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LETTER FROM THE EDITOR

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Kurt Jesswein
Sam Houston State University

IMPROVING SECURITY OF ONLINE BANKING USING RFID

Zakaria I. Saleh, Yarmouk University

ABSTRACT

Banks protect customers' security in three main techniques: passwords, encryption, and firewalls/server security. This study develops a module that shall further tighten security of online banking, and improve trust. This study proposed that there is a need for an additional authentication due to the fact that trust has new dimensions in financial services. A model using RFID as a second authentication layer is proposed and developed. Internet security is assumed to be a major obstacle to the adoption of online banking, which made customers concerned about the safety of their online accounts and risk of fraudulent transactions. RFID can provide such improvement. This is a solution for issues relates to gaining access by impersonating the genuine user, where a hacker could intercept a user name and password as they cross the Internet and uses them to access the banks network. Missing the physical ID (RFID) will prevent such intrusion.

INTRODUCTION

Banks protect customers' security in three main techniques: passwords, encryption, and firewalls/server security. Passwords and user names are an essential element of online security. Passwords ensure that only those authorized have access to an account. However, a hacker could intercept a user name and password during transmission and uses them to access the account.

This study proposed that there is a need for an additional authentication due to the fact that trust has new dimensions in financial services. Several studies have identified trust as an important factor influencing customer participation in web-based commerce (Cheung & Lee, 2000; Koufaris et al, 2005; Stewart et al, 2001; Saleh, 2003). Saleh assumed Internet security to be a major obstacle to the adoption of online banking, which made customers concerned about the safety of their online accounts and risk of fraudulent transactions. Based on the findings of Saleh dissertation, improved security can improve Trust in Online Banking (Saleh, 2003).

THREAT AND VULNERABILITY OF ONLINE SERVICES

The threat can come from anyone with the motivation to attempt to gain unauthorized access to the network, or from anyone with authorized access to the network. Therefore, it is possible that the threat can be anyone. The vulnerability to the threat depends on several factors,

such as motivation and trust. Motivation can be assessed by analyzing how useful access to or destruction of the network might be to someone. Trust can be determined by knowing how well an organization can trust the authorized users and/or how well trained the users are in their understanding of what is acceptable use of the network and what is not acceptable use. Most threats that users face are not new, but the Internet makes them potentially more dangerous.

Vulnerability essentially comes from failures of the security system to protect the network from an unauthorized person gaining access to the banking network system. In addition, it can come from failures to protect the network system from someone within the network (e.g., an unauthorized employee) intentionally or accidentally gaining access to or damaging the network. "Hackers count on the fact that many organizations won't have addressed certain vulnerabilities on their systems; unfortunately, they're often correct" (Betts, 2000).

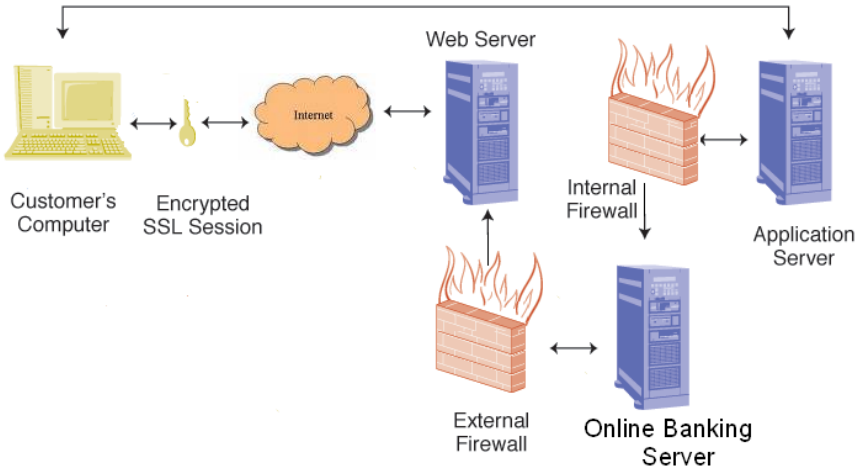
Banks protect customers' security by means of passwords, encryption, and firewalls (a combination of computer hardware and software that restrict the flow of information between computers). However, this study finds that there have been security breaches that bring serious question whether the banking system is fully capable of protecting existing bank accounts from cyber criminals. "So far, at least one person has taken advantage of the flaw in the system. That individual bragged to an Internet newsgroup that he or she had transferred $25,000 (US$) from an account that "has millions of dollars in funds" and had withdrawn $4,500 in cash" (Greenberg & Caswell, 2001). Several modern models in preventing and detecting fraud are evolving and being applied to many banking systems. However, they have no effective detection mechanism to identify legitimate users and trace their unlawful activities (Dandash et al, 2007).

ONLINE BANKING SECURITY SYSTEM

All major retail banks offer an online channel for transaction processing as well as product sales to a certain extent. Still, the most advanced channels are often provided by direct banks, but by far not all direct banking customers are also online banking customers. A lot still prefer traditional telephone banking or ATMs and service terminals (Berger & Gensler, 2007).

In online banking as with traditional banking methods, security is a primary concern. Banks have taken every precaution necessary to be sure that information is transmitted safely and securely. The security of online banking application is addressed at three levels (see figure 1). The first concern is the security of customer information as it is sent from the customer's PC to the Web server. The second area concerns the security of the environment in which the Internet banking server and customer information database reside. Finally, security measures are in place to prevent unauthorized users from attempting to log into the online banking section of the Web site.

Figure 1



Data security between the customer browser and our Web server is handled through Secure Sockets Layer (SSL) security protocol, which provides data encryption, server authentication, message integrity for a Internet connection, and provides a security "handshake" that is used to initiate the connection (Freier et al, 1996). Some banks came up with their own method of enhanced security model. Woof forest National bank in the USA for example, implemented what they call "Intelligent Authentication" (IA). The way it works is each time a customer uses online banking, the system will "profile" his/her online banking behavior by tracking each visit along with the IP address, browser type, time of day, frequency, etc. and when an action occurs outside of the customers usual banking profile, the system will require that the customer answer one of his/her pre-selected security questions. This should provides a second level of security keeping to keep the users safe from fraud and identity theft (Woodforest, 2007).

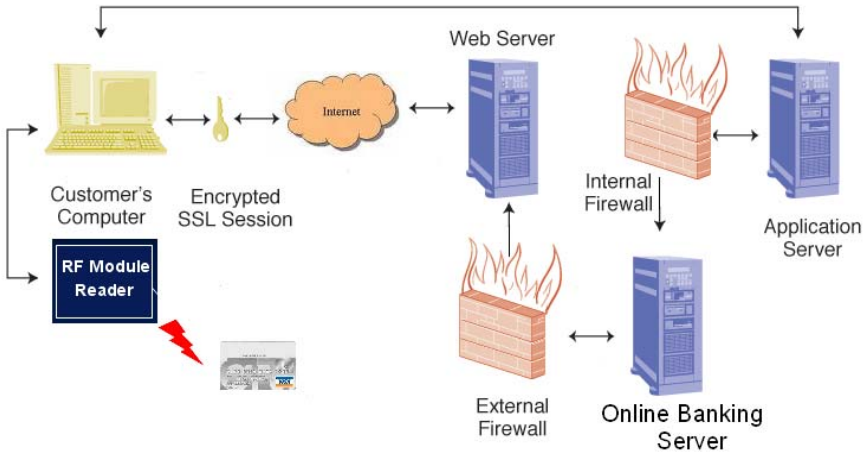
PROPOSED SOLUTION

Online banking is designed to increase convenience for the consumer, while reducing banking costs. Value-added services are the key for long-term survival online banking. Given the uncertain nature of the online environment, Stewart, Pavlou, and Ward argue that perhaps the most important element of consumer-marketer relationships is the notion of trust (Stewart et al, 2001). All transactions require an element of trust, especially those conducted in the uncertain environment of EC (Cheung & Lee, 2000). Customers who have intention to use Internet banking services have only risk barrier that causes resistance and slows down the adoption, thus, bank managers could enhance adoption of Internet banking services by concentrating their marketing efforts on factors under risk barrier (Laukkanen, et al, 2007). Banks must convince their customers that their web sites are secure and sufficient safeguards have been taken to assure

security at the transaction level. And, when they communicate that is done effectively they demonstrate reliability. These dimensions of trust are important factors that are related to level of interactivity.

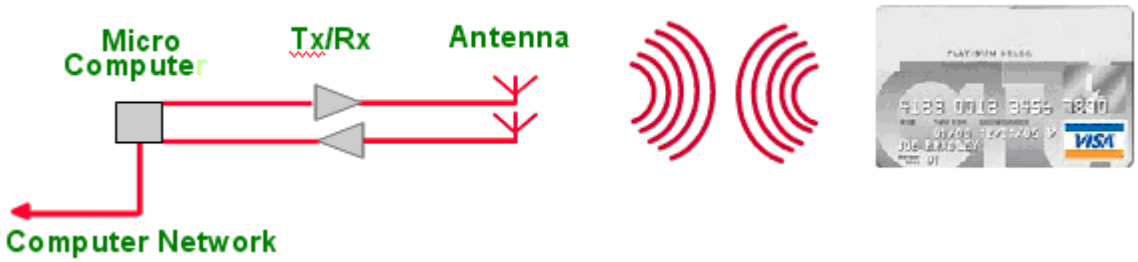
Banks need to work on reducing security risks and improving customers' trust. Therefore, in an attempt to help online banks achieve a high level of trust, this study has developed a module that shall further tighten security of online banking, and reduce the associated risk (see figure 2), by adding a Radio-Frequency Identification (RFID) reader to the online banking system, on the end user's computer.

Figure 2



An RFID system includes three components: (1) a tag or transponder (RFID tag - that has been programmed with information) located on the object to be identified, (2) a transceiver (a read or write/read device) with a decoder to interpret the data, and (3) a scanning antenna that emits radio signals to activate the tag and read (or write) data. The reader is capable of carrying 2,000 bytes of data or less. Passive tags that operate at frequencies up to 100 MHz are usually powered by magnetic induction (Sarma, 2004). The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And, just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information (see figure 3). The scanning antennas can be permanently affixed to the computer.

Figure 3



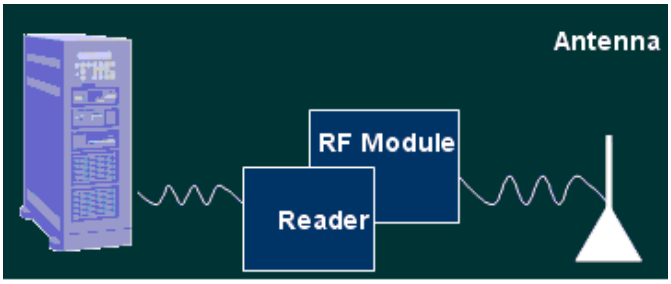
When an RFID tag passes through the field of the scanning antenna, it detects the activation signal from the antenna. That "wakes up" the RFID chip, and it transmits the information on its microchip to be picked up by the scanning antenna. The RFID tags can be read in a wide variety of circumstances, where barcodes or other optically read technologies are useless.

- The tag need not be on the surface of the object (and is therefore not subject to wear)
- The read time is typically less than 100 milliseconds
- Large numbers of tags can be read at once rather than item by item.

The scanning antenna puts out radio-frequency signals in a relatively short range. In addition, the RFID tag may be of one of two types. Active RFID tags have their own power source or Passive RFID tags, which do not require batteries. RFID are inexpensive receivers that are capable of detecting the a signals on a battery-less UHF tag, within a distance of three meters (Want, 2004) and the RFID tags do not need to contain batteries, and can therefore remain usable for very long periods of time. . The RF radiation does two things:

- It provides a means of communicating with the transponder (the RFID tag) AND
- It provides the RFID tag with the energy to communicate.

Figure 4



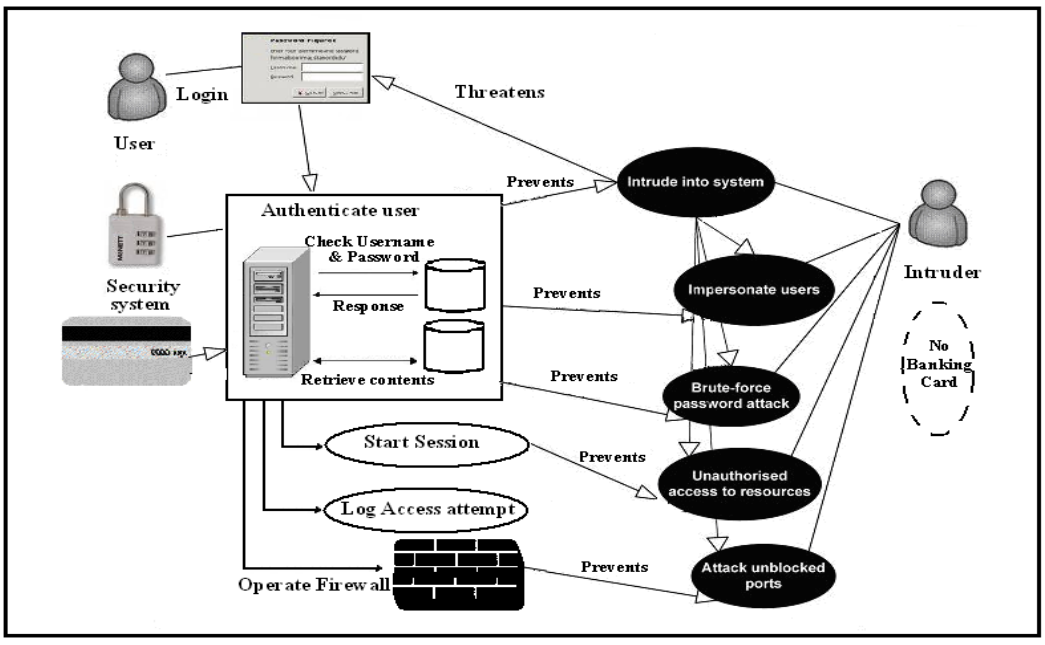
METHODS OF OPERATION

The proposed RF ID reader shall be interfaced to the user's computer (see figure 4) via USB port (for existing PCs, and maybe incorporated in new PCs). It can be a stand-alone RF ID card reader, added to a custom build USB keyboard, or it can be a USB device. In any case, the bank log-on page shall be modified to read the users information from the ATM card. RF ID does not require scanning. The system can read the contents of a card within one-meter radius. It shall work exactly in the same manner as scanning a card; except that scanning is done over the air. Sensing the presence of the ATM card, and reading its information shall provide physical evidence for user's authentication. The absence of the card shall prevent accessing the account. The bank providing the ATM card shall be responsible for encrypting and securely transmitting data.

DOUBLE AUTHENTICATION

With Double Authentication, there are two authentication/authorization stages. These two stages occur after a user tries to access the online baking account. This will provide additional authentication for online banking services. With Double Authentication, you essentially require remote users to pass a second stage of user authentication (the magnetic code stored on the back of ATM card) before they can gain network access. The system architecture is illustrated in figure 5.

Figure 5



CONCLUSION AND RECOMMENDATION FOR FURTHER STUDY

Online banking systems give customers tighter control over their financial transactions and this need to take place in a secure environment to minimize the risk when the system is up and running. The banks only see transactions at the payment stage but typically there are several stages before then, such as trust and authorization services, where banks vouch for their clients, using an internet-enabled computer, a password and user ID. While this is an excellent option for users, for trading online, trust is a key limiting factor. Saleh finds that users' tendency to trust online banking is positively associated with the perceived level of Internet security (Saleh, 2003). Thus, trust does increase the willingness of consumer to use online banking. Therefore, online banks should use trust as a key competitive advantage and leveraging customer fears to proactively implement security programs and systems to ease the uncertainty, where trust is a key component to customer adoption and retention.

It is possible to design technological solutions in a way that their use will increase trustworthiness in the human-to- technology interaction. There are various means to provide those security services, (e.g., firewalls, authentication, intrusion detection, etc.), but "how can we trust that the system is secured enough to use?" This study has developed and proposed a module that shall further tighten security of online banking, and improve trust, by adding an RF ID in the online banking system at the end user's computer. However, a study is needed to test the affect of RFID on potential adopters and evaluate its impact on the decision for adopting online banking.

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MULTI-RATING CHOICE DETERMINANTS: EVIDENCE FROM FITCH, MOODY'S AND STANDARD AND POOR'S RATINGS

Gianluca Mattarocci, University of Rome "Tor Vergata"

ABSTRACT

Rating agencies represent one of the main information providers for all the main financial markets whose value depends both on their reputation and on their degree of independence in respect to rated entities. The fee payment solution adopted by major rating agencies exposes them to a risk of collusion between rating and rated entity because the fee for their service is mainly paid by the evaluated entity.

In order to ensure the accuracy of a rating agency evaluation, a firm could hire more than one rating agency. Studies published in relevant literature demonstrate that the market normally appreciates the availability of ratings evaluated by different agencies and the rated entity can so benefit from its expanded reputation in the market.

This paper examines the customers of the main worldwide rating agencies (Fitch, Moody's and S&P) during the period of time from 1999-2008. The results demonstrate that the multi-rating solution is frequently adopted by their customers and normally, the choice to hire more than one rating agency is affected by the type of rating requested, the variability of rating assigned and the number of new ratings that will be demanded.

INTRODUCTION

Criticism of the agencies' behaviour focuses primarily on their effective independence from the companies they rate (Smith & Walter, 2001). In fact, agencies are deemed to have a propensity to up-rate rather than down-rate (Larrymore, 2001) so their evaluations cannot be considered a trustworthy measure of the real value of the rated securities. Some studies suggest that the power of the rating agencies in the financial market is too great and supervisory authorities are unable to enforce rules that reduce the risk of collusion between the rating and rated entities (Sinclair, 2005).

One of the solutions proposed to reduce the risk of collusion is multi-rating (Mattarocci, 2005). Hiring more than one rating agency, in fact, can greatly diminish the likelihood of collusion between the rating and the rated entities and a concordant evaluation by different agencies could enhance the significance of the rating assignment (Ellis, 1997).

Other studies have analyzed the impact on the performance of public trade securities (stocks or bonds) of a new rating or a rating revision made by one the firm's rating agencies

looking at contract characteristics (Kose, Ravid & Reisel, 2003), at primary issuing success (Collin–Dufresne, Goldstein & Martin, 2001; Santos, 2006) or at secondary market liquidity (Gonzelez, Haas, Johannes, Persson, Toledo, Violi, Wieland & Zins, 2004; Katz, 1974; Dichev & Piotroski, 2001). This paper considers the dynamics of the ratings offered by different agencies (without looking at the impact on investors) and analyzes the main aspects to be considered in the multi-rating approach.

The thorough analysis proposed of multi-rating dynamics presents a good test of the quality of information given to the market by each rating agency and the usefulness of the multi-rating solution in reducing the risk of collusion between the rating and rated entities. Results obtained could be useful in determining if the ratings assigned by each rating agency are useful in identifying counter-party risk and if the multi-rating choice should be considered when establishing rules that incentive or penalize this solution, as some regulators proposed (see, for example, Basel Committee on Banking Supervision, 2006).

After presenting some of the main theories proposed in support of multi-rating (section 2), this paper studies ratings issued by Fitch Ratings (hereinafter Fitch), Moody's Investor Service (hereinafter Moody's) and Standard and Poor's (hereinafter S&P) during a ten-year time period (1999-2008) in order to evaluate the probability of using a multi-rating solution for each type of product offered (section 3.1). The firms' choice to request another rating is analyzed looking first, at the main drivers used to justify this solution (section 3.2) and next, studying the relationship between the available rating and the new rating (section 3.3).

Results obtained demonstrate that multi-rating is a relevant phenomenon for the world market and is growing in importance over time. The choice to hire more than one rating agency to improve the quality of the information offered to the market is related to some geo-sectoral factors but is also affected by previously available ratings (type or rating variability in the last year) and the new rating, which will be requested in the year analysed.

LITERATURE REVIEW

Requiring ratings from more than one agency, firms can signal the quality of the information available (especially if the rating assigned by different agencies are coherent) because the greater the number of credit agencies involved, the lower the probability is that all the agencies sacrifice reputation in order to maximize the short term economic return gained from collusion (Irvine, 2002). The greater the number of currently available ratings, the weaker the impact will be of further evaluations made by other rating agencies (Thompson & Vaz, 1990). Market surveys, in fact, show that while many companies have used multiple ratings to inform the market of their financial potential, few companies hire the services of more than three agencies at any one time (Ellis, 1997). In order to evaluate the opportunities related to the multi-rating choice, the firm needs (i) to assess the incremental advantage inherent in the choice to hire more than one rating agency, and (ii) to compare the expected (possible) gain from placing its

securities at higher prices due to the costs affiliated with the fees payable to the new rating agency(ies) (Backer & Mansi, 2001)

One unambiguous aspect that a firm has to consider is the fee that the rated entity is required to pay for the evaluation and, for issue rating, could be related to the amount of the issue rated (Partnoy, 2001). From an economic perspective, the cost related to hire another rating agency must be compared with the expected benefits related to the lower cost of collecting financial resources through financial institutions (Hill, 2004) or capital markets (Millon & Thakor, 1985). The lack of disclosure of fees paid by each firm to a rating agency (Gibilaro & Mattarocci, forthcoming) does not allow for analysis of the economic rationales behind the multi-rating solution.

The rating process entails the frequent exchange of information and in the medium-to-long term the interests of the two parties may converge leading the agency to support its client by assigning a particularly favourable rating (Butler & Rodgers, 2003). Firms characterized by a long relationship with a rating agency could possibly obtain higher reputational benefits when they seek rating services from another evaluator. If the judgement expressed by the other agency is coherent with the one provided by the main rater, the market will not evaluate the rating being affected by a relationship bias.

In order to evaluate the economic impact of the multi-rating solution, a firm has to consider revenues related to the increased disclosure offered to the market. Further, greater advantages are to be had when the relationship with the market is more frequent, especially when planning to offer new securities in the market (in which case, a new issue rating will be requested) (Hsueh & Kidwell, 1988).

The impact of the new requested rating depends on the criteria adopted by the market used to process the new information (Cantor, Packer & Cole, 1997) and on the relationship with other available ratings (Sorensen, 1979). If the opinion expressed by one rating agency is highly variable over time (thus untrustworthy for investors) or is erroneous, the firm can enforce its market reputation by asking another rating agency to evaluate the same firm or the same issue. This is normally a safe choice for a firm because in a solicited rating scenario, it can choose to hire the service from the rating agency that normally offers higher ratings (so-called "rating shopping") (Linciano, 2004) and/or to communicate it to the market only if the rating is favourable (Jewell & Livingston, 1999).

As for the rating choice, the attractiveness of the multi-rating solution is not independent in respect to the geographical area and/or sector of activities. In fact, the rating accuracy for firms operating in a certain industry or country partially depends upon the broadness of the benchmark sample on which the rating model is calibrated (Ang & Patel, 1975). The greater the number of companies belonging to a certain sector and/or country assessed by the agency, the greater is the capacity of the model employed by the agency to accurately identify the risk profiles of the investment in securities issued by companies with the same characteristics (Ederington, Yavitz & Roberts, 1987). Differences in the calibration of the analysis models cause

agencies to assign systematically different ratings; some agencies, in fact, tend to overestimate the riskiness of certain types of companies, while others may underestimate it (Cantor & Packer, 1995) especially if the company presents a high level of intangible assets in their financial statements (Livingston, Naranjo & Zhou, 2007). Irrespective of the problems related to the possibility of conducting assessments based on more or less broad samples of customer companies, there is empirical evidence of the fact that locally-based companies are assessed according to more favourable criteria by certain rating agencies, especially the smaller ones ("home country bias") (Beattie & Searle, 1992). All these aspects could cause a structural difference in market reaction of new information produced by rating agencies and thus could increase the advantages related to multi-rating choice.

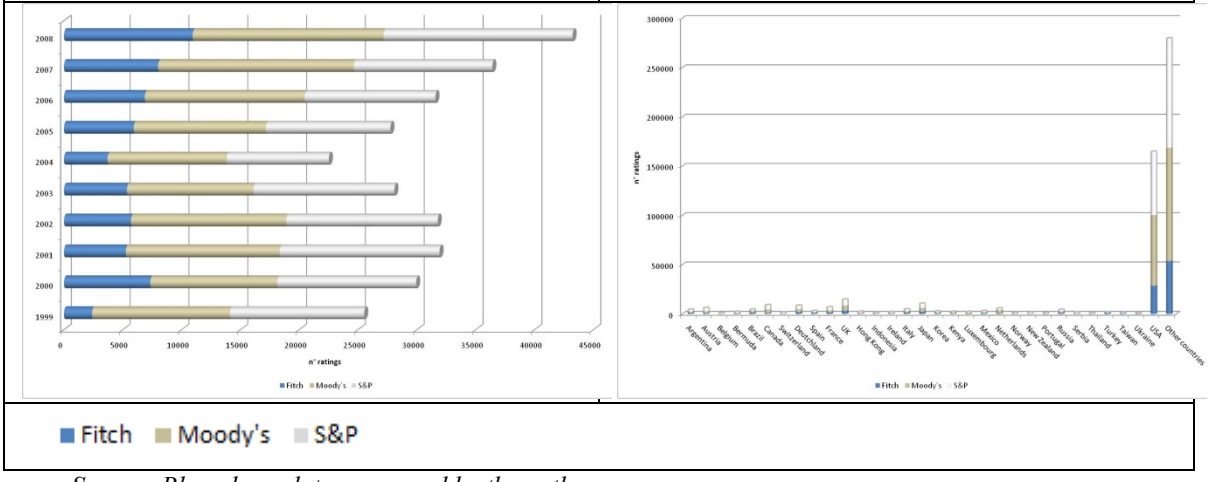
EMPIRICAL ANALYSIS

Sample

This analysis is limited to the three major rating companies (Fitch, Moody's and Standard and Poor's) that, based on the literature review, offer similar services and do not have a geographical or sectoral specialization that could prevent comparison of the customers' portfolio. Data on ratings assigned by each rating agency to issue and issuer are collected from Bloomberg over a ten-year period (1999-2008) (Figure 1).

