b>		0.0317 (0.0391)	0.0316 (0.0391)	0.0329 (0.0391)	0.0301 (0.0391)	0.0364 (0.0392)
<b>Crisis Dummy</b>		-4.1487*** (1.2461)	-4.0761*** (1.2672)	-3.9102*** (1.2467)	-3.9940*** (1.2646)	-4.2205*** (1.2522)
<b>R-squared</b>		0.7266	0.7220	0.7266	0.7218	0.7270
<b>Durbin-Watson statistic</b>		1.9005	1.9058	1.9003	1.8999	1.9095

**Panel E. Stock Return**

	Exp.	AVERAGE RETURN				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	0.0108 (0.0086)				0.0098 (0.0087)
SSBI <sup>2</sup>	-	-0.00015 (0.0001)				-0.00013 (0.00019)
DSBI	+		-0.0161 (0.0242)			-0.0122 (0.0244)
DSBI <sup>2</sup>	-		0.00041 (0.00226)			0.00016 (0.0022)
TSBI	+			-0.0642 (0.4187)		
TSBI <sup>2</sup>	-			0.0174 (0.1612)		
TQI	+				-0.2297* (0.1371)	
TQI <sup>2</sup>	-				0.0491** (0.026)	
<b>Control variables</b>						
Bank size (log assets)		-0.2969** (0.1203)	-0.2823** (0.1215)	-0.2883** (0.1205)	-0.2504 (0.1575)	-0.2908** (0.1218)
Risk weighted assets/total assets		-0.9584 (0.5965)	-0.8177 (0.5797)	-0.8653 (0.5766)	-0.9541 (0.7714)	-0.9154 (0.611)
Risk based capital ratio		0.0361 (0.0229)	0.0286 (0.0226)	0.0302 (0.0228)	0.0369 (0.0293)	0.0342 (0.0235)
Loan to deposit ratio		0.2856 (0.2734)	0.3294 (0.2683)	0.3489 (0.275)	0.3347 (0.3552)	0.2731 (0.2743)
Loan to asset ratio		0.0938 (0.7215)	-0.0118 (0.722)	-0.0341 (0.7341)	-0.1331 (0.956)	0.0977 (0.7283)
Leverage ratio		-0.0118 (0.0167)	-0.0131 (0.0162)	-0.0133 (0.0165)	-0.028 (0.0216)	-0.0121 (0.0168)
Revenue composition		1.517*** (0.3342)	1.5647*** (0.3353)	1.5489*** (0.3485)	1.3837*** (0.4029)	1.5331*** (0.3368)
Efficiency ratio		-1.0055*** (0.2783)	-1.011*** (0.2808)	-0.9597*** (0.2808)	-0.8398*** (0.3179)	-1.0399*** (0.282)
<b>Intercept</b>		5.4006** (2.4209)	5.1663** (2.4311)	5.162** (2.3315)	5.647 (3.6393)	5.3035** (2.4416)
<b>AR(1)</b>		0.3189*** (0.0335)	0.3189*** (0.0335)	0.3191*** (0.0335)	0.3182*** (0.0335)	0.3186*** (0.0335)
<b>Crisis Dummy</b>		-0.2127*** (0.0529)	-0.2096*** (0.0547)	-0.2210*** (0.0527)	-0.2206*** (0.0530)	-0.2057*** (0.0549)
<b>R-squared</b>		0.1968	0.1961	0.1962	0.1986	0.1975
<b>Durbin-Watson statistic</b>		1.9948	1.9957	1.9944	2.0005	1.9956

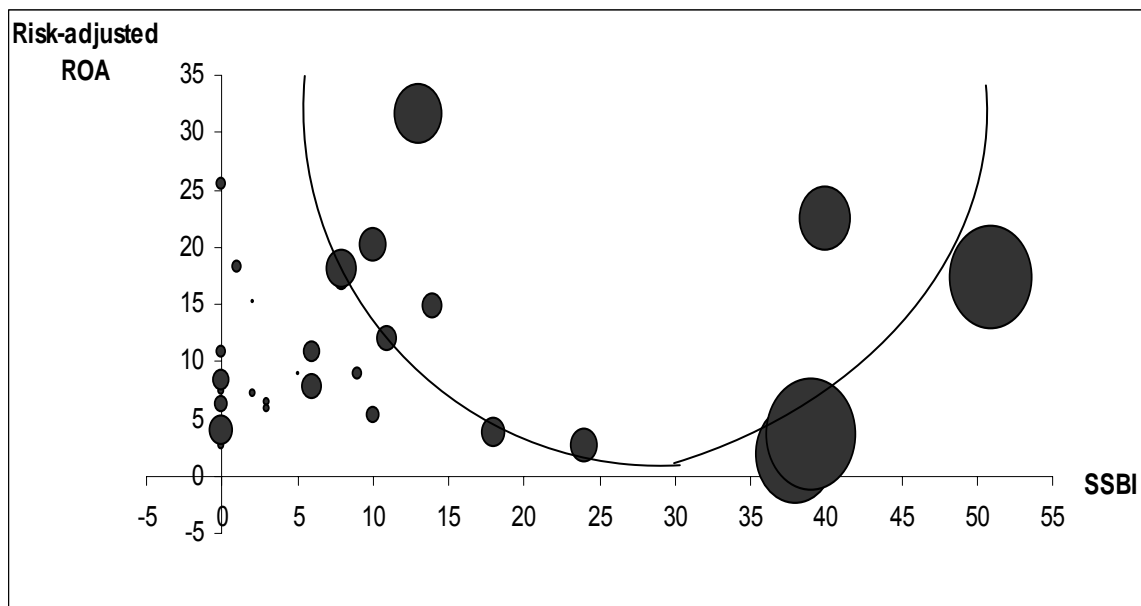


**Panel F. Sharpe Ratio**

	Exp.	SHARPE RATIO				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	0.0262 (0.0235)				0.0248 (0.0237)
SSBI <sup>2</sup>	-	-0.00033 (0.00051)				-0.00032 (0.00051)
DSBI	+		-0.0687 (0.0658)			-0.0591 (0.0664)
DSBI <sup>2</sup>	-		0.0084 (0.0061)			0.0078 (0.0061)
TSBI	+			0.0153 (0.0218)		
TSBI <sup>2</sup>	-			-0.00004 (0.0003)		
TQI	+				0.1029 (0.2787)	
TQI <sup>2</sup>	-				0.0163 (0.053)	
<b>Control variables</b>						
Bank size (log assets)		-1.3106*** (0.326)	-1.3565*** (0.329)	-1.3133*** (0.3275)	-1.3512*** (0.3271)	-1.3783*** (0.3296)
Risk weighted assets/total assets		-1.5896 (1.6244)	-0.9711 (1.5765)	-1.3601 (1.6512)	-1.1659 (1.5698)	-1.2062 (1.6599)
Risk based capital ratio		0.0625 (0.0622)	0.0343 (0.0613)	0.0663 (0.0624)	0.0443 (0.0609)	0.0487 (0.0635)
Loan to deposit ratio		-0.0923 (0.743)	0.1046 (0.7281)	-0.0703 (0.739)	0.1855 (0.729)	-0.0384 (0.7438)
Loan to asset ratio		-0.6197 (1.9638)	-1.2295 (1.9619)	-0.68 (1.9733)	-1.1256 (1.9507)	-0.9537 (1.9777)
Leverage ratio		-0.00237 (0.0455)	-0.0045 (0.0439)	0.00258 (0.0454)	0.00174 (0.0443)	-0.0016 (0.0455)
Revenue composition		1.8736** (0.8943)	2.0542** (0.8958)	1.8559** (0.8966)	1.9186** (0.8907)	1.9757** (0.8993)
Efficiency ratio		-1.1174 (0.7352)	-0.9679 (0.7403)	-1.0482 (0.7337)	-0.9792 (0.7332)	-1.0388 (0.7431)
<b>Intercept</b>		24.3457*** (6.5613)	25.1156*** (6.5798)	24.1078*** (6.5422)	28.6045*** (7.5709)	25.4512*** (6.6054)
<b>AR(1)</b>		0.2375*** (0.0343)	0.2391*** (0.0343)	0.2370*** (0.0343)	0.2396*** (0.0343)	0.2396*** (0.0344)
<b>Crisis Dummy</b>		-0.9405*** (0.1451)	-0.9566*** (0.1494)	-0.9572*** (0.1445)	-0.9820*** (0.1449)	-0.9471*** (0.1499)
<b>R-squared</b>		0.1978	0.1983	0.1975	0.1992	0.1996
<b>Durbin-Watson statistic</b>		2.0229	2.0240	2.0216	2.0243	2.0245

Figure 10 shows the plot of SSBI index and the risk-adjusted ROA. Bank size is shown as a circle where bigger banks are shown as bigger circles. The figure shows that as the level of activity/disclosure increases, bank performance declines. However after a certain point, as the level of activity/disclosure increases, performance also increases. As seen in the figure, banks those have higher disclosure/activity level and higher performance are bigger banks (Citigroup, Wachovia, Bank of America), which suggests that bigger banks may benefit from an economies of scale and handle securitization and credit derivative activities more profitably than smaller banks.

**Figure 10. SSBI and Risk-Ajusted ROA**



Also, the results suggest that there is a level of disclosure/activity after which the bank performance increases. The level of the SSBI where the risk-adjusted ROA starts to

increase is 28.0<sup>9</sup> and where the risk-adjusted ROE starts to increase is 34.0; similarly the level of TSBI where the risk-adjusted ROA starts to increase is 31.6 and where the risk-adjusted ROE starts to increase is 35.7.

Another way to looking at this relationship is plotting the actual index values against performance and stability measures. Figure 11 shows the graphs for index values and performance/stability measures which have a min/max value. All the graphs show that up to a certain point the performance/stability measures decline and after reaching a minimum increase slowly. Part a of Figure 11 exhibits the relationship between z value and TSBI. Each dot represents the index level which corresponds to the z-value on the x axis. The graph clearly shows the turning point for the TSBI level after which the z-value starts to increase. The turning point shown in the graph (22.1) is approximately consistent with the theoretical turning point calculated (30.9), though not identical. The banks those lie to the right of the turning point are J.P. Morgan, Citigroup, Wachovia and Bank of America, all of which are money center banks that handle securitization activities efficiently. The results show that as the level of disclosure/activity increases, performance and stability of the bank holding companies decreases. However, the situation reverses for money center banks which have reached the economies of scale.

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<sup>9</sup> To find this number, first derivative of the function is taken and set equal to zero. For example,

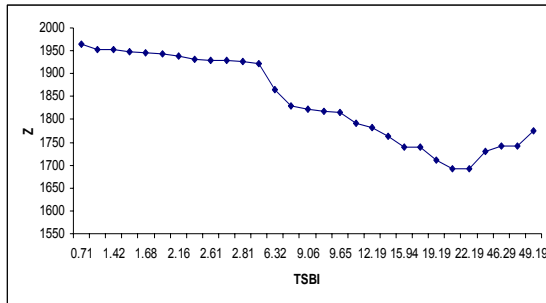
$$f(\text{Risk} - \text{adjustedROA}) = -0.9311SSBI + 0.0166SSBI^2 + \text{control variables and random error}$$

$$f(\text{Risk} - \text{adjustedROA})' = -0.9311 + 0.0332SSBI = 0$$

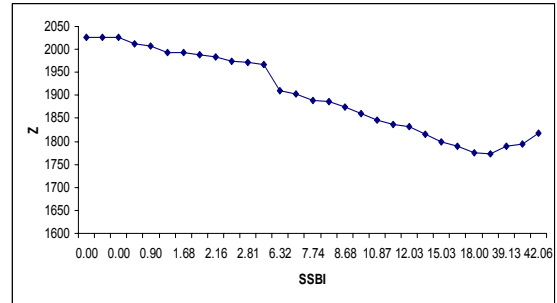
$$SSBI = 28.04$$

**Figure 11. Turning Points**

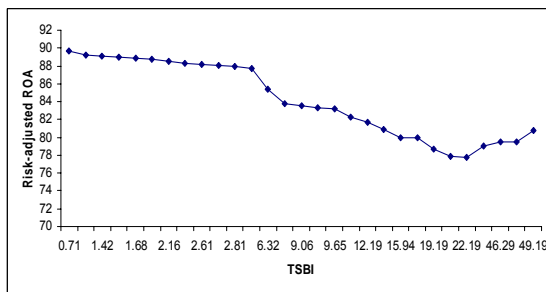
**a) TSBI and Z-value**



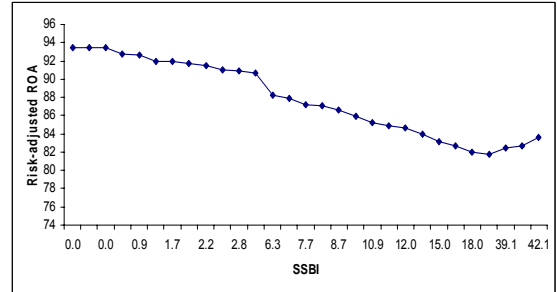
**b) SSBI and Z-value**



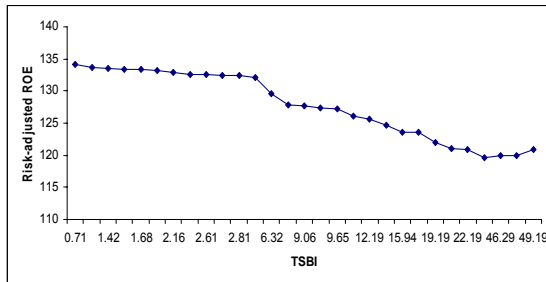
**c) TSBI and Risk-adjusted ROA**



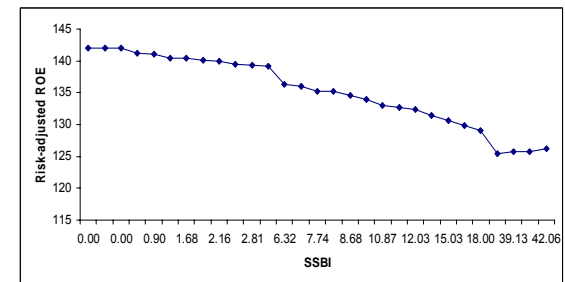
**d) SSBI and Risk-adjusted ROA**



**e) TSBI and Risk-adjusted ROE**



**f) SSBI and Risk-adjusted ROE**



#### 5.1.1.2. Call Report Disclosure and Stability

Table VII shows the regression results for disclosure/activity and bank stability. Disclosure/activity affects only the bank's z-statistic (coefficient on SSBI is -20.7143, SSBI<sup>2</sup> is 0.3745; coefficient on TSBI is -20.2501, TSBI<sup>2</sup> is 0.3267). However, the signs of the coefficients are not as expected. This suggests that after a certain point, providing

information to the market stabilizes the bank holding company. The level of the SSBI after which the bank stabilizes is 27.6 and the level of TSBI after which the bank stabilizes is 30.9. The table exhibits that bank stability when measured by beta or standard deviation of stock returns, is not sensitive to the level of information/activity provided by the bank holding company regarding their securitization and credit derivative activities.

As a robustness check to the call report disclosure and bank performance/stability, the tests are run again with an interaction term between crisis and disclosure. The results were essentially the same as before. Also, to see if the large banks are biasing the results, the largest three banks are dropped from the sample and the whole tests are run again. The results haven't changed much; showing the same U-shaped relationship between bank performance and disclosure and an inverted U-shaped relationship between bank stability and disclosure.

**Table VII. Disclosure/Activity and Stability**

This table shows the regression results for disclosure/activity and stability. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index and TQI is total quantitative index. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Volatility of Stock Returns**

	Exp.	STD.DEV. OF RETURN				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	-	-0.0035 (0.0045)				-0.0029 (0.0045)
SSBI <sup>2</sup>	+	0.000002 (0.000098)				-0.000009 (0.000099)
DSBI	-		0.0127 (0.0126)			0.0119 (0.0127)
DSBI <sup>2</sup>	+		-0.00065 (0.00118)			-0.0006 (0.0011)
TSBI	-			-0.0013 (0.0042)		
TSBI <sup>2</sup>	+			-0.00001 (0.000074)		
TQI	-				-0.045 (0.0534)	
TQI <sup>2</sup>	+				0.0063 (0.0102)	
<b>Control variables</b>						
Bank size (log assets)		0.327*** (0.0591)	0.3216*** (0.0603)	0.3282*** (0.0594)	0.3281*** (0.0596)	0.3251*** (0.0603)
Risk weighted assets/total assets		-0.1092 (0.3045)	-0.1349 (0.3009)	-0.1193 (0.3095)	-0.1336 (0.2994)	-0.1655 (0.3121)
Risk based capital ratio		0.0554*** (0.0109)	0.0599*** (0.0108)	0.0564*** (0.0109)	0.0575*** (0.0108)	0.0568*** (0.011)
Loan to deposit ratio		0.157 (0.1359)	0.1294 (0.1341)	0.1404 (0.1353)	0.1145 (0.1341)	0.1617 (0.1362)
Loan to asset ratio		0.5733 (0.3673)	0.6415* (0.3684)	0.6009 (0.3683)	0.6473* (0.3665)	0.5934 (0.3701)
Leverage ratio		-0.00072 (0.0084)	0.00179 (0.0082)	-0.00045 (0.0084)	0.0004 (0.0082)	-0.00038 (0.0084)
Revenue composition		-0.1062 (0.1238)	-0.1202 (0.1243)	-0.1089 (0.1239)	-0.1047 (0.1238)	-0.1144 (0.1246)
Efficiency ratio		1.0123*** (0.0902)	1.0091*** (0.0903)	1.0041*** (0.0899)	1.0036*** (0.0899)	1.0214*** (0.0907)
<b>Intercept</b>		-7.2379*** (1.2431)	-7.2657*** (1.2599)	-7.282*** (1.2405)	-7.9281*** (1.373)	-7.2124*** (1.2615)
<b>AR(1)</b>		-0.4682*** (0.0350)	-0.4673*** (0.0350)	-0.4704*** (0.0350)	-0.4718*** (0.0350)	-0.4625*** (0.0350)
<b>AR(2)</b>		0.1549*** (0.0385)	0.1524*** (0.0385)	0.1557*** (0.0385)	0.1576*** (0.0385)	0.1500*** (0.0384)
<b>AR(3)</b>		-0.1226*** (0.0385)	-0.1222*** (0.0385)	-0.1206*** (0.0385)	-0.1237*** (0.0385)	-0.1212*** (0.0384)
<b>AR(4)</b>		0.1582*** (0.0350)	0.1569*** (0.0350)	0.15873*** (0.0350)	0.1603*** (0.0350)	0.1559*** (0.0350)
<b>R-squared</b>		0.6195	0.6192	0.6194	0.6196	0.6192
<b>Crisis dummy</b>		0.3366*** (0.0284)	0.3313*** (0.0289)	0.3399*** (0.0282)	0.3422*** (0.0284)	0.3298*** (0.0289)
<b>Durbin-Watson statistic</b>		1.9337	1.9235	1.9378	1.9347	1.9224

**Panel B. Beta**

	Exp.	BETA				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	-	-0.0059 (0.0077)				-0.0056 (0.0078)
SSBI <sup>2</sup>	+	0.000017 (0.00016)				0.000012 (0.0001)
DSBI	-		0.0149 (0.0216)			0.0128 (0.0218)
DSBI <sup>2</sup>	+		-0.0016 (0.0020)			-0.0015 (0.00203)
TSBI	-			-0.0033 (0.0071)		
TSBI <sup>2</sup>	+			-0.00003 (0.00012)		
TQI	-				-0.1165 (0.0917)	
TQI <sup>2</sup>	+				0.0175 (0.0174)	
<b>Control variables</b>						
Bank size (log assets)		0.647*** (0.1032)	0.6535*** (0.105)	0.653*** (0.1038)	0.6545*** (0.1041)	0.659*** (0.1049)
Risk weighted assets/total assets		0.8786* (0.5285)	0.8277 (0.5178)	0.8314 (0.5373)	0.7868 (0.5156)	0.8017 (0.5406)
Risk based capital ratio		0.0718*** (0.0196)	0.0802*** (0.0194)	0.0721*** (0.0196)	0.0748*** (0.0193)	0.0742*** (0.0199)
Loan to deposit ratio		0.3708 (0.2393)	0.3093 (0.2364)	0.3551 (0.2382)	0.3022 (0.2365)	0.3633 (0.2401)
Loan to asset ratio		0.4432 (0.6393)	0.5838 (0.6422)	0.4792 (0.6422)	0.5681 (0.6387)	0.5026 (0.6447)
Leverage ratio		0.0215 (0.0147)	0.0246* (0.0143)	0.0208 (0.0147)	0.0221 (0.0144)	0.0215 (0.0147)
Revenue composition		-0.3232 (0.255)	-0.3578 (0.2561)	-0.3235 (0.2555)	-0.326 (0.2549)	-0.3403 (0.2566)
Efficiency ratio		2.0207*** (0.1974)	1.993*** (0.1982)	2.0053*** (0.197)	2.0098*** (0.1972)	2.0131*** (0.1988)
<b>Intercept</b>		-15.0201*** (2.4019)	-15.4308*** (2.4203)	-15.0817*** (2.3955)	-15.2322*** (2.4037)	-15.2479*** (2.4246)
<b>AR(1)</b>		-0.1032*** (0.0352)	-0.1070*** (0.0351)	-0.1039*** (0.0352)	-0.1068*** (0.0351)	-0.1031*** (0.0352)
<b>Crisis Dummy</b>		0.3883*** (0.0472)	0.3906*** (0.0486)	0.3933*** (0.0470)	0.3983*** (0.0474)	0.3874*** (0.0486)
<b>R-squared</b>		0.4303	0.4299	0.4303	0.4306	0.4307
<b>Durbin-Watson statistic</b>		1.9833	1.9848	1.9855	1.9850	1.9839

**Panel C. Z Statistic**

	Exp.	Z				
		(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
SSBI	+	-20.7143*** (5.9701)				-21.0112*** (5.9954)
SSBI <sup>2</sup>	-	0.3745*** (0.1178)				0.3866*** (0.119)
DSBI	+		-5.6932 (15.037)			-10.231 (14.9636)
DSBI <sup>2</sup>	-		0.6996 (1.3576)			1.1294 (1.359)
TSBI	+			-20.2501*** (5.586)		
TSBI <sup>2</sup>	-			0.3267*** (0.0944)		
TQI	+				-13.1409 (59.6204)	
TQI <sup>2</sup>	-				6.2267 (10.2659)	
<b>Control variables</b>						
Bank size (log assets)		-68.9524 (73.3756)	-70.687 (76.2545)	-67.8941 (73.6281)	-70.156 (75.2386)	-75.0036 (75.462)
Risk weighted assets/total assets		-451.7683 (366.9689)	-468.2247 (377.6079)	-341.7934 (368.0354)	-535.1279 (374.7273)	-412.8503 (374.9201)
Risk based capital ratio		-1.2531 (11.2752)	1.5182 (11.2852)	-1.7517 (11.2323)	1.2224 (11.2775)	-2.0155 (11.318)
Loan to deposit ratio		-65.1352 (148.1613)	-90.974 (146.9811)	-62.314 (147.978)	-93.1649 (146.8937)	-65.6723 (148.3952)
Loan to asset ratio		496.1412 (440.2375)	502.1234 (441.6807)	453.4764 (439.7357)	553.1493 (443.8044)	484.354 (441.1512)
Leverage ratio		16.2707* (9.4827)	14.8692 (9.3152)	16.8292* (9.4369)	15.1529* (9.3086)	16.2743* (9.4893)
Revenue composition		55.6404 (111.225)	48.2018 (111.8901)	61.3109 (110.9887)	42.0733 (113.0822)	60.565 (111.3524)
Efficiency ratio		-23.8772 (68.585)	-22.0417 (68.8196)	-23.9884 (68.3915)	-23.4139 (68.9643)	-22.5902 (68.5619)
<b>Intercept</b>		1632 (1504)	1507 (1557)	1563 (1500)	1596 (1747)	1730 (1542)
<b>AR(1)</b>		-0.8429*** (0.0385)	-0.8513*** (0.0384)	-0.8457*** (0.0384)	-0.8510*** (0.0384)	-0.8457*** (0.0385)
<b>AR(2)</b>		0.1819*** (0.0385)	0.1874*** (0.0384)	0.1844*** (0.0384)	0.1887*** (0.0384)	0.1848*** (0.0385)
<b>Crisis Dummy</b>		-119.602*** (25.9853)	-115.565*** (26.3190)	-116.558*** (25.9351)	-116.440*** (26.2900)	-119.147*** (26.0671)
<b>R-squared</b>		0.7682	0.7645	0.7689	0.7645	0.7686
<b>Durbin-Watson statistic</b>		1.9618	1.9609	1.9672	1.9656	1.9671



### **5.1.2. Annual Report Indices**

#### **5.1.2.1. Annual Report Disclosure and Performance**

Table VIII exhibits the results of the regression between the annual report indices (SARI and DARI) and the performance measures (ROA, ROE, Risk-adjusted ROA, Risk-adjusted ROE, Stock return and Sharpe ratio).

When performance is measured by ROA or ROE, securitization annual report index (SARI) has no significant effect on performance but credit derivatives annual report index (DARI) has a significant impact on performance (When ROA is the dependent variable, coefficient on DARI is -0.0059 and  $DARI^2$  is 0.000004; when ROE is the dependent variable, coefficient on DARI is -0.0078 and  $DARI^2$  is 0.00005). On the other hand, when risk-adjusted ROA and risk-adjusted ROE are used as performance measures, the effect of credit derivatives index (DARI) disappears and securitization annual report index (SARI) shows a significant impact on performance (When risk-adjusted ROA is the dependent variable, coefficient on SARI is -0.1015 and  $SARI^2$  is 0.00026; when risk-adjusted ROE is the dependent variable, coefficient on SARI is -0.0988 and  $SARI^2$  is 0.00027).

However, in all cases the signs of the coefficients are opposite of the expected signs. On the contrary to the anticipation of increasing positive effects of disclosure up to an optimal point followed by decreasing effects, effects of information disclosure in annual reports decreases up to a certain point and starts to increase afterwards. As in call report indices, this can be explained by economies of scale. Smaller banks engage in less securitization and credit derivatives activities. Once a bank gets larger, it can handle securitization and derivative activities more effectively and the market positively

responds to more information. When smaller banks which bear more costs than profits of securitization and credit derivatives activities communicate more about those activities in their annual reports, market perceives it as a bad signal and the bank performance decreases consequently. For bigger banks which can effectively manage securitization and credit derivatives, market welcomes more information conveyed in annual reports and the bank performance increases.

**Table VIII. Annual Report Disclosure and Performance**

This table shows the regression results for annual report disclosure and performance. SARI is securitization annual report index, DARI is credit derivative activities annual report index. In Panel A ROA, and ROE, in Panel B risk-adjusted ROA and risk-adjusted ROE, in Panel C stock return and Sharpe ratio is used as the performance measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. ROA, ROE**

	Exp.	ROA		ROE	
		(1)	(2)	(1)	(2)
<b>Hypothesis variables</b>					
SARI	+	0.000006 (0.00005)		0.00014 (0.00059)	
SARI <sup>2</sup>	-	0.00000003 (0.00000016)		-0.00000004 (0.000002)	
DARI	+		-0.00059*** (0.00014)		-0.0078*** (0.0017)
DARI <sup>2</sup>	-		0.000004*** (0.0000017)		0.00005*** (0.00002)
<b>Control variables</b>					
Bank size (log assets)		-0.0048* (0.0027)	-0.0013 (0.0025)	-0.0638** (0.0328)	-0.0192 (0.0296)
Risk weighted assets/total assets		-0.0248 (0.0153)	-0.0284** (0.0145)	-0.2312 (0.1827)	-0.2743 (0.1719)
Risk based capital ratio		-0.0017*** (0.0005)	-0.0014*** (0.0005)	-0.0227*** (0.0067)	-0.0189*** (0.0065)
Loan to deposit ratio		-0.00008 (0.0071)	-0.0048 (0.007)	0.0136 (0.0851)	-0.0503 (0.0833)
Loan to asset ratio		-0.011 (0.0198)	-0.0078 (0.0189)	0.0339 (0.2356)	0.0752 (0.2236)
Leverage ratio		-0.00007 (0.00043)	0.0002 (0.0004)	0.0045 (0.0051)	0.0087* (0.0051)
Revenue composition		0.0227*** (0.0076)	0.0232*** (0.0076)	0.3255*** (0.0912)	0.3378*** (0.0903)
Efficiency ratio		-0.0148** (0.0064)	-0.0139** (0.0063)	-0.2019*** (0.0772)	-0.1934** (0.076)
<b>Intercept</b>		0.1505*** (0.0553)	0.0889* (0.0516)	1.6587** (0.6596)	0.8715 (0.6105)
<b>AR(1)</b>		-0.0507 (0.0361)	-0.0414 (0.0361)	-0.04934 (0.03611)	-0.0358 (0.0361)
<b>Crisis Dummy</b>		-0.0061*** (0.0013)	-0.0044*** (0.0013)	-0.0740*** (0.0165)	-0.0521*** (0.0163)
<b>R-squared</b>		0.2133	0.2348	0.2058	0.2330
<b>Durbin-Watson statistic</b>		1.7488	1.7674	1.8720	1.8940

**Panel B. Risk-adjusted ROA, Risk-adjusted ROE**

	Exp.	RAR(ROA)		RAR(ROE)	
		(1)	(2)	(1)	(2)
<b>Hypothesis variables</b>					
SARI	+	-0.1015** (0.0419)		-0.0988** (0.0504)	
SARI <sup>2</sup>	-	0.00026* (0.00013)		0.00027* (0.00016)	
DARI	+		-0.1127 (0.1105)		-0.1792 (0.1329)
DARIP <sup>2</sup>	-		0.00106 (0.0012)		0.0018 (0.0015)
<b>Control variables</b>					
Bank size (log assets)		1.2624 (3.0622)	-0.9232 (2.9256)	-2.2309 (3.5795)	-3.8889 (3.3695)
Risk weighted assets/total assets		-26.997** (13.6048)	-30.9209** (13.5739)	-36.7302** (16.2047)	-40.9843** (16.0214)
Risk based capital ratio		0.1016 (0.4382)	-0.0536 (0.4364)	0.3559 (0.5301)	0.257 (0.5265)
Loan to deposit ratio		-3.8972 (5.5861)	-4.9908 (5.6003)	0.497 (6.793)	-0.9053 (6.7658)
Loan to asset ratio		25.1752 (16.2447)	30.4386* (16.188)	19.9302 (19.4603)	26.5546 (19.1978)
Leverage ratio		0.572* (0.3489)	0.5111 (0.3517)	0.4229 (0.4195)	0.4076 (0.4219)
Revenue composition		3.1822 (4.2589)	2.3842 (4.2369)	3.1951 (5.398)	2.7272 (5.3958)
Efficiency ratio		1.4365 (2.8164)	1.0689 (2.8001)	0.2583 (3.6349)	-0.2836 (3.6353)
<b>Intercept</b>		-4.9798 (61.4916)	30.3512 (59.9718)	60.6273 (71.8565)	85.6002 (69.1525)
<b>AR(1)</b>		-0.7771*** (0.0404)	-0.7902*** (0.0404)	-0.6639*** (0.0402)	-0.6623*** (0.0402)
<b>AR(2)</b>		0.0235 (0.0514)	0.0258 (0.0517)	-0.0689 (0.0484)	-0.0731 (0.0483)
<b>AR(3)</b>		0.1234*** (0.04047)	0.1237*** (0.0404)	0.1563*** (0.0402)	0.1608*** (0.0402)
<b>Crisis Dummy</b>		-4.7037*** (1.0307)	-4.6822*** (1.0377)	-3.9958*** (1.2421)	-4.0245*** (1.2455)
<b>R-squared</b>		0.7822	0.7817	0.7335	0.7326
<b>Durbin-Watson statistic</b>		1.8709	1.8906	1.9055	1.9060

**Panel C. Stock Return, Sharpe Ratio**

	Exp.	AVERAGE RETURN		SHARPE RATIO	
		(1)	(2)	(1)	(2)
<b>Hypothesis variables</b>					
SARI	+	0.0022 (0.0019)		0.00614 (0.0055)	
SARI <sup>2</sup>	-	-0.0000052 (0.0000065)		-0.000014 (0.000018)	
DARI	+		0.0073 (0.0057)		0.0186 (0.0166)
DARI <sup>2</sup>	-		-0.000039 (0.00007)		-0.00012 (0.00020)
<b>Control variables</b>					
Bank size (log assets)		-0.0984 (0.1035)	-0.0866 (0.0963)	-0.0792 (0.2991)	-0.0193 (0.2786)
Risk weighted assets/total assets		-0.9058 (0.5821)	-0.6512 (0.5597)	-1.5805 (1.6794)	-0.9256 (1.6198)
Risk based capital ratio		0.0447** (0.0221)	0.0462** (0.0217)	0.1043* (0.0634)	0.1122* (0.0625)
Loan to deposit ratio		0.154 (0.2738)	0.283 (0.2751)	-1.124 (0.7875)	-0.8205 (0.793)
Loan to asset ratio		0.1488 (0.7563)	-0.1688 (0.7328)	1.3747 (2.1773)	0.5697 (2.1168)
Leverage ratio		-0.0097 (0.0166)	-0.014 (0.0168)	0.0622 (0.0478)	0.054 (0.0486)
Revenue composition		1.5625*** (0.3256)	1.562*** (0.3305)	3.2312*** (0.9143)	3.1726*** (0.9286)
Efficiency ratio		-0.7408** (0.2887)	-0.7843*** (0.291)	-0.4659 (0.801)	-0.5282 (0.8075)
<b>Intercept</b>		1.7111 (2.0838)	1.5667 (1.9867)	0.4955* (6.0198)	-0.4369 (5.7466)
<b>AR(1)</b>		0.3140*** (0.0343)	0.3172*** (0.0342)	0.1929*** (0.0354)	0.1936*** (0.0354)
<b>Crisis Dummy</b>		-0.2135*** (0.0524)	-0.2269*** (0.0531)	-0.9783*** (0.1468)	-1.0031*** (0.1489)
<b>R-squared</b>		0.1881	0.19	0.1665	0.167
<b>Durbin-Watson statistic</b>		2.0141	2.015	2.0131	2.0141

#### **5.1.2.2. Annual Report Disclosure and Stability**

Table IX shows the regression results for annual report disclosure and bank stability. As in call report disclosure indices, z-statistic is the only stability measure which shows a significant quadratic relationship with bank disclosure (coefficient on SARI is -2.704 and  $SARI^2$  is 0.0066). And also as in call report disclosure indices, the signs of the coefficients are the opposite of the expected signs. This implies that disclosing information about securitization activities in annual reports (SARI) decreases stability as the market receives new information up to a point. Afterwards, the market better understands the bank's level of engagement and proficiency in the activity and hence the bank stabilizes. When stability is measured by volatility of stock returns and beta, the squared term is not significant. There is a positive significant relationship between derivatives annual report index (DARI) and bank stability which shows that as a bank discloses more information about its derivative activities on its balance sheet, stock return volatility and beta decreases (when stock return volatility is the dependent variable, the coefficient on DARI is 0.0099 and when beta is the dependent variable, the coefficient on DARI is 0.0107).