Figure 1. Sample characteristics (rating agency, year and country)

Sample classified by year and rating agency	*Sample classified by country (overall time period)*



Source: Bloomberg data processed by the author

The number of rating changes or new ratings issued during the ten-year time horizon is 380,683. Except for in the year 2004, the number of ratings grew year-by-year resulting in an increase of 169.42% from 1999 to 2008.

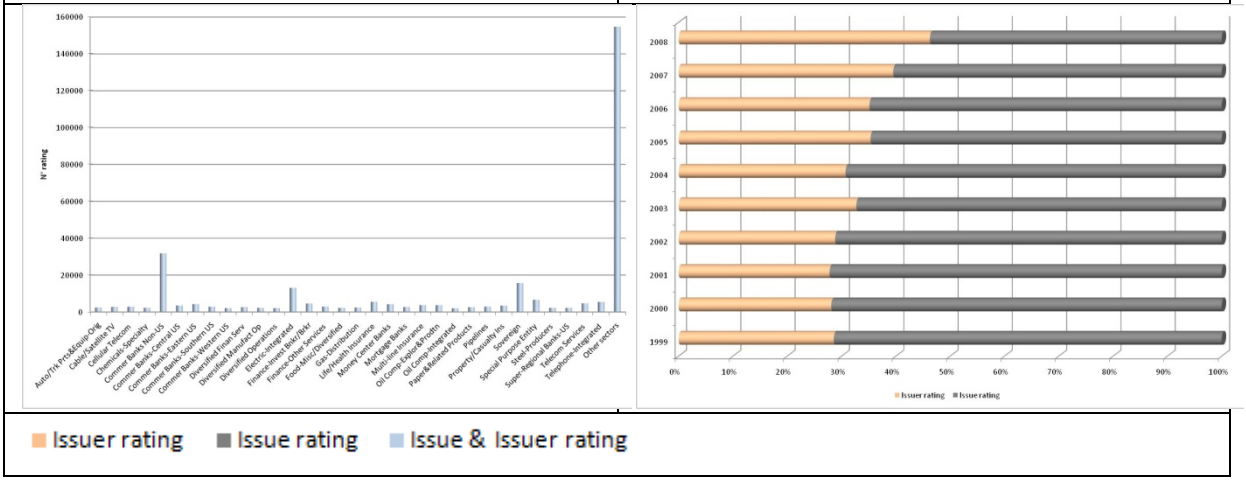
Analyses provided in the literature has found that in different nations the effort of the rating agency measured varies with the experience of each analyst, and for some countries, in particular the less developed ones, the service offered is normally inaccurate (Ferri, 2004).

A country–by-country analysis demonstrates that the portfolio is geographically diverse and approximately 50% of the sample includes countries for which all three rating agencies issued less than 2,000 ratings (new rating or rating revision) over the ten-year time period.

The sample analyzed allowed for an independent evaluation of each rating agency in respect to the choices made in the construction of the rating evaluation criteria. Ratings included in the sample represent different sectors of activities and both issuers and issues (Figure 2).

Figure 2. Sample characteristics (type of rating, year and sector)

Sample classified by sector (overall time period)	*Sample classified by type of rating and year of issuing*



Source: Bloomberg data processed by the author

Regarding the sectoral classification, the number of sectors in which there are less than 2,000 available ratings (new rating or rating revision) is significantly high (402 out of 435) and they represent more than 50.14% of the overall sample.

As for the type of rating, in the sample there are more than 70 different types of ratings that are defined by each rating agency using different criteria. The mean of issuer ratings is 34.05% but in the last year this type of rating experienced noticeable growth (from 28.56% to 46.26%).

METHODOLOGY

A preliminary analysis of the sample is released in order to identify the relevance of the multi-rating choices for the period analysed and the number of firms that requested service from one or more rating agencies. Based on the utility function of the rated entity, the next step is to try to identify some common characteristics of the probable multi-rated companies. The analysis released is a panel data regression and the formulas considered are the following:

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \varepsilon_{it} \quad (1)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \alpha_{3t} \sum_{j=1}^{m} Sector_{it}^{j} + \alpha_{4t} \sum_{s=1}^{p} Geographical\ Area_{it}^{s} + \varepsilon_{it} \quad (2)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \alpha_{3t} Fr\left(New\ Rating\right)_{it} + \varepsilon_{it} \quad (3)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \alpha_{3t} \left[Issue / \left(Issue + Issuer \right) \right]_{it} + \varepsilon_{it} \quad (4)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \alpha_{3t} \left(n^{\circ} \Delta ratings \right)_{it} + \varepsilon_{it} \quad (5)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{it-1} + \alpha_{3t} \left(\mathrm{Re} lationship\ Length \right)_{it} + \varepsilon_{it} \quad (6)$$

$$Multi-rated_{it} = \alpha_{1t} + \alpha_{2t} Multi-rated_{t-1} + \alpha_{3t} \sum_{j=1}^{m} Sector_{it}^{j} + \alpha_{4t} \sum_{s=1}^{p} Geographical\ Area_{it}^{s} + \alpha_{5t} Fr\left(New\ Rating\right)_{it} + \alpha_{6t} \left[Issue / \left(Issue + Issuer \right) \right]_{it} + \alpha_{7t} \left(n^{\circ} \Delta rating \right)_{it-1} + \alpha_{8t} \left(\mathrm{Re} lationship\ Lenght \right)_{it} + \varepsilon_{it} \quad (7)$$

where:

$Multi-rated_{it}$ = a binomial variable that assumes the value of 1 for the year the firm is evaluated by more than one rating agency and zero otherwise;

$\sum_{j=1}^{m} Sector_{it}^{j}$ = m dummy variables constructed on the basis of the firm's sector affiliation[1];

$\sum_{s=1}^{p} Geographical\ Area_{it}^{s}$ = p dummy variables constructed on the basis of the firm's nationality[2];

$Fr\left(New\ Rating\right)_{it}$ = the number of new ratings emitted for each firm during the year t (realized by all rating agencies) and represents the best proxy, based on data representing the awareness of the market reputation for the firm;

$\left[Issue / \left(Issue + Issuer \right) \right]_{t-1}$ = the ratio between the number of issuer and issue ratings changes at year t for each firm and it measures the relative importance of the two different types of services offered by the rating agency;

$n^{\circ} \Delta rating_{it-1}$ = the number of rating changes made for the firms by all agencies during the year t-1;

$\mathrm{Re} lationship\ Length_{it}$ = maximum number of years from which the firm is rated by a rating agency:

ε_{it} = firm specific error term.

The choice to regress the multi-rating variable on its lagged value is related to the assumption that in order to offer correct information to the market, a choice to reduce the number

of evaluators during the life of the firm could be interpreted by investors as a decrease in the quality of information available.

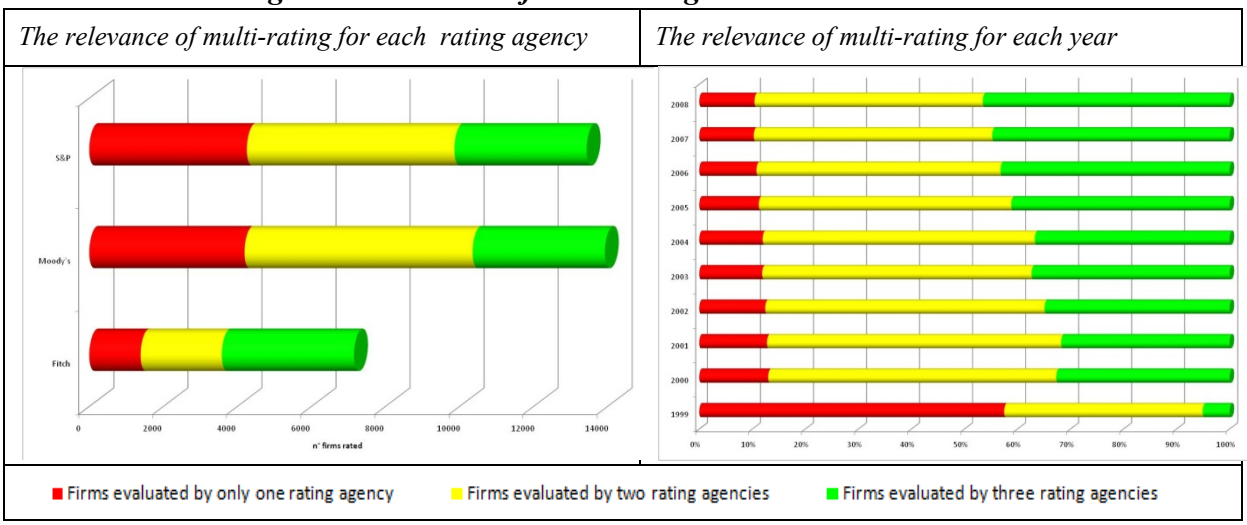
The inclusion of a dummy variable for sector and geographical area, in a heterogeneous sample such as the one analysed, allows us to consider the impact of sector characteristics on the likelihood of hiring more than one rating agency, and/or if country characteristics can impact the firm's choice to use the multi-rating solution. Other variables considered in the formula evaluate the variability of existing ratings, the nature of existing ratings, and the number of new ratings requested during the year analysed. The first variable allows us to test the hypothesis that the multi-rating solution is pursued in an attempt to stabilize the assigned rating. The second variable measures if the strategy adopted by the firm is different for the strictly-linked-to-funding solution in respect to the others[3]. The last variable analyzes if the choice of multi-rating is related to the number of new emissions scheduled for the time period considered.

The choice to employ different models allows us to measure the advantages related to adding a new variable to the autoregressive lagged model and to compare the results of these simple models with those achieved by a more complex model that includes all the variables available to evaluate the multi-rating choice for a firm.

RESULTS

A first analysis of multi-rating is released examining all firms evaluated by each rating agency over the ten-year time period (1999-2008) looking at the frequency of ratings issued for the same firms by different rating agencies with respect to the overall rating produced (Figure 3).

Figure 3. The trend of multi-rating in the world market



Source: Bloomberg data processed by the author

The results show that the choice of multi-rating is a standard solution for the majority of the firms considered (80.59% for Fitch, 69.87% for Moody's, and 68.31% for S&P). This analysis also examines the probability that during the time horizon under consideration, one or more firms decided to change their rating agency because the firm was not satisfied with the agency's service. Thus, a year-by-year analysis is released for inspecting how previous results are influenced by the custom awareness problem. Looking at a year-by-year break down, the data shows that the probability that the issuer is evaluated by more than one rating agency in the same year is growing over time (from 42.49% in 1999 to 89.58% in 2008).

The analysis of the overall sample employs a stepwise forward approach starting from the autoregressive model to define the impact of each new variable in the study of the multi-rating choice dynamics. Results obtained are summarized in the following table (Table 1).

Starting with an autoregressive model, we add a new variable to increase the fitness of the model and the regression. The results shows that only some sectoral and geographical dummies are non-significant at the 99% level. The χ^2 statistics do not signal any significant change in the fitness of the model but the choice to include all other variables in the model could significantly weaken the correlation within groups.

Based on our findings, a multi-rating choice positively correlates to previous choices. Assuming that a firm's rating is one of the main factors considered by investors when evaluating the risk of the firm (Cowan, 1991), this result could be based on the information disclosure strategy of the firm; every change in the amount of information available could be considered a signal of change in its economic condition and so the firm might prefer to not change its strategy during its life.

The choice to consider the model dummy variable for the geographical area allows us to evaluate if the characteristics of the market (like the degree of competitiveness) could impact the decision to multi-rate. The dummy variable on the geographical area is significant and we find that the choice to multi-rate is of less interest for firms in regions like Australia and Central and South America. Results are coherent with the characteristics of the sample, showing low coverage in those markets in which the decision to ask for an evaluation from an international rating agency is not a solution frequently adopted by the firms.

Sectors present characteristics that could impact the degree of visibility into the rating evaluation procedure and thus could provide greater or lower benefits from a certified judgment offered by a rating agency (Skerta & Veldkamp, 2009). For example, the results on sectoral dummies show that firms with longer production cycles (like mining) are normally perceived as riskier and thus the multi-rating choice results in greater benefits. If the duration of the production cycle represents a proxy of the complexity of the activity, these results could be considered coherent with the theory that a higher complexity of the asset evaluation could incentivize the choice to buy more than one rating.

Results further show that a firm is more likely to use more than one rating agency if it plans to offer new products to the market in the next year(s). This result supports the thesis that

the cost related to a multi-rating solution could be economically motivated especially when the relationship of the firm to the market is not occasional and the market normally appreciates the availability of multiple ratings with a reduction of the cost of funding (Jewell & Livingstone, 2000).

Table 1. Multi-rating choice determinants

		-1	-2	-3	-4	-5	-6	-7
$Multirated_{it-1}$		2.5757**	2.6036**	2.6278**	2.3734**	2.5313**	7.3476**	7.3157**
Geographical Area▲	Asia		-0.2432**					-0.2388**
	Australia		-0.3485**					-0.7275**
	Central-South America		-1.0529**					-0.3738**
	Europe		-0.5013**					-0.1340*
	North America		-0.3244**					-0.2800**
Sector▲	A		-0.2235*					0.5123
	B		0.2708**					0.4068**
	C		0.7087**					0.5383**
	D		0.3652**					0.4183**
	E		0.4809**					0.5214**
	F		0.0099					0.189
	G		0.2706**					0.4499**
	H		0.0442					0.1440**
	I		0.4782**					0.4187**
	J		0.1401*					0.3536**
Fr (New rating)$_{it}$				0.1058**				0.2357**
Issue/Issue+Issuer$_{it}$					0.5902**			0.3583**
N°Δ rating$_{it-1}$						0.0422**		0.0925**
Relationship length$_{it}$							-0.4559**	-0.4415**
Constant		0.6920**	0.9135**	0.6378**	0.6127**	0.7272**	0.7264**	0.6355**
N° observations		183,501	183,501	183,501	183,501	183,501	183,501	183,051
N° groups		20,389	20,389	20,389	20,389	20,389	20,389	20,839
χ^2		11,806.34	12,137.99	11,928.48	11,928.48	12,127.55	29,417.33	28,637.50
Prob > χ^2		0	0	0	0	0	0	0
Correlation		0.4912	0.4799	0.482	0.5272	0.5267	-0.0081	-0.0034

Notes:
* Coefficient significant at 95% ** Coefficient significant at 99%
▲ Geographical areas include Asia, Australia, Central and South America, Europe and North America. Africa and Middle East are excluded from the analysis due to the collinearity with other dummies considered in the models (the number of observations for this market is low and highly concentrated in some sectors).
▲▲ Sector classification is as follows: Agriculture, forestry and fishing (A), Mining (B), Construction (C), Manufacturing (D), Transportation, communications, electric, gas and sanitary services (E), Wholesale trade (F), Retail trade (G), Finance, insurance and real estate (H), Services (I) and Public administration (J)

Source: Bloomberg data processed by the author

When a firm presents a high ratio between issue rating and overall rating requested it means that the firm uses the market as a primary source of capital and frequently releases new stocks or bonds. Based on the results achieved, in this scenario the multi-rating solution fits best

because every benefit related to improving the reputation of the firm has a direct impact in funding cost. As demonstrated in previous literature, the multi-rating solution represents a good option for issue ratings (Partnoy, 1999).

As expected, the variability of previous ratings is one of the drivers of the multi-rating decision and every change in the rating assigned by one of the rating agencies has a positive and significant impact on the multi-rating choice. Results are coherent with theoretical papers proposed in literature that considers multi-rating a good solution for stabilizing the assigned rating and reducing the cost of capital if the new rating requested is higher than the existing ones (Bongarts, Cremers & Goetzmann, 2009).

Firms that establish a long relationship with one rating agency are normally satisfied by the service received and so are not interested in going to market to find new rating agencies. The long-lasting relationship allows firms to increase their bargaining power and could allow them to obtain lower fees and/or better evaluations. Results show that the choice of multi-rating is not used to demonstrate that the judgment offered by one rating agency is not affected by the economic relationship established and the value of the rating is ensured by the reputation of the rating agency (Beker & Milborn, 2009).

CONCLUSIONS

Updated surveys demonstrate that investors appreciate the availability of judgments offered by different rating agencies and use this type of information to select which are the best investments available (Cantor, Gwilym & Thomas, 2007). Firms evaluated by more than one rating agency signal to the market that the information available (especially if the judgments are coherent) is highly objective and not influenced by the relationship established between rating and rated entity. The analysis of ratings published by three major global rating agencies confirms that the multi-rating solution has become more frequent in recent years.

The choice of a multi-rating solution is not only related to the sector and geographical area characteristics of the firm, as previously demonstrated in literature, but also between the rating characteristics/dynamics and the convenience for a firm to use this solution in order to reduce market opaqueness and/or to offer a new signal to the market. Empirical evidence shows that the role of these last type of variable are significant and the decision to include them allows us to better explain the choice of a multi-rating solution.

Available databases do not allow for inspection of the role of specific firms' balance sheet features (i.e., size, total assets, debt, etc.) in the choice of a multi-rating solution (e.g. Molina, 2005). A more complete database could provide insight into better understanding the strategy adopted by a firm in selecting the number of rating agencies to be hired.

The assumption made in this article is that for a rating agency, the economic relevance of each rating assigned is the same independent of the issue and/or of the issuer. The analysis of fees applied demonstrates that the issue rating agencies obtain a fee that is proportional to the

amount of the emission and we find that normally, for the issuer rating, special price conditions are given to bigger customers (Estrella, 2001). Based on this evidence, a more detailed analysis of the relationship between the amount of profits related to each rating released by the evaluator and the multi-rating choice could complete the analysis of the economic rationale behind the choice of a multi-rating solution.

ENDNOTES

[1] Bloomberg sectoral classification is too detailed for the analysis (435 categories). Using the SIC division structure, all firms in the sample are reclassified into 10 classes. For further details about SIC classifications, see http://www.osha.gov/pls/imis/sic_manual.html.

[2] The geographical classification adopted is coherent with Bloomberg classifications and uses the following 6 macro-areas: North America, Central and South America, Europe, Africa and the Middle East, Asia, and Australia.

[3] The idea to consider issue and issuer ratings separately is strictly related to empirical analysis proposed in literature on the increasing awareness of the firm on issues' rating (see among others Gabbi e Sironi, 2005)

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THE MORTGAGE CRISIS ITS IMPACT AND BANKING RESTRUCTURE

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ABSTRACT

The rate of home foreclosures has risen dramatically in past years due to defaulting on residential mortgages. The impact set off a broad based financial crisis, resulting in a deep recession and in turn increasing financial distress faced by homeowners. As defaults began to escalate and foreclosures continued to occur, the result lead to a ripple affect causing major financial institutions to collapse and thus leading to an overall meltdown of the U.S. economy, soon to be followed by other nations.

The U.S. government has engaged in a number of proposals to reduce such foreclosures and although there are signs of recovery, the progression is fairly slow. This paper examines the role played by the mortgage industry in the origin of the economic crisis, causes and its impact on the overall U.S. economy. It addresses how the mortgage crisis has had an effect on U.S. cities, current homeowners and first-time home buyers. The restructuring of the entire mortgage industry and financial arena has caused a remarkable tribulation for individuals across America and has transformed the manner in which homes were once purchased and sold. The negative impact of mortgage defaults and foreclosed homes on the borrowers, communities and financial institutions involved in the housing market are the primary focus of this paper.

BACKGROUND OF THE MORTGAGE CRISIS

The subprime mortgage crisis is an ongoing real estate and financial crisis caused by a substantial rise in mortgage delinquencies and foreclosures in the United States, with unfavorable consequences for banks and financial markets around the globe. The crisis, which had shown signs in the closing years of the 20th century, became apparent in 2007 and has since resulted in weaknesses in financial industry regulation and the global financial system.

Approximately 80% of U.S. mortgages issued in recent years to subprime borrowers were adjustable-rate mortgages (Lockett, 2008). After U.S. house prices peaked in mid-2006 and began their steep decline thereafter, refinancing became more difficult. As adjustable-rate mortgages began to reset at higher rates, mortgage delinquencies increased. Securities backed with subprime mortgages, widely held by financial firms, lost most of their value. This resulted in a decline in the capital of many banks and U.S. government sponsored enterprises, tightening credit around the world.

The crisis can be attributed to a number of factors that were pervasive in both, the housing and credit markets and emerged over a number of years. The causes were prominent due to the inability of homeowners to make their mortgage payments, the adjustable rate mortgages resetting, borrowers over-extending, over lending and speculation during the boom period.

The risks to the broader economy created by the housing market downturn and financial market crisis were primary factors that were taken into consideration by central banks around the world, to cut interest rates and governments to implement economic stimulus packages. The effects were also extensive on global stock markets due to the crisis, resulting in an overall global melt down and leaving economies disconcerted and worried.

The mortgage industry played a vital role in the recession faced by the U.S. economy in 2008. An estimated 1.5 million households defaulted on their home loans and were driven to foreclosure in 2009 (Les, 2009). This has resulted in the restructure of the mortgage industry and consequently limiting individuals to purchase homes due to lack of flexibility. The purpose of this research is to determine how the mortgage crisis has impacted the U.S. economy.

The prevailing recession is a financial crisis that focuses on the U.S. housing market, where the affects from the subprime mortgage market are visible in the credit markets, as well as domestic and global stock markets. The subprime mortgage crisis has put the U.S. economy into the worst recession since 1982 (Amadeo, 2009). Between 2000 and 2006, the number of home foreclosures continued to rise in America. A number of studies and data analysis suggested a strong connection between the rise in foreclosures and the subprime mortgage lending market and thus, the federal government began to scrutinize the practices of subprime mortgage lenders. The adjustable-rate mortgage (ARM) loan has played a major part in the subprime mortgage crisis. In an adjustable rate mortgage, the interest rate will eventually reset or adjust at some future point in time. This type of loan starts with a relatively lower interest rate that appeals to borrowers, but in due course of time it will reset to a likely higher interest rate and sometimes a significantly higher interest rate.

Through the mid 90's and early 2000's, the number of subprime mortgage loans rose significantly (Cornett, 2008). This was partly due to the increased competition among lenders (largely from online mortgage lenders), which meant that lending institutions had to offer a wider range of mortgage products to a larger audience, in order to stay competitive. Many of these lenders began to focus almost exclusively on this type of lending practice, thus they became known as subprime lenders. These lenders took advantage of the opportunity, to beat the competition by extending loans to borrowers that their competitors were turning away. In other words, they offered subprime mortgage loans to subprime borrowers, usually with a much higher interest rate for the borrower and higher profit for the lender. As with most things in the financial world, this lending practice had an up-side and a down-side. The down-side eventually grew into a full-blown mortgage crisis.

The major advantage of the expansion of subprime mortgage credit is the rise in credit opportunities and homeownership. Due to innovations in the prime and subprime mortgage

market, nearly 9 million new homeowners are now able to live in their own homes, improve their neighborhoods and use their homes to build wealth (Cornett, 2008). Although the basic developments in the subprime mortgage market seem positive, the relatively high delinquency rates in the subprime market raise issues. For mortgage lenders the real challenge is to figure out how far to go. If lenders do make new loans, can conditions be designed to prevent new delinquencies and foreclosures? These loans extended home ownership to a lot of Americans who probably could not have afforded a home otherwise, but at the same time, they were a contributing factor in the number of home foreclosures in the U.S.

The problem started with the subprime mortgage market, when a bunch of these high risk loans started to default. It was then that investors slowly started to take a realistic look at the risks they were holding in their investments, not just looking at the returns. There was speculation that perhaps there was way too much exposure and way too low a rate for the exposure in their portfolios. It became a crisis when a number of hedge funds at major brokerage firms collapsed as investors wanted to cash out. This caught the attention of the world and then in Europe, a huge French bank froze a $2.5 billion fund after it lost $400 million, which piled on to the uncertainties and worries (Gray, 2007). When these investors, largely through hedge funds needed to cash out, it meant sell everything in order to raise cash. They started by selling low-yield investments, but one can only sell if there is a buyer, and nobody wanted to buy these high risk loan portfolios. At that point, the market had pretty much dried up when investors realized that the risk they were taking on was too high for what they were being paid. Any and every buyer now wanted to do a thorough inspection before purchasing.

In 2008, severe changes were made in sub-prime lending. Before the changes, most people could walk into a mortgage office and they could probably qualify for a loan and hence people with bad credit had a fairly easy time getting qualified for home loans. Not surprisingly, a lot of these people did not pay their mortgage and defaulted on their loans. This led banks to reevaluate their policy on sub-prime loans. The changes were focused on credit history and individuals with a history of credit problems or poor credit, were no longer eligible for a loan. Individuals purchased homes they could not afford and struggled to make the payments for two years and then get foreclosed on. Therefore, it would be better for the banks to turn individuals down than to get them into loan programs. There is still quite a bit of tension in the financial markets that a lot of these loans are not going to be paid off. This is hurting a lot of the banks that own these loans because borrowers are defaulting and the loans are difficult to resale. It is also hurting new home builders, because people with bad credit generally go to new home builders who arrange easy loans.

In essence, homebuyers should be aware of ongoing changes in the mortgage industry and their overall financial capabilities when purchasing a home. To get the best mortgage rates, a comparison of current mortgage rates and closing costs is essential. Many brokers and lenders, low ball estimates and upon receipt of payment for an appraisal, they inform that the mortgage rate or closing cost have gone up. Home buyers should seek lenders that guarantee their closing

costs up front and there is nothing wrong with No/Zero Closing Cost Loans. Individuals will be looking at higher mortgage rates in exchange or if refinancing, the closing costs could be included in the principal. Paying higher points and fees will result in lower mortgage rates. For example, at 7% you may have zero points and fees, while at 6% you may have points and fees of $3000. The example provided is a general illustration to show the correlation between interest rates, points and fees. To get the best mortgage rates, one must estimate the length of time they will have the mortgage, and to perform a complete analysis and comparison of mortgage products and fees.

The mortgage crisis is a result of a chain of reactions. The number of people who defaulted on their mortgages increased more and more which in return increased the number of houses on the market. The oversupply of houses and lack of buyers pushed the house prices down till they completely plunged in late 2006 and early 2007 (Cornett, 2008). It was at this point, people on Wall Street started to panic and they no longer wanted to buy risky mortgages. Mortgage companies, which used to sell risky loans, experienced the devastating consequences of going out of business and moreover, foreclosures keep springing up. In the past mortgages were held in the books of financial institutions such as banks, who had real interest in working with their borrowers and making sure that everything possible is done to pay back the loans. However, in the current situation, mortgages have been sold and resold and pooled together into securities and sold to investors in the financial market. It is hard to find or trace who the actual current owner of a mortgage is, and it is just as hard to prevent foreclosures.

"When a pebble is dropped into still water, it creates a ripple that will continue traveling until it meets resistance or reverse motion." This is an appropriate analogy regarding the impact of the subprime mortgage crisis in the U.S., the spike in home foreclosures and the tougher lending standards that were derived from it, have had an impact on nearly all aspects of our economy. The crisis started in the mortgage industry and its affects spread rapidly across the different sectors and industries in the U.S. and soon thereafter, they were experienced by other nations around the world. The result, lead to an overall global crisis, whereby nations are cooperating and working with one another, to contain the crisis and to stabilize the world economy as a whole.

ECONOMIC IMPACT OF CRISIS ON U.S. CITIES

The financial crisis of 2007 - present is a global financial crisis set off by a deficit in the United States banking system, creating a ripple effect, with the progression of time. It has resulted in the collapse of large financial institutions and downturns in stock markets around the world and is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s. The collapse of the global housing bubble, which peaked in the U.S. in 2006, caused the values of securities tied to real estate pricing to plummet, damaging financial institutions globally (Glass, 2009). Bank solvency, declines in credit availability and damaged

investor confidence had an impact on global stock markets. As a result, securities suffered large losses during late 2008 and early 2009. The U.S. and economies worldwide slowed during this period as credit tightened and international trade declined (Prego, 2009). Critics argued that credit rating agencies and investors failed to accurately price the risk involved with mortgage-related financial products, and that governments did not adjust their regulatory practices to address 21st century financial markets.

The current mortgage crisis being experienced in the United States is a mirror or a reflection of The Great Depression which was a stern worldwide economic depression in the years preceding World War II. It was the longest, most widespread and deepest depression of the 20th century, and is currently studied in the 21st century as an illustration or model of how far the world's economy can deteriorate in a short period of time. The depression evolved and originated in the United States, starting with the stock market crash of October 29, 1929 (known as Black Tuesday), and quickly spread to almost every country in the world. Although the affects of the Great Depression varied across nations, in most countries it started in 1929 and lasted for a little over a decade. The crisis we face today is a reproduction of what transpired during the Great Depression and is evident by the common pattern and ripple effect observed in both eras.

The current crisis has had devastating effects in virtually every part of the country, rich and poor. Personal income, tax revenue, profits and prices have dropped dramatically in every sector and international trade has decreased since. Unemployment in the United States has risen to an all time high with a substantial amount of lay-offs and job loses occurring daily. Cities all around the U.S. have been hit rigorously especially those dependent on major manufacturing industries. Construction has virtually halted in many parts of the country, with projects half finished and sitting idle. Farming and rural areas have also suffered a great deal, as crop prices have fallen in conjunction with an increase in gas prices and natural resources. There are multiple causes for the evolution of the current crisis, including the structural weaknesses and specific events that have resulted in a major recession. Structural factors like substantial bank failures and the stock market crash are the more prominent factors, which in turn is a result of excessive financing options available to individuals and payment delinquencies respectively.

The housing market slowdown has affected the overall US economy. The drop in housing demand and the subsequent rise in home inventories have put the residential construction industry into a recession. The impact of the crisis has resulted in the failure of businesses, a decline in consumer wealth, estimated in the trillions of U.S. dollars, substantial financial commitments incurred by governments and a significant decline in economic activity. Between June 2007 and November 2008, Americans lost more than a quarter of their net worth. Housing prices had dropped 20% from their 2006 peak, with futures markets indicating a 30-35% potential drop. Total home equity in the United States, which was valued at $13 trillion at its peak in 2006, had dropped to $8.8 trillion by mid-2008 and continued to fall. Total retirement assets, which are Americans second-largest household asset, dropped by 22 percent, from $10.3 trillion in 2006 to $8 trillion in mid-2008 (Blodget, 2009). During the same period, savings and

investment assets lost amounted to $1.2 trillion and pension assets lost amounted to $1.3 trillion. Like subprime mortgages, many prime loans made in the US in recent years allowed borrowers to pay less initially and encounter higher adjustable payments a few years later. As long as home prices were rising, borrowers could refinance their loans or sell their properties to pay off their mortgages. With falling prices and lenders tightening down, homeowners with good credit are being categorized under the same financial stress as those with subprime credit.

Unlike subprime borrowers, who tend to have lower incomes and fewer assets, prime borrowers have greater means to restructure their debt if they encounter financial challenges. The recent reductions in short term interest rates by the Federal Reserve should also help by reducing the reset rate for adjustable loans. According to economists, rate cuts and the $168 billion fiscal stimulus package are unlikely to make a significant change in the large debts weighing on many Americans, because banks have tightened lending standards. It is argued that credit rating agencies and investors failed to accurately assess the risk involved with mortgage-related financial products and that governments did not adjust their regulatory practices to address 21st century financial markets.

The question people are asking is whether the crisis was largely a failure on the part of free markets or largely a failure on the part of government efforts to regulate interest rates, limit bank failures and control the money supply. Economists believe that individuals in today's economy, tend to over-consume and under-invest, thus resulting in overspending and low levels of savings. Financing options have made it possible for people to purchase items and pay for them at a later time. This not only results in paying more for an item due to interest factors, but also creates skepticism in regards to an individual's inability to make payment at the time it is due. The entire process is based on good faith and once that trust is broken, it is the beginning of a crisis in the making. The Brookings Institution, a non-profit based out of Washington, D.C. focuses on global economy and development, reported in June 2009 that U.S. consumption accounted for more than a third of the growth in global consumption between 2000 and 2007. The report also stated that "the U.S. economy has been spending too much and borrowing too much for years and the rest of the world depended on the U.S. consumer as a source of global demand."

According to a report released by the Bureau of Economic Analysis, the output of goods and services produced by labor and property located in the United States (G.D.P.) decreased at an annual rate of approximately 6 percent in the fourth quarter of 2008 and first quarter of 2009, in comparison to activity from previous years. According to current reports by the Bureau of Labor Statistics, the U.S. unemployment rate increased to 10.2% by October 2009, the highest rate since 1983 and roughly two times the pre-crisis rate. The average hours per work week declined to 33, the lowest level since the government began collecting the data in 1964.

In addition, a news cast issued by B.B.C. revealed that the U.S. Government have enacted large fiscal stimulus packages, by borrowing and spending to offset the reduction in private sector demand caused by the crisis. The U.S. executed two stimulus packages, totaling nearly $1

trillion during 2008 and 2009. U.S. government agencies have committed or spent trillions of dollars in loans, asset purchases, guarantees and direct spending to create stability and maintain balance.

The overall impact of the mortgage crisis has resulted in tighter credit standards across the entire nation. Consumers and businesses are not able to get credit as easily as they could a year ago. Tens of millions of homeowners who had substantial equity in their homes two years ago have little or nothing today. As mentioned earlier, businesses are facing the worst downturn since the Great Depression and this is a major concern in matters of credit decisions. A homeowner with equity in their home is very unlikely to default on a car loan or credit card debt. They will draw on this equity rather than lose their car or default on their credit record. On the other hand, a homeowner who has no equity is more inclined to a default risk. In the case of businesses, their creditworthiness depends on their future profits and profit prospects were much worse in November 2008 than they did in November 2007 (Baker, 2008). As many banks are at the brink of closing/downsizing, consumers and businesses are experiencing a hard time getting any type of credit right now. This would even apply, if the financial system were strong. The problem faced by the U.S. economy is the loss of close to $6 trillion in housing wealth and an even larger amount of stock wealth (Baker, 2008). Economists, economic policy makers and economic reporters virtually all did not predict such an occurrence and those who were aware of it did not think it would come about so soon.

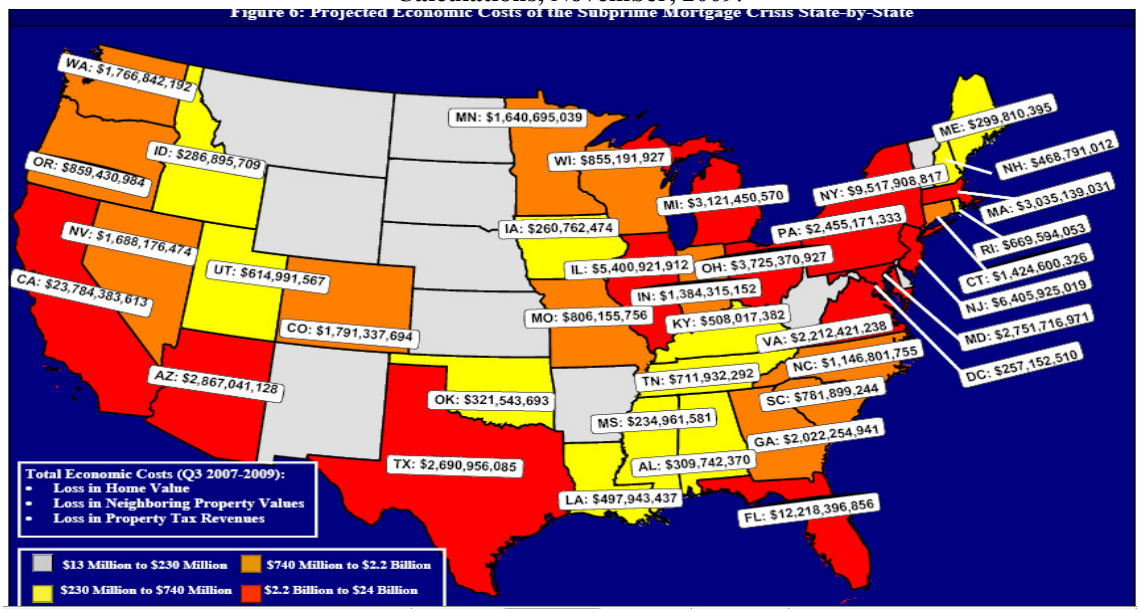
According to reports generated by The Federal Reserve, conditions in financial markets across cities in the United States, have generally improved in recent months. Household spending has shown signs of stabilizing but remains constrained by ongoing job losses, lower housing wealth and tight credit. Businesses are cutting back on fixed investment and staffing but appear to be making progress in aligning inventory stocks with sales. Although economic activity is likely to remain weak for some time, the Federal Reserve continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus and market forces will contribute to a gradual rise in economic growth and price stability. Economic projections from the Federal Reserve and Reserve Bank's are hopeful that GDP will return to 2-3% in 2010, and unemployment will level out in 2010 and 10% with moderation in 2011. Figure one provides a visual illustration of the economic impact of the crisis on U.S. cities.

EFFECT OF MORTGAGE CRISIS ON HOMEOWNERS IN THE U.S.

The existing mortgage crisis is a result of many influential factors domestic as well as international. In the years leading up to the crisis, significant amounts of foreign money flowed into the U.S. from fast-growing economies in Asia and oil-producing countries in the Middle East. This inflow of funds combined with low U.S. interest rates contributed to easy credit conditions, which in turn fueled both the housing and credit bubbles. Loans of various types

(e.g., mortgage, credit card and auto) were easy to obtain due to their lenient credit standards and therefore enabling consumers to assume an unprecedented debt load.

Figure 1- Projected Economic Costs of the Subprime Mortgage Crisis State-by-State.Source: JEC Calculations, November, 2009.



The effect the crisis has had on current homeowners in the United States has been fairly distressing. An increase in loan incentives such as easy initial terms and a long-term trend of rising housing prices encouraged borrowers to assume difficult mortgages in the belief that it was temporary and that they would be able to quickly refinance at more favorable terms. However, once interest rates began to rise and housing prices started to drop, refinancing became more difficult. Defaults and foreclosure activity increased dramatically as easy initial terms expired, home prices failed to go up as anticipated and ARM (Adjustable Rate Mortgage) interest rates reset higher (Lahart, 2007). Some homeowners with toxic mortgage loans from lenders are finding it difficult to pay their credit loans. The broader economic slowdown that is spreading from the subprime mortgage mess is causing some homeowners to face economic difficulty, and therefore to fall behind on their loans. A decline in property value or prices also resulted in homes being worth less than the mortgage loan itself and thus, providing a financial incentive for borrowers to enter foreclosure.

Subprime borrowers on average have weakened credit histories and reduced repayment capacity. Since subprime loans are fairly accessible and in abundance, they have a higher risk of default in comparison to loans offered to prime borrowers. If a borrower is delinquent in making timely mortgage payments to the loan servicer (a bank or other financial firm), the lender depending on client relationship, may take possession of the property, in a process called

foreclosure. "The value of USA subprime mortgages was estimated at $1.3 trillion as of March 2007. Between 2004 and 2006 the share of subprime mortgages relative to total originations ranged from 18%-21%, versus less than 10% in 2001-2003 and during 2007. In the third quarter of 2007, subprime ARMs making up only 6.8% of USA mortgages outstanding also accounted for 43% of the foreclosures which began during that quarter. By October 2007, approximately 16% of subprime Adjustable Rate Mortgage were either 90-days delinquent or the lender had begun foreclosure proceedings, roughly triple the rate of 2005. By January 2008, the delinquency rate had risen to 21% and by May 2008 it was 25%" (Bernanke, 2007).

"By August 2008, 9.2% of all U.S. mortgages outstanding were either delinquent or in foreclosure. By September 2009, this had risen to 14.4%. Between August 2007 and October 2008, 936,439 U.S. residences completed foreclosure. Foreclosures are concentrated in particular states both in terms of the number and rate of foreclosure filings. Ten states accounted for 74% of the foreclosure filings during 2008; the top two (California and Florida) represented 41%. Nine states were above the national foreclosure rate average of 1.84% of households" (Martin, 2009).

"By September 2008, average U.S. housing prices had declined by over 20% from their mid-2006 peak. This major and unexpected decline in house prices meant that many borrowers have zero or negative equity in their homes, meaning their homes were worth less than their mortgages. As of March 2008, an estimated 8.8 million borrowers which is 10.8% of all homeowners had negative equity in their homes, a number that is believed to have risen to 12 million by November 2008" (Leibowitz, 2009). Borrowers in this situation have an incentive to default on their mortgages as a mortgage is typically nonrecourse debt secured against the property. Economist Stan Leibowitz argued in the Wall Street Journal that although only 12% of homes had negative equity, they comprised 47% of foreclosures during the second half of 2008. He concluded that the extent of equity in the home was the key factor in foreclosure, rather than the type of loan, credit worthiness of the borrower or ability to pay.

The ongoing foreclosure epidemic that began in late 2006 in the U.S. continues to be an important factor in the U.S. and global economic crisis, because it drains wealth from consumers and erodes the financial strength of banking institutions and therefore putting a considerable amount of pressure on homeowners in the U.S. Homeowners pay their mortgage with their income, savings and a combination of the two with equity locked in their respective properties. With the sudden collapse and downturn of the economy, many individuals that were dependant on the equity in their home, lost majority of it and some completely. The result forced many homeowners to foreclose on their property. Not only did this create a tremendous amount of panic and grief for many homeowners who had owned their property for more than half their lives, it also affected new home buyers who purchased their property within the last three years. Sudden, drastic and on-going changes within the mortgage industry have left homeowners in the United States completely appalled and confounded.

The problem was that even though housing prices were going through the roof, people were not making any more money than usual. From 2000 to 2007, the median household income stayed flat and so the more prices rose, the more unsubstantiated the whole scenario became. No matter how lenient lending standards got, no matter how many exotic mortgage products were created to push people into homes they couldn't possibly afford, no matter what the mortgage industry tried, the people just couldn't resist. By late 2006, the average home cost nearly four times what the average family made, which was historically between two and three times. As time passed and the trend increasing, mortgage lenders noticed something they had almost never seen before. People would close on a house, sign all the mortgage papers and then default on their very first payment. With no loss of a job or medical emergency, they were sunk before they even started, not knowing what they were committing to.

The United States housing market is continually restructuring its mortgage industry so as to offer refinancing options to mortgage holders to avoid foreclosure. In doing so, the plan not only helps responsible homeowners on the verge of defaulting, but prevents neighborhoods and communities from being pulled over the edge too, as defaults and foreclosures contribute to falling home values, failing local businesses and lost jobs. As mentioned earlier as more borrowers stop paying their mortgage payments, foreclosures and the supply of homes for sale increases. This places downward pressure on housing prices, which further results in lowering homeowner's equity. The decline in mortgage payments also reduces the value of mortgage-backed securities, which in turn wears down the net worth and financial health of banks. This vicious cycle is at the core of the crisis.

Mortgage rates are currently at historically low levels, providing homeowners with the opportunity to reduce their monthly payments by refinancing. However, under current rules, most families who owe more than 80 percent of the value of their homes have a difficult time refinancing. Despite the national economic crisis and housing price downturn, the U.S. housing markets in all cities and states are working and pulling together, to improve on prevailing conditions within the country. Even though home price are still lower than last year and continue to decline in some parts of the country, there is a counter balance where property prices have stabilized and are increasing in other areas. According to two reports, Standard & Poor's/Case-Shiller index and Federal Housing Finance Agency shows that the housing market in the U.S. is improving. Home sales have increased both in existing homes and new homes. Both reports indicate that while there are gains, the housing market is slightly weak but showing a sign of hope. In essence, majority of homeowners are in good standing due to their income levels and location and those experiencing mortgage difficulties have the choice of re-financing with rigid options, but for the most part are in better standing than some in other U.S. cities. Figures two and three, depict the number of homeowners in the U.S. facing foreclosures.

Figure 2- Percentage of Homeowners to Face Foreclosure.
Source: The Pew Charitable Trusts, April, 2008.

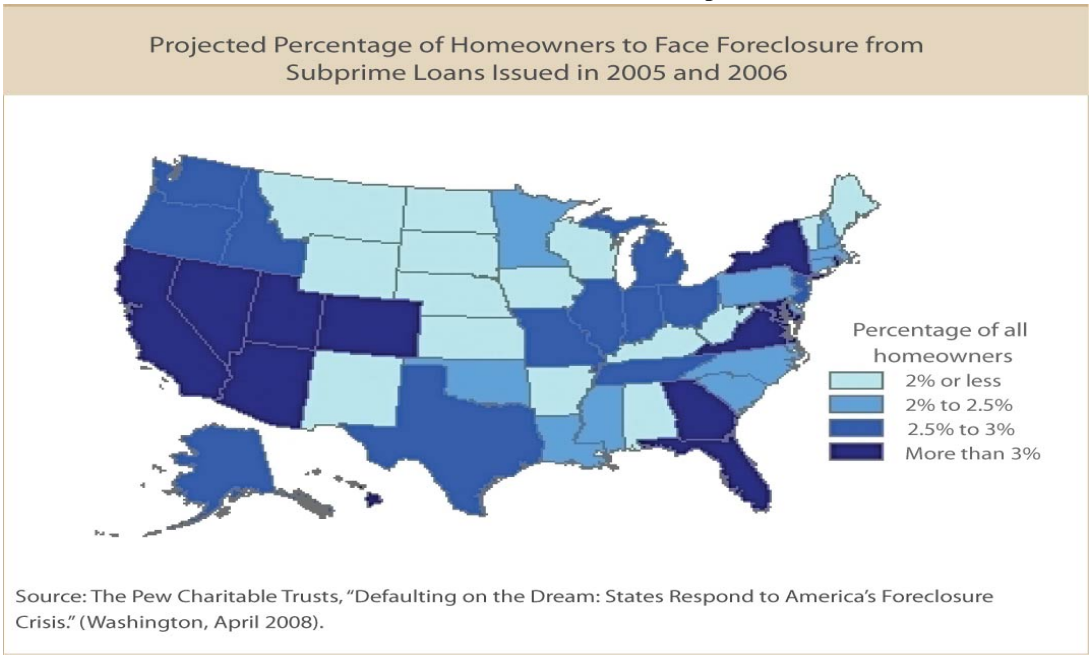
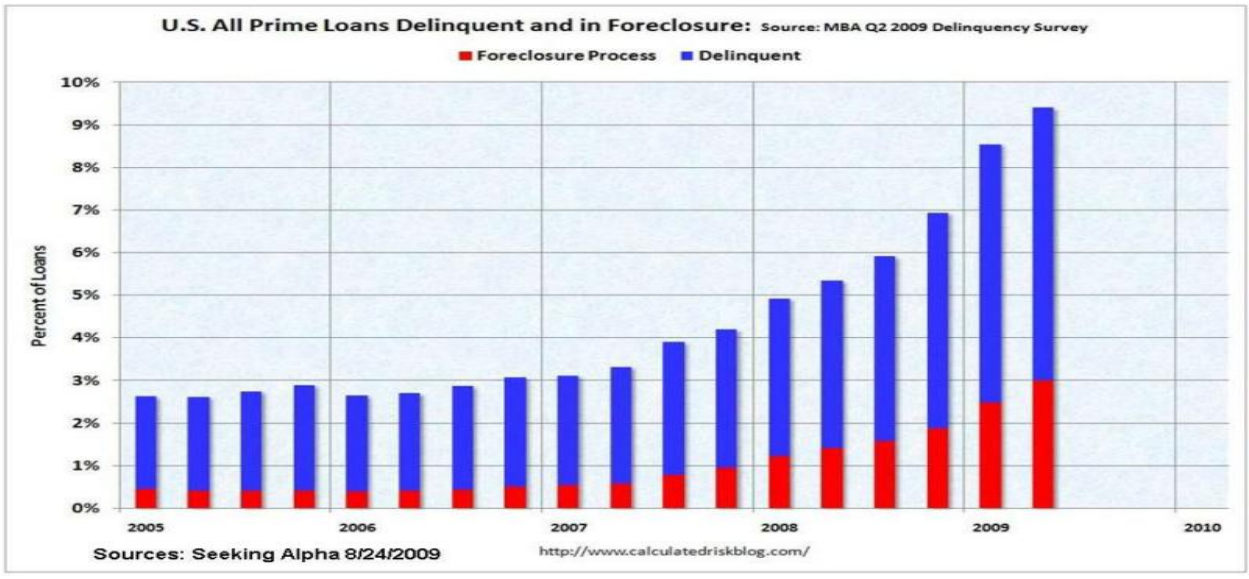


Figure 3- U.S. Prime Loans Delinquent and in Foreclosure.
Source: Seeking Alpha, August, 2009.



MORTGAGE RESTRUCTURE AND IMPACT ON FIRST TIME HOMEBUYERS

The current mortgage crisis has lead to an overall transformation of the mortgage industry in terms of its laws, underwriting, and operations. The reflecting changes are continuously monitored and are further susceptible to on-going changes thus leaving the entire industry in a state of turmoil. Business analysts, Congress and regulators like the Federal Reserve and others, continue to speculate about possible outcomes and are weighing the possibility of additional regulation and oversight.

Liberal lending standards, rising short-term interest rates and stagnant or declining home prices led to the current fallout in the subprime-mortgage lending market. Negligent lending practices proved to be extremely toxic to this sector. These practices enabled lenders to approve unqualified borrowers and early payment defaults then began forcing Wall Street to demand buybacks from selling lenders. Lenders were also allowed to offer attractive rates that are designed to rise dramatically when the "fixed" loan period expires, in turn leaving borrowers with unaffordable payments. Many homeowners who mortgaged homes under these terms are now facing imminent foreclosure.

As a result, due to increased housing inventory, prices are declining, making it increasingly difficult for subprime borrowers to exit their loan commitment through the sale of their home. First-time homebuyers have been, and will continue to be, particularly affected by the stringent lending standards coming down the regulatory guidelines. As time progresses, it will be more difficult for first-time homebuyers to meet the heightened lending requirements.

The distress in the subprime market is contributing to a sharp decline in mortgage originations and purchase activity (Skillman, 2009). Combined with more stringent underwriting criteria, the decline in qualified homebuyers and the wariness of investors is paralyzing this industry across the United States. Although regional and local-level housing markets vary significantly, the overall national trend is common to the entire country. For example, a few regions are seeing deeper cuts in purchase and refinancing activity and higher default rates and the combined effect of lower wages and higher interest rates affects the volume of activity.