### **Table IX. Annual Report Disclosure and Stability**

This table shows the regression results for annual report disclosure and stability. SARII is securitization annual report index, DARI is credit derivative activities annual report index, Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001-December 2008. In Panel A volatility of stock returns and beta; and in Panel B z statistic is used as the stability measure. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

#### **Panel A. Volatility of Stock Returns and Beta**

	Exp.	STD.DEV. OF RETURN		BETA	
		(1)	(2)	(1)	(2)
<b>Hypothesis variables</b>					
SARI	-	0.0006 (0.0010)		0.0002 (0.0016)	
SARI <sup>2</sup>	+	0.0000011 (0.0000034)		0.0000027 (0.000005)	
DARI	-		0.0099*** (0.0028)		0.0107** (0.0046)
DARI <sup>2</sup>	+		-0.00004 (0.00003)		-0.00005 (0.000056)
<b>Control variables</b>					
Bank size (log assets)		0.0678 (0.0606)	0.0605 (0.0557)	0.27*** (0.0897)	0.2418*** (0.0818)
Risk weighted assets/total assets		-0.0434 (0.3133)	0.0479 (0.305)	1.1931** (0.4953)	1.2896*** (0.4728)
Risk based capital ratio		0.0303*** (0.0108)	0.0286*** (0.0106)	0.0334* (0.0182)	0.0301* (0.0177)
Loan to deposit ratio		0.3122** (0.1413)	0.4084*** (0.1411)	0.5328** (0.2301)	0.6626*** (0.2278)
Loan to asset ratio		0.1444 (0.397)	0.0334 (0.3903)	-0.5146 (0.6368)	-0.6767 (0.6134)
Leverage ratio		-0.0063 (0.0087)	-0.0112 (0.0088)	0.0099 (0.014)	0.0030 (0.014)
Revenue composition		-0.1964* (0.1132)	-0.2049* (0.1134)	-0.2258 (0.232)	-0.2548 (0.2322)
Efficiency ratio		0.4952*** (0.0852)	0.5234*** (0.0854)	0.8645*** (0.1923)	0.8599*** (0.1917)
<b>Intercept</b>		-1.8798 (1.2124)	-1.7339 (1.1411)	-5.8868*** (1.8013)	-5.3367*** (1.6849)
<b>AR(1)</b>		-0.6276*** (0.0358)	-0.5996*** (0.0359)	-0.1679*** (0.0356)	-0.1556*** (0.0357)
<b>AR(2)</b>		0.2544*** (0.0417)	0.2316*** (0.0412)		
<b>AR(3)</b>		-0.2111*** (0.0417)	-0.2150*** (0.0412)		
<b>AR(4)</b>		0.1389*** (0.0358)	0.1223*** (0.0359)		
<b>Crisis Dummy</b>		0.3093*** (0.0268)	0.2831*** (0.0268)	0.3510*** (0.0451)	0.3304*** (0.0450)
<b>R-squared</b>		0.6384	0.6453	0.4063	0.4125
<b>Durbin-Watson statistic</b>		1.8270	1.8304	1.9862	1.9929

**Panel B. Z Statistic**

	Exp.	Z	
		(1)	(2)
<b>Hypothesis variables</b>			
SARI	+	-2.704*** (1.06)	
SARI <sup>2</sup>	-	0.0066** (0.0034)	
DARI	+		-3.1752 (2.7675)
DARI <sup>2</sup>	-		0.0295 (0.0322)
<b>Control variables</b>			
Bank size (log assets)		51.87 (78.6135)	-9.8 (75.0209)
Risk weighted assets/total assets		-367.5169 (347.507)	-491.7314 (345.267)
Risk based capital ratio		11.114 (11.1332)	6.7567 (11.0701)
Loan to deposit ratio		-94.7937 (140.5398)	-123.708 (140.6658)
Loan to asset ratio		536.6232 (414.7917)	692.4216* (412.3946)
Leverage ratio		21.5328** (8.9047)	20.0699** (8.9677)
Revenue composition		97.1864 (107.4949)	75.4609 (106.829)
Efficiency ratio		-23.3947 (69.8189)	-34.2272 (69.4009)
<b>Intercept</b>		-765.2602 (1580)	241.5468 (1537)
<b>AR(1)</b>		-0.8113*** (0.0403)	-0.8246*** (0.0402)
<b>AR(2)</b>		0.1469*** (0.0403)	0.1536*** (0.0402)
<b>Crisis Dummy</b>		-117.5659*** (26.1520)	-117.3352*** (26.3107)
<b>R-squared</b>		0.7861	0.7852
<b>Durbin-Watson statistic</b>		1.8803	1.9082



### **5.1.3. Analysis of Change in Quantity of Disclosure**

To explore the relationship between the disclosure/activity and bank performance/stability more closely, the quarters and banks that increase/decrease their securitization and credit derivative activities are determined. First, the indices are plotted against time for each BHC to see how the level of activity/disclosure changes by time. The detailed graphs for each bank in the sample can be found in Appendix C.

After closely examining each bank's index through time, a major changes table is constructed. The major changes in the indices for each bank is given in Appendix D. Here a subjective intuition is used to determine which change is a major change. Usually, for indices which have low maximum values (i.e. DSBI) a change greater than 4 is considered to be a large change (L), for indices those have high maximum values (i.e. SSBI), a change greater than 7 is considered to be a major change. For quantitative measures of activity/ disclosure (TSQI and TDQI), a change in the index that is greater than 25% is noted as a major change. Also for annual report indices (SARI and DARI), a change greater than 25% in the index value is considered as a major change. Small changes (S) were also indicated in the table but not formally modeled. The direction of the change is indicated by an upside or downside arrow. The table also shows the timing of changes and the actual quantitative changes in the indices.

Table X shows the overall count of the times when those increases/decreases in call report and annual report indices have a significant impact on performance and stability measures. For example, there are a total of 16 incidences where the change in the activity (call report indices) had a significant impact on Sharpe ratio; out of those 16, 14 were increase in the activity and 2 were decrease in the activity. In general, the change in

the activity level had a positive impact on measures of stability. Table XI shows the details of the BHC name, whether the impact is positive or negative, which performance/stability measure was affected and in which quarter it has happened. The results of the Tables X and XI combined show that in general, increases in activity have more significant impact on performance and stability when compared to decreases in activity. Also, performance measures are more affected than stability measures. Besides, the results point out that quantitative measures of disclosure are more sensitive to the changes in the disclosure level than qualitative measures of disclosure. Generally, market shows reactions to the changes in the level of disclosure/activity by money center banks, followed by regional banks. Starting March 2003, banks were required to disclose more details about their securitization activities. This shows that even though the bank had the same level of activity, a change in the detail of the activity is followed by a reaction in the market. The results show that most of the significant effects of change in the call report indices happened during 2003. Changes in the annual report indices during 2008 significantly affected the ROA and ROE. Interestingly, changes in securitization annual report index have a positive effect while changes in credit derivatives annual report index have a negative effect on ROA, ROE, stock return and Sharpe ratio; which implies that securitization activities are perceived to be more profitable.

**Table X. Overall Count of Significant Impact of Change in the Activity Levels**

This table shows the overall count of significant impact of change in activity levels. There are three columns for each performance/ stability measures. The first shows the total count, second shows if there was an increase in the activity and the third shows if there was a decrease in the activity. TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index, SSBI is securitization subcategory binary index, and DSBI is credit derivative activities subcategory binary index., SARI is securitization annual report index, DARI is credit derivatives annual report index. Panel A shows the effect of an increase/decrease in the activity on performance measures and Panel B shows the effect of an increase/decrease in the activity on stability measures.

*PANEL A. Performance Measures*

Disclosure/Activity Measure	Total number of dummies introduced	Performance Measures																	
		ROA			ROE			Risk-adjusted ROA			Risk-adjusted ROE			Stock return			Sharpe ratio		
		Total	Inc.	Dec.	Total	Inc.	Dec.	Total	Inc.	Dec.	Total	Inc.	Dec.	Total	Inc.	Dec.	Total	Inc.	Dec.
TSQI	65	-	-	-	-	-	-	6	3	3	4	3	1	1	-	1	3	2	1
TDQI	113	-	-	-	-	-	-	3	3	-	1	1	-	3	2	1	5	4	1
SSBI	28	-	-	-	-	-	-	1	1	-	-	-	-	2	-	2	1	1	-
DSBI	24	-	-	-	-	-	-	3	3	-	1	1	-	1	1	-	2	2	-
SARI	40	8	8	-	8	8	-	4	4	-	5	5	-	4	4	-	3	3	-
DARI	23	5	4	1	5	4	1	-	-	-	1	1	-	3	3	-	2	2	-
TOTAL		13	12	1	13	12	1	17	14	3	12	11	1	14	10	4	16	14	2
Sign of	+	8	7	1	7	6	1	10	9	1	5	5	-	10	7	3	12	10	2
reg.coeff.	-	5	5	-	6	6	-	7	5	2	7	6	1	4	3	1	4	4	-

*PANEL B. Stability Measures*

		<u>Stability Measures</u>								
Disclosure/Activity Measure	Total number of dummies introduced	Z-value			Volatility of stock return			Beta		
		Total	Inc.	Dec.	Total	Inc.	Dec.	Total	Inc.	Dec.
TSQI	65	3	2	1	2	1	1	3	2	1
TDQI	113	1	1	-	1	1	-	1	1	-
SSBI	28	1	1	-	2	-	2	2	1	1
DSBI	24	1	1	-	-	-	-	-	-	-
SARI	40	5	5	-	10	9	1	8	7	1
DARI	23	-	-	-	13	12	1	10	9	1
TOTAL		11	10	1	28	23	5	24	20	4
Sign of reg.coeff.	+	7	6	1	19	17	2	18	16	2
	-	4	4	-	9	6	3	6	4	2

**Table XI. Identity of the BHCs and the Quarters With a Significant Impact on Performance/ Stability**

This table gives the details of the information shown on Table 6. It depicts the identity of the BHCs, when the change occurred and which disclosure/activity index level had changed. TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index, SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, SARI is securitization annual report index and DARI is credit derivatives annual report index., Panel A shows the effect of an increase/decrease in the activity on performance measures and Panel B shows the effect of an increase/decrease in the activity on stability measures.

**Panel A. Performance Measures**

	ROA	+/-	<u>Performance Measures</u>						ROE	+/-
			Risk-adjusted ROA	+/-	Risk-adjusted ROE	+/-	Stock return	+/-	Sharpe ratio	+/-
TSQI			EAST WEST BANCORP 2006(02)	+	WELLS FARGO 2003(01)	-	ZIONS 2008(03)	+	EAST WEST BANCORP 2006(04)	-
			WELLS FARGO 2003(01)	-	US BANK 2006(01)	+			US BANK 2003(02)	+
			US BANK 2003(02)	-	SUSQUEHANNA 2003(01)	+			HUNTINGTON 2003(04)	+
			US BANK 2005(04)	+	FIFTH THIRD 2003(03)	+				
			US BANK 2006(01)	+						
			SUSQUEHANNA 2003(01)	+						
TDQI			FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-	REGIONS 2008(03)	+	US BANK 2003(04)	+
			KEYCORP 2003(04)	+			FIFTH THIRD 2008(02)	-	US BANK 2006(03)	+
			KEYCORP 2004(03)	+			JP MORGAN 2008(03)	+	NATIONAL CITY 2003(04)	+
									COMERICA 2003(02)	+
SSBI			SUSQUEHANNA 2005(04)-2006(04)	-			ZIONS 2008(03)	+	CITIGROUP 2001(03)	-
							REGIONS 2008(02)	-		
DSBI			FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-	WACHOVIA 2002(01)	+	US BANK 2006(03)-2007(01)	+
			US BANK 2006(03)-2007(01)	+					WACHOVIA 2002(01)	+
			KEYCORP 2003(04)	+						

(Cont.)

SARI	M&T BANK CORP. (2008)	+	M&T BANK CORP. (2008)	+	M&T BANK CORP. (2007)	-	M&T BANK CORP. (2003)	-	HUNTINGTON BANCSHARES (2008)	+	COLONIAL BANCGROUP (2003)	+
	J.P. MORGAN CHASE & CO. (2008)	+	J.P. MORGAN CHASE & CO. (2008)	+	M&T BANK CORP. (2008)	-	M&T BANK CORP. (2007)	-	PNC FINANCIAL SERVICES (2008)	+	FIRST HORIZON NATIONAL (2008)	+
	FIFTH THIRD BANCORP (2008)	-	FIFTH THIRD BANCORP (2008)	-	SUSQUEHANNA BANCSHARES (2003)	+	M&T BANK CORP. (2008)	-	COLONIAL BANCGROUP (2003)	+	NORTHERN TRUST CORPORATION (2007)	+
	BB&T CORP. (2008)	+	BB&T CORP. (2008)	+	EAST WEST BANCORP (2007)	+	SUSQUEHANNA BANCSHARES (2003)	+	NORTHERN TRUST CORPORATION (2007)	+		
	FIRST CITIZENS BANCSHARES (2008)	+	FIRST CITIZENS BANCSHARES (2008)	+			EAST WEST BANCORP (2007)	+				
	SOUTH FINANCIAL GROUP (2008)	+	SOUTH FINANCIAL GROUP (2008)	-								
	NORTHERN TRUST CORPORATION (2008)	+	NORTHERN TRUST CORPORATION (2008)	+								
	EAST WEST BANCORP (2007)	+	EAST WEST BANCORP (2007)	+								
DARI	KEYCORP (2008)	-	KEYCORP (2008)	-			WELLS FARGO & COMPANY (2008)	-	J.P. MORGAN CHASE & CO. (2002)	-	J.P. MORGAN CHASE & CO. (2002)	-
	FIFTH THIRD BANCORP (2008)	-	FIFTH THIRD BANCORP (2008)	-					COLONIAL BANCGROUP (2008)	-	CITIGROUP INC. (2007)	-
	WACHOVIA CORP. (2007)	+	WACHOVIA CORP. (2007)	+					WELLS FARGO & COMPANY (2008)	+		
	COLONIAL BANCGROUP (2008)	-	COLONIAL BANCGROUP (2008)	-								
	REGIONS FINANCIAL CORP. (2008)	-	REGIONS FINANCIAL CORP. (2008)	-								

**Panel B. Stability Measures**

Stability Measures							
	Z-value	+/-	Volatility of stock return	+/-	Beta	+/-	
TSQI	US BANK 2005(04)	+	EAST WEST BANCORP 2007(01)	-	CITIGROUP 2002(04)	+	
	US BANK 2006(01)	+	ZIONS 2008(03)	+	ZIONS 2008(03)	+	
	SUSQUEHANNA 2003(01)	+			EAST WEST BANCORP 2007(01)	-	
TDQI	KEYCORP 2003(04)	+	REGIONS 2008(03)	+	REGIONS 2008(03)	+	
SSBI	SUSQUEHANNA 2005(04)-2006(04)	-	ZIONS 2008(03)	+	ZIONS 2008(03)	+	
			REGIONS 2008(02)	-	FIRST CITIZENS 2005(02)-2005(04)	+	
DSBI	KEYCORP 2003(04)	+					
SARI	M&T BANK CORP. (2003)	-	ZIONS BANCORP. (2007)	-	ZIONS BANCORP. (2007)	-	
	M&T BANK CORP. (2007)	-	M&T BANK CORP. (2007)	-	HUNTINGTON BANCSHARES (2008)	+	
	M&T BANK CORP. (2008)	-	HUNTINGTON BANCSHARES (2008)	+	FIFTH THIRD BANCORP (2008)	+	
	SUSQUEHANNA BANCSHARES (2003)	+	FIFTH THIRD BANCORP (2008)	+	BANK OF AMERICA CORP. (2008)	+	
	EAST WEST BANCORP (2007)	+	BANK OF AMERICA CORP. (2008)	+	FIRST CITIZENS BANCSHARES (2005)	+	
			FIRST CITIZENS BANCSHARES (2007)	-	FIRST CITIZENS BANCSHARES (2007)	-	
			WELLS FARGO & COMPANY (2007)	-	FIRST CITIZENS BANCSHARES (2008)	-	
			SUNTRUST BANKS (2007)	-	EAST WEST BANCORP (2007)	-	
			SOUTH FINANCIAL GROUP (2008)	+			
			EAST WEST BANCORP (2007)	-			
	DARI			ZIONS BANCORP. (2008)	+	ZIONS BANCORP. (2008)	+
				J.P. MORGAN CHASE & CO. (2002)	+	J.P. MORGAN CHASE & CO. (2002)	+
			J.P. MORGAN CHASE & CO. (2008)	+	KEYCORP (2008)	+	
			KEYCORP (2008)	+	FIFTH THIRD BANCORP (2008)	+	
			FIFTH THIRD BANCORP (2008)	+	WACHOVIA CORP. (2007)	-	
			WACHOVIA CORP. (2007)	-	BANK OF AMERICA CORP. (2008)	+	
			BANK OF AMERICA CORP. (2008)	+	COLONIAL BANCGROUP (2008)	+	
			COLONIAL BANCGROUP (2008)	+	WELLS FARGO & COMPANY (2008)	+	
			WELLS FARGO & COMPANY (2008)	+	CITIGROUP INC. (2002)	+	
			SUNTRUST BANKS (2008)	+	REGIONS FINANCIAL CORP. (2008)	+	
			NORTHERN TRUST CORPORATION (2008)	+			
			CITIGROUP INC. (2002)	+			
			REGIONS FINANCIAL CORP. (2008)	+			

Besides, the results show that credit derivatives annual report changes decrease bank stability while the same effect does not exist for securitization activities.

When a bank's activity/disclosure level goes from 0 to a positive number, that is considered as an entry in the activity and when a bank's activity/disclosure index level goes down from a positive level to 0, that is considered as an exit from the market. The reactions to an entry or exit are different than a reaction to an increase or decrease in the activity level. First of all, there are several costs attached to pursuing securitization and credit derivatives activity. Also, these activities can provide growth and profit opportunities. Considering the importance of market perceptions about entering or leaving the activity, this issue is further elaborated. Table XII shows the overall count of the times when an entry to a market is significant and whether it has positive or negative effect. Table XIII shows the identities of the BHCs, the specific quarter of the market entry, and the performance/stability measure it affects. For example, there are 5 incidences when an entry to the activity has a significant impact on risk-adjusted ROA. Three out of these 5 incidences have a positive impact on the risk-adjusted ROA<sup>10</sup>. The results show that entry to the market generally has positive effect both on performance and stability. In case of annual report indices, when a bank first starts to disclose information on its credit derivative activities, this has a negative effect on bank's ROA and ROE and at the same time, decreases bank stability by increasing stock return volatility and beta<sup>11</sup>.

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T<sup>10</sup> Those incidences with positive impact are US Bank's entry in March 2006, Susquehanna Bank's entry in March 2003 and Fifth Third Bank's entry in September 2003. Fifth Third Bank's entry in December 2004 has a negative impact both on TDQI and DSBI indices.

<sup>11</sup> There are two BHCs whose first time discussion of credit derivative activities has a negative impact on ROA and ROE, and a positive impact on stock price volatility and beta. These are Colonial Bancgroup's 2008 entry and Regions Financial Corp.'s 2008 entry.



**Table XII. Overall Count of Significant Impact of Entry to the Market**

This table shows the overall count of significant impact of entry to the market. There was only one instance when the exit from the market had a significant impact (US Bank, 2006, quarter 1 -effects the risk adjusted ROA); therefore it is not reported in this table. TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index, SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, SARI is securitization annual report index and DARI is credit derivatives annual report index.

	<u>Performance Measures</u>						<u>Stability Measures</u>		
	ROA	ROE	Risk-adjusted ROA	Risk-adjusted ROE	Stock return	Sharpe ratio	Z-value	Volatility of stock return	Beta
TSQI	-	-	1	1	-	-	1	-	-
TDQI	-	-	2	1	-	2	1	-	-
SSBI	-	-	-	-	-	-	-	-	1
DSBI	-	-	2	1	-	-	1	-	-
SARI	-	-	-	-	-	-	-	-	-
DARI	2	2	-	-	1	-	-	2	2
TOTAL	2	2	5	3	1	2	3	2	3
+	-	-	3	1	-	2	3	2	3
-	2	2	2	2	1	-	-	-	-

**Table XIII. Identity of the BHCs and the Quarters With a Significant Entry Impact on Performance/ Stability**

This table gives the details of the information shown on Table XII. It depicts the identity of the BHCs, when the change occurred and which disclosure/activity index level had changed. There was only one instance when the exit from the market had a significant impact (US Bank, 2006, quarter 1 -effects the risk adjusted ROA); therefore it is not reported in this table. TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index, SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, SARI is securitization annual report index and DARI is credit derivatives annual report index. Panel A shows the effect of an entry to the market on performance measures and Panel B shows the effect of an entry to the market on stability measures.

**Panel A. Performance Measures**

<u>Performance Measures</u>											
	ROA	+/-	ROE	+/-	Risk-adjusted ROA	+/-	Risk-adjusted ROE	+/-	Stock return	+/-	Sharpe ratio
TSQI					US BANK 2006(01)	+	US BANK 2006(01)	+			
TDQI					FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-			NATIONAL CITY 2003(04)
					KEYCORP 2003(04)	+					KEYCORP 2003(04)
SSBI											
DSBI					FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-			
					KEYCORP 2003(04)	+					
SARI											
DARI	COLONIAL BANC. (2008)	-	COLONIAL BANC. (2008)	-					COLONIAL BANC. (2008)	-	
	REGIONS FIN. CORP. (2008)	-	REGIONS FIN. CORP. (2008)	-							

**Panel B. Stability Measures**

<u>Stability Measures</u>							
	Z-value	+/-	Volatility of stock return	+/-	Beta	+/-	
TSQI	US BANK 2006(01)	+					
TDQI	KEYCORP 2003(04)	+					
SSBI					FIRST CITIZENS 2005(02)-2005(04)	+	
DSBI	KEYCORP 2003(04)	+					
SARI							
DARI			COLONIAL BANCGROUP (2008)	+	COLONIAL BANCGROUP (2008)	+	
			REGIONS FINANCIAL CORP. (2008)	+	REGIONS FINANCIAL CORP. (2008)	+	

Table XIV shows the separate effects of the increase and decrease in disclosure/ activity. It exhibits the identity of BHCs, when the increase/ decrease happened and which performance/ stability measure it has affected. The results show that increase in activity has more impact both on performance and on stability than a decrease in activity. Also, quantitative indices show more significant impact than categorical indices. Performance is more affected by an increase or decrease in the activity than stability.

In 2003 and 2006, there was a regulatory change in the call reports which required banks to disclose more details about their securitization and credit derivative activities<sup>12</sup>. On the whole, increases in the disclosure/ activity that occurred during 2003 and 2006 and decreases in the disclosure/ activity during 2008 had significant impact on performance and stability.

As a robustness check, different regressions are run to see if there was a significant change in the quantitative measures of disclosure at the point in time when there was a regulation change requiring more detailed disclosure. The results show that the quantitative measures of disclosure were not affected by the regulatory changes. This supports the findings that the market reacted to the changes in disclosure rather than the changes in activity during 2003 and 2006.

In general increase in call report and annual report indices results in an increase in performance except for an increase in credit derivatives annual report index. When banks discuss more about their credit derivative activities in their annual reports, their

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<sup>12</sup> Starting March 2003, banks has to report maximum amount of credit exposure arising from recourse or other seller provided credit enhancements provided to structures reported in the form of subordinated securities and other residual interests in 1-4 family residential loans, home equity lines, credit card receivables, auto loans, other consumer loans, commercial and industrial loans and all other loans and leases.

Starting March 2006, banks has to report notional amounts of credit default swaps, total return swaps, credit options and other credit derivatives when the bank is the guarantor and beneficiary.

performance is negatively affected. Almost all of those significant negative impacts of credit derivatives discussion in annual reports happened in 2008. This cannot be explained by the crisis since in all models a crisis dummy is included. However, it is closely related to the consequences of the crisis. Before 2008, markets were not quite aware of the real riskiness of the credit derivatives; hence more information disclosure did not affect performance and stability very much. When market learnt the real risks of credit derivatives, banks' disclosure on those activities led to decrease in performance and stability.

**Table XIV. Identity of the BHCs and the Quarters With a Significant Impact on Performance/ Stability by Increase or Decrease in Disclosure/ Activity**

This table shows the separate effects of the increase and decrease in disclosure/ activity. It depicts the identity of the BHCs, when the change occurred and which disclosure/activity index level had changed. TSQI is total securitization activity quantitative index, TDQI is total credit derivative activities quantitative index , SSBI is securitization subcategory binary index, and DSBI is credit derivative activities subcategory binary index, SARI is securitization annual report index and DARI is credit derivatives annual report index. Panel A shows the effects of increase in disclosure/activity and Panel B shows the effects of decrease in disclosure/activity.

**Panel A. Increase in Disclosure/Activity**

	<u>Performance Measures</u>								<u>Stability Measures</u>					
	Risk-adjusted ROA	+/-	Risk-adjusted ROE	+/-	Stock return	+/-	Sharpe ratio	+/-	Z-value	+/-	Volatility of stock return	+/-	Beta	+/-
TSQI	EAST WEST BANCORP 2006(02)	+	US BANK 2006(01)	+			EAST WEST BANCORP 2006(04)	-	US BANK 2006(01)	+	EAST WEST BANCORP 2007(01)	-	CITIGROUP 2002(04)	+
	US BANK 2006(01)	+	SUSQUEHANNA 2003(01)	+			HUNTINGTON 2003(04)	+	SUSQUEHANNA 2003(01)	+			EAST WEST BANCORP 2007(01)	-
	SUSQUEHANNA 2003(01)	+	FIFTH THIRD 2003(03)	+										
TDQI	FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-	REGIONS 2008(03)	+	US BANK 2003(04)	+	KEYCORP 2003(04)	+	REGIONS 2008(03)	+	REGIONS 2008(03)	+
	KEYCORP 2003(04)	+			FIFTH THIRD 2008(02)	-	US BANK 2006(03)	+						
	KEYCORP 2004(03)	+					NATIONAL CITY 2003(04)	+						
							KEYCORP 2003(04)	+						
SSBI	SUSQUEHANNA 2005(04)- 2006(04)	-					CITIGROUP 2001(03)	-	SUSQUEHANNA 2005(04)-2006(04)	-			FIRST CITIZENS 2005(02)- 2005(04)	+
DSBI	FIFTH THIRD 2004(04)	-	FIFTH THIRD 2004(04)	-	WACHOVI A 2002(01)	+	US BANK 2006(03)- 2007(01)	+	KEYCORP 2003(04)	+				
	US BANK 2006(03)- 2007(01)	+					WACHOVIA 2002(01)	+						
	KEYCORP 2003(04)	+												

(Cont.)

Performance Measures												
	ROA	+/-	ROE	+/-	Risk-adjusted ROA	+/-	Risk-adjusted ROE	+/-	Stock return	+/-	Sharpe ratio	+/-
SARI	M&T BANK CORP. (2008)	+	M&T BANK CORP. (2008)	+	M&T BANK CORP. (2007)	-	M&T BANK CORP. (2003)	-	HUNTINGTON BANCSHARES (2008)	+	COLONIAL BANCGROUP (2003)	+
	J.P. MORGAN CHASE & CO. (2008)	+	J.P. MORGAN CHASE & CO. (2008)	+	M&T BANK CORP. (2008)	-	M&T BANK CORP. (2007)	-	PNC FINANCIAL SERVICES (2008)	+	FIRST HORIZON NATIONAL (2008)	+
	FIFTH THIRD BANCORP (2008)	-	FIFTH THIRD BANCORP (2008)	-	SUSQUEHANNA BANCSHARES (2003)	+	M&T BANK CORP. (2008)	-	COLONIAL BANCGROUP (2003)	+	NORTHERN TRUST CORP. (2007)	+
	BB&T CORP. (2008)	+	BB&T CORP. (2008)	+	EAST WEST BANCORP (2007)	+	SUSQUEHANN A BANCSHARES (2003)	+	NORTHERN TRUST CORP. (2007)	+		
	FIRST CITIZENS BANCSHARES (2008)	+	FIRST CITIZENS BANCSHARES (2008)	+			EAST WEST BANCORP (2007)	+				
	SOUTH FINANCIAL GROUP (2008)	+	SOUTH FINANCIAL GROUP (2008)	-								
	NORTHERN TRUST CORP. (2008)	+	NORTHERN TRUST CORP. (2008)	+								
	EAST WEST BANCORP (2007)	+	EAST WEST BANCORP (2007)	+								
DARI	KEYCORP (2008)	-	KEYCORP (2008)	-			WELLS FARGO & COMPANY (2008)	-	J.P. MORGAN CHASE & CO. (2002)	-	J.P. MORGAN CHASE & CO. (2002)	-
	FIFTH THIRD BANCORP (2008)	-	FIFTH THIRD BANCORP (2008)	-					COLONIAL BANCGROUP (2008)	-	CITIGROUP INC. (2007)	-
	COLONIAL BANCGROUP (2008)	-	COLONIAL BANCGROUP (2008)	-					WELLS FARGO & COMPANY (2008)	+		
	REGIONS FINANCIAL CORP. (2008)	-	REGIONS FINANCIAL CORP. (2008)	-								

(Cont.)

**Stability Measures**

	Z-value	+/-	Volatility of stock return	+/-	Beta	+/-
SARI	M&T BANK CORP. (2003)	-	ZIONS BANCORP. (2007)	-	ZIONS BANCORP. (2007)	-
	M&T BANK CORP. (2007)	-	M&T BANK CORP. (2007)	-	HUNTINGTON BANCSHARES (2008)	+
	M&T BANK CORP. (2008)	-	HUNTINGTON BANCSHARES (2008)	+	FIFTH THIRD BANCORP (2008)	+
	SUSQUEHANNA BANCSHARES (2003)	+	FIFTH THIRD BANCORP (2008)	+	BANK OF AMERICA CORP. (2008)	+
	EAST WEST BANCORP (2007)	+	BANK OF AMERICA CORP. (2008)	+	FIRST CITIZENS BANCSHARES (2005)	+
			WELLS FARGO & COMPANY (2007)	-	FIRST CITIZENS BANCSHARES (2008)	-
			SUNTRUST BANKS (2007)	-	EAST WEST BANCORP (2007)	-
			SOUTH FINANCIAL GROUP (2008)	+		
			EAST WEST BANCORP (2007)	-		
DARI			ZIONS BANCORP. (2008)	+	ZIONS BANCORP. (2008)	+
			J.P. MORGAN CHASE & CO. (2002)	+	J.P. MORGAN CHASE & CO. (2002)	+
			J.P. MORGAN CHASE & CO. (2008)	+	KEYCORP (2008)	+
			KEYCORP (2008)	+	FIFTH THIRD BANCORP (2008)	+
			FIFTH THIRD BANCORP (2008)	+	BANK OF AMERICA CORP. (2008)	+
			BANK OF AMERICA CORP. (2008)	+	COLONIAL BANCGROUP (2008)	+
			COLONIAL BANCGROUP (2008)	+	WELLS FARGO & COMPANY (2008)	+
			WELLS FARGO & COMPANY (2008)	+	CITIGROUP INC. (2002)	+
			SUNTRUST BANKS (2008)	+	REGIONS FINANCIAL CORP. (2008)	+
			NORTHERN TRUST CORPORATION (2008)	+		
			CITIGROUP INC. (2002)	+		
			REGIONS FINANCIAL CORP. (2008)	+		

**Panel B. Decrease in Disclosure/Activity**

<u>Performance Measures</u>									<u>Stability Measures</u>					
	Risk-adjusted ROA	+/-	Risk-adjusted ROE	+/-	Stock return	+/-	Sharpe ratio	+/-	Z-value	+/-	Volatility of stock return	+/-	Beta	+/-
TSQI	WELLS FARGO 2003(01)	-	WELLS FARGO 2003(01)	-	ZIONS 2008(03)	+	US BANK 2003(02)	+	US BANK 2005(04)	+	ZIONS 2008(03)	+	ZIONS 2008(03)	+
	US BANK 2003(02)	-												
	US BANK 2005(04)	+												
TDQI					JP Morgan 2008(03)	+	COMERICA 2003(02)	+						
SSBI					ZIONS 2008(03)	+					ZIONS 2008(03)	+	ZIONS 2008(03)	+
					REGIONS 2008(02)	-					REGIONS 2008(02)	-		
DSBI														
SARI											FIRST CITIZENS BANCSHARES (2007)	-	FIRST CITIZENS BANCSHARES (2007)	-
DARI	WACHOVIA CORP. (2007)	+	WACHOVIA CORP. (2007)	+							WACHOVIA CORP. (2007)	-	WACHOVIA CORP. (2007)	-



## **5. 2. Quality of Disclosure**

### **5.2.1. Quality of Disclosure and Performance**

To understand if the market welcomes information of high quality more than information of lower quality, the relationship between the quality of information and bank performance and stability is examined. Three different measures are used as a proxy of the quality of disclosure. Given that almost all the articles appeared on Wall Street Journal for the banks in the sample exposed negative news, number of articles is also used as a quality measure in addition to the number of transparency related articles and the quality index (QualIndex). Considering that during the crisis total number of articles about the banks have tremendously increased, an interaction term between the crisis years of 2007 and 2008 and the total number of articles is included in the regression to correct for the possible bias in the results.

Table XV shows the results of the regressions where quality of disclosure is the independent variable and bank performance is the dependent variable. No significant effect of quality of disclosure on performance exists when performance is measured by ROA, ROE, risk-adjusted ROA and risk-adjusted ROE. When performance is measured by stock return, total number of articles about the bank affects its stock return negatively as expected (the coefficient of # of articles is -0.00452). For example, when there are 10 articles for a bank in Wall Street Journal, this decreases the stock price by 4.5%. Also, when performance is measured by Sharpe ratio, number of articles on transparency issues negatively affects the bank performance as expected.