The restructure of the entire mortgage industry has had a substantial amount of impact on first time home buyers. Tighter credit standards make it harder for potential homebuyers to purchase homes, reducing the demand for homes and further depressing home prices. More restrictive underwriting standards for borrowers with less than perfect credit could reduce the number of potential homebuyers by 500,000 (Brady, 2009). Less favorable loan terms in the form of higher interest rates and down payments will reduce the amount buyers will have to spend on new homes. It is proving to be more troublesome for those with bad or damaged credit when applying for a new mortgage or restructuring in current times. Conventional loans are usually not available in this circumstance, leaving only those loans offering much higher interest

rates. Income requirements are the same for a first time conventional mortgage loan or for restructuring. The maximum amount of income allocated to a mortgage payment cannot exceed 28% (Lee, 2008). The difficulty comes with proving to the lender that the home buyer's monthly income will be sufficient to cover the higher monthly mortgage payment.

Lenders are all following the same guidelines regarding employment. Regardless if the borrower has a job or is self-employed, they still have to provide documentation like signed federal tax return forms and W2 federal forms, bank statements for all accounts and evidence of additional income (rental agreements, child support, alimony, military allowance etc.). As a result of the current crisis, the government began examining some of the questionable lending tactics which started the whole chaos. As a result, lenders have been forced to enact stricter loan requirements and funding obligations to negate the need for government legislation. Homeowners and new buyers in today's economy can expect much more stringent requirements from the lenders. Credit score requirements are becoming increasingly strict and in order to restructure an existing mortgage or buying a new home, money for closing costs and a substantial down payment along with concrete documentation of income is imperative.

Data from the Mortgage Bankers Association show that almost 5% of all American homeowners are already in the process of having their properties repossessed, while another 4.5% are 90 days in arrears with their mortgage repayments. In total, more than 9%, which is almost one in eleven homeowners is on the brink of having their properties seized, on top of the many hundreds of thousands who have had their homes repossessed since the crisis began. In essence, first time home buyers will need to have complete documentation required to purchase a home or else they will be denied out right.

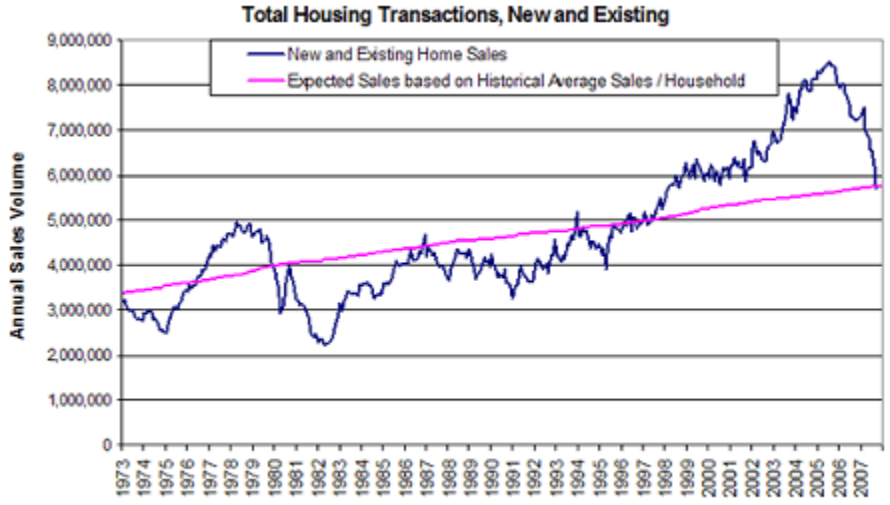
As the mortgage crisis became a reality, the government stepped in and began examining some of the lending tactics which started the whole unpleasant ordeal. As a consequence lenders have been forced to enact stricter loan requirements and funding obligations to negate the need for government legislation. While this strategy has provided measures to reduce future abuses and irresponsible actions, it offers help to those borrowers who are struggling to avoid foreclosure and those in the market to purchase.

Although the mortgage crisis has had a significant impact on both owners as well as buyers, measures have been put into effect to remedy the prevailing situation. It is a problem that requires constant and consistence monitoring with requisite changes to be made as and when deemed necessary. The U.S. government and affiliated financial institutions have been working in close proximity to determine the best course of action to suppress the effects of the crisis and offer means to attract potential first time home buyers. First time home buyers are being endowed with an economic stimulus bill passed by congress, which grants a $7,500 tax credit for first time home buyers (Les, 2009).

The stimulus bill was issued as a part of the Housing Recovery Act, which Congress passed in the summer of 2008. Initially, the legislation required that the tax credit be repaid over 15 years however, the measure had little impact on the market. The stimulus bill upon review

declared that the tax credit did not need to be repaid, thus making it more attractive. Many in the housing industry believe this credit could do a lot to jump start the declining housing market. According to Mary Trupo, a spokeswoman for the National Association of Realtors, "Our economists have studied the effect of the credit and they say there could be a 10% increase in home sales. If it's implemented, it gives people who are sitting on the fence or who have inadequate funds for closing costs an incentive to act now." A 10% increase would yield an extra half million sales in 2009 (Les, 2009). The housing industry has been laying a great deal of emphasis over the tax credit, arguing that first-time homebuyers are the key to boosting home sales. First time buyers, who purchase from existing homeowners, create a ripple effect, as it allows those sellers to trade up to bigger and better houses. The industry is continuously taking measures to make the tax credit stronger by making it available to all homebuyers, not just first-time homebuyers (Les, 2009).

Figure 5- Total Housing Transactions, New and Existing. Source: Census Bureau and National Association of Realtors, December, 2007.



Source: Census Bureau and National Assoc. of Realtors. through Dec. 2007: 5.494.000 total sales
Current Annual Sales = 5,494,000: 4,890,000 existing and 604,000 new

Homeowners and first time home buyers can expect much more stringent requirements from the lenders. Credit score requirements are becoming increasingly strict. In order to restructure an existing mortgage or purchasing a new one, it is imperative to have money for closing costs and a substantial down payment along with solid documentation of income. Although increased regulation and oversight may be necessary to prevent future exploitation, there remains a need for responsible subprime lending, lending that makes refinancing and homeownership a possibility for a large segment of qualified borrowers, new and existing. Figure five provides a graphic image of new and existing housing transactions.

SUMMARY AND CONCLUSION

The two defining characteristics of this mortgage crisis have been the rapid speed at which the turmoil manifested itself and the unique causes that support it. The roots of the current economic melt-down can be traced and is located in the U.S. sub-prime mortgage crisis. The easy availability of credit to borrowers who had a high risk of not being able to repay their debt assisted in an unsustainable rise in housing prices. This alone was not enough to set off the crisis, since the real problem was that the risks involved in these mortgages were temporarily hidden as they were on-sold through complicated financial instruments.

In 2007, the U.S. economy was faced by a mortgage crisis that caused fear and uncertainty amongst the masses and in turn lead to major financial problems. The crisis spurred numerous failures in virtually every industry of the U.S. economy from, bank failures, high rate of unemployment to extinction of jobs in mostly every sector. The mortgage crisis rapidly spread worldwide and resulted in one of the biggest global recession of our times since the Great Depression of 1929. The mortgage crisis was a result of too much borrowing and a flawed financial system, which was largely based on the assumption that home prices only have a tendency to go up.

In the early 2000s, mortgage interest rates were low, which allowed individuals to borrow more money at a lower monthly payment. In addition, home prices increased dramatically, so buying a home seemed like the right thing to do at the time. Lenders on the other hand, took advantage of the situation and knowing that homes make good collateral, they exploited loan seekers by promoting loans that were not conducive with individual's requirements and financial limitations, solely for their own financial benefit. As the prevailing situation at the time picked up momentum, it was the origins of the mortgage crisis.

Banks offered lenient lending practices and access to money before the mortgage crisis emerged. Borrowers got into high risk mortgages such as option-ARMs, and they qualified for mortgages with little or no documentation whatsoever. Even people with bad credit could qualify as subprime borrowers. With course of time as home prices began to rise, homeowners established enormous wealth in their homes and hence had plenty of equity. As a result, homeowners refinanced and took second mortgages to get cash out of their homes equity. Part of this money was spent prudently and part of it was used to maintain a standard of living while wages continue to remain stagnant. Deception on the part of homebuyers and mortgage brokers aided, in making the mortgage crisis more critical. Mortgage applications were not checked for accuracy and scrutinized as well as they should have been.

There was a surplus of financial wealth floating around the world, which quickly dried up or evaporated at the height of the mortgage crisis. People, businesses and governments had money to invest and thus developed a desire for mortgage linked investments as a way to earn more money in a low interest rate environment. Banks always used to hold mortgages and if an

individual borrowed money from a particular bank, they would have to make repayments to that specific bank itself and if they defaulted, the bank would lose money. However, lending practices endured some changes and as a result, banks were able to sell an individual's loan as a whole or further divide it and sell it to numerous investors. The investments were extremely complex in nature and many investors only relied on rating agencies to guide them on the safety of their investments and in turn lead to deteriorated loan quality.

As part of the housing and credit booms, the amount of financial agreements called mortgage-backed securities (MBS), which derive their value from mortgage payments and housing prices, greatly increased. These financial innovations enabled institutions and investors around the world to invest in the U.S. housing market. As housing prices declined, major global financial institutions that had borrowed and invested heavily in subprime MBS, reported significant losses. Defaults and losses on other loan types also increased significantly as the crisis expanded from the housing market to other parts of the economy. Total losses are estimated in the trillions of U.S. dollars globally. In 2006 and throughout 2007 home prices stopped rising and actually declined. Defaults and delinquencies increased. Despite the warning signs, investors kept buying these securities, lenders kept producing them and Wall Street kept securitizing them. The involved parties could not break themselves from this cycle of easy money.

As time progressed, home prices stopped going up and capped it-self unexpectedly before starting its decline. Borrowers, who purchased homes that they could not afford, stopped paying their mortgage. Monthly payments increased on adjustable rate mortgages as interest rates rose. As homeowners discovered that they could not afford their homes, they were left with limited choices. They could wait for the bank to foreclose, renegotiate their loan agreement in a specialized program, or they could simply walk away from the home. Many also tried to increase their income and decrease spending, but it was already a little too late. Typically, banks could recover the amount they loaned at foreclosure however, home values fell to such an extent that banks increasingly took immense losses on defaulted loans. As homeowners began defaulting on loans in record numbers, the mortgage crisis increased ten-fold and banks and investors began losing money. Financial institutions decided to reduce their exposure to risk as quickly as possible, and consequently hesitated to lend to each other not knowing if they would ever get paid back. This lead to a complete turmoil and an overall meltdown of the U.S. economy since banks and businesses need money to flow in order for them to operate. As banks grew weaker, they started to fail and many simply collapsed and went down under. The ***Federal Deposit Insurance Corporation*** (FDIC) increased staff personnel in preparation for hundreds of bank failures caused by the mortgage crisis.

The mortgage industry was driven by greed and investors to create mortgage products that made real estate more affordable. Many of these products involved loans with attractive rates, no down payments and fraudulent underwriting. People with poor credit were stating their income without proof and borrowing close to, if not 100% of the value of the house. This

housing market was constantly exploited as long as buyers kept buying and lenders kept lending. Despite the bad underwriting, defaults were non-existent. If a homeowner was unable to make a payment on a house whose value is more than the loan amount they could sell the house, pay off the loan and walk away with money.

There were several other factors that contributed to the severity of the mortgage crisis. The U.S. economy softened and higher commodity prices caused distress for consumers and businesses. Hence, other complex financial products started to unravel in order to stabilize and contain the crisis. Lawmakers, consumers, bankers and businesspeople took drastic measures to reduce the effects of the mortgage crisis and in turn set off a dramatic chain of events that will continue to unfold for years to come.

The housing and credit bubbles resulted in a series of factors that caused the financial system to become increasingly fragile. Policymakers were not familiar with the increasingly important role played by financial institutions such as investment banks and hedge funds. Some experts believe these institutions had become as important as commercial banks in providing credit to the U.S. economy, but they were not subject to the same regulations. These institutions as well as certain regulated banks had also assumed significant debt burdens while providing the loans described above and did not have a financial cushion sufficient to absorb large loan defaults. These losses impacted the ability of financial institutions to lend, slowing economic activity. Concerns regarding the stability of key financial institutions lead central banks to take action to provide funds to encourage lending and to restore faith in the markets, which are integral to funding business operations. Governments also provided aid by bailing out key financial institutions and thus assuming significant additional financial commitments.

The threat to the U.S. and global economy created by the housing market downturn and subsequent financial market crisis were primary factors in several decisions made by central banks around the world to cut interest rates and governments to implement economic stimulus packages. Effects on global stock markets due to the crisis were dramatic. Between January 01 and October 11, 2008, owners of stocks in U.S. corporations had suffered about $8 trillion in losses, as their holdings declined in value from $20 trillion to $12 trillion. Losses in other countries have averaged about 40% (Greenspan, 2009). Losses in the stock markets and a decline in housing value resulted in a further downward pressure on consumer spending. Although several causes of the crisis were given focus and attention, there were still many of the root causes of the crisis that had yet to be addressed. A variety of solutions were proposed by government officials, central bankers, economists and business executives worldwide.

With the entire U.S. economy in a state of distress, the government stepped in and began examining some of the dubious lending practices which started the worldwide recession. As a consequence lenders have been forced to enact stricter loan requirements and funding obligations to reinforce the need for government legislation. Although this strategy has provided measures to reduce future abuses and irresponsible actions, it offers very little to no help to borrowers who are struggling to avoid foreclosure and keep their homes. Homeowners and buyers today can

expect much more rigorous requirements from the lenders. Credit score requirements are becoming increasingly strict and if looking to restructure an existing mortgage, it is imperative to have money for closing costs and a substantial down payment along with solid documentation of proof of income and verification.

In conclusion, the sub-prime mortgage is the main contributor for the housing bubble and mortgage crisis. Having performed studies and analysis of the cause, origin and effect of the crisis, the overall picture is much clearer than before. As mortgages default, hedge funds default, mortgage lenders shut downs and massive credit write downs for Wall Street is the end result. The crisis was a result of a significant concentration of risk due to leverage options. Over the past few months, investors of all types are experiencing massive losses and are being forced to liquidate these securities at significant losses. The de-leveraging process has begun and banks and brokers, who were also large mortgage investors, are unable to absorb the extra supply. The U.S. is now faced with a large supply of quickly deteriorating securities coupled with limited demand.

Although household spending has shown signs of stabilizing but remains constrained by ongoing job losses, lower housing wealth and tight credit. Businesses are cutting back on fixed investment and staffing but appear to be making progress in bringing inventory stocks into better alignment with sales. Although economic activity is likely to remain weak for some time, the government continues to anticipate that actions to stabilize financial markets and institutions, fiscal and monetary stimulus and market forces will contribute to a gradual recommencement of economic growth and price stability. Governments have enacted large fiscal stimulus packages, by borrowing and spending to offset the reduction in private sector demand caused by the crisis. In addition, the U.S. has executed two stimulus packages, totaling nearly $1 trillion during 2008 and 2009.

Unfortunately, we still have a long way to go before the crisis comes to a complete halt or end. The financial institutions that purchased securities backed by subprime mortgages may face additional write downs on their loans and thus place further pressure on their earnings and stock prices. This could further lead to liquidity issues in the credit markets and tightening of lending standards from now on out. The effects of the unwinding of these mortgages have yet to be seen and experienced fully in the financial markets. Default on loans, continued home foreclosures and overall weakness in the housing market is further anticipated. This is an era and a learning curve for investors to approach the investment market with caution. To succeed at investing in a market downturn, investors must stick to a plan, stay on top of fundamentals and keep emotional responses to market volatility from clouding judgments and decisions.

It is important to keep in mind, that this crisis was not a natural and inevitable catastrophe. The current depressed state of consumer and business attitude can be attributed to specific failures on the part of policymakers, regulators and bankers. Firstly, governments and central banks failed to constrain an expansion of credit that drove an unsustainable increase in housing prices. Secondly, regulators failed to perceive the risks inherent in the financial system

and bankers exploited the flexibility they were granted. Banks created marketable securities out of mortgage debt without a reliable assessment of the credit quality of that debt.

In seeking to explain the crisis a number of economists have drawn parallels with the Great Depression of 1929 and the economic hardship that followed that event. The majority of analysts have been quick and fairly responsive to make such comparisons. After having considered the subprime mortgage crisis and reflected upon the various problems occurring, it can be concluded that a number of issues still need to be addressed. Rating agencies must have a better understanding of the market, thus preventing mistakes similar to those which occurred through the years leading up to the mortgage crisis. Organizations should be more aware of statistical models presented to them and should keep in mind that models do not include all market relevant factors and are just a mere representation a possible outcome. Furthermore the whole concept of selling and reselling loans needs to be regulated in a more profound manner. It is neither moral nor financially sound for banks to make large profits on loans made to people with an imperfect credit, by passing the loans up the chain to other banks, thus evading responsibility.

The mortgage crisis is still ongoing and it is still unclear how large the final effects will be. Many institutes and organizations have different views of how large the effects have been and will be in the near future. However, having scrutinized and compared literature from various sources pertaining to the mortgage crisis, it is evident that the crisis which is still on-going has hit rock bottom and passed its state of turmoil. The U.S. housing market is showing signs of recovery in several cities across the nation. Although apparent and slow in nature, the mortgage industry with the aid of the government and various financial institutions is progressing in a positive and profound manner. Changes in the mortgage industry are constantly being monitored regularly, to ensure safe lending practices and to assist current and new homebuyers in purchasing, refinancing or selling of properties. In quintessence, the U.S. mortgage sector is improving and advancing towards complete containment and recuperation of the crisis at a gradual pace and ever evolving simultaneously.

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AN ANALYSIS OF ENERGY CONSERVATION AMONG U.S. AGE COHORTS

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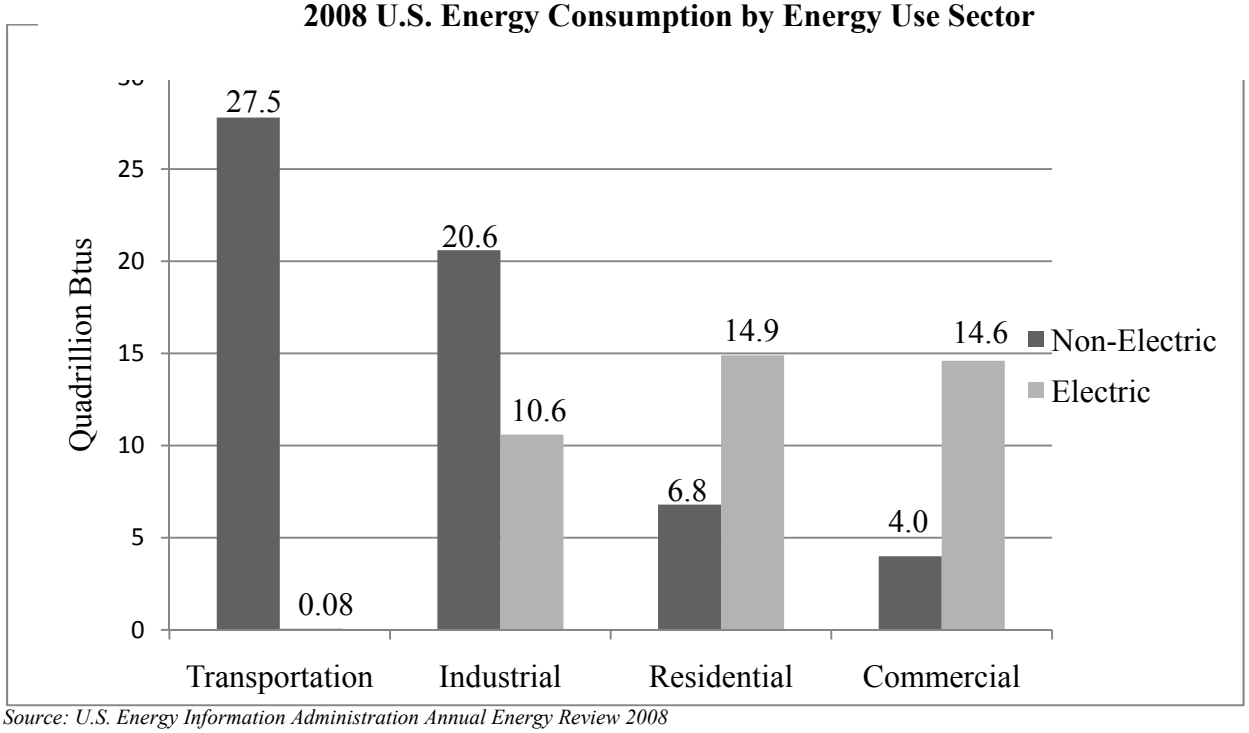
ABSTRACT

Over many years, the increase usage of electricity and natural gas has caused the U.S. carbon footprint to expand in size. While many of the greenhouse gas effects can be attributed to the industrial, transportation, and commercial sectors, the residential sector of our economy does not lag behind. The authors of this paper seek *to investigate the importance of age cohorts in the reduction of the residential sector energy consumption within the United States. The authors utilized 2007 National American Housing Survey within a multivariate regressions analysis to derive the results. The findings suggest that U.S. households' energy consumption habits vary based upon age, which may be attributed to individual's relationship to the time period to which they grew up. The findings are helpful for policy makers to understand the importance of instilling conservation knowledge to children and young adults.*

INTRODUCTION

Energy conservation has emerged as a prominent issue within American society. Scientific research has found that an increase in electricity usage has caused the U.S. carbon footprint to expand in size. Just recently, the Senate Energy Chairman Jeff Bingaman began drafting legislation to cap greenhouse gas emissions from energy power plants (Bravener, 2010). The attention placed on the harmful effects of energy consumption can be attributed to environmental groups and government organizations such as the Environmental Protection Agency. These organizations have found that the industrial, transportation, commercial and residential sectors have created many of the greenhouse gas effects (Energy Information Administration, 2009). According to Figure 1, the residential sector has surpassed the commercial, industrial and transportation sector in energy consumption and thus greenhouse gas emissions. Many policy makers, environmental organizations and business are beginning to request information regarding how energy and environmental conservation can become a way of life. This paper will explore such a question by examining age cohorts and their energy consumption patterns.

Figure 1
2008 U.S. Energy Consumption by Energy Use Sector



Source: U.S. Energy Information Administration Annual Energy Review 2008

LITERATURE REVIEW

Researchers from various disciplines have begun to link the need for socioeconomic and psychology exploration in the quest for environmental conservation. Van den Bergh's (2008) critique of the economic and psychological literature suggests formal testing by researchers to examine the influence of socioeconomic and psychological determinants on residential energy consumption. Fairs, Cook & Neame (2007) concluded that environmentally conscience individuals operate in a social context with the influence of culture, social and emotional factors coupled with learning and awareness. Kotchen & Moore (2006) adaptation of the psychology literature discovered that a conservationist will voluntarily constrain harmful environmental consumption habits and are also willing to pay a premium to consume environmentally friendly products (Kotchen & Moore 2006). Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen (2003) performed a synthesis of the literature and concluded that socio demographic variables help to profile one's environmental knowledge and attitudes with limitations on behavioral aspects. Arkesteijn & Oerlemans (2005) found that early adaptors of the green electricity program are persons who are knowledgeable about sustainable energy and who take a positive supportive view of the environment.

Age cohorts, defined by Noble & Schewe (2003), are a proposed group of individuals who are born during the same time period and who experienced similar external events during their formative or coming-of-age years. Within in Noble & Schewe (2003) study, they perform a survey based upon gathering the individuals' age and their values based upon a 9 point Likert scale. Their results explained that individuals born within the age of the Great Depression were highly impacted through this historical event, these individuals were more likely place a high level of importance on social obligation, personal and financial safety. Schewe & Meredith (2004) also found that historical events experienced during one's coming-of-age years create values that remain relatively unchanged throughout one's life. This paper will seek to first discover if there is a relationship between age cohorts and their energy consumption habits. Once the relationship has been established, the authors will offer antidotal hypotheses for such findings.

THE MODEL

The authors will utilize variables from the 2007 National American Household Survey database as proxies to identify the variation in demography such as age and gender on residential energy usage. The authors first perform a bivariate association, which is similar to analysis developed by Van Liere & Dunlap (1980) and Diamantopoulos , Schlegelmilch, Sinkovics, & Bohlen (2003). Table 1 displays the results, which indicate a positive significant relationship between age and residential energy consumption (labeled *EC)*.

Table 1
CORRELATIONS
(Two Tailed Test)

		EC	AGE
EC	Pearson Correlation	1	.612**
	Sig.		.000
	N	65419	65419
AGE	Pearson Correlation	.612**	1
	Sig.	.000	
	N	65419	65419

This finding is in line with the understanding that many factors that may play a role with an increase in residential energy consumption along with age (Ewing & Rong, 2007). Factors such as an increase in the number of people within the household, income, structural and geographic variations may impact one's energy bill. To control for factors that may influence household energy consumption that authors perform a multivariate analysis listed below:

$$EC = B_0 + B_1S + B_2G + B_3E + B_4\,T + B_5Age_{18\text{-}30} + B_6Age_{31\text{-}40} + B_7Age_{41\text{-}50} + B_8Age_{51\text{-}60} + B_9Age_{61\text{-}75} + B_{10}Age_{76plus} + e$$

Where:

EC	Represents average monthly electric bill for a household surveyed within the 2007 American Housing Survey.
S	Vector of Structural Characteristics of the home. Including such variables as square footage of the home, year the structure was built and the type of structure.
G	Vector of dichotomous variables that identify the regional location of the housing unit, whether it is in the West, Mid West, South or North East. Also a dichotomous variable representing if household lives in the central city or outside of the central city.
E	Vector of dichotomous variables capturing Income, Education and income subsidy characteristics of the housing unit.
T	Represents the average cooling and heating days in relation to the homes location.
$Age_{18\text{-}30}$	Individuals who are head of the household and between the age cohort of 18 to 30 years old.
$Age_{31\text{-}40}$	Individuals who are head of the household and between the age cohort of 31 to 40 years old.
$Age_{41\text{-}50}$	Individuals who are head of the household and between the age cohort of 41 to 50 years old.
$Age_{51\text{-}60}$	Individuals who are head of the household and between the age cohort of 51 to 60 years old.
$Age_{61\text{-}75}$	Individuals who are head of the household and between the age cohort of 61 to 75 years old.
B_5Age_{76plus}	Individuals who are head of the household and between the age cohort of 76+ years old.