**Table XV. Quality of Disclosure and Performance**

This table shows the regression results for quality of disclosure and performance. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, Crisis\*# of Articles is the interaction term between the crisis dummy used for 2007 and 2008 and the total number of articles. QuallIndex is the disclosure quality index. In Panel A ROA, and ROE, in Panel B risk-adjusted ROA and risk-adjusted ROE, in Panel C stock return and Sharpe ratio is used as the performance measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. ROA, ROE**

		ROA				ROE			
	Exp.	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<b>Hypothesis variables</b>									
# of articles	-	-0.0000079 (0.0000502)	-0.00001 (0.00005)	-0.000026 (0.000059)		-0.000106 (0.00060)	-0.00013 (0.00061)	-0.000129 (0.00071)	
TRNS	-		0.00028 (0.00094)	0.00028 (0.00094)			0.00243 (0.0115)	0.00243 (0.0115)	
Crisis*# of articles	-			0.000017 (0.000032)				0.0000037 (0.000397)	
QualIndex	+				-0.000014 (0.000067)				-9.5E-05 (0.00082)
<b>Control variables</b>									
Bank size (log assets)		-0.0062** (0.0027)	-0.00625** (0.0027)	-0.0063** (0.0027)	-0.00635** (0.0026)	-0.0872*** (0.0326)	-0.0871*** (0.0326)	-0.0871*** (0.0327)	-0.0885*** (0.0317)
Risk weighted assets/total assets		-0.0193 (0.0159)	-0.0193 (0.0159)	-0.018 (0.016)	-0.0189 (0.0157)	-0.1078 (0.1918)	-0.1072 (0.1919)	-0.1071 (0.1925)	-0.1026 (0.1897)
Risk based capital ratio		-0.0023*** (0.00058)	-0.0023*** (0.00058)	-0.0023*** (0.00059)	-0.0023*** (0.00058)	-0.0292*** (0.0070)	-0.0292*** (0.0070)	-0.0292*** (0.0071)	-0.0293*** (0.0070)
Loan to deposit ratio		0.0020 (0.0076)	0.00209 (0.0076)	0.00215 (0.00761)	0.00224 (0.00758)	0.0216 (0.0916)	0.022 (0.0917)	0.022 (0.0917)	0.0237 (0.0914)
Loan to asset ratio		-0.0286 (0.0206)	-0.0288 (0.0206)	-0.0293 (0.0206)	-0.0291 (0.0204)	-0.2488 (0.2476)	-0.2507 (0.2479)	-0.2508 (0.2483)	-0.2547 (0.2463)
Leverage ratio		0.000041 (0.00046)	0.000046 (0.000469)	0.00002 (0.00047)	0.000031 (0.00046)	0.0052 (0.0056)	0.0052 (0.0056)	0.00524 (0.00568)	0.0050 (0.0055)
Revenue composition		0.0289*** (0.0080)	0.0289*** (0.00806)	0.0294*** (0.00812)	0.0291*** (0.0079)	0.3916*** (0.0977)	0.3918*** (0.0977)	0.3919*** (0.0985)	0.3936*** (0.0969)
Efficiency ratio		-0.0353*** (0.0062)	-0.0354*** (0.00628)	-0.0355*** (0.0062)	-0.0354*** (0.0062)	-0.4821*** (0.0763)	-0.4828*** (0.0763)	-0.4828*** (0.0764)	-0.483*** (0.0761)
<b>Intercept</b>		0.1953***	0.1951***	0.1972***	0.1982***	2.3592***	2.3574***	2.3579***	2.3902***

(Cont.)

	(0.0555)	(0.0556)	(0.0557)	(0.0548)	(0.6688)	(0.6691)	(0.6713)	(0.6603)
<b>AR(1)</b>	-0.0574	-0.0568	-0.0564	-0.05717	-0.0442	-0.0438	-0.0438	-0.0442
	(0.0359)	(0.0360)	(0.0360)	(0.0359)	(0.0360)	(0.0360)	(0.0360)	(0.0360)
<b>Crisis Dummy</b>	-0.007147	-0.007130	-0.007336	-0.007142	-0.0854	-0.0853	-0.0853	-0.0854
	0.0014***	0.0014***	0.0015***	0.0014***	0.0177***	0.0177***	0.0183***	0.0177***
<b>R-squared</b>	(0.2541)	(0.2541)	(0.2544)	(0.2541)	(0.2477)	(0.2477)	(0.2477)	(0.2476)
<b>Durbin-Watson statistic</b>	1.954	1.9544	1.9546	1.9539	1.9464	1.9466	1.9466	1.9462

**Panel B. Risk-adjusted ROA, Risk-adjusted ROE**

		RAR(ROA)				RAR(ROE)			
	Exp.	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<b>Hypothesis variables</b>									
# of articles	-	0.0010 (0.0226)	-0.00084 (0.0235)	-0.0185 (0.0277)		0.0046 (0.0299)	-0.00206 (0.0306)	-0.0295 (0.0356)	
TRNS	-		0.0132 (0.3585)	0.0158 (0.3585)			0.4737 (0.4632)	0.4826 (0.4625)	
Crisis*# of articles	-			0.0266 (0.022)				0.04 (0.0265)	
QualIndex	+				-0.0053 (0.0229)				-0.0155 (0.0299)
<b>Control variables</b>									
Bank size (log assets)		-2.0278 (2.9009)	-1.9934 (2.852)	-2.2558 (2.8587)	-1.9928 (2.8435)	-4.895 (3.2748)	-4.9089 (3.2748)	-5.3527* (3.2843)	-4.8164 (3.2646)
Risk weighted assets/total assets		-29.7415** (13.8111)	-31.6018** (13.6063)	-30.7877** (13.6197)	-31.4357** (13.6028)	-41.7092*** (16.0405)	-41.1437** (16.0495)	-39.6267** (16.0616)	-41.2341** (16.0485)
Risk based capital ratio		-0.1425 (0.4217)	-0.158 (0.4177)	-0.1994 (0.4189)	-0.1555 (0.4162)	0.1247 (0.5022)	0.128 (0.5022)	0.0541 (0.5039)	0.1403 (0.5008)
Loan to deposit ratio		-5.705 (5.6464)	-5.3911 (5.6053)	-4.9266 (5.6182)	-5.3681 (5.5964)	-0.9462 (6.7568)	-0.8243 (6.7575)	-0.1555 (6.7635)	-0.9127 (6.7514)
Loan to asset ratio		28.5486* (16.5089)	28.0228* (16.2078)	26.4802* (16.252)	28.0445* (16.1862)	24.0732 (19.1908)	23.8985 (19.1905)	21.5567 (19.2263)	24.212 (19.1718)
Leverage ratio		0.4382 (0.354)	0.424 (0.3481)	0.3765 (0.3501)	0.4275 (0.3477)	0.3166 (0.4163)	0.3202 (0.4163)	0.2404 (0.4191)	0.3329 (0.4157)
Revenue composition		1.5194	1.8107	2.2962	1.8372	2.2953	2.4708	3.2512	2.1432

(Cont.)

	(4.3246)	(4.287)	(4.3041)	(4.1896)	(5.4284)	(5.4304)	(5.4468)	(5.309)
Efficiency ratio	0.7375	0.7032	0.5445	0.7051	-0.4677	-0.4916	-0.6754	-0.4016
	(2.5391)	(2.5489)	(2.5522)	(2.5304)	(3.2758)	(3.2755)	(3.2737)	(3.2531)
<b>Intercept</b>	52.443	54.0435	59.6727	54.3084	108.1868*	107.8367*	117.1409*	107.4661*
	(59.360)	(58.3183)	(58.4704)	(58.1002)	(67.0058)	(67.006)	(67.2113)	(66.7392)
<b>AR(1)</b>	-0.8032***	-0.7878***	-0.7868***	-0.7886***	-0.665***	-0.6652***	-0.6653***	-0.666***
	(0.0403)	(0.0403)	(0.0403)	(0.04027)	(0.0400)	(0.0400)	(0.04005)	(0.0399)
<b>AR(2)</b>	0.1104***	0.0038	0.0010	0.0047	-0.0969***	-0.0970***	-0.0986***	-0.0964***
	(0.0403)	(0.0514)	(0.0514)	(0.0514)	(0.0481)	(0.04815)	(0.0481)	(0.0481)
<b>AR(3)</b>		0.1319***	0.1338***	0.1313***	0.1740***	0.1743***	0.1766***	0.1749***
		(0.0403)	(0.0403)	(0.0402)	(0.0400)	(0.0400)	(0.04005)	(0.0399)
<b>Crisis Dummy</b>	-4.8749***	-4.6364***	-5.0249***	-4.6321***	-4.0979***	-4.0579***	-4.6287***	-4.1020***
	(1.0450)	(1.0349)	(1.0849)	(1.0327)	(1.2374)	(1.2380)	(1.2930)	(1.2361)
<b>R-squared</b>	0.7792	0.7832	0.7837	0.7833	0.7348	0.7353	0.7364	0.7350
<b>Durbin-Watson statistic</b>	1.8843	1.8939	1.8941	1.8951	1.8986	1.8965	1.8985	1.8998

**Panel C. Stock Return, Sharpe Ratio**

		AVERAGE RETURN				SHARPE RATIO			
	Exp.	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<b>Hypothesis variables</b>									
# of articles	-	-0.0045** (0.00204)	-0.00452** (0.00206)	-0.0041* (0.0023)		0.00480 (0.00560)	0.0070 (0.0056)	0.0103 (0.0065)	
TRNS	-		-0.0037 (0.0427)	-0.0033 (0.0428)			-0.325*** (0.1138)	-0.3252*** (0.1138)	
Crisis*# of articles	-			-0.00045 (0.00118)				-0.0031 (0.0033)	
QualIndex	+				-0.0023 (0.0030)				0.0069 (0.0082)
<b>Control variables</b>									
Bank size (log assets)		0.0233 (0.098)	0.0232 (0.0982)	0.0257 (0.0985)	-0.0324 (0.095)	0.0133 (0.279)	0.0082 (0.2769)	0.023 (0.2774)	0.0701 (0.2682)
Risk weighted assets/total assets		-1.0689* (0.5791)	-1.0695* (0.5799)	-1.0828* (0.5815)	-0.8174 (0.5695)	-0.7241 (1.6409)	-0.8338 (1.629)	-0.9203 (1.6323)	-0.9917 (1.6065)
Risk based capital ratio		0.0477**	0.0477**	0.0484**	0.0471**	0.1176*	0.1122*	0.1165**	0.1181*

(Cont.)

	(0.0218)	(0.0218)	(0.0219)	(0.0219)	(0.0616)	(0.0612)	(0.0614)	(0.0613)
Loan to deposit ratio	0.2306	0.2299	0.2285	0.2945	-0.9302	-0.9862	-0.9916	-1.0383
	(0.2768)	(0.2773)	(0.2775)	(0.2778)	(0.7873)	(0.7817)	(0.782)	(0.781)
Loan to asset ratio	0.1443	0.1472	0.1578	-0.1017	0.2796	0.5528	0.6254	0.6006
	(0.7464)	(0.7482)	(0.7494)	(0.7435)	(2.1206)	(2.1067)	(2.109)	(2.096)
Leverage ratio	0.0022	0.00216	0.0028	-0.0050	0.0566	0.0515	0.0557	0.0642
	(0.0172)	(0.0172)	(0.0173)	(0.0169)	(0.0487)	(0.0484)	(0.0486)	(0.0476)
Revenue composition	1.7363***	1.7355***	1.7153***	1.7128***	3.2853***	3.281***	3.1657***	3.2123***
	(0.3233)	(0.3237)	(0.328)	(0.3241)	(0.9005)	(0.8946)	(0.9032)	(0.8919)
Efficiency ratio	-0.8718***	-0.8685***	-0.8667***	-0.8761***	-0.4196	-0.3176	-0.3014	-0.3683
	(0.2708)	(0.2734)	(0.2736)	(0.2727)	(0.7366)	(0.7332)	(0.7335)	(0.7344)
<b>Intercept</b>	-0.3167	-0.3172	-0.3691	0.8672	-1.0267	-0.9127	-1.2328	-2.6861
	(2.0066)	(2.0091)	(2.0154)	(1.9896)	(5.7119)	(5.6691)	(5.6815)	(5.602)
<b>AR(1)</b>	0.3024***	0.3015***	0.3010***	0.3018***	0.1835***	0.1876***	0.1871***	0.1905***
	(0.0344)	(0.0343)	(0.0344)	(0.0343)	(0.0354)	(0.0354)	(0.0354)	(0.03537)
<b>Crisis Dummy</b>	-0.2321***	-0.2354***	-0.2261***	-0.2317***	-1.0146***	-1.0315***	-0.9950***	-1.0144***
	(0.0536)	(0.0536)	(0.0553)	(0.0534)	(0.1511)	(0.1501)	(0.1551)	(0.1504)
<b>R-squared</b>	0.1852	0.1907	0.1908	0.1861	0.1692	0.1780	0.1789	0.1693
<b>Durbin-Watson statistic</b>	2.0432	2.0394	2.0394	2.0317	2.0268	2.0281	2.0268	2.0195

### **5.2.2. Quality of Disclosure and Stability**

Table XVI shows the relationship between quality of disclosure and bank stability. The results show that no matter which measure is used, bank stability is not affected by the quality of the disclosure.

**Table XVI. Quality of Disclosure and Stability**

This table shows the regression results for quality of disclosure and stability. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, Crisis\*# of Articles is the interaction term between the crisis dummy used for 2007 and 2008 and the total number of articles. QualIndex is the disclosure quality index. In Panel A volatility of stock returns and beta; and in Panel B z statistic is used as the stability measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007- December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Volatility of Stock Returns and Beta**

	Exp.	STD.DEV. OF RETURN				BETA			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<b>Hypothesis variables</b>									
# of articles	+	-4.1E-05 (0.00079)	-0.000105 (0.0008)	0.00001 (0.0009)		0.00021 (0.00158)	0.00020 (0.0016)	-0.00012 (0.00186)	
TRNS	+		0.00604 (0.0129)	0.00603 (0.0129)			0.0004 (0.0293)	0.00050 (0.0293)	
Crisis*Number of articles	+			-0.00015 (0.00066)				0.00037 (0.00105)	
QualIndex	-				-0.00031 (0.00087)				-0.0018 (0.0020)
<b>Control variables</b>									
Bank size (log assets)		0.1452** (0.0579)	0.1455** (0.0579)	0.1473** (0.0581)	0.1492*** (0.0576)	0.3992*** (0.0866)	0.3992*** (0.0866)	0.397*** (0.0869)	0.4027*** (0.0845)
Risk weighted assets/total assets		-0.188 (0.3334)	-0.1883 (0.3336)	-0.1938 (0.3349)	-0.1746 (0.3338)	0.8909* (0.509)	0.8907* (0.5093)	0.9033* (0.5108)	0.8874* (0.5042)
Risk based capital ratio		0.05*** (0.0114)	0.0502*** (0.0114)	0.0504*** (0.0115)	0.0504*** (0.0114)	0.0653*** (0.0187)	0.0653*** (0.0187)	0.0648*** (0.0188)	0.066*** (0.0187)
Loan to deposit ratio		0.3444** (0.1539)	0.3450** (0.1540)	0.3434** (0.1542)	0.3404** (0.154)	0.5229** (0.2427)	0.523** (0.2429)	0.5246** (0.2431)	0.5303** (0.2422)
Loan to asset ratio		0.4148 (0.4234)	0.4131 (0.4236)	0.4206 (0.425)	0.4172 (0.4237)	0.1949 (0.6565)	0.1947 (0.6572)	0.1829 (0.6584)	0.1823 (0.6537)
Leverage ratio		-0.00819 (0.00952)	-0.0080 (0.0095)	-0.0078 (0.0095)	-0.0080 (0.0095)	0.0066 (0.0149)	0.00664 (0.015)	0.00606 (0.0151)	0.0071 (0.0148)
Revenue composition		-0.2689** (0.1323)	-0.2695** (0.1324)	-0.2716** (0.133)	-0.2663** (0.13)	-0.5607** (0.2535)	-0.5609** (0.2537)	-0.5502** (0.2556)	-0.5676** (0.2513)
Efficiency ratio		0.9462***	0.9474***	0.9486***	0.9382***	1.9988***	1.9991***	1.9971***	1.9975***

(Cont.)

	(0.0927)	(0.0928)	(0.093)	(0.0917)	(0.1958)	(0.196)	(0.1962)	(0.1954)
<b>Intercept</b>	-3.7008***	-3.7089***	-3.7453***	-3.7524***	-9.1558***	-9.1561***	-9.1092***	-9.04***
	(1.1902)	(1.1909)	(1.1954)	(1.1894)	(1.7757)	(1.7766)	(1.7827)	(1.7551)
<b>AR(1)</b>	-0.5029***	-0.5030***	-0.5030***	-0.5191***	-0.092***	-0.0917***	-0.0918***	-0.0935***
	(0.0359)	(0.0359)	(0.0360)	(0.0359)	(0.0358)	(0.0359)	(0.0359)	(0.0358)
<b>AR(2)</b>	0.1549***	0.1550***	0.1550***	0.1666***				
	(0.0399)	(0.0399)	(0.0399)	(0.0401)				
<b>AR(3)</b>	-0.1490***	-0.1490***	-0.1495***	-0.1550***				
	(0.0399)	(0.0399)	(0.0399)	(0.0401)				
<b>AR(4)</b>	0.0913***	0.0912***	0.0910***	0.0937***				
	(0.0359)	(0.0359)	(0.0360)	(0.0359)				
<b>Crisis Dummy</b>	0.3200***	0.3204***	0.3221***	0.3175***	0.4002***	0.4003***	0.3958***	0.4010***
	(0.0306)	(0.0306)	(0.0320)	(0.0307)	(0.0469)	(0.0470)	(0.0487)	(0.0470)
<b>R-squared</b>	0.6022	0.6023	0.6024	0.6054	0.4208	0.4208	0.4209	0.4214
<b>Durbin-Watson statistic</b>	1.8211	1.8202	1.8207	1.8526	1.9938	1.9934	1.9931	2.0006

**Panel B. Z Statistic**

		<b>Z</b>			
	Exp.	(1)	(2)	(3)	(4)
<b>Hypothesis variables</b>					
# of articles	-	0.2232 (0.5606)	0.3249 (0.5732)	-0.0377 (0.6856)	
TRNS	-		-7.9829 (8.9976)	-7.9873 (9.0006)	
Crisis*# of articles	-			0.5391 (0.5579)	
QualIndex	+				0.1712 (0.5691)
<b>Control variables</b>					
Bank size (log assets)		-41.0602 (72.9815)	-40.456 (72.9439)	-45.421 (73.1433)	-39.2026 (72.8121)
Risk weighted assets/total assets		-505.0843 (346.5373)	-514.4481 (346.6645)	-499.1924 (347.1951)	-507.8355 (346.8605)
Risk based capital ratio		4.4018	4.3959	3.6192	4.6089



(Cont.)

Loan to deposit ratio	(10.5977) -138.4711 (140.9755)	(10.6015) -140.6055 (141.1051)	(10.6338) -131.7619 (141.4957)	(10.5724) -140.7728 (140.8777)
Loan to asset ratio	623.6982 (413.7294)	625.6892 (413.8804)	596.0064 (415.1935)	627.83 (413.4517)
Leverage ratio	17.1567* (8.8725)	17.0904* (8.877)	16.1099* (8.9351)	17.196* (8.8741)
Revenue composition	69.3175 (107.7818)	65.9374 (108.035)	75.3888 (108.503)	60.8414 (105.8116)
Efficiency ratio	-37.4586 (63.1816)	-37.8148 (63.3069)	-41.3086 (63.4327)	-35.084 (62.8603)
<b>Intercept</b>	917.9656 (1493)	917.9247 (1493)	1026 (1497)	868.1729 (1489)
<b>AR(1)</b>	-0.8255*** (0.0401)	-0.8222*** (0.0402)	-0.8216*** (0.0402)	-0.8254*** (0.0401)
<b>AR(2)</b>	0.1382*** (0.0401)	0.1354*** (0.0402)	0.1341*** (0.0402)	0.1384*** (0.0401)
<b>Crisis Dummy</b>	-115.4737*** (26.2652)	-116.3692*** (26.2864)	-124.3335*** (27.5901)	-115.8899*** (26.2567)
<b>R-squared</b>	0.7865	0.7866	0.7869	0.7864
<b>Durbin-Watson statistic</b>	1.9350	1.9236	1.9242	1.9344

### **5. 3. Quantity and Quality of Disclosure (Interaction)**

To answer the next research question which asks if the increase in disclosure has more impact on the performance and stability when the information disclosed is of higher quality, an interaction term between the quality and quantity of information is included in the regressions. Using different quality and quantity indices, a total of thirty six models are run for each performance and stability measure. For the sake of brevity, only significant ones are tabulated<sup>13</sup>. A summary table of the interaction term and its effects on performance and stability can be found in Appendix E.

#### **5.3.1. Quantity and Quality of Disclosure and Performance**

Table XVII shows the regression results for performance measures. When performance is measured by ROA, ROE, risk-adjusted ROA or risk-adjusted ROE, interaction term between the disclosure indices and the number of total articles appeared in news which is used as a quality measure is positive (for example when ROA is the dependent variable, coefficient on # of articles\*TSBI is 0.000005; the coefficient on # of articles\*TQI is 0.00005; the coefficient on # of articles\*SARI is 0.0000003). This could mean that when the bank discloses more about its securitization or credit derivative activities and also when there are more news about the bank, bank performance increases.

When banks discuss more about their securitization activities in their annual reports and the quality of their information is high, banks' ROA and ROE increase. (for example, when ROE is the dependent variable, the coefficient on QualIndex\*SARI is 0.00001) However, the reverse is true for credit derivatives discussion. Even if the quality of

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<sup>13</sup> A total of 324 different regression models are run and in two separate tables (performance and stability) 35 significant models are shown. The whole set of results are available upon request.

information is high, more disclosure about credit derivatives on annual reports negatively affects banks' ROA and ROE (for example, when ROE is the dependent variable the coefficient on  $\text{QualIndex} \times \text{DARI}$  is -0.00002).

When both the banks' disclosure on securitization and credit derivative activities in their call reports and the quality of their disclosure is high, their risk-adjusted ROE decreases (the coefficient on  $\text{QualIndex} \times \text{SSBI}$  is -0.0034 and the coefficient on  $\text{QualIndex} \times \text{TSBI}$  is -0.0026).

Banks' discussion of securitization and credit derivative activities in their annual reports increases their stock return when the information disclosed is of high quality (the coefficient of  $\text{QualIndex} \times \text{SARI}$  is 0.00001 and the coefficient on  $\text{QualIndex} \times \text{DARI}$  is 0.00005). When enhanced discussion in a bank's annual reports is accompanied with more negative publication about the bank's transparency issues, Sharpe ratio is negatively affected (the coefficient on  $\text{TRNS} \times \text{SARI}$  is -0.0022). In such a situation, it is possible to say that even when the quantity of disclosure is high, if it is of low quality the overall effect on performance is negative.

**Table XVII. Quantity and Quality of Disclosure and Performance**

This table shows the regression results for interaction between quantity and quality of information and bank performance. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TQI is total quantitative index, SARI is securitization annual report index and DARI is credit derivative activities annual report index. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, and QualIndex is the disclosure quality index. In Panel A ROA; in Panel B ROE; in Panel C risk-adjusted ROA and risk-adjusted ROE; in Panel D stock return and Sharpe ratio are used as the performance measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. ROA**

		ROA						
	Exp.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Hypothesis variables</b>								
<i>TSBI</i>	+	-0.00002 (0.0001)						
<i>TQI</i>	+		-0.0028 (0.0025)					
<i>DARI</i>	+					-0.0005*** (0.0001)		
# of articles	-	-0.00028* (0.00015)	-0.00007 (0.00005)			-0.00007 (0.00005)		
<i># of articles*TSBI</i>	+/-	0.000005* (0.000003)						
<i># of articles*TQI</i>	+/-		0.00005* (0.00002)	0.00001* (0.000011)				
<i># of articles*SARI</i>	+/-				0.0000003* (0.0000002)			
<i># of articles*DARI</i>	+/-					0.000003*** (0.000001)		
<i>QualIndex*SARI</i>	+						0.0000009*** (0.0000002)	
<i>QualIndex*DARI</i>	+							-0.000001*** (0.0000006)
<b>Control variables</b>								
Bank size (log assets)		-0.0067**	-0.0074***	-0.0073***	-0.0076***	-0.0019	-0.0106***	-0.0046*

(Cont.)

Risk weighted assets/total assets	(0.0027) -0.0136	(0.0027) -0.0217	(0.0026) -0.017	(0.0027) -0.0147	(0.0025) -0.026*	(0.0027) -0.0261*	(0.0027) -0.0211
Risk based capital ratio	(0.0162) -0.0022***	(0.0161) -0.0025***	(0.0158) -0.0024***	(0.0159) -0.0024***	(0.0146) -0.0014***	(0.0156) -0.0026***	(0.0157) -0.0021***
Loan to deposit ratio	(0.0006) 0.00019	(0.0006) 0.0032	(0.0005) 0.00351	(0.0005) 0.0030	(0.0005) -0.0038	(0.0005) -0.0014	(0.0005) -0.0007
Loan to asset ratio	(0.0077) -0.0275	(0.0075) -0.0307	(0.0075) -0.0322	(0.0075) -0.0321	(0.0070) -0.0095	(0.0074) -0.015	(0.0076) -0.0262
Leverage ratio	(0.0206) 0.0002	(0.0205) -0.00008	(0.0205) -0.0000007	(0.0205) -0.00008	(0.0189) 0.00005	(0.0203) -0.00008	(0.0204) 0.00026
Revenue composition	(0.00048) 0.0281***	(0.00048) 0.0326***	(0.0004) 0.031***	(0.0004) 0.0316***	(0.0004) 0.0269***	(0.00045) 0.0306***	(0.00046) 0.0276***
Efficiency ratio	(0.0081) -0.0341***	(0.0083) -0.0343***	(0.0080) -0.0349***	(0.0080) -0.0356***	(0.0076) -0.0153**	(0.00788) -0.0327***	(0.0079) -0.0345***
<b>Intercept</b>	(0.0063) 0.1969***	(0.0062) 0.2211***	(0.0062) 0.2143***	(0.0062) 0.2189***	(0.0063) 0.0974*	(0.0062) 0.2663***	(0.0062) 0.1656***
<b>AR(1)</b>	(0.0555) -0.0575	(0.057) -0.0554	(0.0552) -0.0567	(0.0556) -0.0570	(0.0521) -0.0421	(0.0558) -0.0535	(0.0557) -0.0587
<b>Crisis Dummy</b>	(0.0360) -0.0071***	(0.0360) -0.0071***	(0.0359) -0.0073***	(0.0359) -0.0073***	(0.0361) -0.0045***	(0.0359) -0.0079***	(0.0359) -0.0064***
<b>R-squared</b>	(0.0014) 0.2579	(0.0014) 0.2590	(0.0014) 0.2571	(0.0014) 0.2573	(0.0013) 0.2424	(0.0014) 0.2729	(0.0014) 0.2606
<b>Durbin-Watson statistic</b>	1.9604	1.9559	1.9545	1.9513	1.9779	1.9470	1.9547

**Panel B. ROE**

		ROE				
	Exp.	(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
TSBI	+	-0.00076 (0.0016)				
DARI	+			-0.0067*** (0.0012)		
# of articles	-	-0.0033* (0.0018)		-0.000674 (0.00067)		
# of articles*TSBI	+/-	0.00006* (0.00003)				
# of articles*SARI	+/-		0.000004* (0.000002)			
# of articles*DARI	+/-			0.00004*** (0.00001)		
QualIndex*SARI	+				0.00001*** (0.000002)	
QualIndex*DARI	+					-0.00002*** (0.000008)
<b>Control variables</b>						
Bank size (log assets)		-0.0914*** (0.0328)	-0.1029*** (0.0328)	-0.0269 (0.0303)	-0.1352*** (0.0333)	-0.0655** (0.0325)
Risk weighted assets/total assets		-0.0422 (0.1948)	-0.0547 (0.1916)	-0.2406 (0.1741)	-0.182 (0.1882)	-0.1317 (0.1888)
Risk based capital ratio		-0.0292*** (0.0073)	-0.0301*** (0.0070)	-0.0186*** (0.0065)	-0.0327*** (0.0070)	-0.0269*** (0.0070)
Loan to deposit ratio		0.0041 (0.093)	0.0325 (0.0913)	-0.0364 (0.0836)	-0.0168 (0.0906)	-0.0165 (0.0917)
Loan to asset ratio		-0.243 (0.2483)	-0.2894 (0.2468)	0.0509 (0.2252)	-0.0989 (0.2458)	-0.2158 (0.2451)
Leverage ratio		0.0073	0.0037	0.0066	0.0038	0.0081

(Cont.)

Revenue composition	(0.0058) 0.3857***	(0.0056) 0.421***	(0.0052) 0.3714***	(0.0055) 0.4106***	(0.0056) 0.3742***
Efficiency ratio	(0.0982) -0.4687***	(0.0981) -0.4842***	(0.0916) -0.203***	(0.0958) -0.4528***	(0.0966) -0.4727***
<b>Intercept</b>	(0.0766) 2.3786***	(0.076) 2.6252***	(0.0761) 0.9943	(0.0757) 3.1489***	(0.0758) 1.9563***
<b>AR(1)</b>	(0.668) -0.0434	(0.671) -0.045	(0.6199) -0.0417	(0.6739) -0.0414	(0.6686) -0.0438
<b>Crisis Dummy</b>	(0.036) -0.0858***	(0.036) -0.0876***	(0.0361) -0.0545***	(0.0360) -0.0942***	(0.0360) -0.0753***
<b>R-squared</b>	(0.0177) 0.2510	(0.0177) 0.2505	(0.0164) 0.2383	(0.0176) 0.2638	(0.0179) 0.2558
<b>Durbin-Watson statistic</b>	1.9499	1.9434	1.9735	1.9398	1.9494

**Panel C. Risk-adjusted ROA , Risk-adjusted ROE**

		RAR(ROA)			RAR(ROE)					
	Exp.	(1)	(2)	(3)	(1)	(2)	(3)	(4)	(5)	(6)
<b>Hypothesis variables</b>										
SSBI	+	-0.298** (0.1347)			-0.4916*** (0.1591)					
TSBI	+		-0.2658** (0.1286)			-0.41*** (0.1525)				
SARI	+			-0.0535** (0.0237)			-0.0614** (0.0285)			
DARI	+							-0.1526* (0.0901)		
# of articles	-	-0.1382* (0.0819)	-0.1718* (0.0945)	-0.0714 (0.0472)	-0.1859* (0.1003)	-0.2506** (0.116)	-0.0981* (0.058)	-0.0463 (0.0423)		
# of articles*SSBI	+/-	0.0037* (0.0021)			0.00520* (0.0026)					
# of articles*TSBI	+/-		0.0037* (0.0020)			0.0056** (0.0025)				
# of articles*SARI	+/-			0.00046* (0.00026)						
TRNS*SARI	+/-						0.00067** (0.00032)			
TRNS*DARI	+/-							0.0014* (0.00087)		
QualIndex*SSBI	+								-0.0034** (0.0013)	
QualIndex*TSBI	+									-0.0026** (0.0012)
<b>Control variables</b>										
Bank size (log assets)		-1.8471 (2.8132)	-1.6804 (2.818)	0.7671 (3.0518)	-4.6537 (3.1941)	-4.386 (3.208)	-2.5457 (3.5432)	-3.6335 (3.3868)	-4.8781 (3.2236)	-4.3166 (3.2482)
Risk weighted assets/total assets		-32.708** (13.4932)	-30.2499** (13.5003)	-28.0807** (13.5986)	-42.8957*** (15.7566)	-38.2821** (15.7955)	-37.0698** (16.1085)	-41.8127*** (16.0067)	-42.9456*** (15.8783)	-40.0593** (15.9526)



(Cont.)