DEPENDENT AND CONTROL VARIABLES

Monthly residential electric bill payments is the dependent variable labeled *EC*. This variable captures the monthly utility payments of households in the United States. After controlling for structural, geographic, economic and outside temperature characteristics, it is assumed a reduction in residential energy usage by the household will be a sufficient proxy for energy conservation.

Any variation of payment due to cost of living is controlled through the variable labeled *G,* which represents geographic location. The geographic *(G)* variable is a vector of characteristics that control for variation is regional electric utility consumption due to state laws and regulations. The authors utilized the *S* and *T* variables to capture structural and outside temperature characteristics of the home and environment. The *S* variable is vector of housing characteristics that includes items of the home such as square footage, the age of the house,

number of bedrooms. The authors have found the characterisitics selected in the *S* variable category tend to cause variation in electric utility bill consumption. Along with the structural characteristics, the authors have included the number of people who actually live in the household. The variable within the model labeled *T* will control for variation of outside temperature changes and its effect on residential energy consumption.

Most energy bill variations are also attributed to an individuals' economic capability, therefore the authors found it very important to include the following economic variables represented in the *E* category to control for variation in residential energy consumption due to factors such as income, age and government subsidy. The two of economic variables utilized in this study were based upon the head of the household's income and education status. Previous research has found that knowledge plays an important role in one's desire to conserve (Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003). The education variables capture the level of schooling the individual has received; this will be utilized in our model as a proxy for knowledge. The authors of this study also included variables that attempt to capture whether the household pays for their own electric bills and whether they receive rental subsidies from any government or private organization.

Key Variables

The key variables utilized in this study to capture age cohort variation are $Age_{18\text{-}30}$, $Age_{31\text{-}40}$, $Age_{41\text{-}50,}$ $Age_{51\text{-}60,}$ $Age_{61\text{-}75,}$ and Age_{76plus} . The age cohort variables were transformed into five dichotomous categories based upon age groups. The categories include the following age brackets: 18 to 30 years of age, 31 t0 40, 41 to 50, 51 to 60, 61-75 and 76 plus. For the model, the authors omitted the 18 to 30 years ($Age_{18\text{-}30}$) of age cohort in order to compare changes in residential energy consumption of each age cohort in relation to this $Age_{18\text{-}30}$ category. Based upon the previous literature, the authors hypothesize that after controlling for all factors effecting energy consumption, certain age cohorts may consume significantly less energy in comparison to other age cohorts. If this hypothesis is found to be true then the authors could attribute the negative relationship between age cohort and energy consumption to an historical event or cultural norms.

RESULTS

Table 2 shows the results of the multivariate regression analysis (The entire multivariate results are available in the Appendix of this article). The R-Squared for this model was robust at 79 percent. The majority of the variables within the model performed very well.

Table 2 displays the age cohort variables. The results attempt to explore the relationship of age to residential energy consumption in the United States. The findings conclude that majority of the variables within this category are significant and relevant to the analysis. The

authors omitted the *AGE18-30* variable as the comparison group for the study. The authors' findings indicate that individuals between the *AGE41-50 to AGE61-75* categories consume more energy than the *AGE18-30* cohort. The results also show that individuals within the 76 plus age cohort (*AGE76plus*) consume less than the omitted *AGE18-30* category. Based upon the findings, the 76 plus age cohort is most likely to conserve energy. The findings may be attributed to the influence of historical events upon ones value system. Noble & Schewe (2003) found that individuals within this similar age cohort are largely influenced by the events of the Great Depression are more likely to consume less and place greater emphasis on social obligation and personal financial safety (Noble & Schewe 2003). The findings in this paper support the idea that the cultural norms and historical effects of the Great Depression influence individuals within the 76 plus age cohort to consume less residential energy.

Table 2
MULTTIVARIATE ANALYSIS RESULTS OF KEY VARIABLES

Dependent Variable - Residential Energy Consumption
Omitted Variable - Individuals between the age of 17 to 30 years of Age

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
AGE31-40	.239	.943	.001	.254	.800
AGE41-50	3.749	.921	.016	4.070	.000
AGE51-60	6.369	.940	.026	6.775	.000
AGE61-75	2.253	.960	.009	2.346	.019
AGE76plus	-8.201	1.115	-.024	-7.353	.000

Utilizing the same hypothesis found for the 76 plus age cohort the next cohort found in this study to consume the least amount of energy is the omitted 18 to 30 age cohort. All other age cohort variables, with the exception of *AGE76plus,* consumed more energy than the *AGE18-30* omitted category group. The *AGE31-40* cohort's energy consumption patterns were not significantly different than the omitted 18 to 30 age cohort. How is it that residential energy consumption is lower for the 18-30 and 31to 40 age cohorts? Has an historical event help shape these two age cohorts consumption habits towards energy? The answer may be found in the cultural norms within these age cohorts, which may rest in their knowledge and understanding of environmental conservation than any other age cohort. Looking back upon history, the establishment of Green Peace in 1971 and the Green Party in 1984 helped to establish these age cohorts knowledge of conservation more so then any other age group. Many individuals within these cohorts might connect or have been indirectly influenced through historical events such as the OPEC oil crisis and the general rise in energy and gas prices during their formative years (Schewe & Meredith, 2004). These age cohorts were also exposed to the knowledge of Global Warming in the classroom more so than any other cohort before them.

To verify the findings within the model the authors gathered data opinion from the Pew center that asked respondents a question regarding the energy consumption. The question was: "*Do you favor or oppose setting limits on carbon dioxide emissions and making companies pay for their emissions, even if it may mean higher energy prices?"*. The authors ran correlations with the question and the 18 – 30 age cohort demographic. The findings suggested that 57 percent and 68 percent from the 18-30 age and 31 – 40 age cohorts respectively favored such limits. While the findings for these two age cohorts are promising, the results does indicate that they may consume less energy that the 41 to 75 age cohorts, they still consume residential energy at a positive level. The only group found to consume energy at a negative level was the 76 plus age cohort.

CONCLUSION

In conclusion, the age cohort decisions of residential energy consumption support the hypothesis that cultural norms and historical events may help shape cohorts desire to consume less energy. While the results of this study are promising, conservation is major obstacle in American society. According to a 2008 Gallop Poll study, only 28 percent of Americans have climbed they have made major environmental conservation lifestyle change (Gallop, 2008). The findings of this study helps to possibly shed light to policy makers, environmental organization and business that instilling These conservation knowledge to young children and adults in their formative and coming-of-age years may be the key to creating a more environmentally friendly nation. Environmental disasters such as the Gulf Oil Leak also may create an historical event that will influence great conservation norms among the youngest age cohort group in our society today.

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APPENDIX: Dependent Variables *: EC* - Average Monthly Electric Bill						
		Unstandardized Coefficients		ed Coefficie		
		B	Std. Error	Beta	t	Sig.
Variables	(Constant)	77.062	2.184		35.286	.000
S	BEDRMS	7.464	.319	.376	23.401	.000
	PERSONS	8.328	.202	.449	41.174	.000
	DISH	-2.782	.602	-.117	-4.618	.000
	WASH	.479	1.451	.020	.330	.741
	DRY	-7.925	1.417	-.327	-5.592	.000
	BATHS	8.568	.450	.372	19.028	.000
	DINING	7.405	.479	.274	15.463	.000
	DENS	8.252	.767	.285	10.761	.000
	FAMRM	3.706	.616	.130	6.011	.000
	KITCH	-1.015	1.819	-.040	-.558	.577
	LIVING	7.345	.999	.292	7.351	.000
	RECRM	7.427	1.165	.254	6.376	.000
	Sq Footage	.002	.000	.034	10.830	.000
	LOT	.000	.000	.010	4.100	.000
	AIRSYS	-25.054	2.343	-1.052	-10.694	.000
	FRPL	.678	.136	.012	4.995	.000
	USELECT	-16.310	.550	-.698	-29.681	.000
	USEGAS	16.732	.488	.750	34.299	.000
	USEOIL	2.317	.096	.119	24.149	.000
	SPRNKLR	-.046	.144	-.002	-.322	.748
	AIR	-5.512	.682	-.243	-8.077	.000
	AFUEL	-2.500	.353	-.109	-7.079	.000
	FLOORS	-2.013	.133	-.102	-15.132	.000
	YB39	4.118	.676	.023	6.090	.000
	YB59	3.188	.690	.014	4.622	.000
	YB79	3.533	.538	.020	6.567	.000
	HOUSE	-5.565	.681	-.029	-8.171	.000
G	west	-14.438	.700	-.072	-20.626	.000
	midw	-9.431	.633	-.049	-14.902	.000
	south	-4.626	.741	-.028	-6.242	.000
	central city	2.405	.468	.013	5.133	.000
E	inc49	.736	.765	.003	.961	.336
	inc5074	1.018	.795	.004	1.282	.200
	inc75	10.500	.795	.050	13.215	.000
	payelec	9.032	1.267	.020	7.129	.000
	Grad	-3.563	.925	-.011	-3.852	.000
	BA	-2.394	.754	-.009	-3.173	.002
	SoCoL	.168	.625	.001	.269	.788
	subrntD	-11.465	1.275	-.024	-8.993	.000
	female	1.881	.515	.010	3.655	.000
	owner	8.805	.577	.055	15.265	.000
T	DEGREE	3.164	.203	.057	15.611	.000
Key Variables	AGE30	.239	.943	.001	.254	.800
	AGE40	3.749	.921	.016	4.070	.000
	AGE50	6.369	.940	.026	6.775	.000
	AGE60	2.253	.960	.009	2.346	.019
	AGE76	-8.201	1.115	-.024	-7.353	.000

PRE-CRISIS DETERMINANTS OF US BANK CHARTER VALUES

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ABSTRACT

We analyze factors related to U.S. bank holding company (BHC) charter values shortly before the current (2007-2010) financial crisis began to unfold. Using a sample of large BHCs, the evidence suggests that BHCs with riskier capital structures, stronger shareholder rights, and increased CEO risk-taking incentives were valued more highly by shareholders. Additional evidence indicates that increases in insider ownership (beyond a moderate level) also increases BHC charter value. Surprisingly, ownership by large outside shareholders is unrelated to charter value. The main conclusions from our study are that BHCs with more shareholder-friendly corporate governance and BHCs with riskier characteristics were valued more highly by shareholders in the period before the financial crisis. These results should be of interest to many banking stakeholders, including analysts, shareholders, and regulators.

Key Words: banking, corporate governance, CEO compensation

JEL classification: G21, G28, G34

INTRODUCTION

During the ongoing global financial crisis, the U.S. banking industry experienced a sharp increase in the number of bank failures. Over the seven-year period ending December 31, 2007 there was an average of only 3.57 bank failures per year. By comparison, over the two years ending May 31, 2010 there was an average of 119.5 bank failures per year.[1] In response to this spike in bank failures (and the concurrent damage to the U.S. economy), many observers have argued that U.S. banks took excessive risks leading up to the financial crisis. Calls have increased for tighter government regulation of the banking industry and on July 15, 2010, the U.S. Congress passed legislation designed to dramatically overhaul the financial regulatory system. At the same time, the Basel Committee on Banking Supervision was working to stiffen international banking regulations. Concerned about excessive bank risk-taking, this committee

was focused on improving the quality and quantity of bank capital. Not only was the committee considering setting limits on leverage, how much banks can borrow, it was also considering setting limits on executive compensation.[2]

To better understand the incentives faced by bank holding company (BHC) managers in the period shortly preceding the financial crisis, we analyze factors related to BHC *intrinsic value* (also known as *charter value*) in the year 2006, the year before the crisis began. All things equal, BHC managers can be expected to favor policies or make decisions that increase BHC charter value and thus shareholder wealth. Some actions taken by BHC managers to increase shareholder wealth could also increase BHC risk. Following prior researchers (such as Furlong and Kwan, 2005, and Caprio, Laeven and Levine, 2007) we measure BHC charter value using the market-to-book value of equity. After controlling for the effects of bank size, recent book ROE, and recent share returns, we find that BHCs are more highly valued by shareholders when they have riskier capital structures, superior shareholder rights, and CEO compensation packages that increase risk-taking incentives. Weaker evidence indicates that share ownership by insiders on the board of directors also has a positive influence on charter value, but this influence is only statistically significant in higher ranges of insider ownership. Contrary to our expectations, there is no evidence of a significant relationship between outside share ownership concentration and charter value. The main conclusions from this study are that, on the eve of the current financial crisis, shareholders more highly valued BHCs with better shareholder rights and riskier characteristics.

RELATED LITERATURE

Our research is broadly related to the literature on firm value, capital structure, ownership structure, corporate governance, and CEO compensation. However, this paper most directly relates to a narrower strand of literature concerning influences on bank charter value (or bank valuation). Several prior studies have analyzed factors that potentially influence bank charter value, but the evidence is mixed regarding which variables have influence and no studies (to our knowledge) have examined influences on charter values in the period immediately preceding the current financial crisis. The prior evidence seems to be somewhat dependent on the time period examined, likely because different studies sample from different points in the business cycle and from different banking regulatory regimes. Furthermore, the interpretation of the evidence has evolved over time. For example, Houston and James (1995) find a positive association between incentive-based compensation for the CEO and bank charter value. They interpret this evidence to suggest that compensation policies do not promote risk-taking in banking. However, more recent evidence (Palia and Porter, 2004, Chen, Steiner, and Whyte, 2006, and Fortin, Goldberg and Roth, 2010) suggests that incentive-based CEO compensation (such as from stock option grants) has a positive influence on bank risk-taking.

Using a sample of BHCs from 21 industrialized countries for the years 1988-1998, De Nicoló (2001) finds that charter value is negatively related to BHC size for most of the countries examined. He also finds that BHC insolvency risk increases with BHC size. De Nicoló concludes that any size-related diversification benefits or any size-related economies of scale benefits are dominated by costs associated with larger banks' increased risk-taking. Furlong and Kwan (2005) investigate the determinants of US BHC charter value for the years 1986-2003. They note that the operating environment for banks evolved during these years because of changes in legislation, regulation, banking consolidation, and technological innovation. For their sample of large BHCs, Furlong and Kwan find that non-interest revenue, consumer lending, and operating efficiency had a positive influence on charter value, whereas commercial lending and real estate lending had a negative influence on charter value. Regarding BHC liabilities, they find that transactional deposits and non-transactional deposits had a positive influence on charter value. Furlong and Kwan provide additional evidence that the influence of many of these variables substantially changed in magnitude and statistical significance over time. They offer industry environment-based explanations for these changes. Caprio, Laeven, and Levine (2007) analyze the relation between ownership structure and charter value for the year 2001 using a sample of 244 banks in 44 countries. They find that higher cash-flow rights, held by the controlling shareholder, increase charter value and help to mitigate the negative effects of weak shareholder protection laws.

Palia and Porter (2004) analyze the influence of bank capital structure and managerial compensation on bank charter value for the year 1991, using a sample of 102 BHCs. They find that bank capital (the level of equity in the bank's capital structure) is strongly, positively related to charter value. They also find weaker evidence that the dollar value of stock options held by the CEO is positively related to charter value. In the conclusion to their article, Palia and Porter specifically argue that future researchers should gather data from different time periods and continue to analyze the influences on charter value of both bank capital structure and bank CEO incentive-based compensation. To support their argument, Palia and Porter point to Saunders and Wilson (2001) who find (using data from 1893-1992) that the relation between bank charter value and bank leverage changes over time and over the business cycle.

DATA AND METHODOLOGY

In this study, we update the evidence on factors influencing US BHC charter values by investigating potential charter value determinants in the year 2006, the year before the current financial crisis began to unfold. Following Furlong and Kwan (2005) and Caprio, Laeven and Levine, (2007), we measure BHC charter value as the market-to-book ratio of equity. In our regressions, the market-to-book ratio measured for the end of year 2006 is modeled as a function of explanatory variables measured for the end of year 2005. We are particularly interested in

analyzing whether corporate governance, BHC-level risk characteristics, and ownership structure variables are related to charter value.

To ensure that our sample of BHCs has available information on corporate governance, we draw our initial sample from a data base that is publicly available on Professor Andrew Metrick's web site at Yale School of Management.[3] Professor Metrick's database includes a corporate governance index for 1,896 firms (of which 97 are BHCs) for the year 2005. This index is developed and described in detail in Gompers, Ishii, and Metrick (2003). Their index utilizes data collected on 24 separate corporate governance provisions by the Investor Responsibility Research Center. For every governance provision that enhances managerial rights (at the expense of shareholder rights), Gompers, Ishii, and Metrick add 1 to the index value. The final index value for each BHC relies on count data such that higher values are associated with worse corporate governance or reduced shareholder rights.[4]

To observe BHC-level risk characteristics, we gather data on bank capitalization and managerial incentives to take risk. BHC capitalization is measured as the book value of equity divided by total assets. We develop proxy variables for managerial incentives to take risk by gathering data on CEO incentive-based compensation. The three variables used are: annual CEO base salary; annual total value of CEO option grants; and the annual total value of CEO bonuses. Each of these three variables is scaled by the natural log of total assets. To test for any influence of ownership structure on charter value, we gather data on inside director ownership and outside blockholder ownership. Inside director ownership is the percentage of shares held by all directors who are full time employees of the BHC. Outside blockholder ownership is the percentage of shares held by all non-employees of the BHC who individually own at least 5% of the bank's shares. In each of the model specifications used we control for BHC size by including the natural log of total BHC assets. We also control for recent BHC performance by including the one-year raw stock return and the one-year book return on equity.

As noted, all explanatory variables are measured for the year 2005, whereas charter value is measured for the year 2006. All balance sheet information is drawn from Compustat. All stock return data are drawn from the Center for Research in Security Prices (CRSP). CEO compensation data are hand collected from proxy statements.[5] because complete data are not available for all BHCs in the initial sample, our final sample includes only 83 large BHCs. Nevertheless, these sampled BHCs held approximately 61.5% of all FDIC-insured bank assets in the U.S. during the year 2005 and so represented a large portion of the U.S. banking industry.[6]

Descriptive statistics for the final sample appear in Table 1. The mean (median) asset size is $79.8 ($10.2) billion, reflecting the large size of sampled BHCs. The mean and median market-book ratios are both close to 2, but the range in charter values is nonetheless considerable. The minimum market-book ratio is 0.73 while the maximum market-book ratio is 3.73. The mean and median book return on equity values are both healthy at over 13%, but market returns for the year were mildly negative with mean and median values of -3.11% and -2.51%, respectively. The mean and median values of equity capitalization are both 9%, but

capitalization ranges from a low of 3% to a high of 16%. The mean (median) CEO salary is $679,400 ($643,100); however, the typical CEO received a substantial portion of total compensation in the form of option grants and bonuses. The mean (median) value of CEO option grants for the year is $1,457,800 ($340,600). The mean (median) value of CEO bonuses for the year is $1,086,100 ($480,000). Additionally, there is significant variation across BHCs in the use of incentive-based CEO compensation. Sampled BHCs show a wide range in the level of shareholder rights. Although the mean value and median value for the corporate governance index are both around 9, the minimum value is 3 whereas the maximum value is 15. The mean (median) outside block ownership is 12.4% (11%), which is substantially more than the mean (median) value of inside director share ownership at only 5.46% (2.55%).

RESULTS

Regression results appear in Table 2. In all models the dependent variable is the BHC market-book ratio (the proxy variable for charter value) measured in the year 2006. All explanatory variables are measured in the year 2005. Breusch-Pagan (Cook-Weisberg) tests indicate that heteroskedasticity is present in the data, so we report results using White's (1980) corrected standard errors. Model 1 includes the three control variables STOCKRET, ROE, and SIZE. Model 1 also includes the variable CAPITAL. Each of the variables in Model 1 is significantly related to charter value at the 5% level or better. As expected, BHC market performance and operating performance for the prior year, measured as the unadjusted stock return (STOCKRET) and the book return on equity (ROE), are both positively related to charter value. Consistent with the results presented in De Nicoló (2001) using international data, we find that BHC charter value is negatively related to the total value of BHC assets (SIZE). De Nicoló observes that larger BHCs are often viewed as having greater diversification benefits. Larger BHCs may also benefit from a perceived implicit government guarantee associated with being "too-big-too-fail." On the other hand, smaller BHCs generally are faster growing. In the pre-crisis year 2006 (when the probability of BHC failure was likely perceived as low), this faster growth effect seems to dominate so that smaller BHCs are awarded higher valuations.

In contrast to the results obtained by Palia and Porter (2004), we find in our sample that the level of equity in BHC capital structure (CAPITAL) is strongly, negatively related to charter value. This negative relation is significant at better than the 1% level in Model 1 as well as in all models subsequently used in Table 2. Our conclusion is that, after controlling for a variety of other factors, BHCs with riskier capital structures were valued more highly by shareholders in 2006. The two most likely explanations for this finding are: (1) increasing competition faced by BHCs; and (2) declining perceived default risk. Regarding explanation (1), it has long been recognized that government supported FDIC deposit insurance creates an incentive for bank managers to increase risk by decreasing equity capital levels (see, e.g., Merton, 1977). Keeley (1990) argues that this moral hazard problem is exacerbated by increased competition within the

banking industry and by increased competition banks face from non-bank financial institutions. Specifically, Keeley argues that when a bank suffers a loss of market power because of increased competition, the bank's shareholders have less to lose if the bank fails, forfeiting its charter. So, when banks face increasing competition, shareholders prefer bank managers to take more risk. In 2006, banks faced unprecedented competition from non-bank financial institutions (which included members of the so-called "shadow banking system").[7] Regarding explanation (2), shareholders may have preferred banks that used financial leverage to increase returns in 2006 because the probability of bank failure appeared exceptionally low. According to the FDIC's web site, there was not a single bank failure in all of 2005 or 2006.[8] In comparing the results from this study with the results from Palia and Porter (2004), recall that their sample year is 1991 and that the US savings & loan crisis occurred from 1989-1991. Because so many financial institutions had just failed prior to Palia and Porter's sample period, that period arguably captures a time of decreased competition faced by surviving BHCs and increased perceived default risk. We conclude this is the most reasonable explanation for their finding of a positive relation between capital and charter value whereas we find a negative relation between these variables.

In Model 2 the corporate governance index (GOVERN) is added as an explanatory variable. This index is negatively related to charter value at the 0.084 level. Because shareholder rights decrease as the value of the index rises, the results from Model 2 suggest that BHCs with superior shareholder rights are valued more highly by shareholders. In Models 3-5, the variable GOVERN retains its negative relation at the 10% level or better. In Model 3, the three CEO compensation measures are added as explanatory variables. The variables SALARY, OPTIONS, and BONUS measure the scaled dollar values of the CEO's base salary, option grants, and bonuses, respectively. SALARY is not significantly related to charter value ($p = 0.152$). However, OPTIONS is positively related ($p = 0.011$) and BONUS is positively related ($p = 0.057$) to charter value. These results suggest that shareholders value BHCs more highly when their CEOs have incentive-based compensation that encourages risk-taking.[9]

In Model 4, the ownership structure variables are added to the model specification. INSIDE measures the percentage of shares held by board members who are also full-time employees of the BHC. OUTSIDE measures the percentage of shares held by all outside investors who individually own at least 5% of BHC shares. Neither of these variables is found to be significantly related to charter value. However, evidence from Stulz (1988), Morck, Shleifer, and Vishny (1988), and McConnell and Servaes (1990) suggests that a nonlinear relationship exists between managerial ownership and firm value. In Model 5, we investigate this possibility by replacing INSIDE with the following three variables: LOWINS; MEDINS; and HIGHINS. These variables divide the full range of inside director ownership into three parts: 0 to less than 2%; 2% to 4%; and above 4%, respectively.[10] The results show that increases in insider ownership through low and middle ranges have no relation to charter value. However, HIGHINS is positively related to charter value ($p = 0.092$), providing some support for the view that the relation between managerial ownership and BHC value is nonlinear.[11]

SUMMARY AND CONCLUSIONS

This study analyzes factors related to bank holding company (BHC) charter value (measured as the market-book ratio) in the year 2006, just before the 2007-2010 financial crisis began to unfold. The main findings are that shareholders place higher values on BHCs that are more shareholder-friendly and that adopt riskier characteristics. Charter values are higher for BHCs that have stronger shareholder rights. Charter values are also higher for BHCs that pay CEOs more in options and bonuses, i.e., incentive-based forms of compensation that likely promote risk-taking. Perhaps most concerning to regulators, charter values are lower for BHCs that have greater equity financing.

Our finding that shareholders prefer BHCs with greater financial leverage directly contrasts the results found by Palia and Porter (2004) who analyze BHC charter value using 1991 data. They find that greater use of equity financing has a positive influence on BHC charter value. The two most likely explanations for these contrasting findings relate to: (1) the competitive environment faced by BHCs at the time; and (2) the perceived probability of BHC failure at the time. Palia and Porter (2004) draw their sample at the end of the 1989-1991 savings & loan crisis, a time when many financial institutions had just failed. During this period, surviving BHCs faced reduced competition, but the perceived probability of bank failure was high. These conditions would likely cause shareholders to prefer BHCs with less financial leverage. In contrast, we draw our sample just prior to the 2007-2010 financial crisis. During this period, BHCs faced increased competition, but the perceived probability of bank failure was low. These conditions would likely cause shareholders to prefer BHCs with greater financial leverage.

END NOTES

1. The source for these data is the Federal Deposit Insurance Corporation's web site: http://www.fdic.gov/bank/individual/failed/banklist.html.
2. In response to the financial crisis and the belief that executive compensation encouraged bank risk taking, policy makers in Europe and the U.S. have already taken steps to limit such compensation. For example, on June 30, 2010 the European Parliament approved placing certain limits on cash bonuses for bank CEOs. On June 10, 2009, the Obama Administration announced that Kenneth Feinberg would oversee executive compensation for financial firms that received substantial Troubled Asset Relief Program (TARP) assistance.
3. These data can be found at http://www.som.yale.edu/faculty/am859/data.html.
4. These corporate governance index data have been used in several prior studies, e.g., Gompers, Ishii, and Metrick (2003), Klock, Mansi, and Maxwell (2005), Core, Guay, and Rusticus (2006), Dittmar and Mahrt-Smith (2007) and Hwang and Kim (2009).

5. To calculate the dollar value of CEO stock options in 2005, we use the maturity matching Treasury Constant Maturity Rate (the "risk free rate") at the end of 2005. Annualized dividend yields are calculated using Compustat data. Compustat is also used to obtain stock prices for the end of year 2005. We use the Black-Scholes (1973) option pricing formula as modified by Merton (1973).

6. The sample of BHCs and some of the BHC-level data used in this study were also used in a prior study by Fortin, Goldberg, and Roth (2010), who examine influences on BHC risk-taking.

7. Non-bank financial institutions include mortgage companies (such as Countrywide Financial Corp.), savings & loans, investment banks, money market funds, hedge funds, consumer finance companies and others.

8. Perceived default risk was low throughout the economy, as evidenced by the declining spread between Baa rated corporate bond yields and 10-year Treasury bond yields. On the last trading day of the year 2002, the spread was 348 basis points. By the last trading day of 2006, the spread was only 164 basis points.

9. As noted, Palia and Porter (2004), Chen, Steiner, and Whyte (2006), and Fortin, Goldberg, and Roth (2010) find a positive relationship between bank CEO option payments and bank CEO risk taking. Coles, Daniel, and Naveen (2006) find a positive relationship between CEO option payments and firm risk taking for nonfinancial firms.

10. Model 5 is a piecewise linear regression that follows the technique described in Morck, Shleifer and Vishny (1988), except that we use different percentage ownership cutoff points. Our three ranges of insider ownership are chosen because they divide our full sample into 3 approximately equally sized subsamples.

11. As a robustness check, we also tested our sample for potentially influential observations using regression diagnostics discussed in Belsley, Kuh, and Welsch (1980). We then re-estimated Model 4 and Model 5 after removing six BHCs identified as potentially influential. Our overall results are qualitatively similar using this reduced sample size, though p values drift slightly higher for some variables. We conclude that the results shown in Table 2 are not driven by outliers.

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Table 1
Summary Statistics for Sampled Bank Holding Companies

Variable	N	Mean	Median	Std. Dev.	Min	Max
Assets (in $ billion)	83	79.8086	10.1613	252.6373	1.7758	1494.037
Charter	83	2.0947	2.0230	0.6143	0.7300	3.7270
ROE	83	0.1396	0.134550	0.0456	–0.0349	0.2655
Market Return	83	–0.0311	–0.0251	0.1389	–0.7759	0.2031
Capital	83	0.0904	0.0890	0.0197	0.0330	0.1590
Govern	83	9.4458	9.0000	2.8209	3.0000	15.0000
Inside Ownership (in %)	83	5.4640	2.5500	9.1833	0.0200	66.9000
Outside Ownership (in %)	83	12.4004	11.0000	10.5009	0.0000	53.4700
CEO Salary (in $ million)	83	0.6794	0.6431	0.2674	0.0000	1.5000
CEO Options (in $ million)	83	1.4578	0.3406	3.0508	0.0000	20.5680
CEO Bonus (in $ million)	83	1.0861	0.4800	1.9107	0.0000	12.0000

Shown are descriptive statistics for the sample of bank holding companies. Each bank was drawn from the corporate governance index database, which covers financial and nonfinancial firms, that is publicly available on Professor Andrew Metrick's (Yale University) Web site. All variables except *Charter* use data from the year 2005. *Assets* is the total value of bank assets. *Charter* is the market-book ratio (a proxy variable for bank charter value) for the year 2006. *ROE* is the book return on equity. *Market Return* is the unadjusted one-year stock return. *Capital* is the equity-assets ratio. *Govern* is the corporate governance index. *Inside Ownership* is the percentage of common shares owned by inside directors (directors who are full-time employees of the bank). *Outside Ownership* is the percentage of common shares owned by outside blockholders (non-employees of the bank who own at least 5% of the bank's outstanding shares). *CEO Salary* is the base salary paid to the CEO. *CEO Options* is the total value of options granted to the CEO, estimated according to the Black-Scholes (1973) model as modified by Merton (1973) to account for dividends. *CEO Bonus* is the total value of bonuses paid to the CEO. Summary statistics for dollar values of bank assets and CEO compensation components are reported in this table, however the natural log of assets and scaled values of CEO compensation components are used in regressions.

Table 2
Bank Risk Regressions

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	2.3513	2.5157	3.4674	3.5238	3.8516
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
STOCKRET	0.0116	0.0121	0.0118	0.0116	0.0121
	(0.028)	(0.024)	(0.016)	(0.022)	(0.017)
ROE	0.0840	0.0839	0.0821	0.0819	0.0807
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SIZE	–0.0721	–0.0737	–0.1993	–0.2035	–0.2182
	(0.009)	(0.008)	(0.001)	(0.002)	(0.001)
CAPITAL	–7.6827	–7.0884	–8.0194	–8.2379	–8.4374
	(0.003)	(0.005)	(0.002)	(0.001)	(0.001)
GOVERN		–0.0211	–0.0239	–0.0228	–0.0247
		(0.084)	(0.053)	(0.069)	(0.055)
SALARY			0.0000	0.0000	0.0000
			(0.152)	(0.171)	(0.182)
OPTION			0.0000	0.0000	0.0000
			(0.011)	(0.011)	(0.008)
BONUS			0.0000	0.0000	0.0000
			(0.057)	(0.062)	(0.044)
INSIDE				0.0021	
				(0.438)	
OUTSIDE				–0.0021	–0.0021
				(0.573)	(0.578)
LOWINS					–0.0679
					(0.441)
MEDINS					–0.0144
					(0.797)
HIGHINS					0.0040
					(0.092)
(Adj.)R^2	0.6045	0.6134	0.6632	0.6654	0.6699
N	83	83	83	83	83

Shown are the results of regressing bank risk on several variables. The sample includes 83 large bank holding companies. All variables except *Charter* use data from the year 2005. The dependent variable is *Charter*, the market-book ratio for the year 2006. *STOCKRET* is the unadjusted one-year stock return. *ROE* is the book return on equity. *SIZE* is the natural logarithm of total assets. *CAPITAL* is the equity-assets ratio. *GOVERN* is the corporate governance index. *SALARY* is the base salary paid to the CEO scaled by the natural log of total assets. *OPTION* is the total value of options granted to the CEO scaled by the natural log of total assets. *BONUS* is the total value of bonuses paid to the CEO scaled by the natural log of total assets. *INSIDE* is the percentage of common shares owned by inside directors (directors who are full-time employees of the bank). *OUTSIDE* is the percentage of common shares owned by outside blockholders (non-employees of the bank who own at least 5% of the bank's outstanding shares). LOWINS, MEDINS, and HIGHINS are three ranges of inside director ownership. Coefficient estimates are shown on the top row for each variable. P-values are shown in parentheses. In all Models heteroskedasticity is present so White's (1980)-corrected standard errors are used.

COMMUNITY BANKS: SURVIVING UNPRECEDENTED FINANCIAL REFORM

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ABSTRACT

The current financial crisis, largely created by questionable lending practices and institutions deemed too big to fail, has had widespread implications on the banking industry as a whole. Unprecedented government intervention and legislative reform is changing the way banks operate. Observation of public financial data reveals that smaller banks are carrying the bulk of the financial burden on behalf of their larger counterparts through increased assessment fees, higher cost of funds and regulation compliance, and without the implicit guarantee by the Federal government to protect these smaller institutions from failing. As legislative efforts to save mega institutions from crumbling continue, many community banks will struggle to survive the increasing cost of doing business.

THE BEGINNING: THE REAL ESTATE CRISIS

To veteran financiers, the recent mortgage debacle follows the classic pattern of a typical financial craze. Investors were enthusiastic for an asset (residential real estate in this case), which drove the prices up, which attracted more capital, and inflated prices even more, until prices were so bloated that a market failure was inevitable (Ip, Whitehouse & Luccetti, 2007). Martin Feldstein (2008) summed it up by stating, "The unprecedented combination of rapid house-price increases, high loan-to-value (LTV) ratios, and securitized mortgages has made the current housing-related risk greater than anything we have seen since the 1930s."

At first, there were fundamental reasons for home prices to rise. The economy was in a recession, and the Federal Reserve cut interest rates in 2001 and kept them low until mid-2004 (see Appendix C - Historical Target Fed Funds Rate). A migration of foreign savings into the U.S. market also helped keep mortgage rates low. The environment of rising prices may have lulled both buyers and lenders into a false sense of security about the health and stability of the real estate market. Former Federal Reserve Chairman Alan Greenspan even argued repeatedly that there could be no housing bubble in the U.S. He said in late 2004 that the inconvenience and high cost of moving "are significant impediments to speculative trading and…development of price bubbles" (Ip, Whitehouse & Luccetti, 2007).

The Fed began raising interest rates in 2004, and mortgage rates followed suit. Buyers started turning to mortgages with lower initial payments, assuming they could sell or refinance

the home before the rate adjusted upwards, so home prices kept ticking up. The higher prices allowed borrowers who had trouble making payments to refinance into even bigger loans. Easy refinancing enabled low default rates, and rating agencies continued to give mortgage-backed securities their blessings and high ratings. By the end of 2006, the value of all homes in the U.S. (excluding rentals) reached 153% of GDP, which approximated $21 trillion, and marked the highest proportion in at least 60 years. Before the end of 2007, home prices began to drop and the market value fell to 150% of GDP (Ip, Whitehouse & Luccetti, 2007).

Between 2000 and 2006, home prices had exploded, increasing 60% over rent levels. But between mid-2006 and early 2008, prices had fallen by 10%. In March of 2008, experts were forecasting an additional downward price correction of 15-20%. Widespread defaults and foreclosures lead to an even more dangerous situation, where prices could fall even more substantially. Historically, homeowners facing default were reluctant to part with their homes, expecting that real estate prices would continue to rise. But in the market of falling home prices, reneging on the obligation became a rational decision in the minds of many debtors, causing a continued spiral of foreclosures (Feldstein, 2008).

There are several factors that fostered the growth and imminent demise of the sub-prime mortgage market. For several years, home prices in the United States had consistently appreciated, which made mortgage lending and investing (of all types) very attractive and very profitable. Fueling the fervor, historical evidence gave market participants a false sense of security that home prices would not fall, but instead would "only moderate, in a *soft-landing*" (Deutsche, 2008, p. 24). This 'fail-proof' market allowed originators, investors, buyers and lenders to get too comfortable.

As confidence in sub-prime lending soared, credit standards loosened. Sub-prime borrowers were being offered loan features that were previously reserved for prime mortgage markets. This hysteria over what seemed to be a foolproof market led to irresponsible lending. Mortgages were being closed with loan-to-value (LTV) ratios of around 100%, and borrowers who previously did not qualify for a conventional loan were acquiring mortgages outside of their means. At the time, this was considered innovative. In retrospect, it was clearly imprudent (Deutsche, 2008). Just as Warren Buffet described the manufactured home crisis of 1997-2000 in his 2008 Berkshire Hathaway Annual Report, the residential real estate crisis involved "borrowers who shouldn't have borrowed being financed by lenders who shouldn't have lent." Both parties were relying on home value appreciation to make everything work (2008, p.11). When values started deflating in 2006, 7% of mortgages had LTVs over 100%. If prices continued to decline, the 20% of mortgages with LTVs over 80% would also move to negative equity (Feldstein, 2008).

To compound the issue, as lenders moved away from holding the mortgage loans they had originated, their stake in the borrowers diminished. What was to prevent an originator from pushing a shaky loan through if there were no financial downside for themselves or their institutions? Mortgages were commonly securitized and sold to investors not just in the U.S., but

globally. Even more critical to the current catastrophe is that mortgages are bundled together in complex, mortgage-backed securities (MBS). Investors own the rights to the payment streams of these MBS, but not the actual mortgages, which means it is impossible for borrowers and lenders to re-negotiate terms in an effort to prevent foreclosures (Feldstein, 2008). The question then arises: if originators were still holding onto at least a portion of those loans they pushed through rather than selling them off to bond markets, would the crisis have gotten to the current level?

SYSTEMIC RISK/TOO BIG TO FAIL: UNTANGLING THE WEB

After the housing bubble burst, falling home prices and increasing foreclosures were triggering fears on Wall Street. What would follow, a case-by-case rescuing of colossal financial firms, led ultimately to the creation of the "Bailout Bill" and the nationalization of many Wall Street giants. Below is a timeline of events that quickly changed the financial industry as we know it:

- *Summer, 2007* – The housing market begins showing signs of trouble – prices are falling and foreclosures and inventories are rising.
- *June 1, 2007* – Two Bear Stearns hedge funds (invested in AAA-rated mortgage-backed securities whose values plummeted) are forced into bankruptcy.
- *January 1, 2008* - Bank of America purchases mortgage lender Countrywide Financial for a substantially deflated price, rescuing it from failure.
- *March 24, 2008* – After uncovering billions of toxic subprime mortgages, and hundreds of billions in credit default swaps, Bear Stearns is rescued through a purchase by JPMorgan Chase. The purchase is facilitated by the Fed in an effort to prevent the failure of other Wall Street firms that Bear was indebted to (as a matter of systemic risk).
- *July 11, 2008* – IndyMac Bank is closed by the Office of Thrift Supervision (OTC). The FDIC protects the bank's deposits.
- *September 7, 2008* - The U.S. Treasury takes 80 percent ownership in Fannie Mae and Freddie Mac, nationalizing the mortgage firms. The firms combined had $5 trillion in mortgages on the books.
- *September 15, 2008* - Lehman Brothers collapses after the Fed refuses to bail the firm out, and no buyer comes forward. While Lehman was a larger firm than Bear, the perception of moral hazard outweighed the systemic risk.
- *September 15, 2008* - The Dow Jones Industrial Average (DJIA) plummets more than 500 points in a single day.
- *September 16, 2008* - Insurance giant AIG is nationalized after insuring Lehman's credit default swaps without sufficient cash in the bank to cover the commitments. The government takes an 80% ownership and agrees to an $85 billion loan, in the first of many steps to rescue the firm.

- *September 17, 2008* – The DJIA tumbles 449.36 points.
- *September 21, 2008* - Goldman Sachs and Morgan Stanley, the last two investment banks on Wall Street, become bank holding companies regulated by the Federal Reserve.
- *September 25, 2008* - In a transaction facilitated by the FDIC, JPMorgan Chase acquires Washington Mutual upon closure by the OTC.
- *September 29, 2008* - The first version of the Bailout Plan is rejected by the House of Representatives, sending further shockwaves throughout Washington and Wall Street.
- *September 29, 2008* - The DJIA tumbles 777.78 points. This is the largest one-day point loss in the index's history.
- *October 3, 2008* - Congress passed the Emergency Economic Stabilization Act of 2008 (the Bailout Plan) and established the $700 billion Troubled Asset Relief Program (TARP).
- *October 3, 2008* - Deposit insurance is increased by the FDIC from $100,000 to $250,000 (as authorized by the EESA of 2008).
- *October 12, 2008* - Wells Fargo purchases the nearly-collapsed Wachovia.
- *October 13, 2008* - U.S. Treasury Secretary Paulson requires the CEOs of the nation's 9 largest banks to accept billions of dollars in direct cash infusions: JPMorgan, Bank of New York/Mellon, Merrill Lynch, State Street, Morgan Stanley, Goldman Sachs, Bank of America, Citigroup, Wells Fargo.
- *November 10, 2008* - AIG receives an additional $30 billion in federal aid.
- *June 17, 2009* - $68 billion in TARP money is repaid by the 10 largest recipient banks.
- *December 11, 2009* - The House passes the Wall Street Reform and Consumer Protection Act of 2009
    - *Timeline sources: Kirk, 2009 and http://www.dems.gov/financial-timeline

DERIVATIVE TRADING

As the firms were dismantled, and portfolios deciphered, it became very apparent that the subprime mortgage crisis was created by more than just the toxic assets. As mentioned previously, the loans were "securitized" and bundled and sold to bond funds that were touted as investment-grade mortgage-backed securities (MBS). These bonds were then "insured" via credit derivatives, namely credit default swaps. These financial contracts allow a party to reduce or remove credit exposure from a bond, loan or index [without any direct investment into the underlying asset or firm] (OCC, 4th Quarter 2008). Problems arise when these investments are being traded by commercial banks and investment firms over-the-counter, with very little regulation or oversight.

Warren Buffet explained to the shareholders of Berkshire Hathaway the dangers of derivatives in his 2008 annual report. He stated, "They have dramatically increased the leverage and risks in our financial system. They have made it almost impossible for investors to understand and analyze our largest commercial banks and investment banks. They allowed Fannie Mae and Freddie Mac to engage in massive misstatements of earnings for years. So indecipherable were Freddie and Fannie that their federal regulator, OFHEO, whose more than 100 employees had no job except the oversight of these institutions, totally missed the cooking of the books" (Berkshire Hathaway, 2008, 16).

In this speculative market lies the regulatory issue. Because derivative activities are netted against each other, it is virtually impossible to truly determine a firm's position.

Figure 1. Derivatives Position Example.

	XYZ Firm Portfolio		
	# of Contracts	**$ of Contracts**	**Credit Measure/Metric**
Contracts with Positive Value (derivatives receivable)	8	$1,000	Gross Positive Fair Value
Contracts with Negative Value (derivatives payable)	5	$800	Gross Negative Fair Value
Total Contracts	13	$200	Net Current Credit Exposure (NCCE) to XYZ Firm

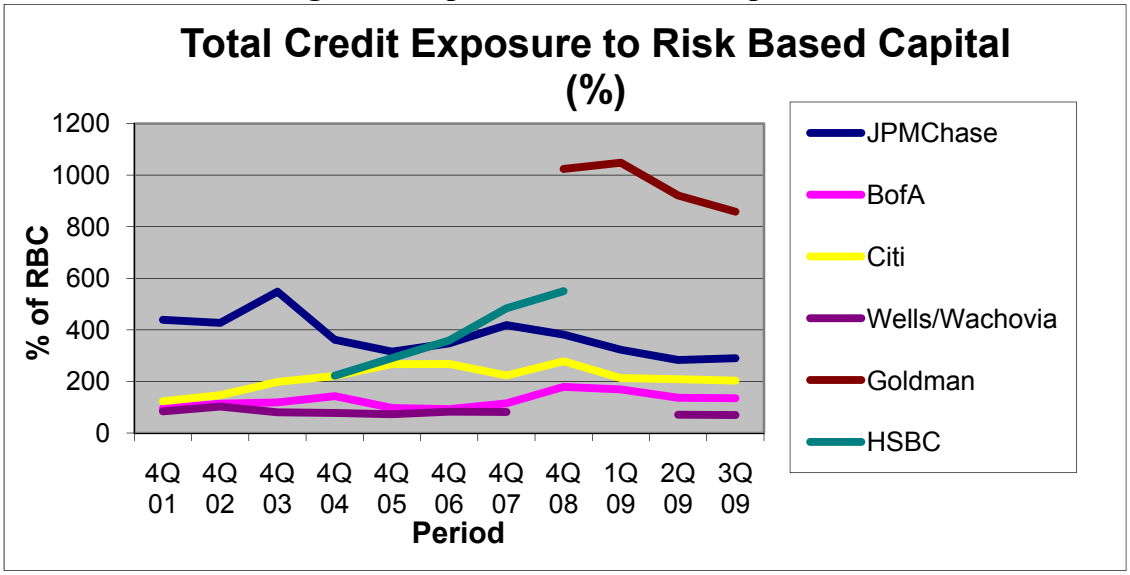
(Modified from OCC Quarterly Report on Bank Trading and Derivatives Activities)

Figure 1 shows the number and value of the derivative contracts, and the net value of the receivables less the payable. It does not, however, give any representation to the counterparty or counterparties that are on the other side of the transaction. As these are traded in an over-the-counter market, and often traded secondarily without the other party's notice, the riskiness of the portfolio cannot be easily measured. Buffett continues his warning on derivatives by saying, "I know of no reporting mechanism that would come close to describing and measuring the risks in a huge and complex portfolio of derivatives. Auditors can't audit these contracts, and regulators can't regulate them. When I read the pages of 'disclosure' in 10-Ks of companies that are entangled with these instruments, all I end up knowing is that I don't know what is going on in their portfolios (and then I reach for some aspirin)" (Berkshire Hathaway, 2008).

According to the OCC's Quarterly Reports on Bank Trading and Derivatives Activities (3rd Quarter 2008 – 1st Quarter 2010), over-the-counter derivative portfolios are still very much alive and well in many of our largest commercial banks. In fact, as of March 31, 2010 five large commercial banks represent a staggering 97% of the total banking industry notional amounts, and 86% of industry net current credit exposure. Figure 2 represents the top 5 commercial banks'

total derivative credit exposure as a percentage of risk based capital. HSBC was previously in the top five, so is also shown to represent the overall market more closely. Wells Fargo and Wachovia data are combined as of 2Q 2009.

Figure 2. Top Five Banks' Risk Exposure.



While not all derivative investments carried by banks are credit derivatives, they do make up over $14 trillion of the $216 trillion market. Also noteworthy: the total assets of the commercial banks and trust firms carrying these stupefying balances approximate only $10.5 trillion (Comptroller of the Currency, 2010).

It is interesting that in an industry where risk is to be mitigated, and portfolios managed prudently, that this type of investment is allowed, especially for speculative purposes. In 2009, the House Financial Services Committee presented the Wall Street Reform and Consumer Protection Act. One of the facets of the proposal is to attempt to regulate derivatives. The proposed legislation has not yet been passed into law, so only time will tell if any serious progress is made in truly cleaning up Wall Street firms.

THE FEDERAL RESERVE AND FDIC STEP IN

Bailing these giants out did not bring an end to the *Too Big to Fail* (TBTF) phenomenon, nor did it bring an end to derivative trading. In fact, the recent bank and broker-dealer stress tests increased the number of TBTF firms from 11 to 19. While the stress test threshold appears to be $100 billion in assets, where a bank is determined to be systemically critical is still a blurry line. In order to clarify, capital standards would need to be augmented, and regulators and the markets

would need to downsize these companies. Additionally, at some point, the government guarantees would need to be un-tethered from these Goliaths (Heasley, 2009e, p. 31).

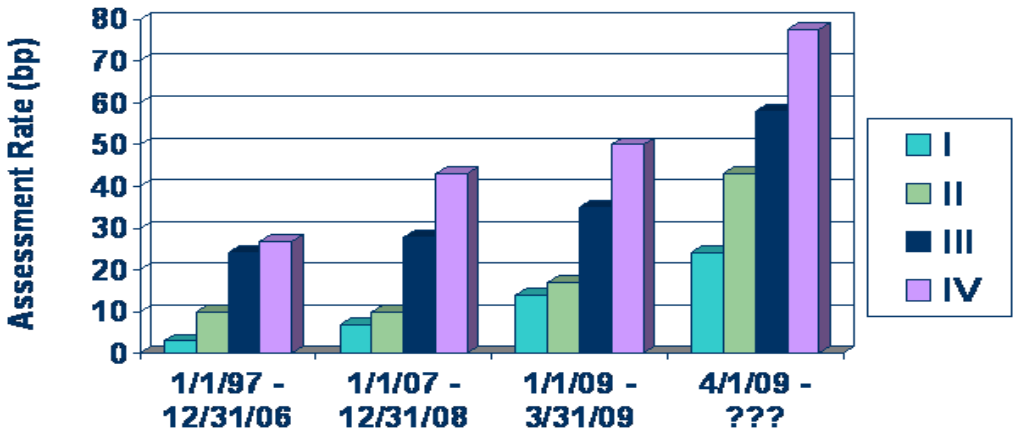
The Federal Reserve had dropped its overnight Fed Fund rates to floating between 0 and 25 basis points in an effort to encourage lending. Those that received TARP funds had no incentive to lend, because the greater fear was being caught in the middle of another run with insufficient capital. Those banks that were already well capitalized were now drowning in liquidity and earning literally nothing for it. There were no safe bonds to invest in, and credit restrictions were such that cold hard cash had nowhere to go.

The Federal Deposit Insurance Corporation (FDIC) also began preparing for a run on the banks. Consumers that do business with any bank, not just the Goliaths of Wall Street, began to panic. To assure consumers that their money was still safer in the bank than hidden under a mattress, FDIC insurance was temporarily increased from $100,000 to $250,000 per depositor on October 3, 2008. This became effective immediately upon President George W. Bush's signature and was due to expire on December 31, 2009 (Federal Deposit Insurance Corporation, 2008b). The expiration date was extended to December 31, 2012 when President Barack Obama signed the Helping Families Save Their Homes Act on May 20, 2009 (Federal Deposit Insurance Corporation, 2009b). The increase to $250,000 was made permanent on July 21, 2010 when the Dodd-Frank Wall Street Reform and Consumer Protection Act was signed by President Obama.