Risk based capital ratio	-0.2192 (0.4205)	-0.2073 (0.4189)	0.0553 (0.4388)	0.0174 (0.5024)	0.0451 (0.501)	0.3306 (0.5292)	0.2795 (0.5285)	-0.0126 (0.501)	0.0412 (0.5006)
Loan to deposit ratio	-4.5164 (5.6776)	-4.5924 (5.6692)	-3.9209 (5.6008)	0.7047 (6.7833)	0.1362 (6.7683)	0.6737 (6.7805)	-1.0916 (6.7597)	1.9466 (6.7902)	1.2624 (6.8013)
Loan to asset ratio	26.0449 (16.1736)	25.7284 (16.1719)	25.8793 (16.2718)	20.5792 (18.9426)	20.5758 (18.9469)	19.9155 (19.3821)	27.5864 (19.2073)	19.4311 (19.0931)	20.2915 (19.1627)
Leverage ratio	0.3965 (0.3559)	0.4014 (0.3527)	0.5415 (0.3499)	0.2617 (0.4222)	0.3017 (0.4181)	0.3922 (0.4194)	0.4028 (0.4233)	0.1619 (0.4173)	0.2199 (0.4163)
Revenue composition	1.6317 (4.2977)	1.871 (4.2991)	3.4896 (4.3764)	2.0776 (5.4276)	2.4032 (5.4241)	4.0938 (5.5444)	3.9996 (5.5745)	2.3186 (5.3)	2.3004 (5.3034)
Efficiency ratio	0.8902 (2.5653)	0.8334 (2.568)	0.9725 (2.8159)	-0.3009 (3.2889)	-0.349 (3.2891)	-0.3348 (3.6401)	-0.613 (3.6459)	-0.3113 (3.248)	-0.3778 (3.249)
<b>Intercept</b>	57.5786 (57.6699)	52.5582 (57.4568)	3.2431 (61.5039)	113.5998* (65.5287)	104.2368 (65.4027)	66.0241 (71.3986)	81.0005 (69.5206)	116.5768* (66.056)	102.3738 (66.2665)
<b>AR(1)</b>	-0.7713*** (0.0402)	-0.7686*** (0.0402)	-0.7756*** (0.0404)	-0.6432*** (0.0399)	-0.6444*** (0.0399)	-0.6572*** (0.0402)	-0.6622*** (0.0403)	-0.6604*** (0.0400)	-0.6627*** (0.0400)
<b>AR(2)</b>	-0.0088 (0.0510)	-0.013 (0.0509)	0.0163 (0.0513)	-0.1061*** (0.0475)	-0.1078*** (0.0475)	-0.0745 (0.0483)	-0.0697 (0.0484)	-0.0896 (0.0480)	-0.0919** (0.0480)
<b>AR(3)</b>	0.1409*** (0.0402)	0.1449*** (0.0402)	0.1289*** (0.0404)	0.1870*** (0.0399)	0.1923*** (0.0399)	0.1609*** (0.0402)	0.1585*** (0.0403)	0.1721*** (0.0400)	0.1723*** (0.0400)
<b>Crisis Dummy</b>	-4.7952*** (1.0468)	-4.7397*** (1.0468)	-4.6395*** (1.0512)	-4.0857*** (1.2491)	-3.9544*** (1.2504)	-3.7476*** (1.2618)	-3.8006*** (1.2664)	-3.9632*** (1.2524)	-3.8498*** (1.2560)
<b>R-squared</b>	0.7839	0.7837	0.7821	0.7369	0.7365	0.7337	0.7331	0.7368	0.7362
<b>Durbin-Watson statistic</b>	1.8829	1.8813	1.8850	1.8946	1.8958	1.8972	1.9014	1.9027	1.8999

**Panel D. Stock Return, Sharpe Ratio**

		AVERAGE RETURN		SHARPE RATIO		
	Exp.	(1)	(2)	(1)	(2)	(3)
<b>Hypothesis variables</b>						
DARI	+					-0.1934 (0.1197)
QualIndex	+					-0.0015 (0.0095)
TRNS*SARI	+/-			-0.0022* (0.0013)		
TRNS*DARI	+/-				-0.0096* (0.0052)	
QualIndex*SARI	+	0.00001** (0.000007)				
QualIndex*DARI	+		0.00005** (0.00002)			0.0020* (0.0011)
<b>Control variables</b>						
Bank size (log assets)		-0.1166 (0.1002)	-0.0855 (0.0975)	0.0989 (0.2675)	0.1086 (0.2677)	-0.0164 (0.2771)
Risk weighted assets/total assets		-0.968* (0.5685)	-0.7411 (0.5673)	-1.1128 (1.6016)	-1.1415 (1.6018)	-1.0544 (1.6154)
Risk based capital ratio		0.04* (0.0219)	0.0413* (0.0219)	0.1185* (0.0611)	0.1225** (0.0611)	0.1092* (0.0623)
Loan to deposit ratio		0.199 (0.2766)	0.3738 (0.279)	-1.0466 (0.7768)	-1.0694 (0.7771)	-0.8667 (0.7908)
Loan to asset ratio		0.2357 (0.7473)	-0.1596 (0.7395)	0.6828 (2.0871)	0.8016 (2.0902)	0.7209 (2.1115)
Leverage ratio		-0.0064 (0.0168)	-0.0121 (0.0172)	0.0649 (0.0474)	0.0676 (0.0475)	0.0517 (0.0484)
Revenue composition		1.7486*** (0.3222)	1.7741*** (0.3239)	3.0491*** (0.8941)	2.9788*** (0.8978)	3.3237 (0.908)
Efficiency ratio		-0.7932*** (0.2712)	-0.9118*** (0.2716)	-0.2909 (0.7345)	-0.2393 (0.7366)	-0.4929*** (0.8048)

(Cont.)

**Intercept**

**AR(1)**

**Crisis Dummy**

**R-squared**

**Durbin-Watson statistic**

1.9891	1.5967	-2.4522	-2.7444	-0.2695
(2.029)	(2.0063)	(5.5329)	(5.5399)	(5.799)
0.3080***	0.3060***	0.1942***	0.194***	0.196***
(0.0342)	(0.0343)	(0.0353)	(0.035)	(0.0354)
-0.2475***	-0.2553***	-1.0175***	-1.0160***	-1.0459***
(0.0533)	(0.0542)	(0.1498)	(0.1497)	(0.1535)
0.1920	0.1905	0.1717	0.1722	0.1704
2.0395	2.0351	2.0219	2.0202	2.0174

### 5.3.2. Quantity and Quality of Disclosure and Stability

Table XVIII shows the regression results for stability measures. Number of articles appeared in the papers along with increased information disclosure decreases the stock volatility and beta; and increases the z-statistic (for example, when stock volatility is the dependent variable the coefficient on # of articles\*TQI is -0.0009; when beta is the dependent variable the coefficient on # of articles\*TSBI is -0.00016 and when z-statistic is the dependent variable the coefficient on # of articles\*SARI is 0.0118). This shows that even if there are considerable amounts of negative publication about the bank in the papers, if the quantity of information disclosed is high, market perceives it as a positive signal and consequently the bank stability increases. On the other hand if the information disclosed is of lower quality, increased annual report disclosure on securitization and credit derivatives destabilize the bank by increasing the stock volatility (the coefficient on TRNS\*SARI is 0.0005; the coefficient on TRNS\*DARI is 0.0022; and the coefficient on QualIndex\*DARI is 0.00007).

If the bank's enhanced discussion of securitization in annual reports is also of higher quality, bank's beta decreases (the coefficient on QualIndex\*SARI is -0.00001). Interestingly, for credit derivative activities discussion in annual reports a reverse situation applies. Even if the information disclosed is of higher quality, more information on credit derivatives disclosed in annual reports destabilizes the bank by increasing the beta (the coefficient on QualIndex\*DARI is 0.00004).

**Table XVIII. Quantity and Quality of Disclosure and Stability**

This table shows the regression results for interaction between quantity and quality of information and bank stability. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TQI is total quantitative index, SARI is securitization annual report index and DARI is credit derivative activities annual report index. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, and QualIndex is the disclosure quality index. In Panel A volatility of stock returns; in Panel B beta and z statistic is used as the stability measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis dummy represents January 2007-December 2008 period. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Volatility of Stock Returns**

		STD.DEV. OF RETURN				
	Exp.	(1)	(2)	(3)	(4)	(5)
<b>Hypothesis variables</b>						
<i>TQI</i>	-	0.084* (0.0501)		0.0009** (0.00045)		
<i>SARI</i>	-					
<i>DARI</i>	-		0.0136*** (0.0019)		0.0071*** (0.0012)	
# of articles	+	0.0011 (0.0010)	0.0016* (0.0009)			
TRNS	+			-0.0358 (0.0226)	-0.0274 (0.017)	
<i># of articles*TQI</i>	+/-	-0.0009* (0.0005)				
<i># of articles*DARI</i>	+/-		-0.00008*** (0.00002)			
<i>TRNS*SARI</i>	+/-			0.0005** (0.0002)		
<i>TRNS*DARI</i>	+/-				0.0022*** (0.0008)	
<i>QualIndex*DARI</i>	-					0.00007*** (0.00001)
<b>Control variables</b>						
Bank size (log assets)		0.1613*** (0.0586)	0.0534 (0.0546)	0.0646 (0.0596)	0.0588 (0.0555)	0.1075* (0.0592)
Risk weighted assets/total assets		-0.1063 (0.3368)	0.0204 (0.3024)	-0.0812 (0.31)	0.0219 (0.3067)	-0.1158 (0.3338)
Risk based capital ratio		0.0535*** (0.0116)	0.0278*** (0.0105)	0.0277** (0.0108)	0.0253** (0.0106)	0.0457*** (0.0114)
Loan to deposit ratio		0.3485** (0.1542)	0.4196*** (0.1389)	0.2895** (0.1403)	0.4002*** (0.1398)	0.4264*** (0.1546)
Loan to asset ratio		0.415 (0.4233)	0.0414 (0.3827)	0.1578 (0.3927)	0.0042 (0.3873)	0.3557 (0.4224)
Leverage ratio		-0.0049 (0.0097)	-0.0101 (0.0087)	-0.0069 (0.0087)	-0.0132 (0.0087)	-0.0144 (0.0096)
Revenue composition		-0.3251** (0.1362)	-0.2767** (0.1173)	-0.1551 (0.1142)	-0.1301 (0.1142)	-0.2334 (0.1294)
Efficiency ratio		0.9387***	0.5731***	0.4769***	0.4958***	0.966***

(Cont.)

	(0.093)	(0.0877)	(0.0852)	(0.0853)	(0.0915)
<b>Intercept</b>	-4.1199***	-1.6214	-1.7616	-1.5967	-3.0424**
	(1.21)	(1.1181)	(1.2005)	(1.1404)	(1.2143)
<b>AR(1)</b>	-0.4976***	-0.5431***	-0.6321***	-0.6035***	-0.4904***
	(0.0360)	(0.0360)	(0.0359)	(0.0359)	(0.035)
<b>AR(2)</b>	0.1509***	0.1921***	0.2578***	0.2349***	0.1375***
	(0.0398)	(0.0404)	(0.0419)	(0.0413)	(0.0396)
<b>AR(3)</b>	-0.1503***	-0.1994***	-0.210***	-0.2203***	-0.1642***
	(0.0398)	(0.0404)	(0.0419)	(0.0413)	(0.0396)
<b>AR(4)</b>	0.0924***	0.1020***	0.1252***	0.1184***	0.0796***
	(0.0360)	(0.036)	(0.0359)	(0.0359)	(0.0359)
<b>Crisis Dummy</b>	0.3025***	0.2533***	0.2615***	0.2514***	0.2817***
	(0.0314)	(0.0283)	(0.0296)	(0.0289)	(0.0310)
<b>R-squared</b>	0.6030	0.6448	0.6415	0.6498	0.6148
<b>Durbin-Watson statistic</b>	1.8158	1.7545	1.8164	1.7913	1.8490

**Panel B. Beta, Z**

		BETA				Z
	Exp.	(1)	(2)	(3)	Exp.	(1)
<b>Hypothesis variables</b>						
<i>TSBI</i>	-	-0.0021 (0.0044)			+	
<i>SARI</i>	-				+	-1.4705** (0.6)
# of articles	+	0.0084* (0.0048)			-	-1.6072 (1.1942)
# of articles* <i>TSBI</i>	+/-	-0.00016* (0.00009)			+/-	
# of articles* <i>SARI</i>	+/-				+/-	0.0118* (0.0069)
<i>QualIndex</i> * <i>SARI</i>	-		-0.00001* (0.000006)		+	
<i>QualIndex</i> * <i>DARI</i>	-			0.00004* (0.00002)	+	
<b>Control variables</b>						
Bank size (log assets)		0.4188*** (0.087)	0.4608*** (0.09)	0.3621*** (0.0866)		36.6773 (78.2628)
Risk weighted assets/total assets		0.7147 (0.5167)	0.9825* (0.5076)	0.927* (0.502)		-405.9993 (346.9069)
Risk based capital ratio		0.0603*** (0.0193)	0.0699*** (0.0188)	0.061*** (0.0187)		9.7167 (11.1611)
Loan to deposit ratio		0.601** (0.2459)	0.5683** (0.2436)	0.5865** (0.2432)		-94.5645 (141.0276)
Loan to asset ratio		0.1282 (0.6579)	0.0154 (0.6616)	0.141 (0.6506)		553.3967 (415.3834)
Leverage ratio		-0.0013 (0.01504)	0.0084 (0.0148)	0.0017 (0.015)		20.4458** (8.9358)
Revenue composition		-0.5191** (0.2547)	-0.5779** (0.2513)	-0.5364** (0.251)		111.8721 (110.6445)
Efficiency ratio		1.9701*** (0.1965)	1.9555*** (0.1961)	1.9892*** (0.1951)		-37.7349 (69.9222)
<b>Intercept</b>		-9.2024*** (1.773)	-10.1776*** (1.8202)	-8.4651*** (1.7787)		-497.2796 (1578)
<b>AR(1)</b>		-0.0917*** ( 0.0359)	-0.0980*** (0.0358)	-0.0888*** (0.0358)		-0.8076*** (0.0403)
<b>AR(2)</b>						0.1439*** (0.0403)
<b>Crisis Dummy</b>		0.4016*** (0.0468)	0.4103*** (0.0474)	0.3836*** (0.0476)		-110.3423*** (26.5193)
<b>R-squared</b>		0.4241	0.4237	0.4233		0.7855
<b>Durbin-Watson statistic</b>		1.9938	1.9991	2.0043		1.9257

## **5.4. Peer Comparisons**

### **5.4.1. Before and After Comparison**

#### **5.4.1.1. Stock Returns**

The first comparison is made to see how the stock returns react to changes in the quality of information disclosed (e.g., corrections and restatements regarding earnings and allowance for loan losses). Table XIX shows the results of the event study. Full sample results are reported along with clean sample results as a robustness check. However, it should be noted that full sample results might be biased and their results should be interpreted with caution.

In general, number of firms with negative returns is higher than the number of firms with positive returns during event times. Therefore, any positive abnormal returns around the event date can be attributed to some extreme cases. Though, almost all daily abnormal returns are insignificant.

Four different event windows are used. Both for transparency and trouble related articles, one day after the event, the cumulative abnormal returns decrease when compared to cumulative abnormal returns before the event day, though not significant. The results show that market already anticipated the negative publication about a bank's transparency or healthiness issues. There might be a lot of leakage before an article appears on the Wall Street Journal.

As for the amendments to annual reports, the 2-day cumulative abnormal returns are 0.86 % and significant. It takes a few days for market to digest the news about amendments and favor the corrected information. However, cumulative abnormal returns for other event windows are not significant.



**Table XIX. Cumulative Abnormal Stock Returns (CASRs)**

This table shows the results for the stock return event study. In Panel A daily abnormal returns; in Panel B event window cumulative abnormal returns are shown. The results are classified by the event dates used in the analysis. “Transparency related articles” shows the results of the analysis where the publication dates of transparency related articles on WSJ; “Trouble related articles” shows the results of the analysis where the publication dates of trouble related articles on WSJ and “Amendments” shows the results of the analysis where the announcements of amendments to annual reports are used as event dates. AR is the abnormal stock return for the portfolio of banks used in the analysis in event time; CAR is the cumulative abnormal stock return for the portfolio of banks used in the analysis during the event window period; N is the number of events and Number – is the number of firms in the portfolio showing negative return for day t. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Daily Abnormal Returns**

<b>Transparency related articles</b>									
<b>Clean sample (n=27)</b>					<b>Full sample (n=38)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>	<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	-0.29%	-1.26	27	17	-3	-0.19%	-1.09	38	20
-2	0.35%	0.78	27	14	-2	0.28%	0.81	38	22
-1	0.63%	0.62	27	14	-1	0.27%	0.33	38	18
0	-0.30%	-1.63	27	15	0	-0.07%	-0.4	38	18
1	0.10%	0.47	27	15	1	0.23%	1.38	38	18
2	1.53%	1.63	27	11	2	0.92%	1.35	38	18
3	0.12%	0.5	27	13	3	0.20%	1.09	38	15

<b>Trouble related articles</b>									
<b>Clean sample (n=29)</b>					<b>Full sample (n=55)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>	<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	-1.44%	-1.1	29	17	-3	-1.09%	-1.3	55	31
-2	-1.02%	-1.38	29	20	-2	-1.17%	-1.69*	55	34
-1	2.33%	0.94	29	14	-1	1.58%	1.09	55	27
0	-0.08%	-0.1	29	18	0	-0.26%	-0.34	55	36
1	0.84%	0.95	29	14	1	-0.21%	-0.34	55	30
2	-0.21%	-0.3	29	16	2	-0.49%	-0.64	55	28
3	0.30%	0.31	29	15	3	-0.71%	-0.71	55	31

<b>Amendments</b>				
<b>Full sample (n=9)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	-0.40%	-1.56	9	7
-2	0.58%	2.41**	9	1
-1	0.00%	0.03	9	6
0	0.03%	0.13	9	3
1	0.43%	1.42	9	3
2	0.40%	1.52	9	3
3	-0.19%	-0.91	9	5

**Panel B. Event Window Cumulative Abnormal Returns**

<b>Transparency related articles</b>					
<b>Clean sample (n=27)</b>			<b>Full sample (n=38)</b>		
<b>Event window</b>	<b>CAR</b>	<b>t-statistic</b>	<b>Event window</b>	<b>CAR</b>	<b>t-statistic</b>
[-1,0]	0.33%	0.35	[-1,0]	0.19%	0.24
[0,+1]	-0.20%	-1.3	[0,+1]	0.16%	1.04
[0,+2]	1.33%	1.45	[0,+2]	1.08%	1.62
[0,+3]	1.45%	1.32	[0,+3]	1.28%	1.61

<b>Trouble related articles</b>					
<b>Clean sample (n=29)</b>			<b>Full sample (n=55)</b>		
<b>Event window</b>	<b>CAR</b>	<b>t-statistic</b>	<b>Event window</b>	<b>CAR</b>	<b>t-statistic</b>
[-1,0]	2.25%	0.68	[-1,0]	1.32%	0.67
[0,+1]	0.75%	0.53	[0,+1]	-0.46%	-0.41
[0,+2]	0.54%	0.5	[0,+2]	-0.96%	-0.73
[0,+3]	0.84%	0.63	[0,+3]	-1.66%	-0.99

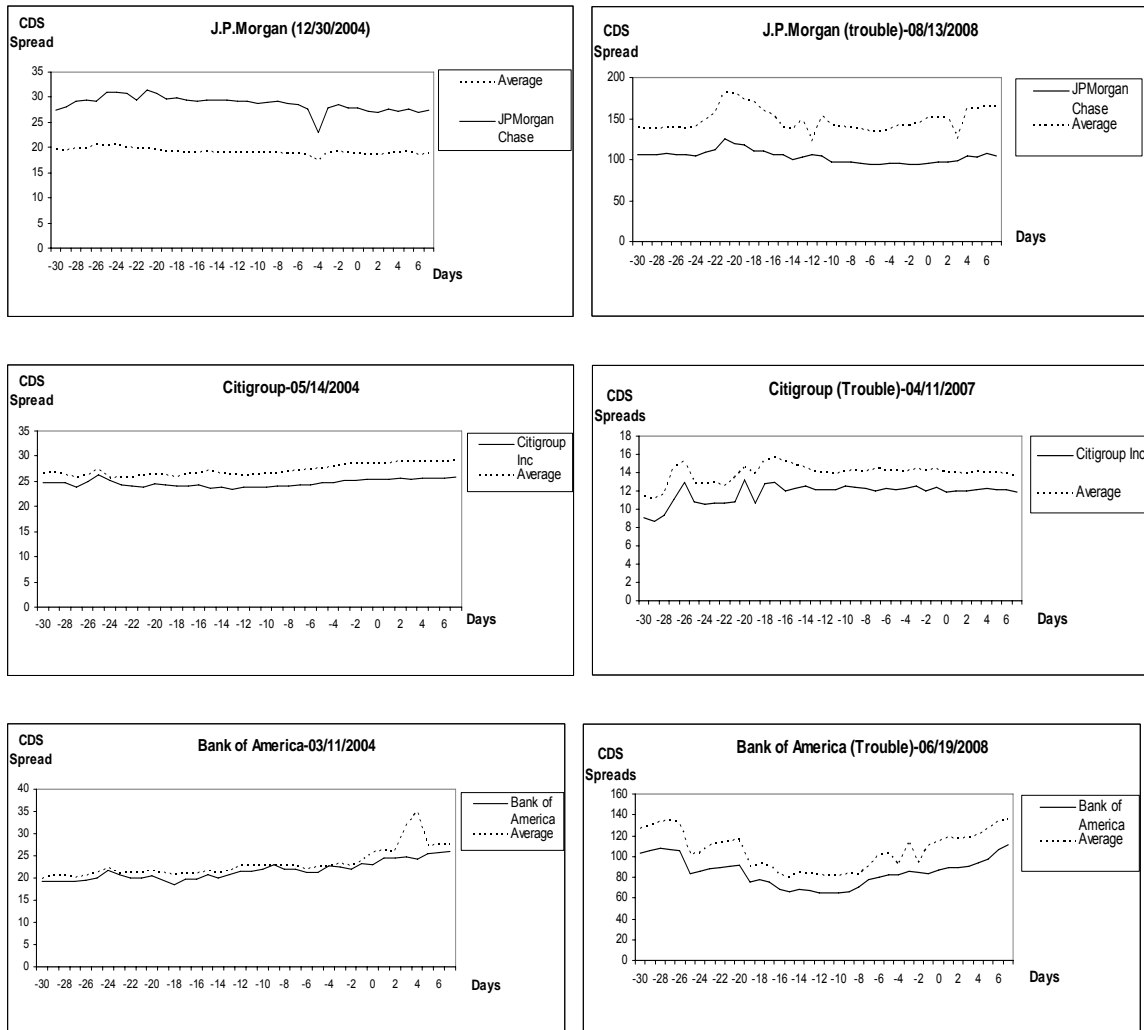
<b>Amendments</b>		
<b>Full sample (n=9)</b>		
<b>Event window</b>	<b>CAR</b>	<b>t-statistic</b>
[-1,0]	0.04%	0.12
[0,+1]	0.46%	1.74
[0,+2]	0.86%	1.98*
[0,+3]	0.67%	1.63

#### **5.4.1.2. CDS Spreads**

CDS data is available only for very limited number of banks in the sample. Therefore, this part of the analysis is restricted to the five banks with the CDS data available.

First, CDS spreads are plotted during the event dates to visually observe any significant reactions. Figure 12 depicts the CDS spreads for 37 days (-30 to +7) surrounding the event days. The dotted line on the graph shows the trend of the average of the five banks with CDS spread data. Only a few representative graphs are shown here. All the graphs can be found at Appendix F. An observation of the graphs reveals that as in the case of stock prices, CDS spreads do not show significant reaction to the events. This might either mean that the events were fully anticipated by the market before the publication day or the market did not perceive the events as very significant events.

**Figure 12. CDS Spreads During 2001-2008**



#### 5.4.1.2.1. Market proxy: CDX indices

Considering that just a visual observation of CDS spread behavior around the event dates might lead to biased results, an event study similar to the one used for stock returns is applied. The results are shown at Table XX. Two different proxies for the market are used. Both proxies yield very similar results. When looking at CDXFIN results, as expected, for trouble announcements, a statistically significant abnormal return is observed on day 0 and on day 2. This shows that the market reacted to trouble related

news by increasing the CDS spreads as anticipated. No significant cumulative abnormal returns are found for either index for transparency announcements. The results show that the market does not show any reaction to transparency related articles appearing on the Wall Street Journal.

And finally, a cross-sectional regression model is run for each bank to see the effects of event date dummies on CDS spreads. Table XXI shows the significant event dates in the regression analysis, their regression coefficient and the tone of the article. It is anticipated that an article with unfavorable tone would have a positive effect on the CDS spreads. The table shows that most of the articles were conveying clearly unfavorable information and their effects on CDS spreads are positive as expected. There are only two instances where the effect on CDS spread is negative. Both of those articles are about Wells Fargo. The articles can be interpreted as positive or negative. The first article states that the bank will continue to provide home equity financing directly to customers but it would not originate or acquire home equity loans through indirect channels. The second article argues that Wells Fargo's earnings increase but the loan loss reserves decrease. It looks like the market perceived these as positive news and reacted by lowering the CDS spreads of Wells Fargo.

**Table XX. Cumulative Abnormal CDS Returns (CACRs)**

This table shows the results for the CDS return event study. In Panel A daily abnormal returns; in Panel B event window cumulative abnormal returns are shown. The results are classified by the event dates used in the analysis. “Transparency related articles” shows the results of the analysis where the publication dates of transparency related articles on WSJ and “Trouble related articles” shows the results of the analysis where the publication dates of trouble related articles on WSJ used as event dates. Two different indices are used as a market proxy. CDX is the general market index, CDXFIN is the financials index. AR is the abnormal CDS return for the portfolio of banks used in the analysis in event time; CAR is the cumulative abnormal CDS return for the portfolio of banks used in the analysis during the event window period; N is the number of events and Number – is the number of firms in the portfolio showing negative return for day t. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Daily Abnormal Returns**

<b>Transparency related articles</b>									
<i>Market proxy: CDX</i>									
<b>Clean sample (n=7)</b>					<b>Full sample (n=11)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>	<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	-0.63%	-0.22	7	5	-3	1.82%	0.57	11	8
-2	1.44%	0.51	7	2	-2	-1.00%	-0.38	11	5
-1	1.75%	0.81	7	4	-1	0.86%	0.61	11	7
0	-3.27%	-1.41	7	4	0	-0.94%	-0.49	11	4
1	3.64%	1.05	7	3	1	0.69%	0.27	11	7
2	-0.21%	-0.14	7	5	2	0.41%	0.33	11	7
3	-1.66%	-0.73	7	4	3	-1.87%	-1.18	11	7
<i>Market proxy: CDXFIN</i>									
<b>Clean sample (n=7)</b>					<b>Full sample (n=11)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>	<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	-0.93%	-0.3	7	5	-3	1.57%	0.47	11	7
-2	0.21%	0.08	7	3	-2	-1.59%	-0.66	11	6
-1	1.24%	0.6	7	3	-1	0.79%	0.61	11	6
0	-3.72%	-1.79	7	6	0	-1.16%	-0.62	11	6
1	3.23%	0.97	7	2	1	0.60%	0.24	11	6
2	0.13%	0.07	7	3	2	0.59%	0.41	11	6
3	-1.12%	-0.39	7	2	3	-1.32%	-0.69	11	4
<b>Trouble related articles</b>									
<i>Market proxy: CDX</i>									
<b>Clean sample (n=7)</b>					<b>Full sample (n=19)</b>				
<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>	<b>Day</b>	<b>AR</b>	<b>t-statistic</b>	<b>N</b>	<b>Number -</b>
-3	0.28%	0.6	7	2	-3	-0.83%	-1.4	19	10
-2	2.16%	0.74	7	4	-2	-1.33%	-0.6	19	11
-1	0.89%	0.63	7	3	-1	-1.48%	-0.8	19	9
0	1.13%	0.98	7	2	0	-1.85%	-0.96	19	9
1	-2.09%	-1.09	7	4	1	0.44%	0.39	19	10
2	2.38%	2.07*	7	2	2	-0.48%	-0.25	19	10
3	-4.93%	-1.04	7	4	3	-0.52%	-0.23	19	9

(Cont.)

Market proxy: CDXFIN

Clean sample (n=7)					Full sample (n=19)				
Day	AR	t-statistic	N	Number -	Day	AR	t-statistic	N	Number -
-3	0.18%	0.14	7	2	-3	-0.61%	-0.95	19	10
-2	2.39%	0.76	7	5	-2	-1.83%	-0.74	19	12
-1	2.34%	1.26	7	2	-1	-0.32%	-0.17	19	9
0	2.25%	1.88*	7	1	0	-0.87%	-0.43	19	6
1	-0.62%	-0.27	7	4	1	1.04%	0.93	19	9
2	3.58%	2.3*	7	1	2	0.21%	0.1	19	10
3	-5.09%	-1.00	7	4	3	-0.26%	-0.11	19	10

**Panel B. Event Window Cumulative Abnormal Returns**

**Transparency related articles**

Market proxy: CDX

Clean sample (n=7)			Full sample (n=11)		
Event window	CAR	t-statistic	Event window	CAR	t-statistic
[-1,0]	-1.52%	-0.74	[-1,0]	-0.08%	-0.05
[0,+1]	0.38%	0.13	[0,+1]	-0.25%	-0.11
[0,+2]	0.16%	0.04	[0,+2]	0.16%	0.07
[0,+3]	-1.50%	-0.29	[0,+3]	-1.71%	-0.53

Market proxy: CDXFIN

Clean sample (n=7)			Full sample (n=11)		
Event window	CAR	t-statistic	Event window	CAR	t-statistic
[-1,0]	-2.48%	-1.07	[-1,0]	-0.37%	-0.2
[0,+1]	-0.49%	-0.15	[0,+1]	-0.56%	-0.22
[0,+2]	-0.36%	-0.08	[0,+2]	0.03%	0.01
[0,+3]	-1.48%	-0.22	[0,+3]	-1.29%	-0.3

**Trouble related articles**

Market proxy: CDX

Clean sample (n=7)			Full sample (n=19)		
Event window	CAR	t-statistic	Event window	CAR	t-statistic
[-1,0]	2.02%	0.95	[-1,0]	-3.33%	-1.15
[0,+1]	-0.96%	-0.42	[0,+1]	-1.41%	-0.61
[0,+2]	1.42%	0.54	[0,+2]	-1.90%	-0.65
[0,+3]	-3.51%	-0.54	[0,+3]	-2.41%	-0.57

Market proxy: CDXFIN

Clean sample (n=7)			Full sample (n=19)		
Event window	CAR	t-statistic	Event window	CAR	t-statistic
[-1,0]	4.59%	1.86	[-1,0]	-1.19%	-0.38
[0,+1]	1.63%	0.57	[0,+1]	0.17%	0.07
[0,+2]	5.21%	1.51	[0,+2]	0.38%	0.11
[0,+3]	0.13%	0.02	[0,+3]	0.12%	0.03

**Table XXI. Regression Analysis of Event Dates: Statistically Significant Results**

This table shows the event dates which were significant at regressions, their sign of regression coefficients and the general tone of the article published on Wall Street Journal at the event date. The question mark is used when the interpretation of the tone of the article is not very clear. The expectation is to have a positive regression coefficient when the tone of the article is clearly negative.

<b>Bank</b>	<b>Date</b>	<b>Sign of Regression Coefficient</b>	<b>Favorable(+) / Unfavorable(-) Article</b>
Citigroup	10/18/2007	+	-
	11/5/2007	+	-
Bank of America	10/18/2007	+	-
Wells Fargo	10/17/2007	+	-
	11/28/2007	-	?
	10/16/2008	-	?
JP Morgan	10/16/2007	+	-
	12/14/2007	+	-
	3/12/2008	+	-



#### **5.4.1.2.2. Market proxy: CD spreads**

As a robustness check, the event study and the regression analysis are repeated using six-month certificates of deposit (CD) spreads as the market proxy. The results are very similar to the ones reported above<sup>14</sup>. In the event study analysis, no significant abnormal returns are observed except for the day 2 following the trouble announcements. Also, the same dates are found to be significantly affecting the CDS spreads when the regression analysis is run. In general, the results are very robust to the choice of the market index.

#### **5.4.2. High versus Low Disclosure Banks**

Most transparent banks are compared with their least transparent peers using standard tests of significance. The list of most and least transparent banks is given at Table II.

Table XXII shows the results of the t-tests between high and low disclosure banks. Almost all performance measures are higher for less transparent banks (except risk-adjusted ROA and risk-adjusted ROE). The most striking difference is in the stock returns. On average for very transparent banks the stock return is 0.5 % and for less transparent banks the stock return is 5.83 %. However, this difference is not statistically significant.

Among the stability measures, only the difference between the betas is significant. Beta for high disclosure banks is 1.11 on average and beta for low disclosure banks is 0.99 on average. Highly transparent banks are significantly riskier than their less transparent peers.

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<sup>14</sup> For the sake of brevity, the results are not tabulated here but they are available upon request.

The comparison between high and low disclosure banks is further extended to see how performance and stability measures change before and during the crisis for most and least transparent banks. Table XXIII shows the results of the tests. There is a significant difference in all performance and stability measures between before and during crisis periods both for the most transparent and least transparent banks. During the crisis period, all banks' performance and stability has decreased. However, the difference is a lot larger for the most transparent banks. For example, highly transparent banks had an average return of 11.8 % before the crisis, but it decreased to -32.93 % during the crisis period. Similarly, the average ROE for the most transparent banks was 15.19 % before the crisis but it significantly decreased to -0.16 % during the crisis. Among all the performance and stability measures, the differences between high and low disclosure banks are not significant except for beta. During the crisis period, both the most transparent banks' betas and the least transparent banks' betas are increased. During the crisis period, highly transparent banks have an average beta of 1.59 and less transparent banks have an average beta of 1.34. The results show that during the crisis period, banks with high disclosure levels were perceived to be riskier than banks with low disclosure levels.

**Table XXII. Most and Least Transparent Banks T-Test Comparison**

This table shows the t-test comparisons between most and least transparent banks' performance and stability measures and control variables. Time period is June 2001- December 2008. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

	<i><b>Most transparent banks mean</b></i>	<i><b>Least transparent banks mean</b></i>	<i><b>t- test</b></i>
<b>Performance Measures</b>			
ROA(%)	0.96	1.03	0.52
ROE(%)	11.31	11.75	0.27
Risk-adjusted ROA	9.14	8.38	-0.93
Risk-adjusted ROE	9.66	8.62	-0.96
Stock Return(%)	0.50	5.83	0.97
Sharpe ratio	0.18	0.20	0.13
<b>Stability Measures</b>			
Volatility of Stock Return(%)	30.63	30.42	-0.08
Beta	1.11	0.99	-2.7***
Z statistic	258.31	264.30	0.26
<b>Control Variables</b>			
Total Assets(\$ in millions)	590,093	32,663	-15.9***
Risk weighted assets/Total assets (%)	80.27	77.01	-2.68***
Risk based capitalratio (%)	11.82	13.01	11.02***
Loan to deposit ratio (%)	104.67	93.10	-7.14***
Loan to assets ratio (%)	58.98	63.91	4.07***
Leverage ratio	11.10	10.64	-2.98***
Revenue composition (%)	33.67	25.19	-9.1***
Efficiency ratio (%)	46.31	42.20	-3.86***

**Table XXIII. Most and Least Transparent Banks T-Test Comparison Before and During Crisis**

This table shows the t-test comparisons between most and least transparent banks' performance and stability measures before and during the crisis period. Panel A shows the significance tests for market measures and Panel B shows the significance tests for accounting measures. Time period is June 2001- December 2008. Crisis period is from January 2007 to December 2008. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Market Measures**

	ALL BHCS				MOST TRANSPARENT				LEAST TRANSPARENT			
	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis
Average Beta	1.05	0.91	1.46	12.4***	1.11	0.95	1.59	-10.19***	0.99	0.88	1.34	-7.56***
Average Z	261.32	309.73	163.12	-6.25***	258.31	314.46	142.80	5.14***	264.30	305.01	182.89	3.69***
Average Stock return	3.17	11.95	-22.42	-5.6***	0.50	11.80	-32.93	5.13***	5.83	12.11	-12.21	2.82**
Average Stock volatility	30.53	21.57	56.66	13.89***	30.63	20.91	59.37	-10.70***	30.42	22.22	54.02	-8.94***

	MOST TRANSPARENT BHCs Before Crisis	LEAST TRANSPARENT BHCs Before Crisis	t-test Most Transparent/ Least Transparent BHCs Before Crisis	MOST TRANSPARENT BHCs During Crisis	LEAST TRANSPARENT BHCs During Crisis	t-test Most Transparent/ Least Transparent BHCs During Crisis
Average Beta	0.95	0.88	1.73	1.59	1.34	3.24***
Average Z	314.46	305.01	0.34	142.80	182.89	-1.04
Average Stock return	11.80	12.11	-0.04	-32.93	-12.21	-1.96
Average Stock volatility	20.91	22.22	-0.51	59.37	54.02	1.22

**Panel B. Accounting Measures**

	ALL BHCS				MOST TRANSPARENT				LEAST TRANSPARENT			
	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis
ROA(%)	1.00	1.23	0.32	-6.63***	0.96	1.27	0.06	6.23***	1.03	1.19	0.57	3.19***
ROE(%)	11.53	14.53	2.79	-6.58***	11.31	15.19	-0.16	6.06***	11.75	13.87	5.65	3.28***
Risk-adjusted ROA	8.76	10.85	4.51	-7.78***	9.14	11.66	3.96	6.65***	8.38	10.05	5.05	4.36***
Risk-adjusted ROE	9.14	11.15	5.05	-5.47***	9.66	11.82	5.22	4.16***	8.62	10.48	4.89	3.55***
Sharpe ratio	0.18	0.50	-0.74	-8.0***	0.17	0.54	-0.89	6.46***	0.19	0.47	-0.59	4.85***

	MOST TRANSPARENT BHCs Before Crisis	LEAST TRANSPARENT BHCs Before Crisis	t-test Most Transparent/ Least Transparent BHCs Before Crisis	MOST TRANSPARENT BHCs During Crisis	LEAST TRANSPARENT BHCs During Crisis	t-test Most Transparent/ Least Transparent BHCs During Crisis
ROA(%)	1.27	1.19	0.6	0.06	0.57	-2.17
ROE(%)	15.19	13.87	0.73	-0.16	5.65	-1.89
Risk-adjusted ROA	11.66	10.05	1.72	3.96	5.05	-0.81
Risk-adjusted ROE	11.82	10.48	1.04	5.22	4.89	0.17
Sharpe ratio	0.54	0.47	0.44	-0.89	-0.59	-1.11

### **5.4.3. Weak versus Healthy Banks**

The last comparison is made between the weak and healthy banks. To understand if there is a significant difference in performance and stability between weak (troubled) and healthy banks, three different approaches have been used. First, the mean values for each group is compared to each other and t tests are used to understand if the difference between the means are significant. Afterwards, logit regressions are run to see if the disclosure leads the bank to become a troubled bank. Finally, the same regression models used to understand effect of the quantity and quality of information disclosure on performance and stability are utilized, but this time a dummy variable called “Troubled” is used in the regressions. The “Troubled” dummy takes a value of 1 if the bank is listed in the troubled bank list (Table III), and a value of 0 if not.

#### **5.4.3.1. Standard Tests of Significance**

Table XXIV shows the results of the t-test comparisons. All the disclosure indices are significantly higher for troubled banks sample. Due to the nature of the call report disclosure indices, higher values of disclosure index values for troubled banks would also mean that these banks engage more in securitization and credit derivative activities and hence disclose more information to public. Also, troubled banks significantly have more annual report disclosure and there is a significantly more negative publication about those banks in newspapers.

**Table XXIV. Troubled and Healthy Banks T-Test Comparison**

This table shows the t-test comparisons between troubled and healthy banks' disclosure indices, performance and stability measures and control variables. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TQI is total quantitative index, SARI is securitization annual report index and DARI is credit derivative activities annual report index. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, and QualIndex is the disclosure quality index. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

	<i>Healthy banks mean</i>	<i>Troubled banks mean</i>	<i>t- test</i>
<b>Disclosure Indices</b>			
SSBI	3.11	17.05	-17.15***
DSBI	0.43	3.90	-18.59***
TSBI	3.54	20.97	-18.78***
TQI	0.12	0.38	-5.61***
SARI	30.20	73.99	-13.56***
DARI	0.70	9.34	-9.58***
# of Art	0.77	23.83	-10.49***
TRNS	0.01	0.13	-3.56***
QualIndex	99.41	98.91	1.04
<b>Performance Measures</b>			
ROA(%)	1.06	1.03	0.33
ROE(%)	12.58	11.32	1.03
Risk-adjusted ROA	8.94	10.73	-2.04**
Risk-adjusted ROE	8.86	10.73	-1.91*
Stock Return(%)	8.61	0.53	1.76*
Sharpe ratio	0.20	0.16	0.35
<b>Stability Measures</b>			
Volatility of Stock Return(%)	31.18	30.57	0.29
Beta	1.02	1.07	-1.18
Z statistic	273.94	301.87	-1.25
<b>Control Variables</b>			
Total Assets(\$ in millions)	27,181	365,319	-12.29***
Risk weighted assets/Total assets (%)	76.33	84.10	-9.04***
Risk based capitalratio (%)	12.88	12.00	9.66***
Loan to deposit ratio (%)	95.55	105.46	-8.17***
Loan to assets ratio (%)	64.57	64.57	0.00
Leverage ratio	10.56	10.43	0.96
Revenue composition (%)	27.39	29.91	-2.97***
Efficiency ratio (%)	43.36	44.13	-0.91

When we look at the performance measures, the difference between the mean values for ROA and ROE of healthy and troubled banks is not very high and the difference is not significant. Troubled banks have slightly higher risk-adjusted ROA and risk-adjusted ROE values than healthy banks and the difference is statistically significant. However, stock return is significantly lower for troubled banks than healthy banks and the difference is quite large – average stock return for healthy banks is 8.6 % while the average stock return for weak banks is 0.5 %. The result seems to be conflicting but the main reason for it is that the accounting measures of performance are not as sensitive as market measures of performance to the negative news in the media regarding the health of the bank. None of the stability measures are significantly different for troubled and healthy banks.

Table XXV shows the troubled and healthy banks comparison before and during the crisis period. Both for the troubled and healthy banks, during the crisis period performance and stability have significantly decreased. Before the crisis, the only performance measure that was significantly different for troubled and healthy banks was risk-adjusted ROA. However, during the crisis, this difference disappears and the only performance measure which is significantly different for troubled banks and healthy banks is their ROE's. During that period, ROE of healthy banks decreased from 14.58 % to 6.83 %; and the ROE of troubled banks decreased from 15.12 % to 0.25 %. Before the crisis, stock return of healthy banks was slightly higher than the stock return of troubled banks and the difference between them was not significant. However, during the crisis period, stock return of troubled banks decreased to -31.49 % while the stock return of healthy banks decreased to -6.52 %. This difference is statistically significant.



**Table XXV. Troubled and Healthy Banks T-Test Comparison Before and During Crisis**

This table shows the t-test comparisons between troubled and healthy banks' performance and stability measures before and during the crisis period. Panel A shows the significance tests for market measures and Panel B shows the significance tests for accounting measures. Time period is June 2001- December 2008. Crisis period is from January 2007 to December 2008. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Market Measures**

	ALL BHCS				TROUBLED				HEALTHY			
	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis
Average Beta	1.05	0.91	1.46	15.5***	1.06	0.91	1.52	-13.16***	1.02	0.90	1.37	-8.47***
Average Z	290.45	352.58	165.03	-8.45***	301.86	375.01	153.25	7.68***	273.93	319.96	181.89	3.99***
Average Stock Return	3.83	12.46	-21.22	-6.66***	0.53	11.49	-31.49	6.55***	8.61	13.87	-6.52	2.59*
Average Stock Volatility	30.82	21.55	57.71	18.12***	30.57	20.77	59.19	-14.78***	31.18	22.68	55.60	-10.56***

	TROUBLED BHCs Before Crisis	HEALTHY BHCs Before Crisis	t-test Troubled/ Healthy BHCs Before Crisis	TROUBLED BHCs During Crisis	HEALTHY BHCs During Crisis	t-test Troubled/ Healthy BHCs During Crisis
Average Beta	0.91	0.90	0.22	1.52	1.37	2.36 <sup>†</sup>
Average Z	375.01	319.96	2.12	153.25	181.89	-0.77
Average Stock Return	11.49	13.87	-0.45	-31.49	-6.52	-2.82**
Average Stock Volatility	20.77	22.68	-0.92	59.19	55.60	1.02

<sup>†</sup> significant at 10.87%

**Panel B. Accounting Measures**

	ALL BHCS				TROUBLED				HEALTHY			
	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis	Full	Before Crisis	During Crisis	t-test Before/ During Crisis
ROA(%)	1.04	1.29	0.32	0.33	1.03	1.34	0.14	8.53***	1.06	1.23	0.59	3.80***
ROE(%)	11.84	14.90	2.96	1.03	11.32	15.12	0.25	8.74***	12.58	14.58	6.83	3.80***
Risk-adjusted ROA	10.00	12.72	4.51	-2.04**	10.73	13.90	4.28	8.66***	8.94	10.99	4.84	4.62***
Risk-adjusted ROE	9.97	12.47	4.91	-1.91*	10.73	13.47	5.17	6.518***	8.86	11.03	4.54	4.24***
Sharpe ratio	0.18	0.51	-0.79	0.35	0.16	0.53	-0.91	8.72***	0.20	0.48	-0.61	5.52***

	TROUBLED BHCs Before Crisis	HEALTHY BHCs Before Crisis	t-test Troubled/ Healthy BHCs Before Crisis	TROUBLED BHCs During Crisis	HEALTHY BHCs During Crisis	t-test Troubled/ Healthy BHCs During Crisis
ROA(%)	1.34	1.23	0.96	0.14	0.59	-2.38 <sup>‡</sup>
ROE(%)	15.12	14.58	0.39	0.25	6.83	-2.87**
Risk-adjusted ROA	13.90	10.99	2.91**	4.28	4.84	-0.39
Risk-adjusted ROE	13.47	11.03	2.13	5.17	4.54	0.38
Sharpe ratio	0.53	0.48	0.33	-0.91	-0.61	-1.36

<sup>‡</sup> significant at 10.4%

#### **5.4.3.2. Logit Regressions**

To see if disclosure indices significantly impact a bank's probability to become a troubled bank, logit regressions are run. Table XXVI shows the results of the logit models. More information disclosed on call reports increases the probability of becoming a troubled bank (the coefficient on SSBI is 0.318). Also, greater discussion of credit derivative activities on annual reports significantly increases the probability of a bank to be in trouble (the coefficient on DARI is 0.335).

However, market welcomes more information about securitization activities on annual reports. Although the coefficient is lower (-0.016) on SARI than the coefficients on other disclosure indices, more disclosure about securitization in annual reports decreases a bank's probability to become a troubled bank.

Another interesting result of the logit regressions is the negative sign of the coefficient on TQI. This index is calculated as the total amount of securitization and credit derivative activities scaled by the bank size. The results show that higher TQI reduces a bank's probability to be a troubled bank. This can be interpreted in conjunction with the previous results about the quantity of information and performance. Regressions on call report indices show that higher levels of disclosure/activity are associated with higher performance. As a bank gets more proficient on securitization and credit derivative activities, bank profitability increases. The same results are seen in logit regressions. As a bank engages more in securitization and credit derivative activities, its probability of being in trouble decreases.

**Table XXVI. Logit Model Results**

This table shows the logit regression results. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TQI is total quantitative index, SARI is securitization annual report index and DARI is credit derivative activities annual report index. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis period is from January 2007 to December 2008. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Hypothesis variables</b>						
SSBI	0.318*** (0.058)		0.286*** (0.045)		0.207*** (0.044)	
DSBI	-0.067 0.140		0.343*** (0.124)			0.008 (0.122)
TSBI		0.271*** (0.053)				
TQI	-5.345*** (0.902)	-4.924*** (1.059)	-3.470*** (0.596)			
SARI	-0.016* (0.009)	-0.009 (0.008)		0.011** (0.005)	-0.002 (0.006)	
DARI	0.335*** (0.065)	0.274*** (0.057)		0.306*** (0.057)		0.338*** (0.060)
<b>Control variables</b>						
Bank size (log assets)	3.749*** (0.422)	3.371*** (0.365)	3.262*** (0.346)	3.211*** (0.313)	3.191*** (0.303)	3.126*** (0.321)
Risk weighted assets/total assets	11.311*** (3.110)	9.999*** (2.960)	9.256*** (2.624)	10.269*** (2.624)	10.898*** (2.549)	11.701*** (2.674)
Risk based capital ratio	-0.417*** (0.160)	-0.405*** (0.160)	-0.513*** (0.154)	-0.373*** (0.145)	-0.499*** (0.148)	-0.349*** (0.145)
Loan to deposit ratio	-1.946 (2.227)	-1.510 (2.181)	-3.994** (2.010)	-2.417 (1.859)	-4.872** (1.937)	-1.932 (1.820)
Loan to asset ratio	5.269 (4.854)	4.982 (4.62)	1.938 (4.218)	5.816 (4.164)	1.149 (3.943)	6.267 (4.127)
Leverage ratio	0.467*** (0.116)	0.404*** (0.109)	0.323*** (0.092)	0.244*** (0.092)	0.186** (0.083)	0.225** (0.093)
Revenue composition	-17.867*** (2.926)	-17.652*** (2.854)	-16.559*** (2.691)	-15.523*** (2.530)	-14.141*** (2.364)	-14.684*** (2.405)
Efficiency ratio	0.333 (1.847)	1.495 (1.747)	2.241 (1.636)	2.877** (1.441)	1.851 (1.494)	2.946** (1.452)
Crisis Dummy	-2.072*** (0.489)	-2.440*** (0.481)	-2.166*** (0.418)	-2.796*** (0.426)	-1.778*** (0.397)	-2.624*** (0.422)
Number of observations	837	837	837	837	837	837
Model $\chi^2$	859.55***	853.16***	825.274***	805.059***	795.569***	801.102***
AIC	293.48	297.86	330.08	341.97	351.46	345.93

#### **5.4.3.3. Regressions with Troubled Dummy**

Table XXVII shows the results of the regressions where “Troubled” dummy is used in all set of regressions. For each performance and stability measure, forty nine different regressions are run. In sum, a total of 441 regressions are run<sup>15</sup>.

The “Troubled” dummy is insignificant for all the performance variables. In case of stability measures, only when beta and z-statistic are used as the dependent variable the “Troubled” dummy is significant. However, the results are very interesting.

“Troubled” dummy takes a negative value for beta and positive for z-statistic, which means that the risk is reduced when the bank is in the troubled bank sample. These results confirm that the market was not very successful at understanding the risks of securitization and credit derivative activities.

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<sup>15</sup> For the sake of brevity, only significant results are tabulated. The whole set of results are available upon request.

**Table XXVII. Troubled and Healthy Bank Comparison**

This table shows the regression results for the disclosure of information, bank health and stability. SSBI is securitization subcategory binary index, DSBI is credit derivative activities subcategory binary index, TSBI is total activities subcategory binary index, TQI is total quantitative index, SARI is securitization annual report index and DARI is credit derivative activities annual report index. # of articles is the total number of articles appeared in news, TRNS is the total number of transparency related articles appeared in news, and QualIndex is the disclosure quality index. In Panel A beta; in Panel B z-statistic is used as the stability measure. Risk based capital ratio is Tier 1+ Tier 2 to total capital ratio. Leverage ratio is total debt divided by total equity and it is shown in decimals. Time period: June 2001- December 2008. Crisis period is from January 2007 to December 2008. \*\*\*, \*\*, \* indicates 1%, 5%, 10% significance levels respectively.

**Panel A. Beta**

		BETA							
	Exp.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Hypothesis variables</b>									
SSBI	-	-0.0028 (0.0054)							
SSBI <sup>2</sup>		0.00009 (0.0001)							
DSBI	-		-0.0010 (0.0198)						
DSBI <sup>2</sup>			0.0004 (0.0019)						
TQI	-			-0.1449* (0.0742)					
TQI <sup>2</sup>				0.0311** (0.0156)					
SARI	-				0.0005 (0.0009)				
SARI <sup>2</sup>					0.000003 (0.000004)				
DARI	-					0.0046 (0.0039)			
DARI <sup>2</sup>						0.00001 (0.00005)			
# of articles	+						0.0011 (0.0010)	0.0012 (0.0010)	

(Cont.)

TRNS	+							-0.0119 (0.0292)	
QualIndex	-								-0.0008 (0.0020)
<b>Control variables</b>									
Bank size (log assets)		0.0178 (0.0266)	0.0217 (0.0276)	0.038 (0.0245)	-0.0066 (0.0223)	-0.0093 (0.0223)	0.0122 (0.027)	0.0116 (0.027)	0.0278 (0.0233)
Risk weighted assets/total assets		0.7313*** (0.2441)	0.7268*** (0.2459)	0.6532*** (0.2443)	0.7178*** (0.2275)	0.6738*** (0.2277)	0.7305*** (0.2442)	0.7305*** (0.2444)	0.7243*** (0.2439)
Risk based capital ratio		0.0073 (0.0159)	0.007 (0.0157)	-0.00001 (0.0157)	-0.0037 (0.0146)	-0.0064 (0.0144)	0.0089 (0.0155)	0.0087 (0.0156)	0.0074 (0.0155)
Loan to deposit ratio		0.6921*** (0.1836)	0.6861*** (0.1801)	0.7178*** (0.1781)	0.493*** (0.1743)	0.6001*** (0.1649)	0.6425*** (0.1812)	0.6401*** (0.1814)	0.678*** (0.1788)
Loan to asset ratio		-1.5926*** (0.3851)	-1.6406*** (0.3709)	-1.6443*** (0.3675)	-1.3552*** (0.3553)	-1.3166*** (0.3587)	-1.467*** (0.3982)	-1.4641*** (0.3985)	-1.6364*** (0.3692)
Leverage ratio		-0.0252** (0.0109)	-0.0259** (0.0109)	-0.0227** (0.0109)	-0.0123 (0.0102)	-0.018* (0.0102)	-0.0292*** (0.0111)	-0.0295*** (0.0111)	-0.0265** (0.0109)
Revenue composition		-0.669*** (0.1987)	-0.7082*** (0.1941)	-0.7111*** (0.1864)	-0.2297 (0.1751)	-0.2132 (0.176)	-0.613*** (0.2058)	-0.6072*** (0.2064)	-0.7155*** (0.1876)
Efficiency ratio		1.6684*** (0.1887)	1.6618*** (0.185)	1.7109*** (0.1858)	0.6063*** (0.1774)	0.6069*** (0.1768)	1.6506*** (0.1848)	1.6525*** (0.185)	1.6655*** (0.1845)
<b>Trouble</b>		-0.1028* (0.0623)	-0.1132* (0.06)	-0.1258** (0.0597)	-0.1052* (0.0566)	-0.1101** (0.0561)	-0.1101* (0.0602)	-0.1088* (0.0603)	-0.1185** (0.0597)
<b>Intercept</b>		0.0648 (0.5533)	0.06 (0.5836)	-0.1373 (0.5507)	0.8531* (0.5158)	0.9182* (0.5152)	0.122 (0.5633)	0.1364 (0.5648)	0.0408 (0.5761)
<b>AR(1)</b>		-0.1836*** (0.0349)	-0.1836*** (0.0349)	-0.1782*** (0.0349)	-0.2485*** (0.0344)	-0.2447*** (0.0345)	-0.1892*** (0.0348)	-0.1894*** (0.0348)	-0.1870*** (0.0348)
<b>Crisis Dummy</b>		0.4955*** (0.0438)	0.4880*** (0.0444)	0.4904*** (0.0433)	0.4146*** (0.0409)	0.4097*** (0.0409)	0.5033*** (0.0418)	0.5030*** (0.0418)	0.5007*** (0.0416)
<b>R-squared</b>		0.3610	0.3606	0.3634	0.3698	0.3715	0.3614	0.3615	0.3603
<b>Durbin-Watson statistic</b>		2.0206	2.0241	2.0190	2.0377	2.0444	2.0210	2.0208	2.0244

**Panel B. Z- Statistic**

		Z		
	Exp.	(1)		
<b>Hypothesis variables</b>				
SSBI	+	-10.7105** (4.7158)		-10.9281** (4.7409)
SSBI <sup>2</sup>	-	0.2643*** (0.0987)		0.2701*** (0.0995)
DSBI	+			-4.6828 (13.5677)
DSBI <sup>2</sup>	-			0.6514 (1.2581)
TSBI	+		-10.7599** (4.4508)	
TSBI <sup>2</sup>	-		0.2232*** (0.0785)	
<b>Control variables</b>				
Bank size (log assets)		-35.5884 (30.0365)	-35.754 (31.3704)	-37.2592 (32.3996)
Risk weighted assets/total assets		-559.3041** (254.9623)	-512.0795** (254.6627)	-553.7453** (259.8744)
Risk based capital ratio		-0.4168 (9.2297)	-0.5567 (9.2136)	-0.5676 (9.2467)
Loan to deposit ratio		-201.4223 (138.3627)	-203.4774 (138.1593)	-204.5177 (138.6279)
Loan to asset ratio		908.4854*** (341.5841)	908.8594*** (342.6442)	921.7213*** (344.2156)
Leverage ratio		11.8675 (7.8441)	11.8089 (7.8201)	11.8406 (7.853)
Revenue composition		93.7514 (100.3199)	102.2997 (100.5262)	98.8549 (100.8922)
Efficiency ratio		-13.0069 (62.1373)	-11.4741 (62.1091)	-12.4386 (62.2626)



(Cont.)

**Trouble**

**Intercept**

**AR(1)**

**Crisis Dummy**

**R-squared**

**Durbin-Watson statistic**

134.5915*	140.7467*	138.097*
(80.4271)	(80.5512)	(80.694)
831.8603	804.8849	852.162
(636.1677)	(650.6807)	(671.6788)
-0.8317***	-0.8316***	-0.8313***
(0.0220)	(0.0220)	(0.0221)
-101.4092***	-100.6914***	-101.7984***
(24.7673)	(24.7226)	(24.8352)
0.7817	0.782	0.7818
1.8181	1.8132	1.8154

## **CHAPTER VI**

### **CONCLUSIONS**

This study examined the relationship between information disclosure and banking performance and stability during the eight years leading to one of the worst financial crisis in the world history. Securitized assets and credit derivatives were mostly seen as the triggering securities of the subprime mortgage crisis. This research specifically concentrated on the disclosure regarding the securitization and credit derivatives. The study aimed to analyze the market discipline and the monitoring ability of the markets by evaluating the linkage between the information disclosure and bank performance and stability.

Several research questions were asked: Does the quantity and quality of information disclosure affect performance and stability? How does the market react to changes in disclosure levels? How does the disclosure related news affect the return and risk perception of the market? How do the least transparent and most transparent banks

differ in their performance and stability? How do troubled and healthy banks differ in their disclosure levels? Does the level of disclosure affect a bank to become a troubled bank?

The results show a significant relationship between the quality/quantity of disclosure and bank performance/stability. It is hypothesized that as the bank increases the quantity of information disclosed to the market, the performance and stability of a bank would increase as the market welcomes this information but after a certain point, extensive, inappropriate and improperly timed information disclosure would lower the bank performance and destabilize the bank. On the contrary to the expectations, the results of the study provide evidence of a U-shaped relationship between information disclosure and banking performance and stability. This shows that initially when banks disclose information about those activities, market reacts negatively but as banks engage more in securitization and credit derivative activities, they reach the economies of scale and after a certain point, providing more information to the market increases banking performance and stability.

When changes in disclosure indices are analyzed, it is seen that the increases in disclosure/activity have more significant impact on performance and stability compared to decreases. Performance measures are more sensitive to changes in the disclosure/activity level than stability measures. Besides, quantitative measures of disclosure/activity are more influenced by the changes in the disclosure level than qualitative measures of disclosure/activity. There is a greater market reaction to disclosure/activity changes by money center banks, followed by regional banks.

There have been two regulatory changes which required banks to disclose more details in their call reports in 2003 and in 2006. This increase in the disclosure level is very well welcomed by the market. Most of the significant effects of the increase in disclosure on performance and stability happened during those years. This means that even though the activity level might have remained the same, the market reacted to an increase in the level of disclosure.

When changes in annual report indices are investigated, it is noticed that market perceives the securitization activities more profitable. Changes in the disclosure of securitization activities significantly and positively affect performance.

In general, an increase in disclosure/activity as reported in call reports and annual reports results in an increase in the performance. However, more discussion of credit derivative activities in annual reports leads to a decrease in the performance and almost all these negative impact of increased annual report disclosure happened in 2008. This can be explained by the market's perception of the riskiness of the credit derivative activities. Before the crisis, people were not fully aware of the real risks of those securities. As the market learnt the real risks of credit derivatives, it started to react negatively to increased disclosure on those activities.

Analysis of the effects of the quality of disclosure revealed that if the information disclosed is of lower quality, performance is decreased. But no significant effect on stability is found. Here it should be noted that there might be causality issue in this case. If the bank management knows that they are not doing well, they might be inclined to conceal some information or even disclose wrong information to the public. This would lower the quality of the information disclosure. Thus, it might be the case where the low

performance causes low quality, not vice versa. When there are more news about a bank in the papers, the bank performance is lowered. The market perceives no news as good news.

When the enhanced annual report disclosure is of high quality, stock price significantly increases and beta decreases. Although there are cases when lower quality of increased disclosure negatively affects performance and stability, the coefficients on those variables are very small.

The results of the analysis of the market's reactions to transparency and quality related news show that those news were already anticipated by the market before they appeared on the Wall Street Journal. Neither in stock prices nor in CDS spreads, a significant reaction to those news is observed.

When high and low disclosure banks are compared, the only significant difference is in their riskiness which is measured by their betas. Highly transparent banks are riskier than their less transparent peers. It should be noted that being risky does not necessarily mean that the bank is a low performer.

The comparison between healthy and troubled banks shows that all disclosure indices are higher for troubled banks. The analysis also reveals that healthy banks have significantly higher stock returns than troubled banks. During the crisis period the difference between the stock returns of troubled and healthy banks more than doubles. Although all banks' performance and stability measures decline during the crisis period, the results show that the difference is a lot higher for troubled banks. This means that troubled banks went into more trouble during that period and the difference between healthy and troubled banks became more distinct. In terms of the troubled bank logit

model, greater securitization and credit derivative activities as reported in the bank's regulatory reports increase the probability of being a troubled bank as does the more extensive coverage of credit derivatives in the bank's annual report. On the other hand, increased discussion of securitization in the annual report reduces the probability of being a troubled bank.

The biggest challenge of this study was the intertwined nature of activity and disclosure. A possible further study would be the one which can segregate the business and disclosure effects by using a small, homogenous sample of banks which match by their activity level. Also, another direction for future studies would be to use different measures of quantity and quality of information. In the future studies, it might be also wise to control for ownership structure to separate institutional owners and observe only the behaviors of individual investors.

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## **APPENDICES**

## **APPENDIX A. DISCLOSURE DATA**

<u>Sub-Category</u>	<u>Activity</u>	<u>Explanation</u>
<i>PANEL A:</i> <i>Securitization</i>	1. Securitization activities	Outstanding principal balance of assets sold and securitized with servicing retained or with recourse or other seller-provided credit enhancements. Categories: <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> <li>5) other consumer loans,</li> <li>6) commercial and industrial loans,</li> <li>7) all other loans and all leases and all other assets</li> </ol>
	2. Credit enhancing interest-only strips	Maximum amount of credit exposure arising from recourse or other seller provided credit enhancements provided to securitization activities in the form of credit enhancing interest-only strips Categories: <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> <li>5) other consumer loans,</li> <li>6) commercial and industrial loans,</li> <li>7) all other loans and all leases and all other assets</li> </ol>
	3. Subordinated securities and other residual interests	Maximum amount of credit exposure arising from recourse or other seller provided credit enhancements provided to securitization activities in the form of subordinated securities and other residual interests Categories: <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> </ol>

	5) other consumer loans, 6) commercial and industrial loans, 7) all other loans and all leases and all other assets
4. Standby letters of credit and other enhancements	Maximum amount of credit exposure arising from recourse or other seller provided credit enhancements provided to securitization activities in the form of standby letters of credit and other enhancements Categories: 1) 1-4 family residential loans, 2) home equity lines, 3) credit card receivables, 4) auto loans, 5) other consumer loans, 6) commercial and industrial loans, 7) all other loans and all leases and all other assets
5. Unused liquidity commitments	Dollar amount of unused commitments to provide liquidity to asset sold and securitized Categories: 1) 1-4 family residential loans, 2) home equity lines, 3) credit card receivables, 4) auto loans, 5) other consumer loans, 6) commercial and industrial loans, 7) all other loans and all leases and all other assets
6. 30-89 days past due securitized assets	Dollar amount of all securitized loans and leases 30 to 89 days past due Categories: 1) 1-4 family residential loans, 2) home equity lines, 3) credit card receivables, 4) auto loans, 5) other consumer loans, 6) commercial and industrial loans, 7) all other loans and all leases and all other assets

7. 90+ days past due securitized assets	<p>Dollar amount of all securitized loans and leases 90 plus days past due</p> <p>Categories:</p> <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> <li>5) other consumer loans,</li> <li>6) commercial and industrial loans,</li> <li>7) all other loans and all leases and all other assets</li> </ol>
8. Charge-offs	<p>Charge-offs on assets sold and securitized with servicing retained or with recourse or other seller-provided credit enhancements</p> <p>Categories:</p> <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> <li>5) other consumer loans,</li> <li>6) commercial and industrial loans,</li> <li>7) all other loans and all leases and all other assets</li> </ol>
9. Recoveries	<p>Recoveries on assets sold and securitized with servicing retained or with recourse or other seller-provided credit enhancements</p> <p>Categories:</p> <ol style="list-style-type: none"> <li>1) 1-4 family residential loans,</li> <li>2) home equity lines,</li> <li>3) credit card receivables,</li> <li>4) auto loans,</li> <li>5) other consumer loans,</li> <li>6) commercial and industrial loans,</li> <li>7) all other loans and all leases and all other assets</li> </ol>
10. Sellers interest in securities	<p>Dollar amount of ownership (or sellers) interests carried as securities</p> <p>Categories:</p> <ol style="list-style-type: none"> <li>1) home equity lines,</li> <li>2) credit card receivables,</li> <li>3) commercial and industrial loans</li> </ol>

	11. Sellers interest in loans	Dollar amount of ownership (or sellers) interests carried as loans Categories: 1) home equity lines, 2) credit card receivables, 3) commercial and industrial loans
<i>PANEL B:</i> <i>Credit derivatives</i>	1. Notional amounts (guarantor)	Notional amounts of credit derivatives when the bank is the guarantor. Categories: 1) credit default swaps, 2) total return swaps, 3) credit options, 4) other credit derivatives
	2. Notional amounts (beneficiary)	Notional amounts of credit derivatives when the bank is the beneficiary. Categories: 1) credit default swaps, 2) total return swaps, 3) credit options, 4) other credit derivatives
	3. Gross fair values (guarantor)	The amount at which an asset (liability) could be bought (incurred) or sold (settled) in a current transaction between willing parties, that is other than in a forced or liquidation sale when the bank is the guarantor. Categories: 1) gross positive fair value, 2) gross negative fair value
	4. Gross fair values (beneficiary)	The amount at which an asset (liability) could be bought (incurred) or sold (settled) in a current transaction between willing parties, that is other than in a forced or liquidation sale when the bank is the beneficiary. Categories: 1) gross positive fair value, 2) gross negative fair value

Source: FDIC Call Reports (FR-Y9C)

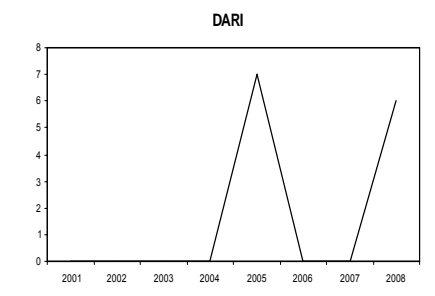
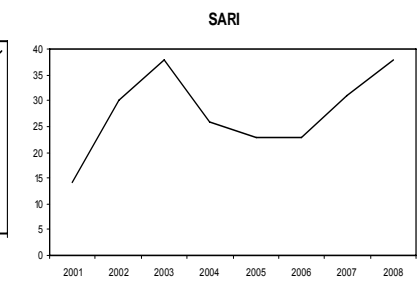
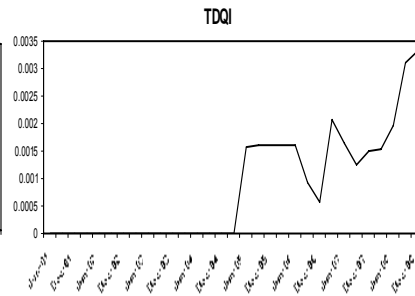
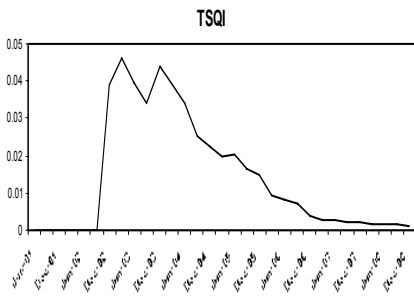
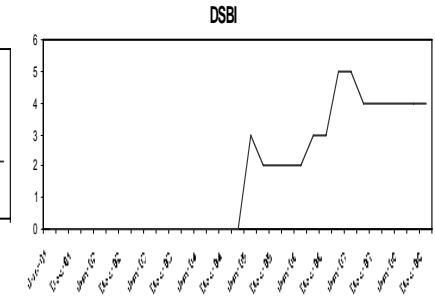
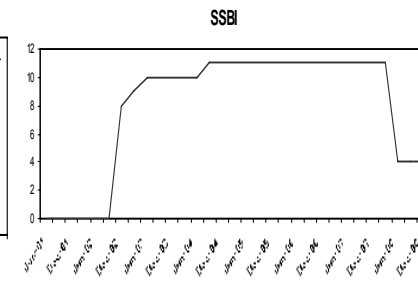
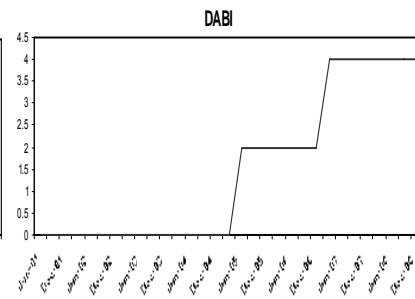
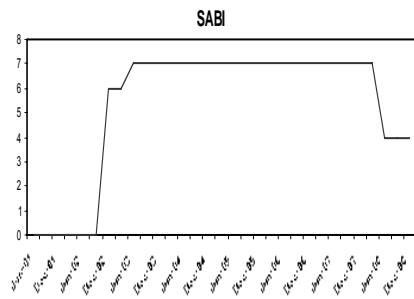
## **APPENDIX B. LIST OF BHCS IN THE SAMPLE**