Less than 2 weeks after the temporary deposit insurance increase was granted, the FDIC had also provided for full FDIC deposit insurance coverage for non-interest bearing transaction accounts held at participating FDIC-insured institutions, currently set to expire on December 31, 2010 (Federal Deposit Insurance Corporation, 2010a). The FDIC was not only concerned about the public making a mass exodus from the federally-insured banks, but also on what the impending bank failures effect would be on the Deposit Insurance Fund (the Fund, or DIF). As it became very clear that numerous banks were in trouble, a series of increased assessments were charged against *all* FDIC-insured institutions, regardless of their portfolios, solvency or stability.

Announced December 16, 2008 and effective January 1, 2009 the FDIC increased assessment rates by seven basis points (bp) annual rate uniformly across all risk categories for the first quarter 2009 assessment period, and promised that more changes were coming early in 2009 (Federal Deposit Insurance Corporation, 2008a). On February 27, 2009 the FDIC, as promised, adopted a final rule modifying the risk-based assessment system. Effective April 1, 2009 initial base rates were set at 12-45bp, depending on the financial institution's risk category. Also, because the fund reserve ratio fell below 1.15 % in June 2008, and was expected to remain below 1.15%, the newly implemented Restoration Plan period was extended from five years to seven years due to extraordinary circumstances (Federal Deposit Insurance Corporation, 2009b). Figure 3 depicts the exponential growth in regular, quarterly assessment fees charged to FDIC-insured financial institutions since 2007.

Figure 3. Historical FDIC Quarterly Assessment Rates by Risk Category.



Generated from information found at: http://www.fdic.gov/deposit/insurance/assessments/proposed.html

In May 2009, the FDIC imposed an additional special assessment in an effort to save the DIF from falling to a level that the Board felt would adversely affect public confidence, or to a level that would be close to, at or even below zero. The final rule imposes a five bp special assessment on the institutions' assets minus Tier 1 capital as reported as of June 30, 2009 (Federal Deposit Insurance Corporation, 2009f). Most recently, in November 2009, it was determined that "institutions must prepay their estimated quarterly risk-based assessments for the 4th quarter of 2009, through the 4th quarter of 2012, along with their risk-based assessments for the 3rd quarter of 2009" (Federal Deposit Insurance Corporation, 2009c). A five percent annualized growth rate is worked into the prepayment, as well as a 3 basis point increase in the assessment rate itself (Federal Deposit Insurance Corporation, 2009c).

To better illustrate the affect this has on financial institutions, consider a well capitalized, Risk Category I firm with approximately $225 million in assets (as of September 30, 2009) as an example. In recent years, say 2004 – 2007, this bank would have paid about $25,000 in annual assessment fees to the FDIC. As fees began to increase in 2008, this same healthy firm would pay almost $100,000 in assessment fees for the year. In 2009, that same firm could expect to pay over $375,000 in quarterly and special assessments. In a span of two years, insurance expense has grown exponentially. Regular quarterly assessments grew at a rate of 300% from 2007 to 2008, and an additional 275% from 2008 to 2009. The prepaid assessments for 2010 – 2012 will result in additional check made payable to the FDIC in the amount of approximately $1.1 million. See also Appendix A for a depiction of historical FDIC assessment rates.

LET THE REFORM BEGIN: CFPA

The underlying theme for much of the unprecedented regulation proposal is to protect the consumer from future financial ruin. The first, and foremost, concern to bankers is the proposed Consumer Financial Protection Act (CFPA).

In late June of 2009, the administration circulated a white paper expressing its ideas for regulating the financial system, including the creation of the CFPA as a new federal-level agency whose focus in entirely on consumer protection. The proposal, in essence, would deny certain financial products and/or services to consumers who are deemed inadequately sophisticated, experienced or educated in financial products.

According to the white paper, investment products and services already regulated by the Securities and Exchange Commission (SEC) or Commodity Futures Trading Commission (CFTC) would be excluded from the umbrella of CFPA regulation. In some aspects, the proposed plan is self-contradictory. The white paper call for consistent standards, but the legislation draft leaves the SEC and CFTC jurisdictions untouched, as well as the states' jurisdiction over insurance. The legislation actually creates arbitrage opportunities by separating the banks and financial services firms under the CFPA, and leaving insurance and securities under their current regulators (Wallison, 2009, p. 1-2). The jurisdiction would, however, cover all credit, savings and payment products and according to its mission: "to help ensure that…consumers have the information they need to make responsible financial decisions…[and] are protected from abuse, unfairness, deception or discrimination" (U.S. Department of the Treasury, 2009, p. 57). Funding of the agency will come from the fees imposed on those companies that are subject to the legislation, including: banks, credit card companies, local finance companies, department stores, etc. (Wallison, 2009, p. 2).

Part of the new jurisdiction will include consumer disclosures. Historically, consumers were expected to make decisions for themselves based on receiving necessary information. According to the U.S. Department of Treasury's "Financial Regulatory Reform: A New Foundation," the new "reasonableness" standard requires a "balance in the presentation of risks and benefits, as well as clarity and conspicuousness in the description of significant product costs and risks" (Wallison, 2009, p. 2).

Clear and concise disclosure is appropriate and necessary for investors to make informed decisions, but the trouble will begin if and when the standards implement what the white paper calls "plain vanilla" products and services, or what the draft calls "standard consumer financial products or services", that are to be both "transparent" and "lower risk". In other words, the CFPA will be authorized to require all financial providers and their intermediaries to offer uniform, government-approved products alongside any other "lawful products" the firm chooses to offer (Wallison, 2009, p.3).

By requiring firms to provide the same "plain vanilla" products and services in addition to other products of the companies' choice, it is then left to the provider to decide who is capable

of understanding products deemed too complicated, and who should only be allowed to invest in "simple" products (Wallison, 2009, p.3). The white paper notes: "Even if disclosers are fully tested and all communications are properly balanced, product complexity itself can lead consumers to make costly errors" (U.S. Department of the Treasury, 2009, p. 66). It becomes a matter of denying access to some people because of actual or perceived deficiencies in experience, sophistication and even intelligence, but without any specific guidelines on how that is to be determined.

Wallison poses a simple, yet pertinent question, "if there is a plain vanilla product, who is going to be eligible for the product that has strawberry sauce?" (2009, p. 3). Some very troubling questions being posed by financial service providers include how are these determinations of intelligence or sophistication going to be made, and who has to do the determining? What standards will be followed? Will the CFPA provide guidelines to protect the institutions it is intended to regulate, or is it just going to be a lawsuit free-for-all when consumers figure out they were offered one type of product over another, without ever being given a choice? Whether a provider offers "safe" products to ordinary consumers, or complex products to the well educated and sophisticated, the providers will be at increased risk of litigation (Wallison, 2009, p.3).

There are several possible victims to the current proposed legislation. Consumers will have their financial decisions largely made for them based on their perceived ability to handle certain types of products. Financial providers will be caught in the middle of risking either a CFPA enforcement action or a possible lawsuit, in trying to determine whether a particular consumer is eligible for each category or type of product. Innovation will also suffer. Fewer will be willing to risk creating a new product, when it will be safer and easier to simply offer what the government has deemed "plain vanilla". Low-cost credit will also be affected. The cost of obtaining approval - by whatever means will be required - on any product beyond plain vanilla will increase substantially, and reduces the availability of said innovative products (Wallison, 2009, p.5).

On July 21, 2010 President Obama signed the Dodd-Frank Wall Street Reform and Consumer Protection Act, which among other things, established the Bureau of Consumer Financial Protection. The "Bureau" is the new federal regulator and has been empowered to regulate the 'offering and provision of consumer financial products or services'. Bankers are anticipating more restrictive requirements for offering consumer products and services as the Bureau begins issuing new regulations (Independent Bankers Association of Texas, 2010).

One of the most interesting elements of the proposal is the transferring of authority to enforce the Community Reinvestment Act (CRA) to the CFPA. The white paper notes that those that argue that CRA had anything to do with the sub-prime meltdown and subsequent financial crisis are unfounded, and lack any evidentiary basis (U.S. Department of the Treasury, 2009, p. 69). Clearly, those that disagree with the statement are ignorant to the basic functionality of CRA, and its significance in generating sub-prime and other non-traditional mortgages (Wallison, 2009, p.6).

From the National Community Reinvestment Coalition's 2007 publication entitled CRA Commitments: "Since the passage of CRA in 1977, lenders and community organizations have signed over 446 CRA agreements totaling more than $4.5 trillion in reinvestment dollars flowing to minority and lower income neighborhoods." (Wallison, 2009, p.6). In order to obtain an "outstanding" rating, banks must demonstrate the "extensive use of innovative or flexible lending practices." (Wallison, 2009, p.6).

While the CRA requirements encourage innovation, the new CFPA language discourages anything outside of plain vanilla. It is unclear yet which the administration will hold in higher regard, but one banker's sentiment as expressed to his shareholders in early 2009, is very clear towards the affect CRA had on the sub-prime mortgage crisis:

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> *"Under the umbrella of the Community Reinvestment ACT (CRA), a tremendous amount of pressure was put on banks by the regulatory authorities to make loans, especially mortgage loans, to low income borrowers and neighborhoods. The regulators were very heavy handed regarding this issue. I will not dwell on it here but they required [our bank] to change its mortgage lending practices to meet certain CRA goals, even though we argued the changes were risky and imprudent" (Wallison, 2009, p.6).*

For years, bankers have been encouraged to make more loans to the underprivileged, which generally includes those that have blemished credit, low credit scores, insufficient down payments, insufficient employment history, and low incomes. These are not borrowers that will qualify for prime mortgages. To these borrowers, plain vanilla is not a viable option. These sub-prime and non-traditional loans were then bundled into mortgage-backed securities, sold to Fannie, Freddie Mac and Wall Street investment banks. It is unclear how the "rigorous application" of the CRA program by the proposed CFPA will work. The innovative and flexible lending practices that have been pushed by CRA for so many years are a direct contradiction of the CFPA's goals (Wallison, 2009, p.6-7).

Most would agree that clear, concise disclosure is critical to sound decision-making by consumers. However, the CFPA proposal reaches far beyond just making sure the average investor is aware of the risk and possible reward of each investment. The underlying purpose of the CFPA likely comes from a desire to protect consumers from hazardous investments. In the wake, however, will be many Americans with reduced financial services options, while those considered to be more sophisticated and/or better educated will see little impairments at all to their choices.

Community banks, in particular, had very little to do with the current economic meltdown, yet the industry is being subjected to over-reaching legislation that is intended to reign in those deemed too big to fail. Community bankers did not offer the same non-traditional or sub-prime mortgages and investments that are at the core of the onslaught of regulation such as the CFPA. The litigation risk alone is substantial to a community bank, that does not have its

own legal team on stand-by, and who doesn't have the implicit guarantee that the U.S. government will bail them out if they make too many bad decisions.

UDAP AND ODP

Another area of contention for regulators regards the activities that are deemed to be unfair or deceptive. There is an entire regulation dedicated to preventing these activities known as the Unfair and Deceptive Acts or Practices (UDAP) statute. Recently, overdraft privileges on checking accounts came under UDAP fire.

Senate Banking Committee Chairman Chris Dodd discussed the proposed changes on overdraft coverage programs, including the requirement to get a customer's consent before enrolling them in a program. Additional consumer protections proposed in The Fairness and Accountability in Receiving (FAIR) Overdraft Coverage Act include:

- *Opt-in signed by customer before allowing coverage in an overdraft protection program,*
- *Limiting the number of fees banks can charge per month and per year for overdraft coverage,*
- *Requiring that fees be proportional to the cost of processing the overdraft item,*
- *Ending the institutions' ability to manipulate the order in which transactions are posted (e.g., paying the largest item first and incurring more fees),*
- *Requiring that customers are notified by email, text, or traditional mail when they overdraw their account,*
- *Requiring that customers are warned if an ATM or teller transaction will overdraw their account, and to be given an opportunity to cancel the transaction.*
    - (Source: United States Senate Committee on Banking, Housing and Urban Affairs, 2009b).

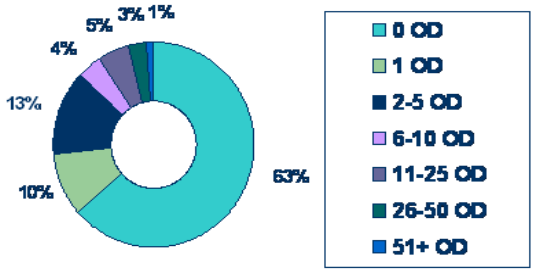
The implications of such legislation are far-reaching in the banking industry. These changes will effectively change the nature of the banking and payments business. Certain products and services will not survive the reform if it is passed as written. The proposed regulations are intended to address what the agencies see as a critical deficiency in the banking market: those with the least financial assets often pay a premium for basic banking services, and those prices or fees may not be fully understood by them (Fine, Goldberg & Hayes, 2009, p. 33).

Fees are a crucial revenue source to banks. Consumer deposits generate $50 billion in pre-tax earnings industry wide. Demand deposit accounts represent less than 20% of total consumer deposit balances, but account for over 35% of consumer deposit profits. There are two factors that fuel that income. First, there is little to zero interest paid on these types of accounts so they generate a higher net interest margin. Second, the fee income is greater on demand transactional accounts than other types of deposit accounts. Fee income, however, has changed over the past 15 to 20 years as the Free Checking account has regained popularity. Rather than

charge every single customer a flat rate simply for having a checking account, incident fees are generated from other sources, such as overdraft protection. Incident fees are intended to promote responsible money management, and to compensate the bank for the cost and risk uncured by extending the overdraft protection (Fine, Goldberg & Hayes, 2009, p. 34).

Lightspeed Research in Cambridge, Massachusetts released a study on overdraft fees and found that most customers do not habitually overdraw their checking accounts. Below is a depiction of the typical number of overdraft fees paid in a 12-month period based on the Lightspeed data. Note that 63% of the customers paid $0 in overdraft fees, while only 1% paid 51 or more fees in the year (Fine, Goldberg & Hayes, 2009, p. 37).

Figure 4. Overdraft Fees Breakdown.



(Re-created from data provided by Fine, Goldberg & Hayes, 2009)

While most would agree that an overdraft fee is a fair penalty for misuse of a checking account, the administration feels this is an example of the few paying for the many. While the majority of banking consumers do enjoy free checking privileges, a small percentage of consumers bear the brunt of a disproportionate share of the fee burden, and this is what Congress wants to change. Tragically, changing the fee structure of the banking industry is not going to come without costs. As banks are forced to make up much needed fee income from other sources, the odds are good that products such as the Free Checking account will be a thing of the past. Banks will likely re-institute monthly service charges on checking accounts (Fine, Goldberg & Hayes, 2009, p. 36).

Furthermore, it is likely that the overall cost of banking to the consumer will actually increase rather than decrease as the fee revenue is shifted away from the conservatively regulated banking industry and towards the free market. The reduction in checks and electronic transactions paid into the overdraft will result in more items being returned to vendors and creditors as insufficient. These vendors and creditors will in turn charge a fee to the consumer for the same returned item that the bank could have paid. In addition to the per item fee, merchants may choose to increase interest rates, refuse future payments, etc.

The changes to the UDAP statute, again, are surely proposed with the best of intentions for the consumers. Overdraft fees, however, are not at the root-cause of the financial crisis and

this reform will do little if anything to improve the overall industry, but rather, will potentially increase the average cost per consumer instead of decrease it.

Other areas of the industry under closer scrutiny for consumer protection include credit cards, interchange fees, and lending disclosures. It is an ever-changing market, caught in the middle of the perfect storm. Legislation is constantly being proposed, reformed, revised and implemented. It will be a while before the banking industry settles into its new place, with its new rules, regulations and regulators.

COMMERCIAL REAL ESTATE

As many banks are still treading water to stay afloat due to problems with residential real estate foreclosures, federal regulators are bracing themselves for the next wave - commercial real estate (CRE). CRE is particularly concentrated in the portfolios of smaller community and regional banks, and regulators are encouraging reworking those loans in an effort to prevent the next crisis. CRE loans are the second-largest loan types after mortgages.

Banks hold over half of the $3.4 trillion in outstanding CRE debt, and Deutsche Bank AG has projected up to $300 billion in CRE losses for those banks. Construction and development loans top the list for possible default, not investments on existing properties, because these loans are not generating any revenue from leases or purchases, making it easier to fall behind on note payments (Paletta, 2009c).

Federal regulators have issued guidelines to encourage lenders to restructure problem loans, rather than proceeding with foreclosure. The opinion of the agencies, as well as by many bankers, is that giving borrowers time to recover from diminishing operating cash flows, depreciated values and lulls between completion and the sale of commercial property will the borrowers to salvage their properties and their credit. Critics feel that restructuring slow debt is delaying the inevitable non-payment and foreclosure. In many cases, “the properties are still generating enough income to pay debt service” (Wei, 2009). As long as the borrower is making efforts, it is wise to prudently restructure the debt, and to keep it from becoming a non-earning asset on the bank’s books.

So what does this mean for bankers, particularly at community and regional banks? Expect more reform to come down the pipelines, and closer scrutiny by the agencies (OCC, FDIC, NCUA, etc.). Lending restrictions have already tightened, and it will become increasingly more difficult to secure loans using commercial real estate as collateral. Unlike the residential real-estate crisis, these loans are not generally of the sub-prime variety, nor were they written under nontraditional terms. The bottoming out of the economy has directly affected the value of the underlying asset unfavorably and both borrowers and lenders are making efforts to keep afloat.

COMPARATIVE DATA: UNIFORM BANK PERFORMANCE REPORTS (UBPR)

Lobbyists for Wall Street may feel that they have more than paid for the sins of the Too Big to Fail giants, but analysis of the numbers show that in many ways, the smaller community banks are footing a disproportionate burden in the efforts to save the industry. Appendix B compares data from the Uniform Bank Performance Report for peer group 1 and peer group 4. Peer group 1 is comprised of those banks that have an excess of $3 billion in assets. Examples of banks in this category are J.P. Morgan Chase and Bank of America. Peer group 4 is a sampling of smaller community banks that have $100 to $300 million in assets, are located in a metropolitan area, and have three or more full service offices (UBPR data can be found at www.ffiec.gov).

In reviewing available UBPR and Bank Data reports from the FFIEC, it was noted that there has been significantly more turmoil in the smaller asset-sized peer groups. For instance, at September 30, 2007 there were 836 banks in peer group 4. Of these, 41 were in the red ink at quarter's end (roughly 5% of the peer group), with losses ranging from $25,000 to $7,409,000. Fast forward 2 years to 2009 and at December 31 there were only 776 banks in the same peer group with an astonishing 277 banks in the negative (or 35.7%), with more significant losses of $28,000 upwards to $41,387,000.

While mergers and acquisitions can account for a portion of the decrease in financial institutions over a 24-month period, it is quite clear that failures have been a more significant cause. Appendix B compares additional trends between the mega-banks and the community banks. While both classes are struggling in nearly all areas when compared to December 31, 2006, community banks are taking a bigger hit across the board. The number of banks in peer group 1 has only decreased by roughly 1.1% while peer group 4 is over an 8% decline. Net income is also on a steady decline, with peer group 1 banks reporting a negative change in income of approximately 85%, peer group 4 banks have shrunk income by a whopping 122% in 3 years (Federal Financial Institutions Examination Council, UPBR).

It is also interesting to look at various interest streams, both income and expense. Smaller banks typically rely more on interest-generated income and less on service fees. As well-capitalized community banks struggle to generate interest income by lending to qualified borrowers or investing in overnight funds, the mega-banks continue to increase non-interest and fee-based income. Peer 1 banks actually show a nearly 7% increase in non-interest income to average assets over a three year period. A final comparison is between the rates earned on overnight investments in Fed Funds purchased, and conversely the cost of funds to provide interest-bearing deposits to consumers. Appendix B shows that the larger banks consistently earn a slightly higher rate on overnight investments with the Fed, and also enjoy a lower cost of funds. Both interest streams have been more negatively affected for community banks than for Wall Street and other conglomerate banks. This is an example of how a bank that is implicitly,

and now in many cases explicitly, guaranteed by the Federal government reaps the benefits even when it comes to borrowing and lending interbank funds.

CONCLUSION

As of September 18, a staggering 119 financial institutions have failed in 2010 according to the statistics found on www.fdic.gov. Additionally, 140 banks closed in 2009, compared to only 25 in 2008 and 3 in 2007. At the heart of the current economic disaster are questionable lending practices and the faith that was put into the continued success of those mortgages and their derivatives. The disintegration of the housing market has affected almost everyone from Wall Street to Main Street to Elm Street. In addition to billions of taxpayer dollars being injected into the financial system in a desperate effort to save the U.S. economy, federal regulators are taking actions to ensure that consumers are not victimized any further by unfair and deceptive practices, or murky disclosures. While the clear culprits in the fiasco are the people and programs that pushed for unsuitable and lax mortgage underwriting, and the firms that invested too heavily in both sides of sub-prime lending, it will ultimately be the community banks and consumers that pay the highest price as reformation intended to protect, will ultimately come at a much higher price.

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Appendix A: Historical Quarterly FDIC Assessment Rates

January 1, 1997 - December 31, 2006

	Supervisory Group		
Capital Group	A (CAMEL 1-2)	B (CAMEL 3)	C (CAMEL 4-5)
1 - Well Capitalized	0 bp	3 bp	17 bp
2 - Adequately Capitalized	3 bp	10 bp	24 bp
3 - Under Capitalized	10 bp	24 bp	27 bp

January 1, 2007 - December 31, 2008

	Supervisory Group		
Capital Group	A (CAMEL 1-2)	B (CAMEL 3)	C (CAMEL 4-5)
Well Capitalized	I 5 - 7 bp	II 10 bp	III 28 bp
Adequately Capitalized			
Under Capitalized	III 28 bp		IV 43 bp

January 1 - March 31, 2009

	Supervisory Group		
Capital Group	A (CAMEL 1-2)	B (CAMEL 3)	C (CAMEL 4-5)
Well Capitalized	I 12-14 bp	II 17 bp	III 35 bp
Adequately Capitalized			
Under Capitalized	III 35 bp		IV 50 bp

April 1, 2009 - ??

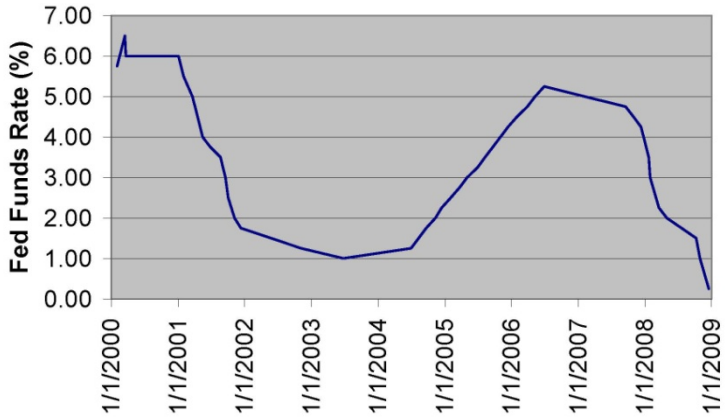
	Supervisory Group			
			Risk Category	
Capital Group	Risk Category I	Risk Category II	III	Risk Category IV
Initial Base Assessment Rate	12 - 16 bp	22 bp	32 bp	45 bp
Unsecured Debit Adjustment (added)	-5 to 0 bp	-5 to 0 bp	-5 to 0 bp	-5 to 0 bp
Secured Liability Adjustment (added)	0 to 8 bp	0 to 11 bp	0 to 16 bp	0 to 22.5 bp
Brokered Deposit Adjustment (added)	N/A	0 to 10	0 to 10	0 to 10
Total Base Assessment Rate	7 to 24.0 bp	17 to 43.0 bp	27 to 58.0 bp	40 to 77.5 bp

http://www.fdic.gov/deposit/insurance/assessments/proposed.html

Appendix B: Uniform Bank Performance Report Comparative Data
Peer Group 1 vs. Peer Group 4

	12/31/2009	12/31/2008	12/31/2007	12/31/2006	% Change 12/31/06 - 12/31/09
Number of Banks in PG					
PG 1	180	187	187	182	-1.10%
PG 4	776	807	832	846	-8.27%
Net Income (in 000s)					
PG 1	13,744	3,079	66,087	92,027	-85.06%
PG 4	(391)	353	1,373	1,740	-122.46%
Interest Income/Average Assets					
PG 1	4.37	5.25	6.17	5.95	-26.55%
PG 4	5.22	5.99	6.84	6.62	-21.15%
Interest Expense/Average Assets					
PG 1	1.29	2.06	2.96	2.70	-52.22%
PG 4	1.65	2.30	2.91	2.49	-33.73%
Non-Interest Income/Average Assets					
PG 1	1.38	1.16	1.25	1.29	6.98%
PG 4	0.67	0.70	0.75	0.78	-14.10%
Non-Interest Expense/Average Assets					
PG 1	2.83	2.94	2.66	2.56	10.55%
PG 4	3.30	3.25	3.24	3.21	2.80%
Net Interest Income (TE)/Average Earning Assets					
PG 1	3.29	3.42	3.51	3.55	-7.32%
PG 4	3.86	3.96	4.23	4.44	-13.06%
Yield: Fed Funds Sold & Resales					
PG 1	0.35	2.21	5.20	5.01	-93.01%
PG 4	0.20	2.13	5.07	4.97	-95.98%
Cost of All Interest-Bearing Funds					
PG 1	1.60	2.53	3.65	3.34	-52.10%
PG 4	2.13	3.01	3.84	3.32	-35.84%

Appendix C - Historical Target Fed Funds Rate



BANK PERFORMANCE PREDICTION DURING THE 'GREAT RECESSION' OF 2008-'09: A PATTERN-RECOGNITION APPROACH

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ABSTRACT

The Great Recession of 2008-'09 witnessed the appearance of U.S. banks on the FDIC's 'problem list', or their actual failure, in numbers unseen since the 1930's. This study examines selected factors internal to the individual bank and their role in the financial soundness and performance of the specific institution through year-end 2009. This paper applies the decision support technology of pattern recognition / data mining to the issue of institutional performance. The conceptual model posits individual bank performance during this period, to be driven by some combination of its own capital adequacy, asset performance, and size. The induced rule structure documents the rank-order importance of: i) bank size, ii) the 'critical mass' of internal strengths versus weaknesses, and iii) the extent of non-performing loans. The operational model correctly classifies 78.8% of all banks in the hold-out sample, and correctly identifies all banks that failed in this data set. The pattern recognition results support the conclusion that the characteristics of the individual bank's capital adequacy and asset portfolio do indeed have a formal impact on institutional performance. Further, it appears that there is a substantive role for the size of the institution to affect just which characteristics are most influential.