<b>NAME</b>	<b>BHC ID</b>	<b>PERMCO</b>	<b>TICKER</b>	<b>TOTAL ASSETS (\$)(1000)</b>
JPMORGAN CHASE & CO.	1039502	20436	JPM	2,175,052,000
CITIGROUP INC.	1951350	20483	C	1,940,000,000
BANK OF AMERICA CORPORATION	1073757	3151	BAC	1,822,068,028
WELLS FARGO & COMPANY	1120754	21305	WFC	1,309,639,000
WACHOVIA CORPORATION	1073551	1869	WB	760,558,000
PNC FINANCIAL SERVICES GROUP, INC.	1069778	3685	PNC	291,092,876
U.S. BANCORP	1119794	1645	USB	267,032,000
SUNTRUST BANKS, INC.	1131787	21691	STI	189,000,000
BB&T CORPORATION	1074156	4163	BBT	152,015,025
REGIONS FINANCIAL CORPORATION	3242838	1620	RF	146,253,935
NATIONAL CITY CORPORATION	1069125	3157	NCC	143,695,954
FIFTH THIRD BANCORP	1070345	1741	FITB	120,000,000
KEYCORP	1068025	2535	KEY	105,231,004
NORTHERN TRUST CORPORATION	1199611	3275	NTRS	82,053,626
COMERICA INCORPORATED	1199844	1261	CMA	67,912,580
M&T BANK CORPORATION	1037003	1689	MTB	65,815,757
ZIONS BANCORPORATION	1027004	5057	ZION	55,339,951
HUNTINGTON BANCSHARES INC.	1068191	2093	HBAN	54,355,998
FIRST HORIZON NATIONAL CORPORATION	1094640	1856	FHN	31,022,768
COLONIAL BANCGROUP, INC., THE	1080465	4128	CNB	25,816,306
ASSOCIATED BANC-CORP	1199563	362	ASBC	24,198,697
FIRST CITIZENS BANCSHARES, INC.	1075612	8674	FCNCA	16,745,662
SUSQUEHANNA BANCSHARES, INC.	1117156	7050	SUSQ	13,682,988
SOUTH FINANCIAL GROUP, THE	1141599	8711	TSFG	13,600,077
INTERNATIONAL BANCSHARES CORP.	1104231	31854	IBOC	12,439,341
EAST WEST BANCORP, INC.	2734233	16402	EWBC	12,423,491
FIRSTMERIT CORPORATION	1070804	5259	FMER	11,101,201

## APPENDIX C. CHANGES IN INDICES

3242838 REGIONS FINANCIAL CORPORATION

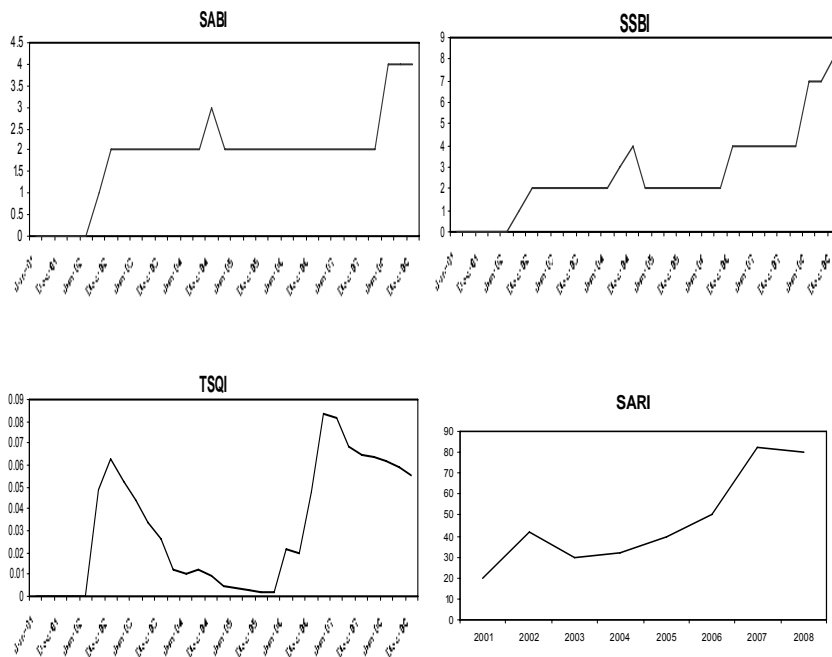
Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	5.2903	2.7832	0	7
DABI	31	1.4839	1.7102	0	4
TABI	31	6.7742	3.6761	0	11
SSBI	31	7.871	4.4252	0	11
DSBI	31	1.6452	1.8717	0	5
TSBI	31	9.5161	5.3033	0	16
TQI	31	0.015	0.0153	0	0.0463
SARI	31	28.3225	7.4224	14	38
DARI	31	1.67741	2.9027	0	7





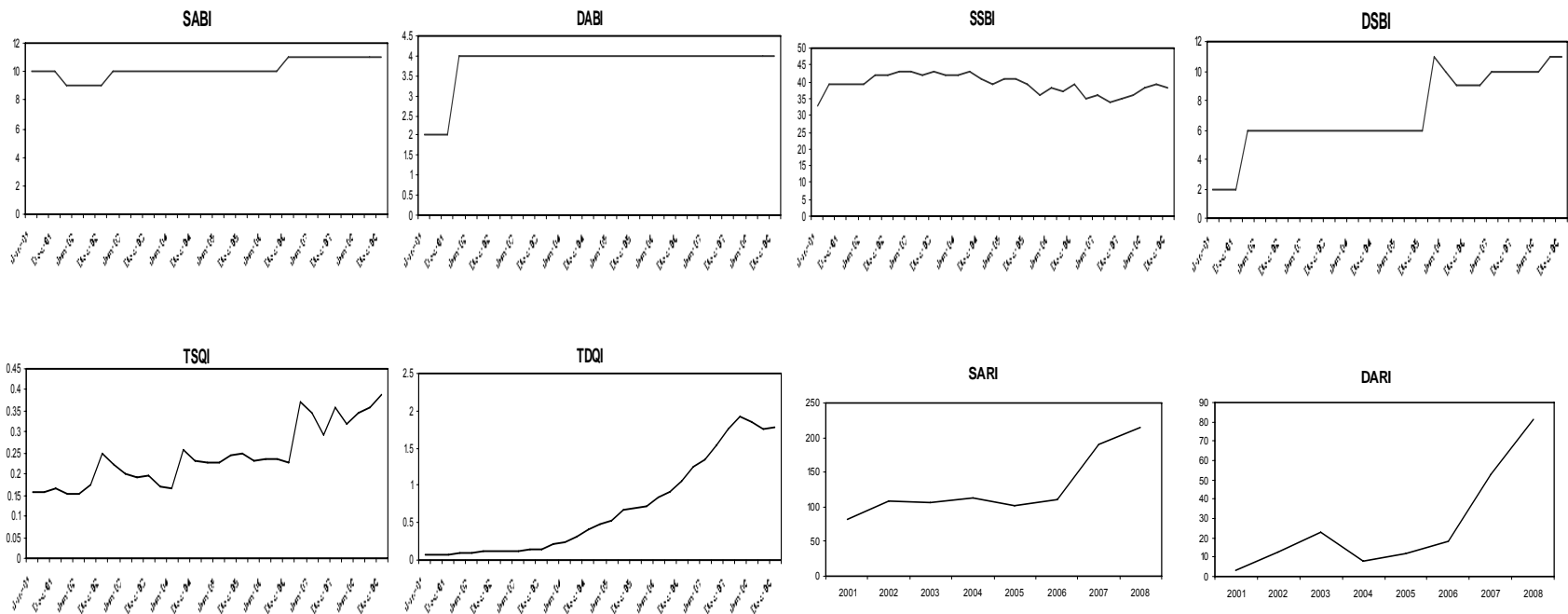
2734233 EAST WEST BANCORP, INC.

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	1.871	1.0565	0	4
DABI	31	0	0	0	0
TABI	31	1.871	1.0565	0	4
SSBI	31	2.6452	2.0256	0	8
DSBI	31	0	0	0	0
TSBI	31	2.6452	2.0256	0	8
TQI	31	0.0309	0.0283	0	0.0832
SARI	31	47.8709	21.4534	20	82
DARI	31	0	0	0	0



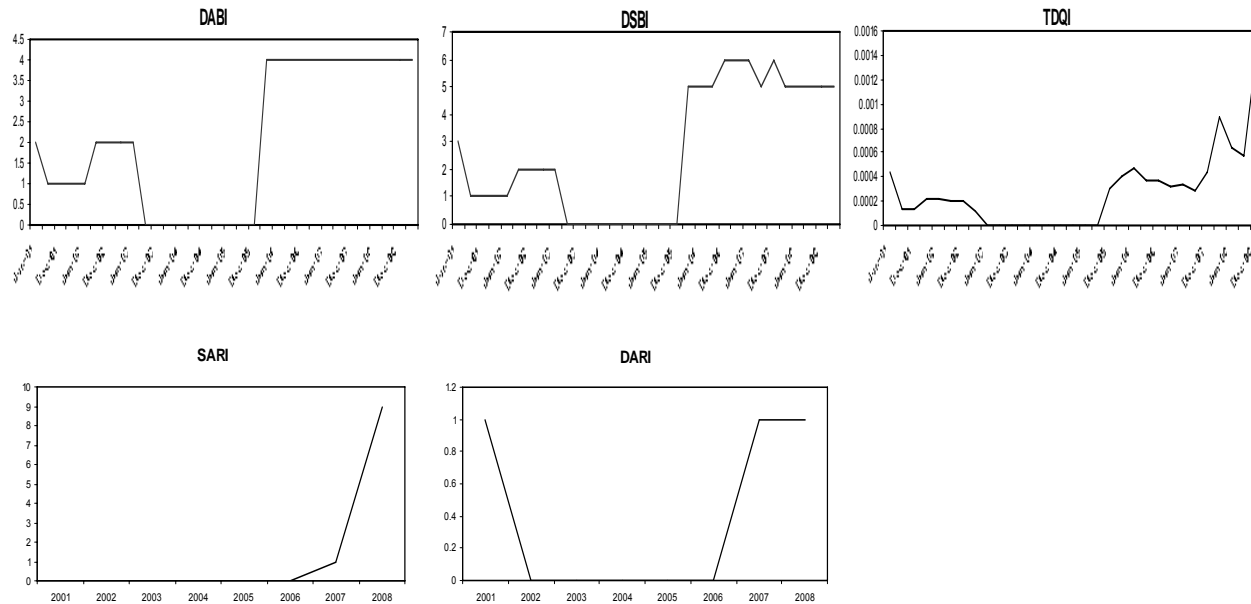
1951350 CITIGROUP INC.

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	10.1613	0.6375	9	11
DABI	31	3.8065	0.6011	2	4
TABI	31	13.9677	0.9123	12	15
SSBI	31	39.129	2.8722	33	43
DSBI	31	7.1613	2.6089	2	11
TSBI	31	46.2903	3.0462	35	50
TQI	31	0.9347	0.7079	0.2267	2.2324
SARI	31	129.6129	44.6046	82	214
DARI	31	27.129	25.5678	3	81



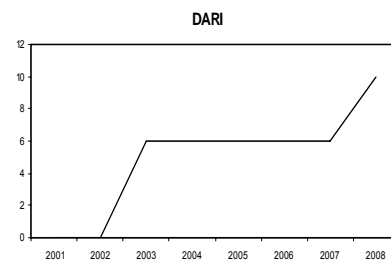
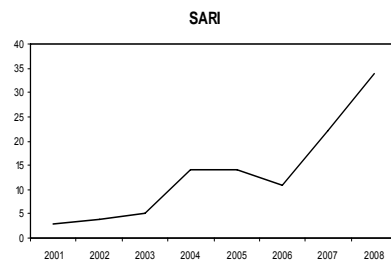
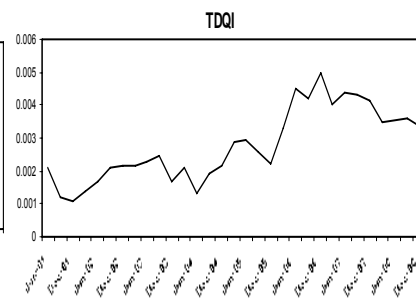
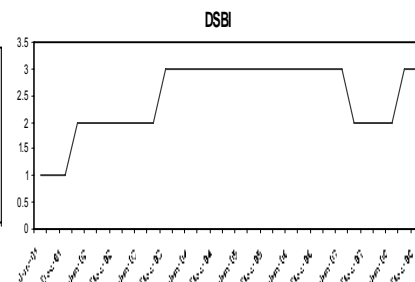
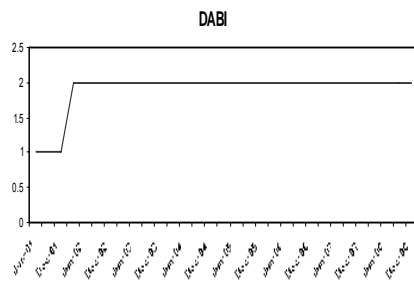
1199844 COMERICA INCORPORATED

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	0	0	0	0
DABI	31	2.0645	1.7877	0	4
TABI	31	2.0645	1.7877	0	4
SSBI	31	0	0	0	0
DSBI	31	2.6129	2.4314	0	6
TSBI	31	2.6129	2.4314	0	6
TQI	31	0.0003	0.0003	0	0.0014
SARI	31	1.2903	3.0352	0	9
DARI	31	0.3548	0.4863	0	1



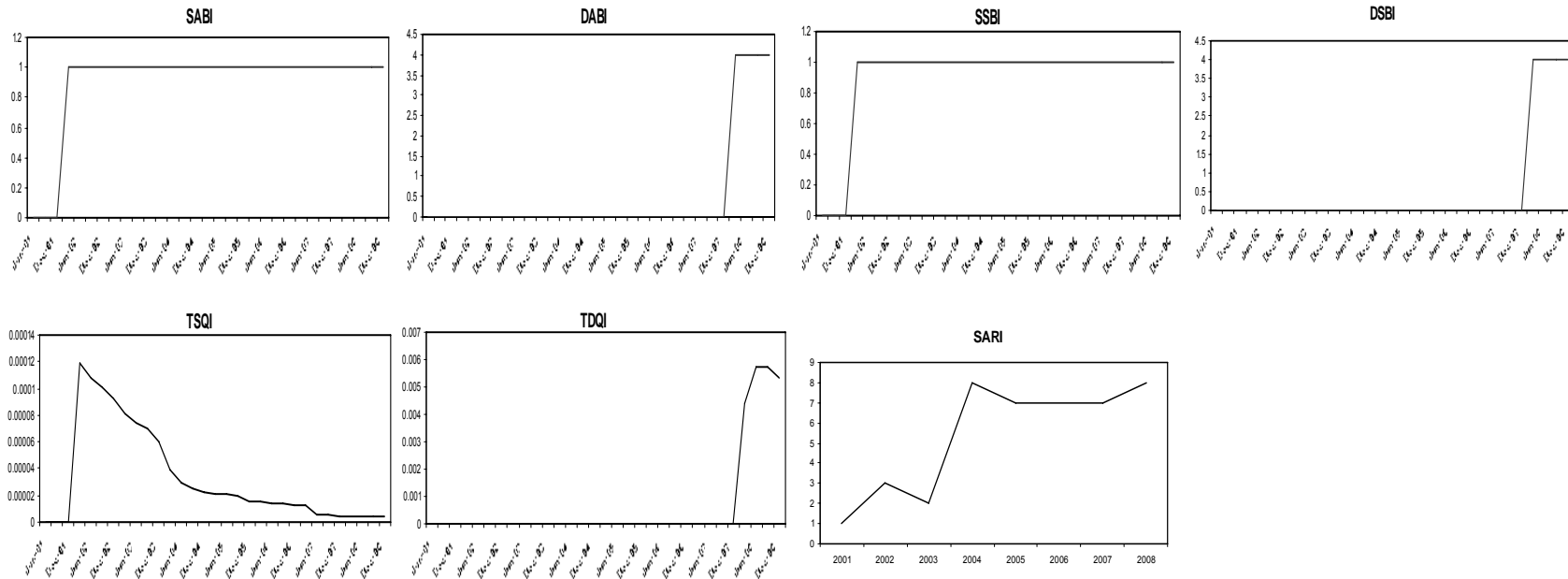
1199611 NORTHERN TRUST CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	0	0	0	0
DABI	31	1.9032	0.3005	1	2
TABI	31	1.9032	0.3005	1	2
SSBI	31	0	0	0	0
DSBI	31	2.4516	0.6752	1	3
TSBI	31	2.4516	0.6752	1	3
TQI	31	0.0028	0.0011	0.0011	0.005
SARI	31	13.7096	9.9605	3	34
DARI	31	5.1612	3.1315	0	10



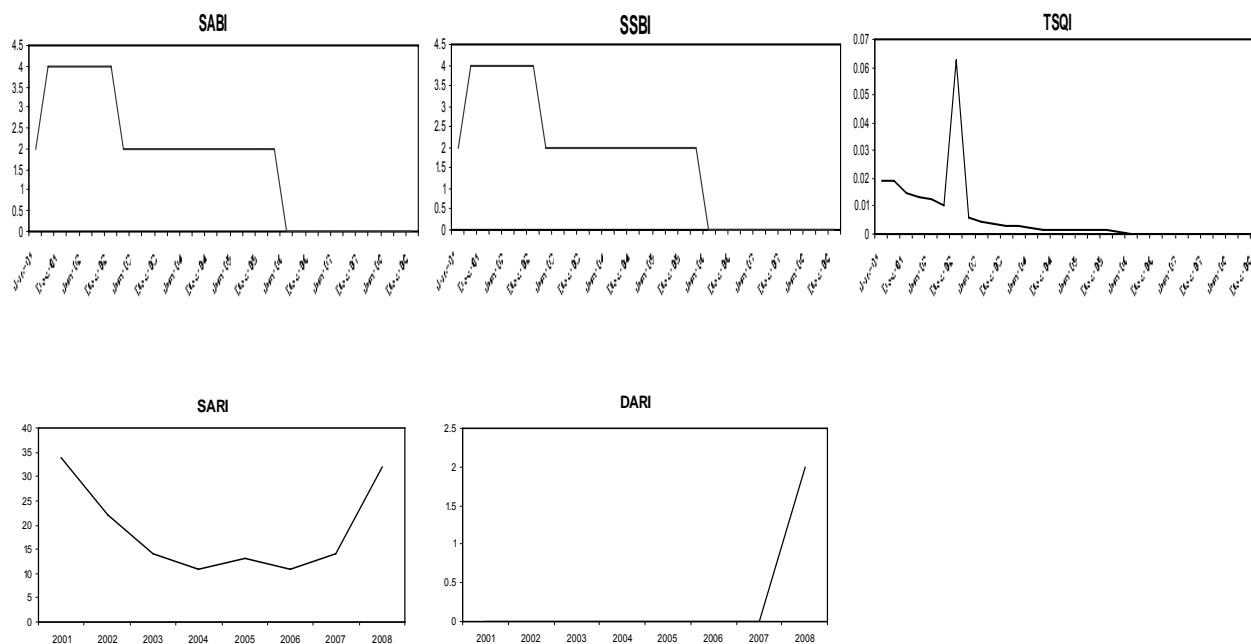
1199563 ASSOCIATED BANC-CORP

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	0.9032	0.3005	0	1
DABI	31	0.5161	1.3631	0	4
TABI	31	1.4194	1.4323	0	5
SSBI	31	0.9032	0.3005	0	1
DSBI	31	0.5161	1.3631	0	4
TSBI	31	1.4194	1.4323	0	5
TQI	31	0.0007	0.0018	0	0.0058
SARI	31	5.5161	2.6567	1	8
DARI	31	0	0	0	0



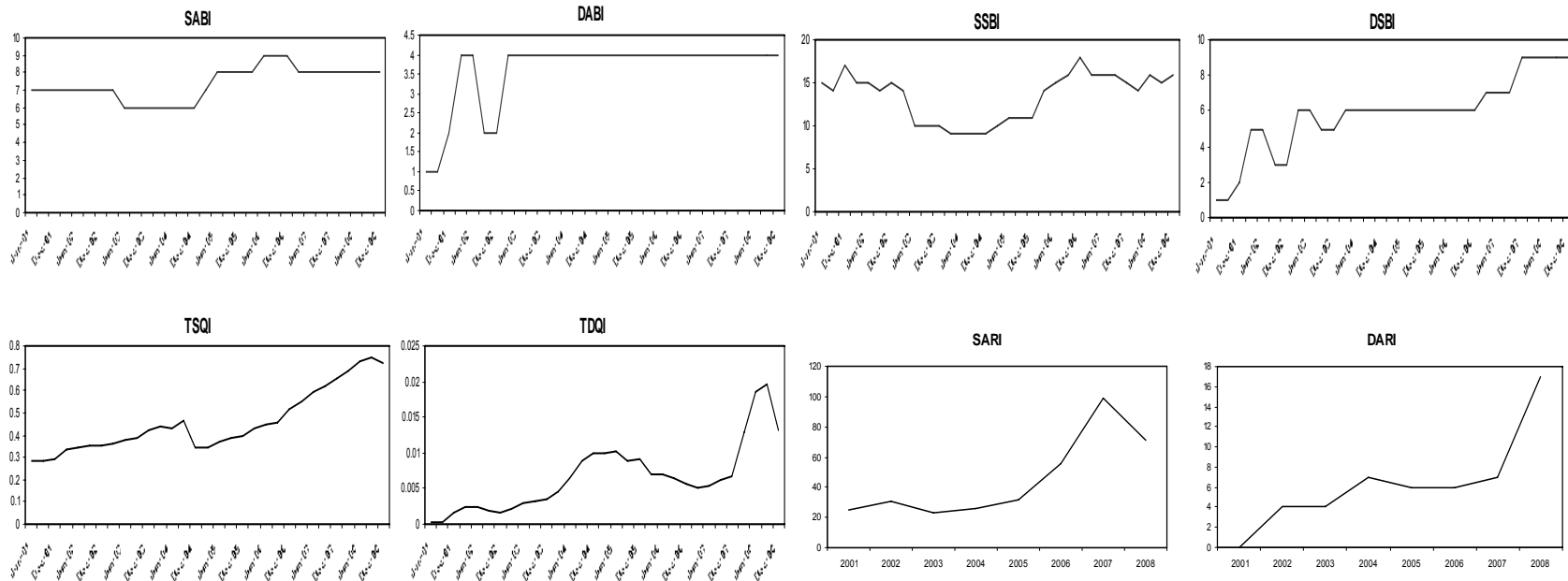
1141599 SOUTH FINANCIAL GROUP, THE

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	1.6774	1.4694	0	4
DABI	31	0	0	0	0
TABI	31	1.6774	1.4694	0	4
SSBI	31	1.6774	1.4694	0	4
DSBI	31	0	0	0	0
TSBI	31	1.6774	1.4694	0	4
TQI	31	0.0059	0.012	0	0.0625
SARI	31	18.387	8.6242	11	34
DARI	31	0.258	0.6815	0	2



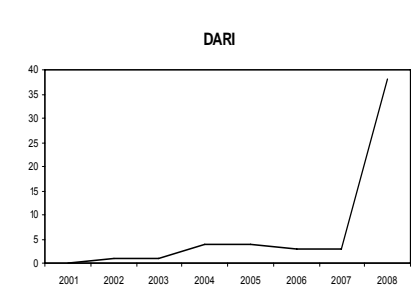
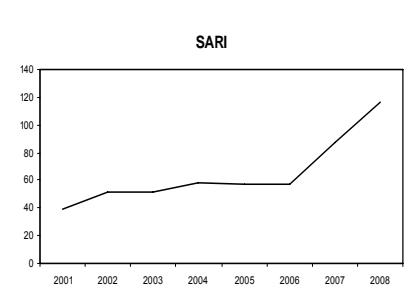
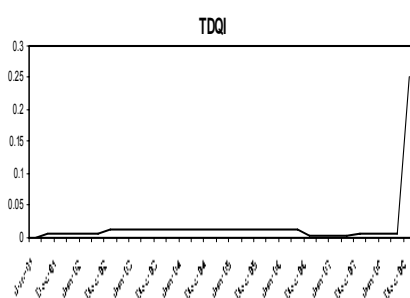
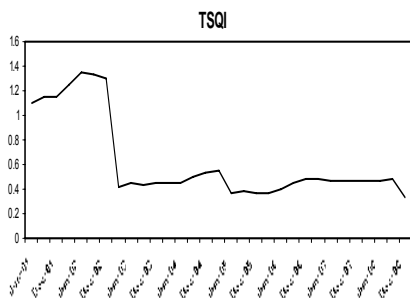
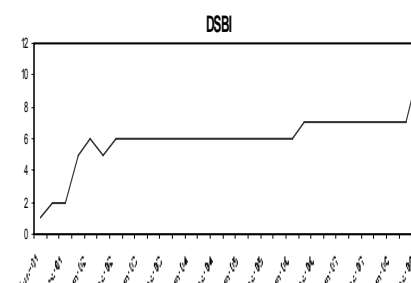
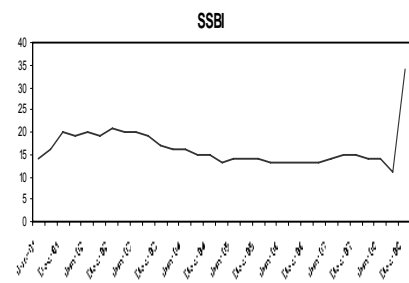
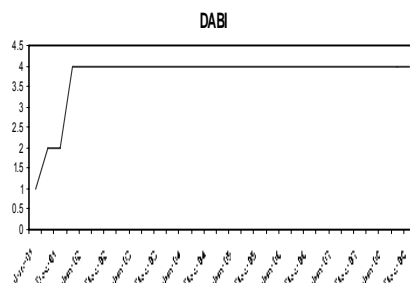
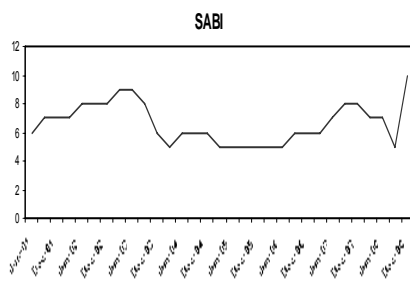
1131787 SUNTRUST BANKS, INC.

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	7.3548	0.9504	6	9
DABI	31	3.6129	0.9193	1	4
TABI	31	10.9677	1.4256	8	13
SSBI	31	13.3871	2.8009	9	18
DSBI	31	5.8065	2.1201	1	9
TSBI	31	19.1935	3.5723	15	25
TQI	31	0.462	0.143	0.2822	0.7722
SARI	31	46.032258	26.368522	23	99
DARI	31	6.5806452	4.5517337	0	17



1120754 WELLS FARGO & COMPANY

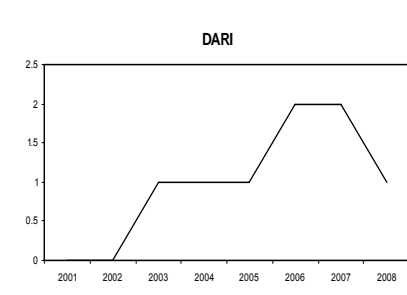
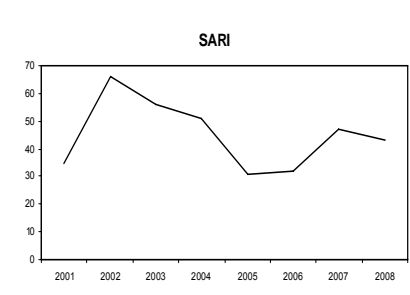
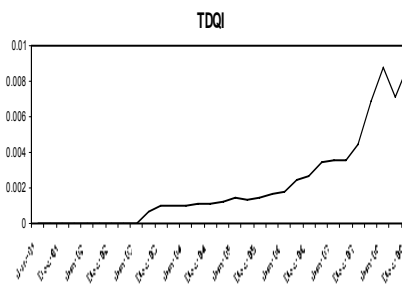
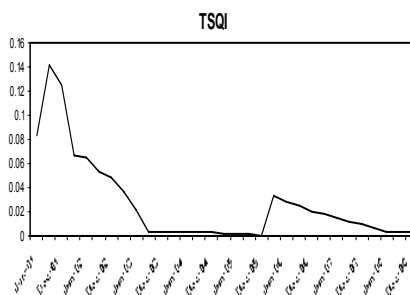
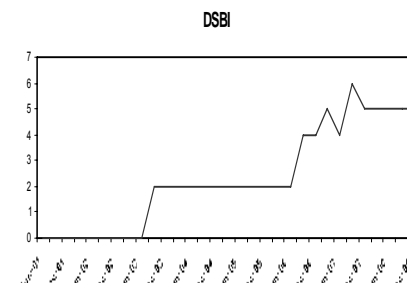
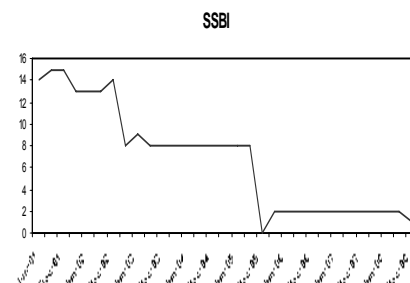
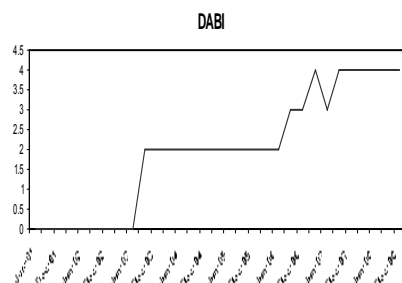
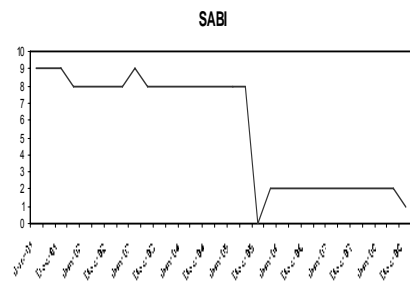
Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	6.6452	1.4035	5	10
DABI	31	3.7742	0.7169	1	4
TABI	31	10.4194	1.5869	7	14
SSBI	31	16.2581	4.2815	11	34
DSBI	31	5.9355	1.672	1	10
TSBI	31	22.1935	4.8677	15	44
TQI	31	0.6402	0.3361	0.3815	1.3563
SARI	31	65.5806	23.3934	39	116
DARI	31	6.9677	12.2187	0	38





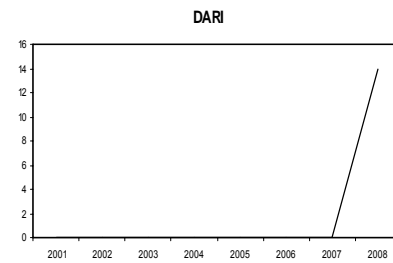
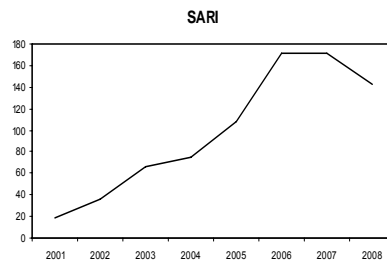
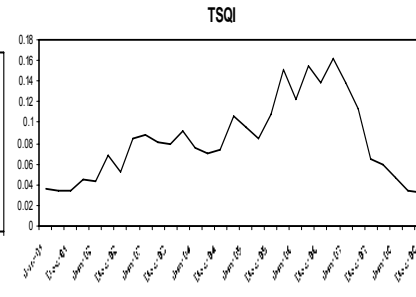
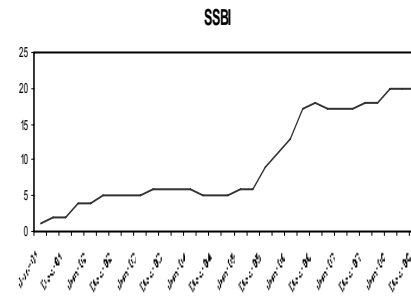
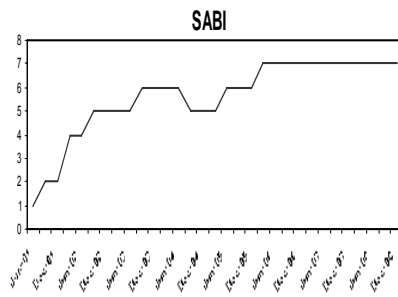
1119794 U.S. BANCORP

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	5.5161	3.2749	0	9
DABI	31	1.9677	1.4941	0	4
TABI	31	7.4839	2.3075	2	10
SSBI	31	6.7419	4.8509	0	15
DSBI	31	2.3226	1.956	0	6
TSBI	31	9.0645	3.346	2	15
TQI	31	0.0294	0.0349	0.0015	0.1413
SARI	31	45.4516	11.8006	31	66
DARI	31	1.0322	0.7063	0	2



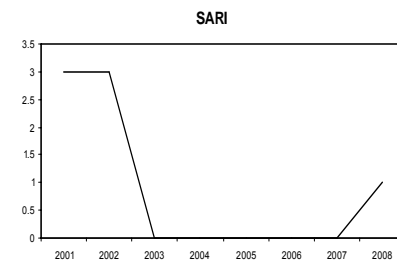
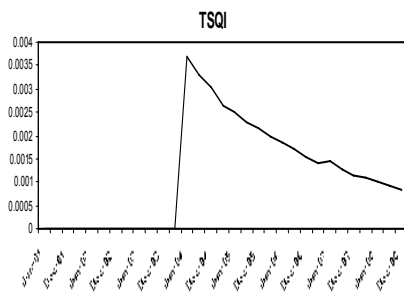
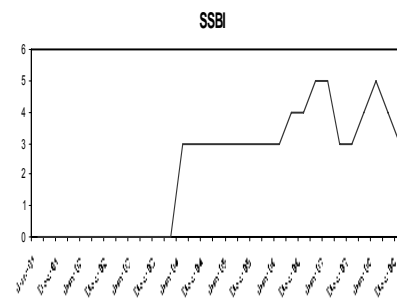
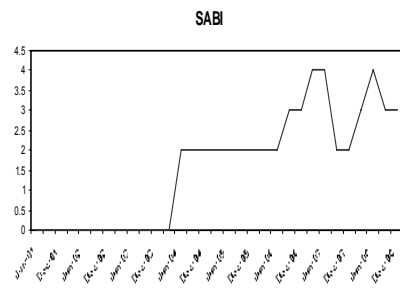
1117156 SUSQUEHANNA BANCSHARES, INC.

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	5.6129	1.6264	1	7
DABI	31	0	0	0	0
TABI	31	5.6129	1.6264	1	7
SSBI	31	9.6452	6.4475	1	20
DSBI	31	0	0	0	0
TSBI	31	9.6452	6.4475	1	20
TQI	31	0.083	0.0385	0.0325	0.1619
SARI	31	101.0645	55.0138	19	171
DARI	31	1.8064	4.7708	0	14



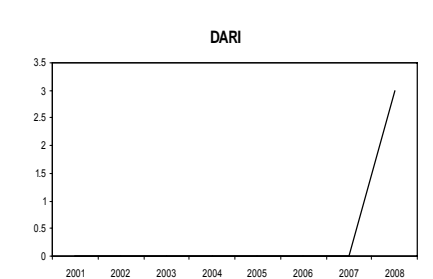
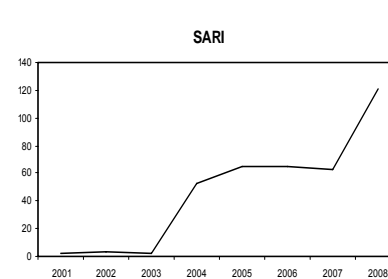
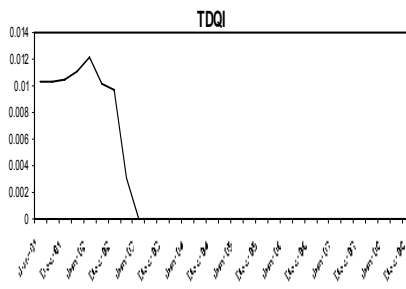
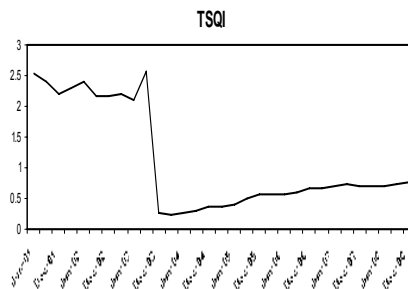
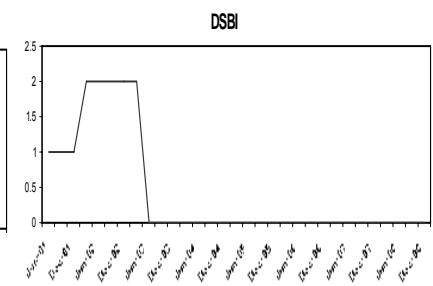
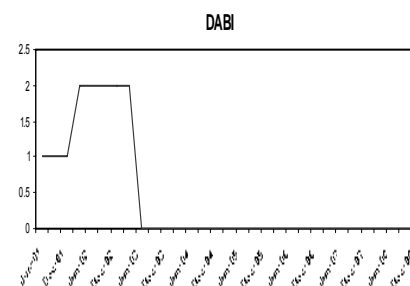
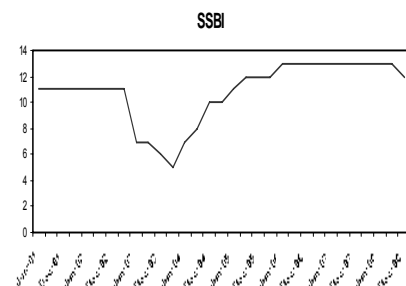
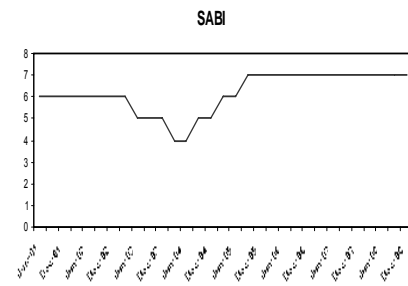
1104231 INTERNATIONAL BANCSHARES CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	1.5806	1.4089	0	4
DABI	31	0	0	0	0
TABI	31	1.5806	1.4089	0	4
SSBI	31	2.1613	1.8457	0	5
DSBI	31	0	0	0	0
TSBI	31	2.1613	1.8457	0	5
TQI	31	0.0012	0.0011	0	0.0037
SARI	31	0.8064	1.2495	0	3
DARI	31	0	0	0	0



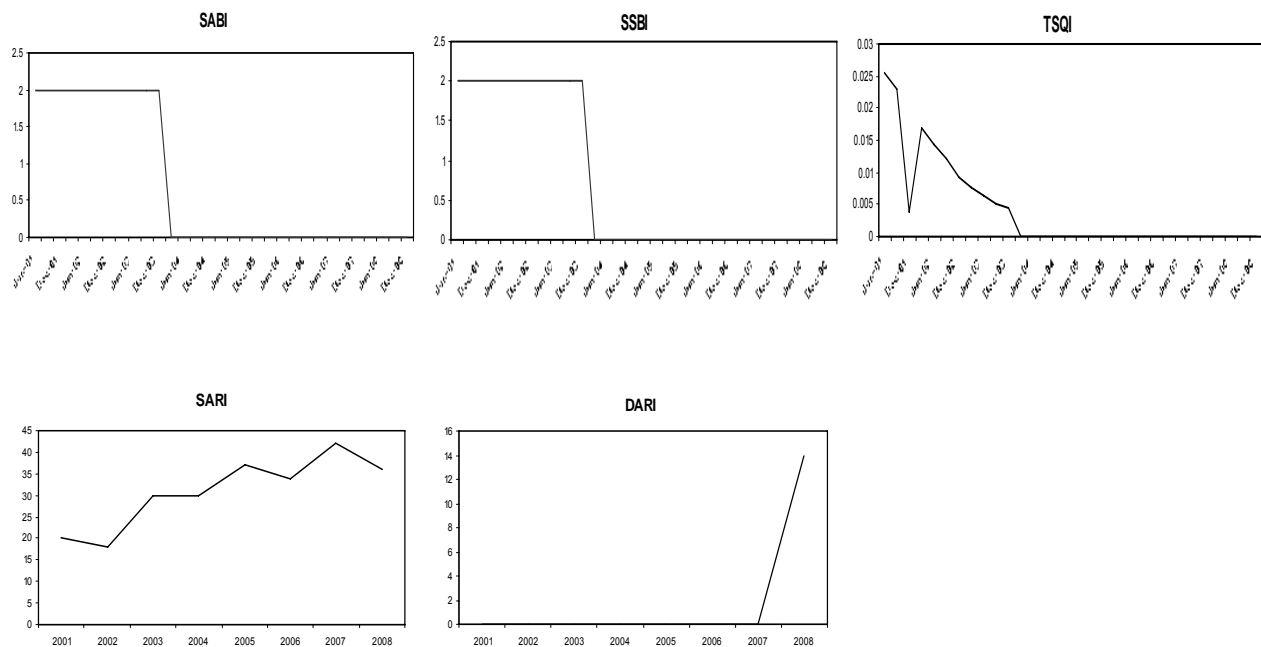
1094640 FIRST HORIZON NATIONAL CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	6.1613	0.9344	4	7
DABI	31	0.4194	0.7648	0	2
TABI	31	6.5806	1.1482	4	8
SSBI	31	10.871	2.3344	5	13
DSBI	31	0.4194	0.7648	0	2
TSBI	31	11.2903	2.4792	5	13
TQI	31	1.1132	0.8588	0.2338	2.5575
SARI	31	48.1935	39.8073	2	121
DARI	31	0.387	1.0223	0	3



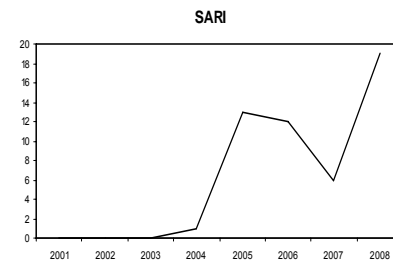
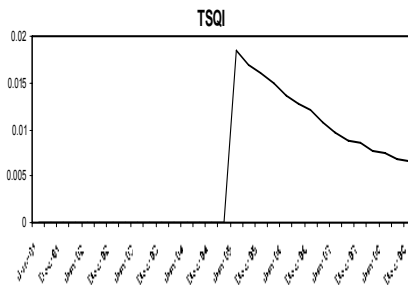
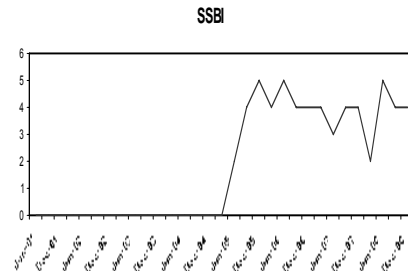
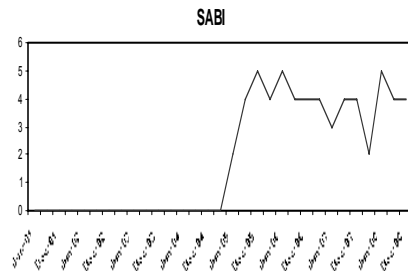
1080465 COLONIAL BANCGROUP, INC., THE

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	0.7097	0.9727	0	2
DABI	31	0	0	0	0
TABI	31	0.7097	0.9727	0	2
SSBI	31	0.7097	0.9727	0	2
DSBI	31	0	0	0	0
TSBI	31	0.7097	0.9727	0	2
TQI	31	0.0042	0.0072	0	0.0257
SARI	31	31.2258	7.7662	18	42
DARI	31	1.8064	4.7708	0	14



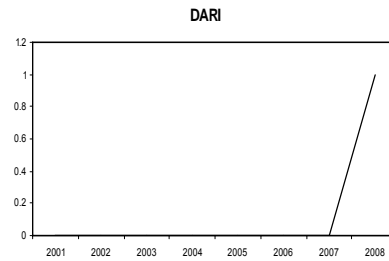
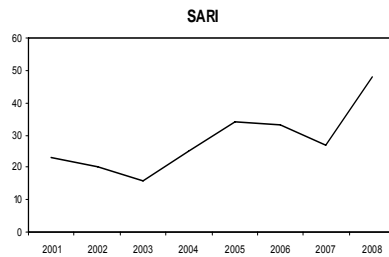
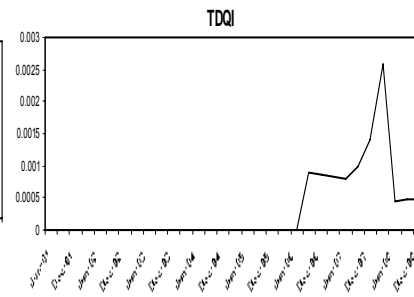
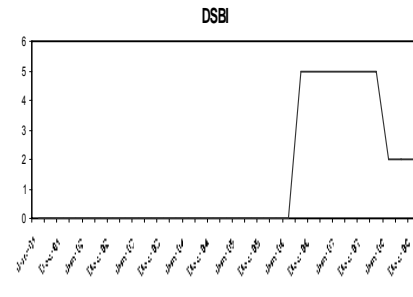
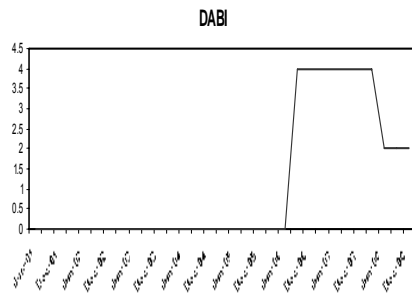
1075612 FIRST CITIZENS BANCSHARES, INC.

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	1.871	2.0614	0	5
DABI	31	0	0	0	0
TABI	31	1.871	2.0614	0	5
SSBI	31	1.871	2.0614	0	5
DSBI	31	0	0	0	0
TSBI	31	1.871	2.0614	0	5
TQI	31	0.0055	0.0064	0	0.0185
SARI	31	6.5806	7.0747	0	19
DARI	31	0	0	0	0



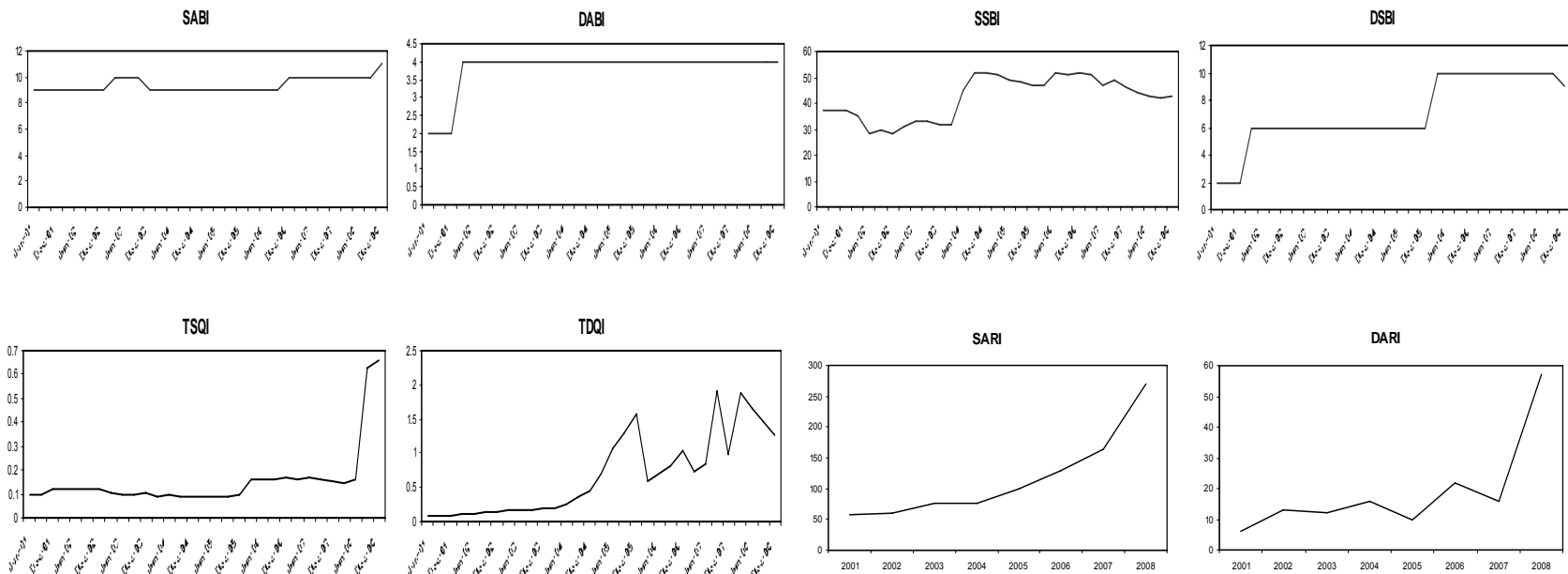
1074156 BB&T CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	0	0	0	0
DABI	31	1.0968	1.7001	0	4
TABI	31	1.0968	1.7001	0	4
SSBI	31	0	0	0	0
DSBI	31	1.3226	2.1038	0	5
TSBI	31	1.3226	2.1038	0	5
TQI	31	0.0003	0.0006	0	0.0026
SARI	31	28.4193	9.6359	16	48
DARI	31	0.129	0.3407	0	1



1073757 BANK OF AMERICA CORPORATION

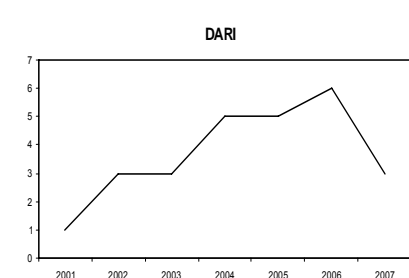
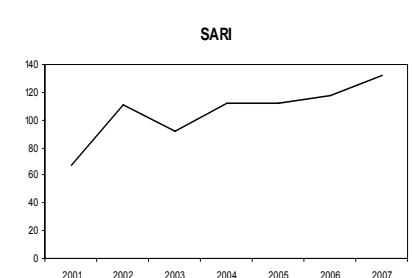
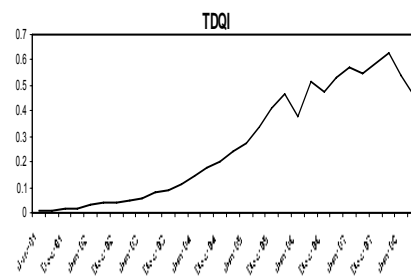
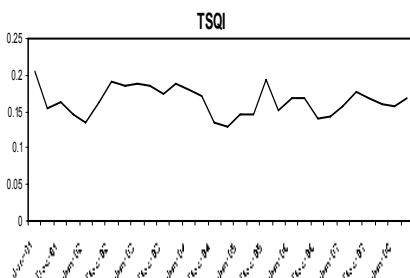
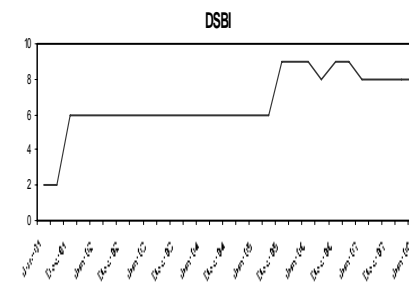
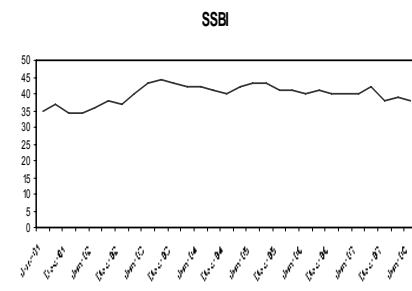
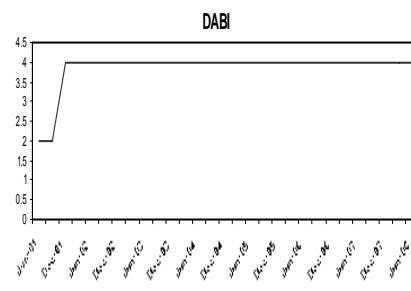
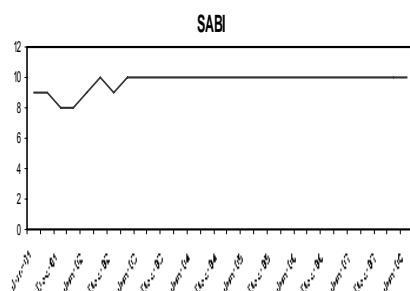
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SABI	31	9.4194	0.5642	9	11
DABI	31	3.8065	0.6011	2	4
TABI	31	13.2258	0.9205	11	15
SSBI	31	42.0645	8.2176	28	52
DSBI	31	7.129	2.5396	2	10
TSBI	31	49.1935	9.7243	34	62
TQI	31	0.8379	0.6496	0.1719	2.0738
SARI	31	118.6774	68.5897	57	270
DARI	31	19.4193	15.3292	6	57





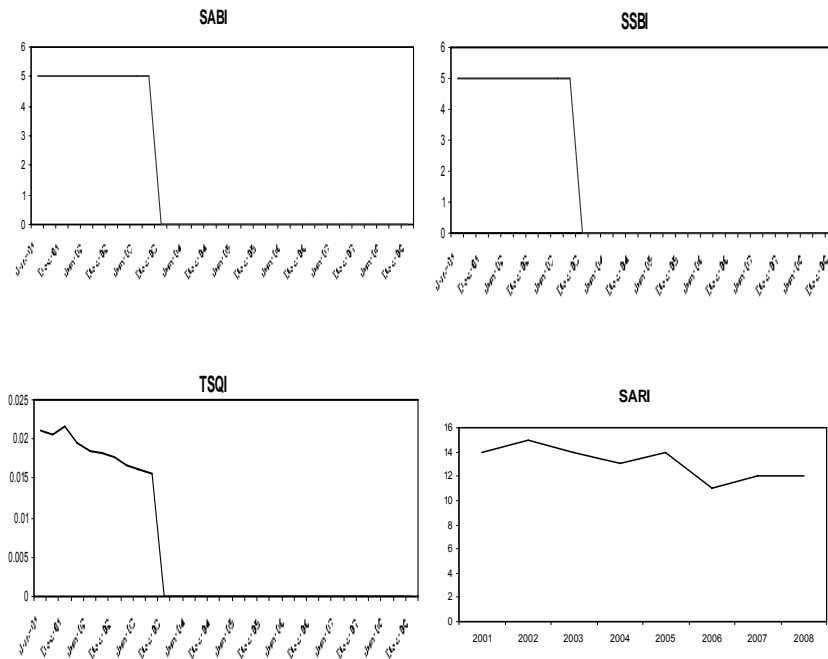
1073551 WACHOVIA CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	30	9.7	0.596	8	10
DABI	30	3.8	0.6103	2	4
TABI	30	13.5	1.0086	11	14
SSBI	30	39.8	2.7216	34	44
DSBI	30	6.5	1.9432	2	9
TSBI	30	46.3	3.706	37	50
TQI	30	0.4328	0.2164	0.1591	0.7903
SARI	27	107.7407	18.536	67	132
DARI	27	3.8148	1.5451	1	6



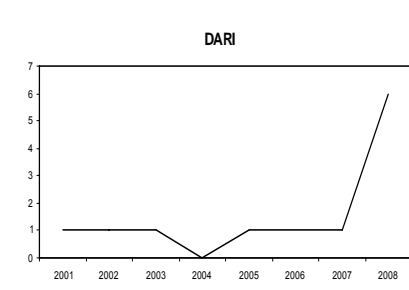
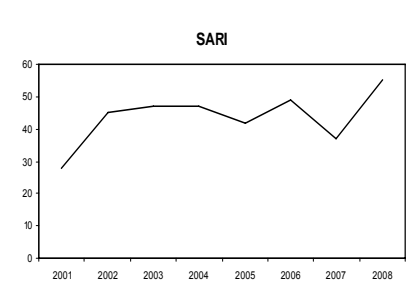
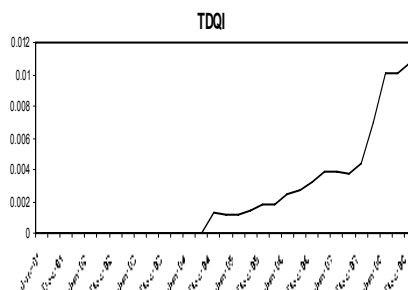
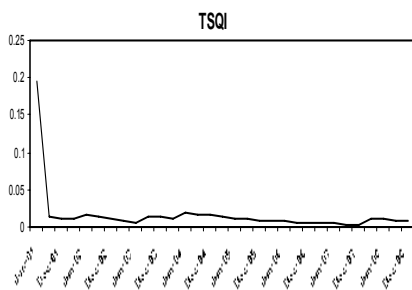
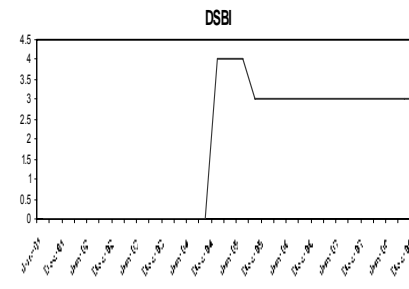
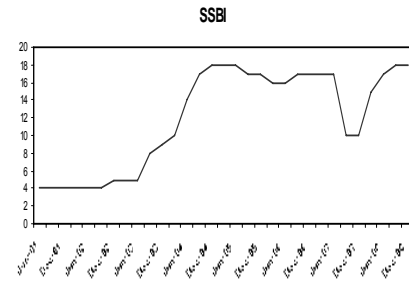
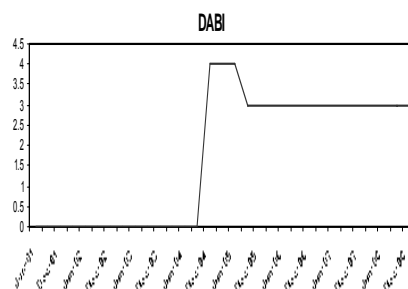
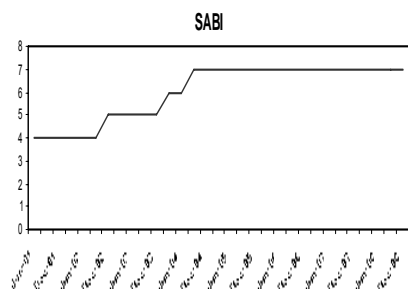
1070804 FIRSTMERIT CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	1.6129	2.376	0	5
DABI	31	0	0	0	0
TABI	31	1.6129	2.376	0	5
SSBI	31	1.6129	2.376	0	5
DSBI	31	0	0	0	0
TSBI	31	1.6129	2.376	0	5
TQI	31	0.006	0.0089	0	0.0215
SARI	31	13.0967	1.3001	11	15
DARI	31	0	0	0	0



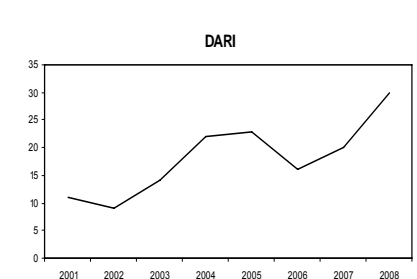
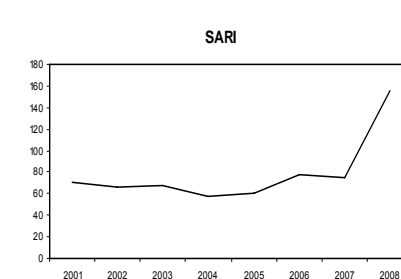
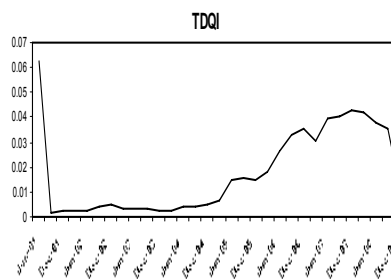
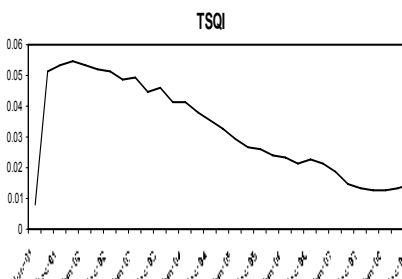
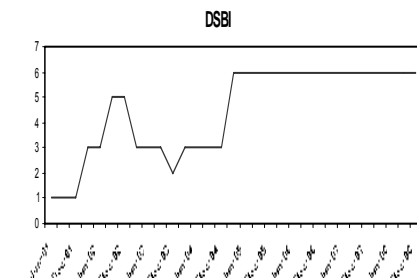
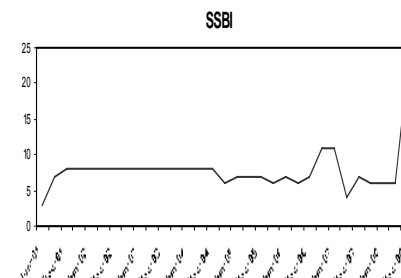
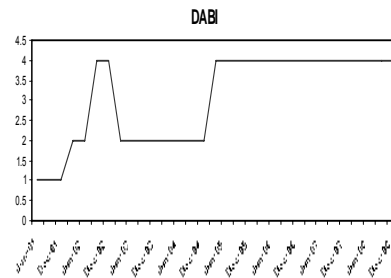
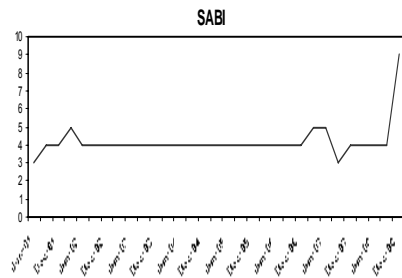
1070345 FIFTH THIRD BANCORP

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	6.0323	1.2512	4	7
DABI	31	1.7419	1.6323	0	4
TABI	31	7.7742	2.7774	4	11
SSBI	31	12.0323	5.7532	4	18
DSBI	31	1.7419	1.6323	0	4
TSBI	31	13.7742	7.1587	4	22
TQI	31	0.0186	0.0329	0.0057	0.1949
SARI	31	44.258	7.389	28	55
DARI	31	1.5161	1.7864	0	6



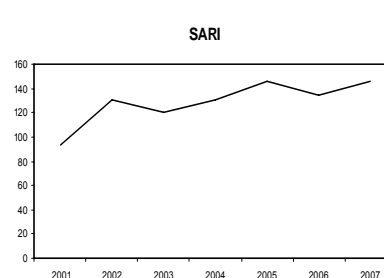
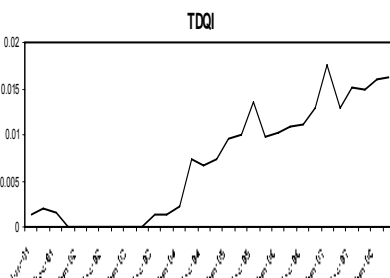
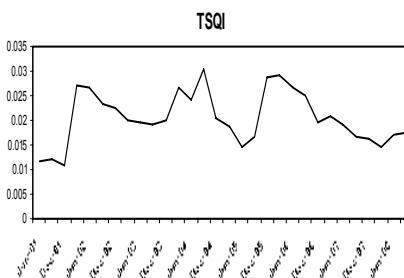
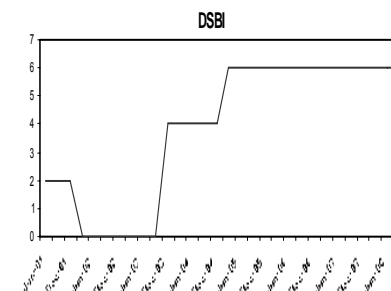
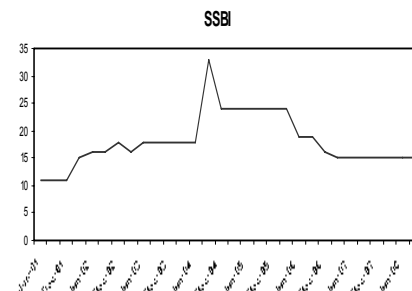
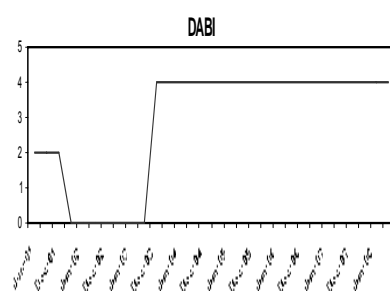
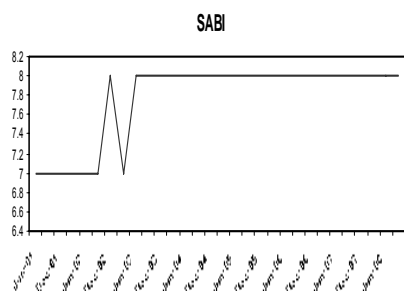
1069778 PNC FINANCIAL SERVICES GROUP, INC., THE

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	4.1935	0.9805	3	9
DABI	31	3.0645	1.1528	1	4
TABI	31	7.2581	1.6526	4	13
SSBI	31	7.7419	3.0764	3	22
DSBI	31	4.4516	1.8228	1	6
TSBI	31	12.1935	3.7365	4	28
TQI	31	0.05	0.0082	0.0268	0.0708
SARI	31	79	30.4674	57	155
DARI	31	18.3548	6.5906	9	30



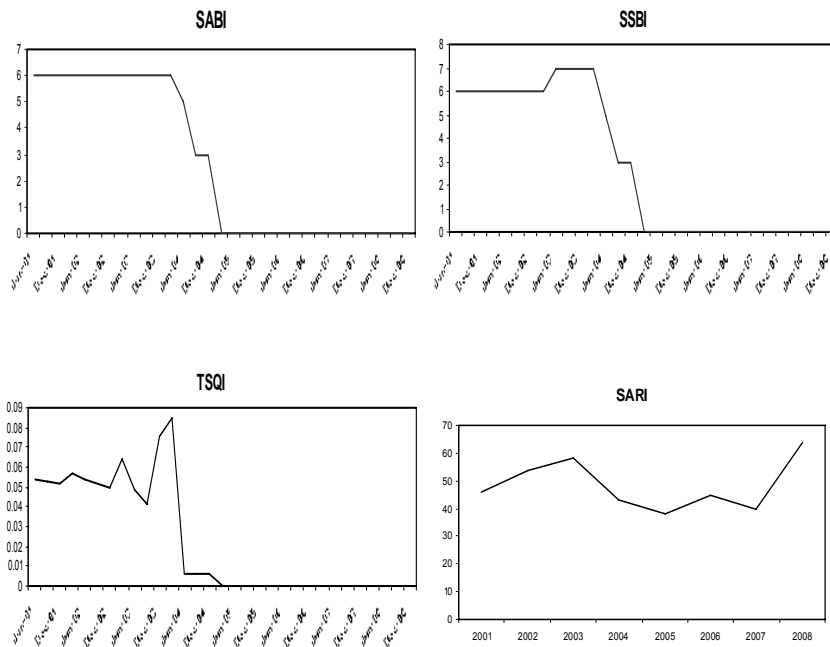
1069125 NATIONAL CITY CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	30	7.7667	0.4302	7	8
DABI	30	2.8667	1.7167	0	4
TABI	30	10.6333	2.0254	7	12
SSBI	30	18	4.8352	11	33
DSBI	30	3.8667	2.5152	0	6
TSBI	30	21.8667	6.0271	13	37
TQI	30	0.0276	0.0077	0.0125	0.0423
SARI	27	130	15.6941	94	146
DARI	27	0	0	0	0



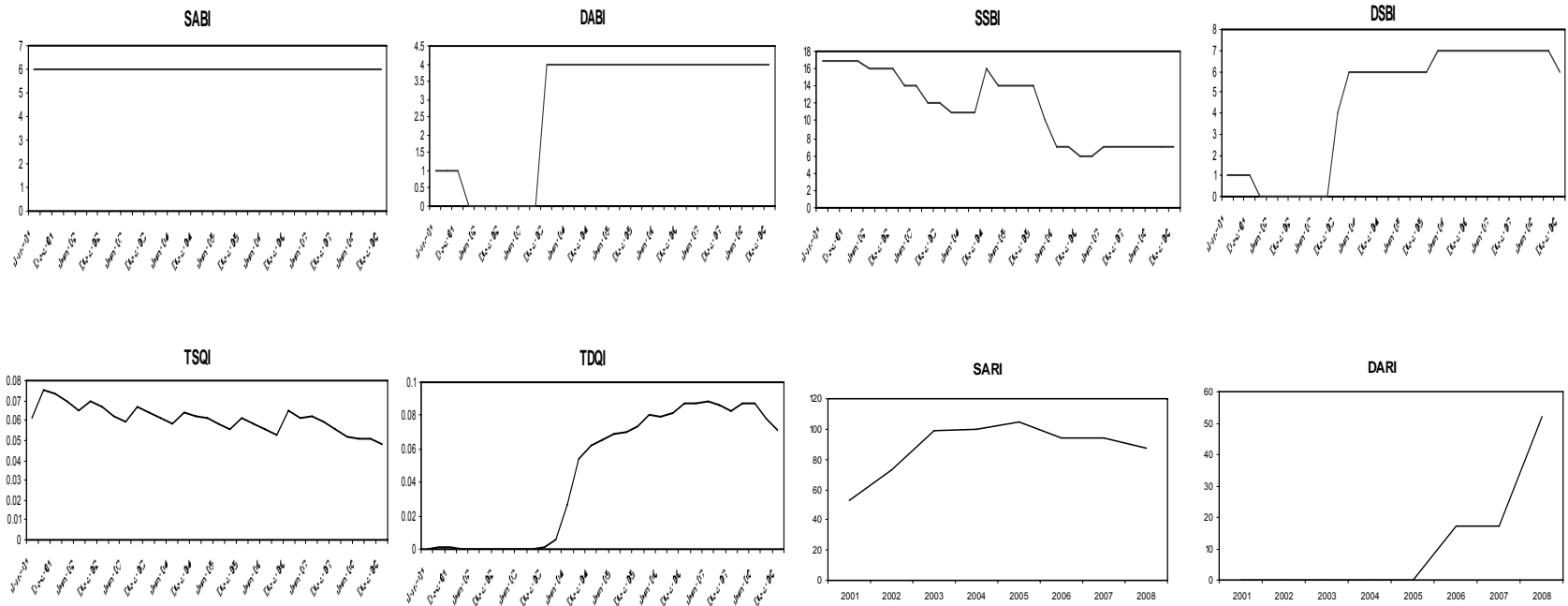
1068191 HUNTINGTON BANCSHARES INCORPORATED

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	2.6774	2.9027	0	6
DABI	31	0	0	0	0
TABI	31	2.6774	2.9027	0	6
SSBI	31	2.8065	3.0705	0	7
DSBI	31	0	0	0	0
TSBI	31	2.8065	3.0705	0	7
TQI	31	0.0227	0.0287	0	0.0849
SARI	31	48.5806	8.8723	38	64
DARI	31	0	0	0	0



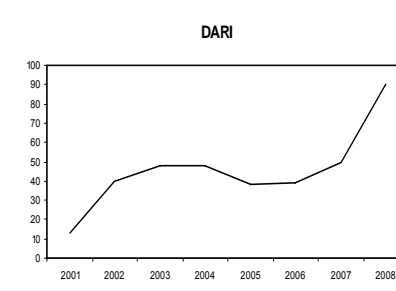
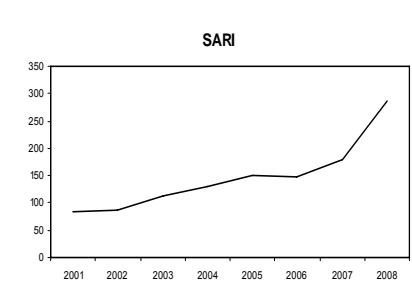
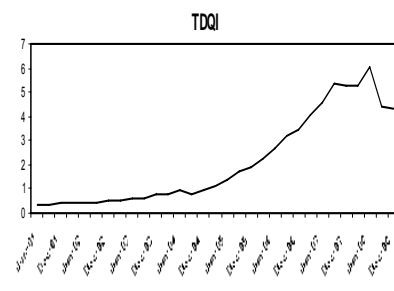
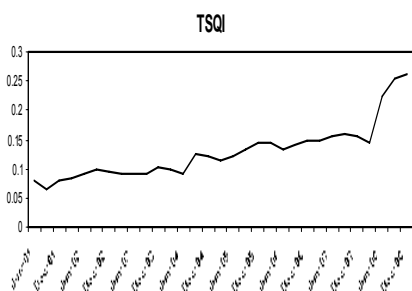
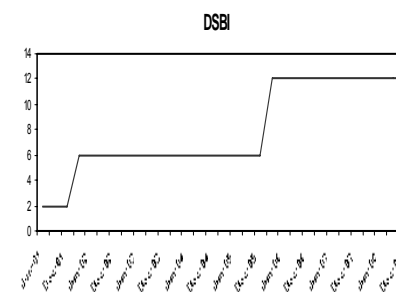
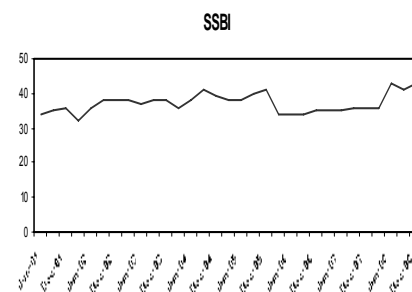
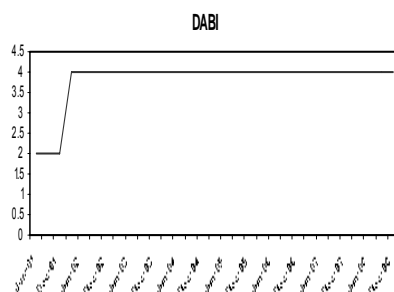
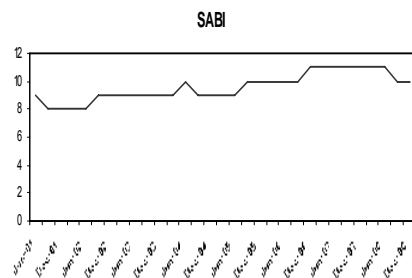
1068025 KEYCORP

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	6	0	6	6
DABI	31	2.8065	1.778	0	4
TABI	31	8.8065	1.778	6	10
SSBI	31	11.5484	4.0236	6	17
DSBI	31	4.4516	2.9871	0	7
TSBI	31	16	2.582	12	22
TQI	31	0.1068	0.0345	0.0594	0.1522
SARI	31	89.258	15.3122	53	105
DARI	31	11.0967	17.6169	0	52



1039502 J.P. MORGAN CHASE & CO.

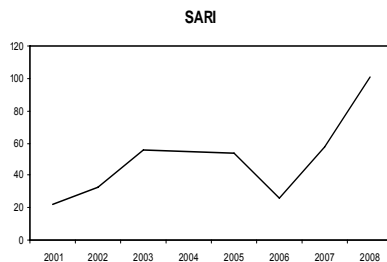
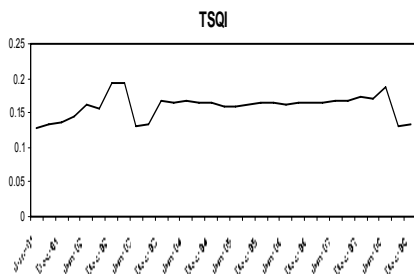
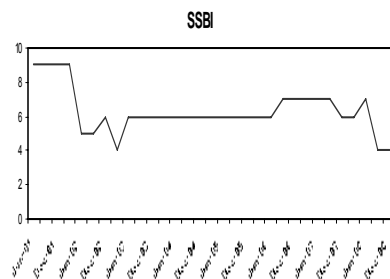
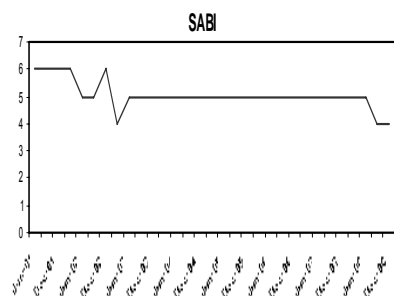
Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	9.5806	0.9924	8	11
DABI	31	3.8065	0.6011	2	4
TABI	31	13.3871	1.3584	10	15
SSBI	31	37.1935	2.7254	32	43
DSBI	31	7.9355	3.4827	2	12
TSBI	31	45.129	4.4252	36	55
TQI	31	2.2629	1.9275	0.3679	6.3123
SARI	31	149.2903	61.582	84	286
DARI	31	46.8064	19.7339	13	90





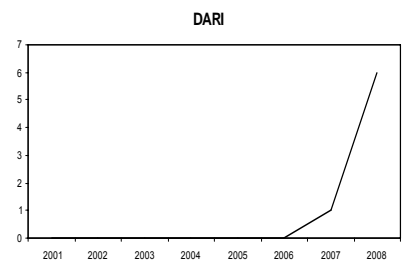
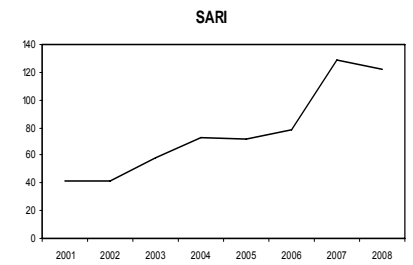
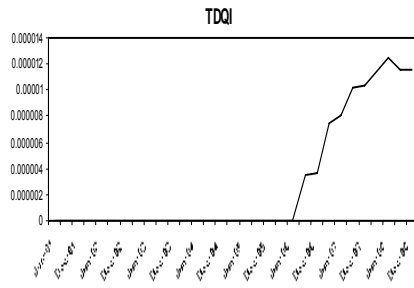
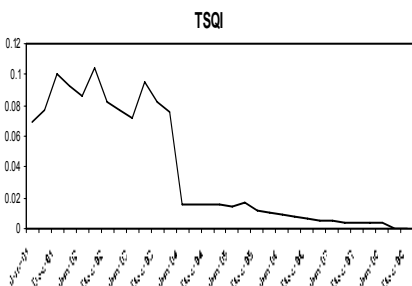
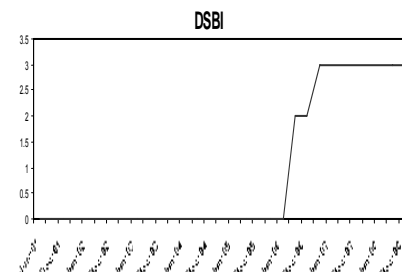
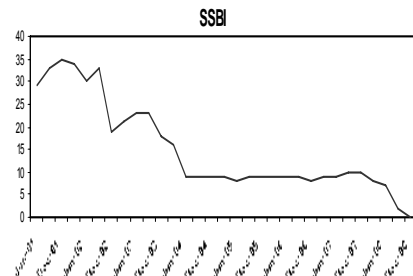
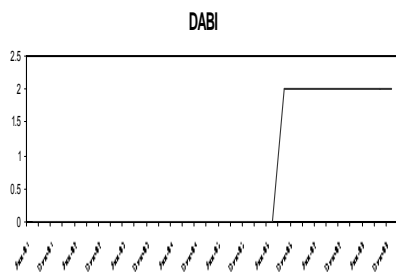
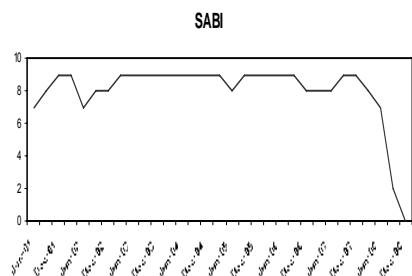
1037003 M&T BANK CORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	5.0645	0.5122	4	6
DABI	31	0	0	0	0
TABI	31	5.0645	0.5122	4	6
SSBI	31	6.3226	1.3263	4	9
DSBI	31	0	0	0	0
TSBI	31	6.3226	1.3263	4	9
TQI	31	0.1594	0.0175	0.1269	0.1941
SARI	31	51.5483	23.5977	22	101
DARI	31	0	0	0	0



1027004 ZIONS BANCORPORATION

Variable	N	Mean	Std Dev	Minimum	Maximum
SABI	31	8.0323	2.008	0	9
DABI	31	0.6452	0.9504	0	2
TABI	31	8.6774	1.8145	2	11
SSBI	31	15.0323	10.1176	0	35
DSBI	31	0.9032	1.3504	0	3
TSBI	31	15.9355	9.4549	3	35
TQI	31	0.0381	0.0385	0	0.1048
SARI	31	78.129	31.1252	42	129
DARI	31	0.9032	2.0224	0	6



## APPENDIX D. MAJOR CHANGES

This appendix shows the major changes in disclosure indices. The direction of the change is denoted by an upside or downside arrow, while the magnitude of the change is shown by L (large) or S (small). SSBI is the securitization subcategory index, DSBI is the credit derivatives subcategory index, TSQI is the total securitization quantitative index, TDQI is the total credit derivatives quantitative index, SARI is the securitization annual report index and DARI is the credit derivatives annual report index.

BANK ID	BANK NAME	SSBI			DSBI		
		Year (Quarter)	Δ	Quant.	Year (Quarter)	Δ	Quant.
1027004	ZIONS BANCORP.	2002(04)	↓ L	(33 to 19)	2006(03)	↑ S	(0 to 2)
		2003(04)	↓ S	(23 to 18)			
		2004(02)	↓ S	(16 to 9)			
		2008(03)	↓ L	(7 to 2)			
1037003	M&T BANK CORP.	2002(02)	↓ S	(9 to 5)			
		2008(03)	↓ S	(7 to 4)			
1039502	J.P. MORGAN CHASE & CO.	2006(01)	↓ L	(41 to 34)	2002(01)	↑ L	(2 to 6)
		2008(02)	↑ S	(36 to 43)	2006(01)	↑ L	(6 to 12)
1068025	KEYCORP	2004(04)	↑ S	(11 to 16)	2003(04)	↑ L	(0 to 4)
1068191	HUNTINGTON BANCSHARES	2004(02)	↓ S	(7 to 5)			
		2004(03)	↓ S	(5 to 3)			
		2005(01)	↓ S	(3 to 0)			
1069125	NATIONAL CITY CORP.	2002(01)	↑ S	(11 to 15)	2003(04)	↑ L	(0 to 4)
		2004(03)	↑ L	(18 to 33)	2005(01)	↑ S	(4 to 6)
		2004(04)	↓ L	(33 to 24)			
		2006(02)	↓ S	(24 to 19)			
1069778	PNC FINANCIAL SERVICES	2001(03)	↑ S	(3 to 7)	2005(01)	↑ S	(3 to 6)
		2007(01)	↑ S	(7 to 11)			
		2007(03)	↓ L	(11 to 4)			
		2008(04)	↑ L	(6 to 22)			
1070345	FIFTH THIRD BANCORP	2007(03)	↓ L	(17 to 10)	2004(04)	↑ L	(0 to 4)
1070804	FIRSTMERIT CORP.	2003(04)	↓ L	(5 to 0)			
1073551	WACHOVIA CORP.	2008(01)	↓ S	(42 to 38)	2002(01)	↑ L	(2 to 6)
					2006(01)	↑ S	(6 to 9)
1073757	BANK OF AMERICA CORP.	2002(02)	↓ L	(35 to 28)	2002(01)	↑ L	(2 to 6)
		2004(02)	↑ L	(32 to 45)	2006(01)	↑ L	(6 to 10)
		2004(03)	↑ L	(45 to 52)			
1074156	BB&T CORP.				2006(03)	↑ L	(0 to 5)
					2008(02)	↓ S	(5 to 2)
1075612	FIRST CITIZENS BANCSHARES	2005(02)	↑ S	(0 to 2)			
		2005(03)	↑ S	(2 to 4)			
		2008(01)	↓ S	(4 to 2)			
		2008(02)	↑ S	(2 to 5)			
1080465	COLONIAL BANCGROUP	2004(01)	↓ S	(2 to 0)			
1094640	FIRST HORIZON NATIONAL	2003(02)	↓ S	(11 to 7)	2003(02)	↓ S	(2 to 0)
1104231	INTERNATIONAL BANCSHARES	2004(02)	↑ S	(0 to 3)			
		2007(03)	↓ S	(5 to 3)			
1117156	SUSQUEHANNA BANCSHARES	2002(01)	↑ S	(0 to 2)			
		2006(01)	↑ S	(9 to 11)			
		2006(03)	↑ S	(13 to 17)			
1119794	U.S. BANCORP	2003(01)	↓ L	(14 to 8)			
		2005(04)	↓ L	(8 to 0)			
		2006(01)	↑ S	(0 to 2)			
1120754	WELLS FARGO & COMPANY	2001(04)	↑ S	(16 to 20)	2002(01)	↑ S	(2 to 5)
		2008(04)	↑ L	(11 to 34)	2008(04)	↑ S	(7 to 10)

BANK ID	BANK NAME	SSBI			DSBI		
		Year (Quarter)	Δ	Quant.	Year (Quarter)	Δ	Quant.
1131787	SUNTRUST BANKS	2001(04)	↑ S	(14 to 17)	2002(01)	↑ S	(2 to 5)
		2003(02)	↓ S	(14 to 10)	2003(01)	↑ S	(3 to 6)
		2006(01)	↑ S	(11 to 14)			
1141599	SOUTH FINANCIAL GROUP	2001(03)	↑ S	(2 to 4)			
		2003(01)	↓ S	(4 to 2)			
		2006(02)	↓ S	(2 to 0)			
1199563	ASSOCIATED BANC-CORP	2002(01)	↑ S	(0 to 1)	2008(01)	↑ L	(0 to 4)
1199844	COMERICA INCORPORATED				2003(02)	↓ S	(2 to 0)
					2005(04)	↑ L	(0 to 5)
1951350	CITIGROUP INC.	2001(03)	↑ L	(33 to 39)	2002(01)	↑ L	(2 to 6)
		2007(01)	↓ S	(39 to 35)	2006(01)	↑ L	(6 to 11)
2734233	EAST WEST BANCORP	2002(03)	↑ S	(0 to 1)			
		2005(01)	↓ S	(4 to 2)			
		2006(04)	↑ S	(2 to 4)			
		2008(02)	↑ S	(4 to 7)			
3242838	REGIONS FINANCIAL CORP.	2002(04)	↑ L	(0 to 8)	2005(02)	↑ S	(0 to 3)
		2008(02)	↓ L	(11 to 4)	2007(01)	↑ S	(3 to 5)

BANK ID	BANK NAME	TSQI			TDQI		
		Year (Quarter)	Δ	Quant.	Year (Quarter)	Δ	Quant.
1027004	ZIONS BANCORP.	2001(04)	↑ L	(0.07 to 0.10)	2006(03)	↑ S	(0 to 0.000003)
		2003(03)	↑ L	(0.07 to 0.09)	2007(01)	↑ S	(0.000003 to 0.00007)
		2004(02)	↓ L	(0.07 to 0.015)			
		2008(03)	↓ L	(0.003 to 0.000005)			
1037003	M&T BANK CORP.	2003(02)	↓ L	(0.19 to 0.13)			
		2008(03)	↓ L	(0.18 to 0.13)			
1039502	J.P. MORGAN CHASE & CO.	2004(03)	↑ L	(0.09 to 0.12)	2001(04)	↑ L	(0.30 to 0.39)
		2008(02)	↑ L	(0.14 to 0.22)	2008(03)	↓ L	(6.08 to 4.41)
1068025	KEYCORP				2002(01)	↓ L	(0.0008 to 0)
					2003(04)	↑ L	(0 to 0.0007)
					2004(01)	↑ L	(0.0007 to 0.005)
					2004(02)	↑ L	(0.005 to 0.02)
					2004(03)	↑ L	(0.02 to 0.05)
1068191	HUNTINGTON BANCSHARES	2003(01)	↑ L	(0.049 to 0.063)			
		2003(04)	↑ L	(0.041 to 0.075)			
		2004(02)	↓ L	(0.08 to 0.006)			
		2005(01)	↓ L	(0.006 to 0)			
1069125	NATIONAL CITY CORP.	2002(01)	↑ L	(0.010 to 0.027)	2001(04)	↓ L	(0.0015 to 0)
		2004(01)	↑ S	(0.020 to 0.026)	2003(04)	↑ L	(0 to 0.0013)
		2004(04)	↓ L	(0.03 to 0.02)	2004(03)	↑ L	(0.002 to 0.007)
		2005(04)	↑ L	(0.016 to 0.028)			
1069778	PNC FINANCIAL SERVICES	2001(03)	↑ L	(0.008 to 0.051)	2001(03)	↓ L	(0.06 to 0.001)
					2002(03)	↑ L	(0.002 to 0.004)
					2004(02)	↑ L	(0.002 to 0.004)
					2005(02)	↑ L	(0.006 to 0.015)

BANK ID	BANK NAME	TSQI			TDQI		
		Year (Quarter)	Δ	Quant.	Year (Quarter)	Δ	Quant.
1070345	FIFTH THIRD BANCORP	2001(03)	↓ L	(0.19 to 0.014)	2004(04)	↑ L	(0 to 0.0013)
1070804	FIRSTMERIT CORP.	2002(02)	↑ L	(0.010 to 0.016)	2008(01)	↑ L	(0.0043 to 0.0069)
		2003(03)	↑ L	(0.005 to 0.014)	2008(02)	↑ L	(0.0069 to 0.010)
		2004(02)	↑ L	(0.012 to 0.019)			
		2008(01)	↑ L	(0.002 to 0.01)			
		2003(04)	↓ L	(0.015 to 0)			
1073551	WACHOVIA CORP.	2005(04)	↑ L	(0.14 to 0.19)	2001(03)	↑ L	(0.006 to 0.011)
					2002(02)	↑ L	(0.013 to 0.030)
					2003(03)	↑ L	(0.05 to 0.07)
					2006(03)	↑ L	(0.38 to 0.51)
1075612	FIRST CITIZENS BANCSHARES	2005(02)	↑ S	(0 to 0.018)			
1080465	COLONIAL BANCGROUP	2001(04)	↓ L	(0.023 to 0.003)			
		2002(01)	↑ L	(0.003 to 0.016)			
		2004(01)	↓ L	(0.0045 to 0)			
1094640	FIRST HORIZON NATIONAL	2003(04)	↓ L	(2.55 to 0.255)	2003(01)	↓ L	(0.009 to 0.003)
					2003(02)	↓ L	(0.003 to 0)
1104231	INTERNATIONAL BANCSHARES	2004(02)	↑ S	(0 to 0.0036)			
1117156	SUSQUEHANNA BANCSHARES	2002(03)	↑ L	(0.042 to 0.068)			
		2003(01)	↑ L	(0.052 to 0.084)			
		2005(01)	↑ L	(0.073 to 0.10)			
		2006(01)	↑ L	(0.10 to 0.15)			
		2007(04)	↓ L	(0.11 to 0.06)			
1119794	U.S. BANCORP	2001(03)	↑ L	(0.08 to 0.14)	2003(03)	↑ L	(0 to 0.0007)
		2002(01)	↓ L	(0.12 to 0.066)	2003(04)	↑ L	(0.0007 to 0.001)
		2003(02)	↓ L	(0.035 to 0.021)	2006(03)	↑ L	(0.001 to 0.002)
		2003(03)	↓ L	(0.021 to 0.0039)	2008(01)	↑ L	(0.004 to 0.006)
		2005(04)	↓ L	(0.0019 to 0)			
		2006(01)	↑ L	(0 to 0.033)			
		2008(01)	↓ L	(0.01 to 0.007)			
		2008(02)	↓ L	(0.007 to 0.003)			
1120754	WELLS FARGO & COMPANY	2003(01)	↓ L	(1.29 to 0.41)	2001(03)	↑ L	(0.0005 to 0.005)
		2005(02)	↓ L	(0.55 to 0.37)	2002(04)	↑ L	(0.007 to 0.014)
		2008(04)	↓ S	(0.47 to 0.33)	2006(04)	↓ L	(0.012 to 0.003)
					2008(04)	↑ L	(0.004 to 0.25)
1131787	SUNTRUST BANKS	2004(04)	↓ S	(0.461 to 0.343)	2001(04)	↑ L	(0.00019 to 0.0016)
					2008(01)	↑ L	(0.006 to 0.012)
1141599	SOUTH FINANCIAL GROUP	2002(04)	↑ L	(0.01 to 0.0625)			
		2003(01)	↓ L	(0.0625 to 0.0055)			
		2006(02)	↓ S	(0.0008 to 0)			
1199563	ASSOCIATED BANC-CORP	2002(01)	↑ S	(0 to 0.00011) (0.00001 to	2008(01)		(0 to 0.004)
		2007(02)	↓ S	0.00006)			
1199844	COMERICA INCORPORATED				2001(03)	↓ S	(0.0004 to 0.0001)
					2002(01)	↑ S	(0.0001 to 0.0002)
					2003(02)	↓ L	(0.0001 to 0)
					2005(04)	↑ S	(0 to 0.0003)
					2007(04)	↑ S	(0.0002 to 0.0004)
					2008(01)	↑ S	(0.0004 to 0.0008)

BANK ID	BANK NAME	TSQI			TDQI		
		Year (Quarter)	Δ	Quant.	Year (Quarter)	Δ	Quant.
1951350	CITIGROUP INC.	2002(04)	↑ L	(0.17 to 0.24)	2004(01)	↑ L	(0.15 to 0.20)
		2004(03)	↑ L	(0.16 to 0.25)	2004(03)	↑ L	(0.24 to 0.31)
		2007(01)	↑ L	(0.22 to 0.36)	2005(03)	↑ L	(0.53 to 0.67)
2734233	EAST WEST BANCORP	2002(03)	↑ L	(0 to 0.049)			
		2004(01)	↓ L	(0.026 to 0.012)			
		2005(01)	↓ L	(0.009 to 0.004)			
		2006(02)	↑ L	(0.001 to 0.021)			
		2006(04)	↑ L	(0.019 to 0.047)			
		2007(01)	↑ L	(0.047 to 0.083)			
3242838	REGIONS FINANCIAL CORP.	2002(04)	↑ S	(0 to 0.038)	2005(02)	↑ S	(0 to 0.0015)
		2003(04)	↑ S	(0.034 to 0.043)	2006(03)	↓ S	(0.0016 to 0.0009)
		2004(03)	↓ S	(0.033 to 0.025)	2007(01)	↑ S	(0.0005 to 0.002)
		2006(01)	↓ L	(0.014 to 0.09)	2008(03)	↑ S	(0.0019 to 0.0031)
		2006(04)	↓ S	(0.007 to 0.003)			

BANK ID	BANK NAME	SARI			DARI		
		Year	Δ	Quant.	Year	Δ	Quant.
1027004	ZIONS BANCORP.	2003	↑ S	(42 to 58)	2007	↑ S	(0 to 1)
		2004	↑ S	(58 to 73)	2008	↑ L	(1 to 6)
		2007	↑ L	(78 to 129)			
1037003	M&T BANK CORP.	2002	↑ L	(22 to 33)			
		2003	↑ L	(33 to 56)			
		2006	↓ L	(54 to 26)			
		2007	↑ L	(26 to 58)			
		2008	↑ L	(58 to 101)			
1039502	J.P. MORGAN CHASE & CO.	2003	↑ S	(87 to 112)	2002	↑ L	(13 to 40)
		2008	↑ L	(180 to 286)	2007	↑ S	(39 to 50)
					2008	↑ L	(50 to 90)
1068025	KEYCORP	2002	↑ L	(53 to 73)	2006	↑ L	(0 to 17)
		2003	↑ L	(73 to 99)	2008	↑ L	(17 to 52)
1068191	HUNTINGTON BANCSHARES	2004	↓ S	(58 to 43)			
		2008	↑ L	(40 to 64)			
1069125	NATIONAL CITY CORP.	2002	↑ L	(94 to 131)			
1069778	PNC FINANCIAL SERVICES	2006	↑ S	(61 to 78)	2003	↑ L	(9 to 14)
		2008	↑ L	(75 to 155)	2004	↑ L	(14 to 22)
					2006	↓ S	(23 to 16)
					2008	↑ L	(20 to 30)
1070345	FIFTH THIRD BANCORP	2002	↑ L	(28 to 45)	2004	↓ S	(1 to 0)
		2008	↑ L	(37 to 55)	2005	↑ S	(0 to 1)
					2008	↑ L	(1 to 6)
1073551	WACHOVIA CORP.	2002	↑ L	(67 to 111)	2002	↑ L	(1 to 3)
					2004	↑ S	(3 to 5)
					2007	↓ L	(6 to 3)

BANK ID	BANK NAME	SARI			DARI		
		Year	$\Delta$	Quant.	Year	$\Delta$	Quant.
1073757	BANK OF AMERICA CORP.	2003	↑ S	(60 to 76)	2002	↑ L	(6 to 13)
		2005	↑ S	(77 to 100)	2004	↑ S	(12 to 16)
		2006	↑ S	(100 to 130)	2005	↓ S	(16 to 10)
		2007	↑ S	(130 to 164)	2006	↑ L	(10 to 22)
		2008	↑ L	(164 to 270)	2007	↓ S	(22 to 16)
					2008	↑ L	(16 to 57)
1074156	BB&T CORP.	2004	↑ L	(16 to 25)	2008	↑ S	(0 to 1)
		2005	↑ S	(25 to 34)			
		2008	↑ L	(27 to 48)			
1075612	FIRST CITIZENS BANCSHARES	2005	↑ L	(1 to 13)			
		2007	↓ L	(12 to 6)			
		2008	↑ L	(6 to 19)			
1080465	COLONIAL BANCGROUP	2003	↑ L	(18 to 30)	2008	↑ L	(0 to 14)
1094640	FIRST HORIZON NATIONAL	2002	↑ S	(2 to 3)	2008	↑ S	(0 to 3)
		2003	↓ S	(3 to 2)			
		2004	↑ L	(2 to 53)			
		2008	↑ L	(63 to 121)			
1104231	INTERNATIONAL BANCSHARES	2003	↓ L	(3 to 0)			
		2008	↑ S	(0 to 1)			
1117156	SUSQUEHANNA BANCSHARES	2002	↑ L	(19 to 36)	2008	↑ L	(0 to 14)
		2003	↑ L	(36 to 66)			
		2005	↑ L	(75 to 108)			
		2006	↑ L	(108 to 171)			
1119794	U.S. BANCORP	2002	↑ L	(35 to 66)	2003	↑ S	(0 to 1)
		2005	↓ S	(51 to 31)	2006	↑ S	(1 to 2)
		2007	↑ L	(32 to 47)	2008	↓ S	(2 to 1)
1120754	WELLS FARGO & COMPANY	2002	↑ S	(39 to 52)	2002	↑ S	(0 to 1)
		2007	↑ L	(57 to 87)	2004	↑ L	(1 to 4)
		2008	↑ S	(87 to 116)	2008	↑ L	(3 to 38)
1131787	SUNTRUST BANKS	2003	↓ S	(31 to 23)	2002	↑ L	(0 to 4)
		2006	↑ L	(32 to 56)	2004	↑ L	(4 to 7)
		2007	↑ L	(56 to 99)	2008	↑ L	(7 to 17)
		2008	↓ S	(99 to 71)			
1141599	SOUTH FINANCIAL GROUP	2002	↓ S	(34 to 22)	2008	↑ S	(0 to 2)
		2003	↓ S	(22 to 14)			
		2007	↑ S	(11 to 14)			
		2008	↑ L	(14 to 32)			
1199563	ASSOCIATED BANC-CORP	2002	↑ L	(1 to 3)			
		2003	↓ S	(3 to 2)			
		2004	↑ L	(2 to 8)			
1199611	NORTHERN TRUST CORPORATION	2002	↑ S	(3 to 4)	2003	↑ L	(0 to 6)
		2004	↑ L	(5 to 14)	2008	↑ L	(6 to 10)
		2007	↑ L	(11 to 22)			
		2008	↑ L	(22 to 34)			
1199844	COMERICA INCORPORATED	2008	↑ L	(1 to 9)	2002	↓ S	(1 to 0)
					2007	↑ S	(0 to 1)

BANK ID      BANK NAME		SARI			DARI		
		Year	$\Delta$	Quant.	Year	$\Delta$	Quant.
1951350	CITIGROUP INC.	2002	$\uparrow$ S	(82 to 108)	2002	$\uparrow$ L	(3 to 13)
		2007	$\uparrow$ L	(111 to 190)	2003	$\uparrow$ L	(13 to 23)
					2004	$\downarrow$ L	(23 to 8)
					2005	$\uparrow$ S	(8 to 12)
					2006	$\uparrow$ S	(12 to 18)
					2007	$\uparrow$ L	(18 to 53)
					2008	$\uparrow$ L	(53 to 81)
2734233	EAST WEST BANCORP	2002	$\uparrow$ L	(20 to 42)			
		2003	$\downarrow$ S	(42 to 30)			
		2007	$\uparrow$ L	(50 to 82)			
3242838	REGIONS FINANCIAL CORP.	2002	$\uparrow$ L	(14 to 30)	2005	$\uparrow$ L	(0 to 7)
		2003	$\uparrow$ S	(30 to 38)	2006	$\downarrow$ L	(7 to 0)
		2004	$\downarrow$ S	(38 to 26)	2008	$\uparrow$ L	(0 to 6)
		2007	$\uparrow$ S	(23 to 31)			



## APPENDIX E. SUMMARY TABLE FOR THE INTERACTION TERM

	<i># of art.*SSBI</i>	<i># of art.*TSBI</i>	<i># of art.*TQI</i>	<i># of art.*SARI</i>	<i># of art.*DARI</i>
QUANTITY	high	high	high	high	high
QUALITY	low	low	low	low	low
<i>Effect on Performance</i>					
ROA		+	+	+	+
ROE		+		+	+
RAR(ROA)	+	+		+	
RAR(ROE)	+	+			
STOCK RETURN					
SHARPE					
<i>Effect on Stability</i>					
VOLATILITY			-		-
BETA		-			
Z				+	

	<i>QualIndex*SSBI</i>	<i>QualIndex*TSBI</i>	<i>QualIndex*SARI</i>	<i>QualIndex*DARI</i>
QUANTITY	high	high	high	high
QUALITY	high	high	high	high
<i>Effect on Performance</i>				
ROA			+	-
ROE			+	-
RAR(ROA)				
RAR(ROE)	-	-		
STOCK RETURN			+	+
SHARPE				+
<i>Effect on Stability</i>				
VOLATILITY				+
BETA			-	+
Z				

	<i>TRNS*SARI</i>	<i>TRNS*DARI</i>
QUANTITY	high	high
QUALITY	low	low
<i>Effect on Performance</i>		
ROA		
ROE		
RAR(ROA)		
RAR(ROE)	+	+
STOCK RETURN		
SHARPE	-	-
<i>Effect on Stability</i>		
VOLATILITY	+	+
BETA		
Z		

## APPENDIX F. CDS SPREADS AROUND THE EVENT DAYS