INTRODUCTION

The 2008-'09 banking crisis had been developing for several decades, as banks have not exhibited an ability to diversify their business model as their industry evolved (Waldeck, 2009). Since the 1980's, the banking industry has encountered growing competition, from both external and internal sources. Commercial banks witnessed their core business of lending being encroached upon by retailers and specialty finance companies. The 1999 repeal of the Glass-Steagall Act brought open competition between commercial and investment banks in the underwriting and trading of financial instruments. The intensity of the competition resulted in more aggressive portfolio management, lax liquidity risk management, and the emergence of new and creative financial instruments. The trouble with existing bank asset portfolios lies in their recent reliance upon increasingly complex securities packages that were designed to spread risk across participants. Many of these packages are backed by large diverse pools of currently underperforming mortgages, which makes the assets difficult to value and dispose of. A cash liquidity crisis contributed to the collapse of Bear Stearns, Lehman Brothers Holdings, and

Washington Mutual among others in 2008. Traditional credit and portfolio risk management policies were relaxed as banks extended credit to too many marginal credit applicants. Evidently, the historical lessons of unchecked optimism of the1920's were simply set aside.

During 2009, 140 U.S. banks and thrifts failed and were closed by regulators; that followed 25 such institutions failing in 2008 (FDIC, 2010). Many of the larger failing banks were troubled by the commercial real estate market, while many smaller banks fell victim to losses in their commercial and consumer loan portfolios, as well as their mortgage lending. These closings have drained billions of dollars from the FDIC Deposit Insurance Fund, reducing it to its lowest level since 1992, at the peak of the savings-and-loan crisis. The 2008 and 2009 failures drained the FDIC's fund below its mandated level, causing the FDIC to require insured banks to prepay the next three years of their annual assessments. The end of 2009 saw the number of banks on the FDIC's 'problem list' grow to 702 from 552 in the previous quarter and from 252 at year-end 2008. While the FDIC creates reports on problem or troubled banks in the aggregate, for obvious reasons, it does not make details of the 'problem list' public nor comment on open financial institutions. Institutions on the 'problem list' have issues that could lead to their eventual failure. Persisting loan losses and credit delinquencies will continue to 'extract their pound of flesh' on institutional performance and place additional banks at risk.

Thus, there exists a need for predictive techniques to provide an early warning system to regulatory agencies and other stakeholders, regarding distressed or failing institutions. Once distressed banks are identified, regulator intervention might be able to prevent ultimate failure, or at least minimize the impact of such failure. Predicting the financial health of individual banking institutions is the intent of this study. As in biology, sociology, and other similar disciplines, both environmental (external) and genetic (internal) factors have a role in developing the individual. This study will examine selected factors internal to the individual bank and their role in the financial soundness of the specific institution, while controlling for the macroeconomic external factors.

The gradually recovering ability of the largest banks to sell their long-term debt in the private markets without government backing and their ability to raise equity funding may insulate them from the urgency to dispose of their toxic assets at distress prices. Moreover, they have sufficient 'critical mass' to enable them to extend the time horizon in which they will dispose of their troubled assets. Thus, the investment banks (e.g. Goldman Sachs, Morgan Stanley), the financial service giants (e.g. Bank of America, J.P. Morgan Chase, Citigroup), and those that focus on wealth management (e.g. Bank of New York Mellon) may use the breadth and depth of their capitalization to survive, and even prosper, in spite of the continued presence of the troubled mortgage-backed assets on their balance sheets. That could mean that the troubled regional and small banks become the at-risk stratum of institutions on the FDIC 'problem banks' list. By early 2010, in an effort to stimulate more lending to small businesses, the Treasury directed $1 billion towards small banks, thrifts, and credit unions that were certified as Community Development Financial Institutions, meaning they target more than 60 percent of their small-business lending to lower-income areas. Given this potential vulnerability of regional institutions, this study will focus on a data set dominated by regional and small banks in one major metropolitan area, in its effort to identify the key internal factors influencing financial

health. The use of a common geographic region attempts to control for the influence of regional economic conditions on bank performance.

LITERATURE REVIEW

A comprehensive, pre-crisis review of the U.S. banking industry since the seminal work of Benston *et al* (1986) is provided by DeYoung (2007). Ironically, he argues that the banking industry is 'almost certainly' safer and sounder at the time of his writing (early 2007) than twenty years prior. Nevertheless, his profile of the banks' changing operating environment provides excellent context for the financial crisis that began later in 2007. Bullard *et al* (2009) examine the connections among mortgage market problems, the failure of financial institutions, and the impairment to the broader economy in the context of systemic risk. They argue that such systemic triggers are more dangerous with the failure of financial firms than with the failures of non-financial firms. This concern for systemic risk prompted the Federal Reserve and the U.S. Treasury to act to prevent the failure of several large financial institutions in 2008. The specific impact of the regulatory environment on bank operations and their financial health is reviewed by Boerner (2008). He poses thought provoking questions about regulatory reform. This study will focus on the manifestations of the legal environment, namely the bank balance sheet as a predictor of an institution's future financial health.

The history of formal bank failure prediction models goes back over 30 years and includes a host of analytical techniques including multivariate statistical analysis/discriminant analysis (Altman *et al*, 1977; Sinkey, 1975), Logit / Probit analysis (Avery and Hanweck, 1984; Barth *et al*, 1985; Estrella *et al*, 2000; Kolari et al, 2002), survival analysis (Cole and Gunther, 1998; Molina, 2002), neural networks (Tam and Kiang, 1992; Bell, 1997; Alam *et al*, 2000), Data Envelopment Analysis (Barr and Siems, 1996), and simulation (Lam and Moy, 2002).

More recently, Kim and Miner (2007) examine failures and near-failures of banks; they find that the local market has more influence than does the non-local (national) market. Consequently, this study will attempt to control for the 'local' market as it focuses on individual bank's internal portfolio practices. A forensic study of failed banks using Probit analysis was conducted by Dandapani and Lawrence (2008). They distinguished 'brick and mortar' banks from 'virtual' banks in their search for the underlying contributors to bank failures. They found that 'brick and mortar' banks typically failed due to poor asset quality, while 'virtual' banks failed primarily due to high non-interest expense. They conclude that different business models are warranted for these distinct banking channels. In a comparative-methodology study, Kosmidou and Zopounidis (2008) developed a bank failure prediction model using financial ratios. Their multi-criteria decision model outperformed Multiple Discriminant Analysis in predicting failing banks during 1993–2003. Arena (2008) used cross-sectional multivariate Logit analysis on bank-level data associated with the CAMEL rating system to conclude that such fundamentals did significantly influence the likelihood of collapse for banks in East Asia and Latin America during the 1990's.

Using a parallel methodology to that of this study, Ozkan-Gunay and Ozkan (2007) use data mining (via an Artificial Neural Network) to search for predictive structures in financial data that would explain previous bank failures in Turkey. While their validation / hold-out

sample was very small (n=29), their correct overall prediction rate, (nearly 85%), is quite strong and thus encouraging for further use of pattern recognition technologies as early-warning mechanisms. Quek *et al* (2009) use a neural network with 3636 U.S. banks, with data reconstruction of missing financial information, spanning 1979 to 1999. While neural network techniques have resulted in good predictive accuracy with respect to bank failures, they lack the ability to explain/reveal the major contributors, and their relative influence, on such performance. The current study will employ Rule Induction, as an alternative approach to pattern recognition within the financial data of individual U.S. banks, in an effort to build an early warning system for the identification of distressed institutions. Unlike neural networks, Rule Induction can reveal the relative roles of those factors contributing to the classification outcome.

METHODOLOGY AND THE ROLE OF EXPERT SYSTEM TECHNOLOGIES VIA RULE INDUCTION

Little has been done to find application for the decision support technologies of pattern recognition / data mining to the issue of institutional performance; this paper seeks to re-open that area of inquiry. Bose and Mahapatara (2001) surveyed data mining procedures in business applications, and found rule induction to be the most widely adopted technique. This will be the technique-of-choice for the search for underlying patterns in the case-based bank data examined in this study.

Potential Benefits of Expert System Implementation

The application of expert system technologies to institutional performance situations allows for the integration of the qualitative and quantitative aspects of the decision, while introducing the beneficial dimensions of further objectivity, timeliness, comprehensiveness, and consistency. Unlike conventional programming, a rule-based expert system is founded on the concept of nonprocedural programming, where the problem domain is depicted as a set of rules or heuristics. The relevant rules or heuristics are sought out and executed by the system's inference engine as needed to reach an outcome, while systematically avoiding pitfalls that might encumber the human's decision process such as contextual biases.

The potential benefits of such an expert system to the assessment of an institution’s financial position are many. When the continual development of human experts and their retention is costly, time consuming, and/or involves "backsliding" between generations, the system may serve as an ever expanding repository of expertise and as an effective training tool. Moreover, these implications of the expert system application seek to enhance the overall consistency of the bank examination process.

Expert System Development

The use of one or more contributing domain experts to build the system's knowledge base results in "procedural knowledge" since the system builder codifies the procedure(s) to accomplish the decision. Such direct articulation requires a continuing dependence upon domain experts to provide information which they are, at best frequently uncomfortable, if not, unprepared to provide. Schneider and Shiffrin (1977) found that an expert's consciousness of his own decision process is compromised as his level of expertise increases, thus creating the perspective that the decision process is automatic and, in turn, creating difficulties for the elicitation of the expert's actual decision rules by direct articulation methods. Moreover, such direct acquisition of the expert's knowledge has become a major bottleneck in the development of expert system applications, Bobrow, Mittal, and Stefik (1986).

In contrast, the development of decision rule(s) directly from case examples results in "declarative knowledge" as the knowledge engineer is declaring that future relationships will follow the patterns of past outcomes. Moreover, the underlying assumption is that patterns can be inferred from representative examples of prior cases, and the system will be able to generate a model of the process. Such emerging technologies for pattern recognition include forms of artificial intelligence, known as 'machine learning'. These techniques are robust in that they do not presuppose any underlying probability distribution or dispersion equality. Machine learning systems use training examples to induce classification heuristics which map sets of input attributes into classification outcomes. This can be accomplished with expert systems that employ rule induction or through artificial neural networks. While neural networks have demonstrated their ability to learn patterns and classify outcomes, their use of a mechanical mathematical function to represent the decision process offers little insight about the contributing factors and their sequencing within the process itself [Cohen & Feigenbaum (1982), Weiss & Kulikowski (1991)].

Rule induction is an automated case-based method of expert system knowledge acquisition. As a pattern recognition technique, rule induction is the process of reasoning from the specific (examples) to the general (rules). Rule induction more closely represents the synthesis performed by the human brain; the engineering techniques used in training artificial neural networks follow the learn-by-example approach of rule induction methods.

The Induction Algorithm

The rule induction routine employed in this study is an optimization procedure based upon Quinlan's (1983 and 1986) Iterative Dichotomizer, ver. 3 (ie. ID3 induction algorithm). This data-driven induction method examines a set of prior outcomes and seeks to identify the relevant attributes and patterns among them that have lead to the recorded outcomes. The deliverable result of rule induction is a left-to-right decision tree with the nodes representing the needed attributes/factors, the branches representing different attribute values, and the terminal leaves representing the final outcomes.

One optimization aspect is that the induction algorithm generates the most parsimonious system of rules which result in the known outcomes. Thus, ID3 seeks to minimize the number of attributes in the final rule, and consequently, find the most efficient path to the conclusion. A second optimization dimension is that its mechanism for discovering a set of classification rules and organizing them into an efficient decision tree is based on a measure of the entropy of each candidate attribute. In information theory, entropy is a measure of the uncertainty (unpredictability) associated with a variable and its impact on an outcome. The higher the entropy of an attribute, the more uncertainty there is regarding its linkage to a particular outcome value, and consequently, the less potential value it has as a discriminator. In this context, the entropy metric is used for rank ordering variables (attributes) from lowest to highest in the left-to-right construction of the decision tree. The sequence of attribute selection for the development of the rule structure (a.k.a. decision tree) is based on maximal decrease in entropy. Moreover, during construction of the decision tree, attributes are examined individually for the internal split of their values which leads to the largest decrease in entropy. The decision tree's root node is built around the attribute with the least uncertainty and hence the least measurable entropy. This process is replicated for each subsequent node of the tree, with each such node being associated with a specific attribute. Moreover, the algorithm identifies the remaining factor that has the least uncertainty about its association with a decision outcome. It then builds a decision junction around such a factor which effectively is most discriminating among changes in the final outcome. Subsequent attributes are selected in order of increasing entropy; the iterative nature of these tests continues to create rules that form the hierarchy of a tree structure which ultimately has zero remaining entropy, and thus correctly classifies all cases in the training set, Quinlan (1983).

From the construct for entropy above it is apparent that there is a dimension of Bayesian probability revision, incorporated in the optimization algorithm of rule induction. Rule induction shares a fundamental underpinning with Bayesian decision theory. Both rule induction and Bayesian theory fundamentally rely on the reverse process of deduction, namely inductive reasoning. Rule induction is a data driven approach to extracting patterns from prior cases by reasoning from the specific (examples) to the general (rules) and thus, closely represents the synthesis activities performed by the human brain.

The ID3 algorithm seeks to minimize the number of discriminating attributes involved in the final decision rule and will screen out those factors that are not necessary for the minimal decision tree. Thus it operates on the premise that the "ideal" decision rule is one with as few attributes / factors as possible that will successfully distinguish among the distinct possible outcomes. Bundy, Silver, and Plummer (1985) compared the major inductive algorithms and found that ID3 was able to learn disjunctive concepts that are more general than those that can be learned by most other algorithms. Braun and Chandler (1987) found that Quinlan's ID3 algorithm performed better than other induction methods in the development of a production system for aggregate stock market behavior.

THE CLASSIFICATION MODEL

This model seeks to identify a plausible causal pattern between various historical measures of an individual bank's capital adequacy and underperforming assets and a categorical

classification of its year-end performance. Each bank will be classified as either "Surviving:Positive", "Surviving:Zero", "Surviving:Negative", or "Failed", where:

- "Surviving:Positive" is indicative of a bank that finished 2008 with positive quarter IV net income (expressed as a percentage of adjusted assets of +0.02% or better).
- "Surviving:Zero": is indicative of a bank that finished 2008 with a 'near-zero' ratio of net income to adjusted assets between -0.02% and +0.02%. This small 'window' allows for the ratio to be effectively zero without having to be exactly 0.0.
- "Surviving:Negative" is indicative of a bank that finished 2008 with negative quarter IV net income (expressed as a percentage of adjusted assets of -0.02% or worse), and
- "Failed" indicates that the specific bank appeared on the FDIC "Failed Bank List" during 2008/2009.

The conceptual model is posited as:

Individual Bank Performance = f (capital adequacy, asset performance, bank size)

The operational model of bank health provides for six performance measures, as potential indicators (either individually or in combination), of the financial strength of the individual institution. These constructs, which seek to capture the potential impact of non-performing assets and capital adequacy, include:

1&2) Non-Current Loan Ratio = non-current loans / the collective loan & lease portfolio
Non-current loans include those not generating interest income and those more than 90 days overdue. The percentage of problem loans reflects the potential for losses requiring capital coverage. As a national frame of reference, at year-end 2008, 2.93 percent of bank loans and leases were non-performing according to the FDIC. Individual banks will be compared to this national standard for quarter four of 2008. Further, their proportionate change from year-end 2007 will also be explored as a second potential indicator of impending trouble.

3) Texas Ratio = non-performing real estate activity / core capital & loan loss reserves
This construct is focused on the bank's real-estate lending activities and the capital stress generated there. It measures a bank's past-due real estate loans and bank-foreclosed property relative to the institution's core capital and loan-loss reserves. The larger this percentage grows, the greater the capital stress faced by the institution; practitioners generally view 80% as the maximum to be tolerated.

4) Leverage Ratio = Tier 1 Capital / Adjusted Assets
This measure of an institution's capitalization reflects the proportionate equity base for the bank's assets, which are predominantly loans, and provides a cushion against loan losses. Tier 1 Capital includes both common and preferred stock, yet excludes intangible assets. The denominator of Adjusted Assets excludes certain deferred tax assets and goodwill. Generally, a bank should have a leverage ratio of at least five percent to be considered adequately capitalized.

5) Tangible Common Equity Ratio = Tangible Common Equity / Risk-Weighted Assets
The Tangible Common Equity (TCE) ratio is another measure of an institution's capital adequacy. The numerator consists of tangible common equity, which excludes goodwill and preferred stock (thus, it is less inclusive than Tier 1 Capital above). The denominator is the institution's total assets adjusted for risk exposure. The national benchmark for the

TCE ratio in the fourth quarter of 2008 was 9.43%; each bank's TCE will be compared to this national standard.

6) Tier 1 Risk Based Ratio = Tier 1 Capital / Risk-Weighted Assets
   This construct compares the Tier 1 Capital (of the Leverage Ratio) relative to the Risk-Weighted Assets (of the TCE Ratio). Generally, this ratio needs to exceed 4% for an institution to be considered adequately capitalized and above 6% to be considered well capitalized.

The first three metrics focus on the potential problems in the loan portfolio, while the last three ratios focus on the institution's capitalization and coverage for such problems.

While the rule induction algorithm can work with exclusively numeric data, it tends to result in very 'bushy' decision trees as it continues to partition the continuous variables as needed to reach an outcome. Such was the case with the initial trial with this model. These preliminary results prompted the investigation to move to a second prototype with a finite number of categories for each of these continuous numeric discriminator variables, parallel to that which was done with the outcome variable above. Specifically, the following data recoding schema was adopted:

1) The Non-Current Loan Ratio was bifurcated into the categories of:
   Danger: ratio greater than 5.0%
   At-Risk: ratio greater than 3.5% and up to 5.0%
   Marginal: ratio from 2.5 to 3.5% inclusive
   Adequate: ratio less than 2.5%
   These recoded categories were based on the national mean of 2.93% and the median of the banks in this study of 2.6%.
2) A second variant of a bank's non-current loan portfolio is its proportionate change from year-end 2007 to year-end 2008. When a bank's ratio decreased by more than five percent of its starting value during this period, this directional change was labeled "IMPROVE"; an increase in the ratio by more than five percent of its initial baseline warranted the label "DETERIORATE"; effective non-movement in the ratio (within +/- five percent of the 2007 ratio) earned a "STABLE" label for the newly created variable "Non-Current Loan Direction". The +/- 5% provides for a window of values for the 'STABLE' category.
3) The Texas Ratio was re-coded on the basis of the practitioners' heuristic as:
   Fatal: ratio in excess of 100%
   Danger: ratio greater than 80% and up to 100%
   Marginal: ratio from 50 to 80% inclusive
   Adequate: ratio less than 50%
4) The Leverage Ratio was recoded, on the basis of the practitioners' heuristic of 5% for minimal capital adequacy, as:
   Adequate: ratio in excess of 10%
   Marginal: ratio from 5 to 10% inclusive
   Inadequate: ratio below 5%

5) The Tangible Common Equity Ratio (TCE) was recoded, on the basis of the 2008 national benchmark of 9.43 percent and the profile of the actual case-based data in this study (with median of 11.3% and standard deviation of 3.3%), as:
   Well Capitalized: ratio greater than 14.6% {i.e. >(median +1 std dev)}
   Marginal: ratio from 8%-14.6% inclusive {median +/-1 std dev}
   Under Capitalized: ratio below 8% {i.e. < (median – 1 std dev)}
6) The Tier 1 Risk Based Ratio also used the profile of median +/- 1 standard deviation from the banks included in this study to establish the categories of:
   Well Capitalized: ratio in excess of 14.7%
   Marginal: ratio from 8.1-14.7% inclusive {median +/-1 std dev}
   Under Capitalized: ratio below 8.1%
   While these thresholds for the Tier 1 Ratio appear quite high (a.k.a. conservative) relative to the heuristics of four and six percent mentioned earlier, a 'raising-of-the-bar' in times of economic distress is expected.
7, 8, 9) Strengths & Weaknesses: It is not anticipated that individual banks will necessarily be profiled by a uniformly consistent set of the above metrics. We expect that each bank may well have selected strengths and selected weaknesses, which interact to reveal an internal pattern of 'dominance', and thus, ultimately impact its performance outcome. In order to capture the idea of critical mass, be it either strengths or weaknesses, we introduce counter variables of the extreme categories for the above six categorical variables. CTBAD will count a given bank's instances of the worst categories (e.g. 'Danger' for Non-current Loan Ratio, 'Deteriorate' for Non-current Loan Direction, 'Fatal' for Texas Ratio, etc), and CTGOOD will tally the instances of the best classifications (e.g. 'Adequate' for Non-current Loan Ratio, 'Improve' for Non-current Loan Direction, 'Adequate' for Texas Ratio, etc). All non-extreme categories do not contribute to either counter. The sense of preponderance of evidence, or relative 'dominance', between strengths and weaknesses is captured by the net difference of (CTGOOD – CTBAD), which is the operational definition of the variable NETSTRENGTH. The range of possible values for this net variable is from +6 (complete dominance of strengths) to -6 (complete dominance of weaknesses), with zero reflecting either a balance, or an absence of extremes
10) Bank Size: The average total assets of the 140 institutions that failed in 2009 was $1.2 Billion. The distribution of these institutions by asset size is depicted below:

Table 1: Failed Institutions by Asset Size

		Asset Size Distribution			
	Total #	< $100 Mill	$100 Mill to $1 Bill	$1 Bill to $10 Bill	>$10 Bill
Failed FDIC-Insured Institutions in 2009	140 (100%)	25 (17.9%)	88 (62.9%)	22 (15.7%)	5 (3.6%)

Source: FDIC Quarterly Banking Profile; 2009

This suggests a definite role for institutional size in impacting performance. The focus of each of the 2008 TARP intervention and the 2009 stress test was the very large bank; the argument of 'too-big-to-fail' referred to the need for some form of interdiction to prevent

a catastrophic impact on the economy. That same premise resurfaced by year-end 2009 with a call to limit the size of financial institutions emanating from former Fed chairmen Greenspan and Volcker, among others. Thus, in order to capture the potential impact of size of the institution on the performance prognosis, we include one additional possible discriminator:

Size: as measured by total adjusted assets of the bank.

We posit no specific threshold of sufficiency of critical mass to constitute 'risky', but rather expect that the role of this continuously valued variable could be in concert with one or more of the earlier distress metrics. Moreover, the inclusion of this variable permits any of the constructs above, dealing with capitalization adequacy and asset performance, to have potentially differing impacts on performance depending upon the size of the subject institution.

The collection of these ten potential discriminating variables (six categorical, three integer counters, and one continuous numeric) will be submitted to the pattern recognition algorithm, seeking to identify a plausible causal linkage to the four categorical performance outcomes acknowledged earlier.

THE DATA SET

Of the 140 bank failures in 2009, most occurred in just four states: Georgia, Illinois, California and Florida; thus, it would be useful to employ data from some subset of these 'hardest-hit' states. Twenty-two failures occurred in Illinois during 2008/'09, with ten of those occurring in the Chicago metropolitan area, which becomes the geographic focus of this study. The case-based data were obtained from SNL Financial LC in a continuing on-line report prepared for the Chicago Tribune (http://www.chicagotribune.com/business/chi-chicago-banks-tmlpage,0,3966988.htmlpage) covering Chicago-area banks. The data are bank-specific measures of portfolio holdings and overall performance for the fourth quarter of 2008. The data set of 251 banks includes the full range of bank sizes from 3.2 million to 68 billion in assets. Fifteen cases were found to have incomplete data resulting in a total of 236 useable cases for inclusion in the final data set used for this study.

Using year-end 2008 net income as a proportion of adjusted assets as the criterion, each individual case was assigned to one of four mutually exclusive performance groupings:

1) "Surviving:Positive": ratio better than +.02% (n=139)
2) "Surviving:Zero": ratio from -0.02% to +0.02% (n=22) This small 'window' allows for the ratio to be effectively zero without having to be exactly 0.0.
3) "Surviving:Negative": ratio below -0.02% (n=65)
4) Failed": bank appeared on the FDIC "Failed Bank List" during 2008/'09 (n= 10)

The set of 236 cases was randomly split into a 'training' subset for building the rule structure and a hold-out subset for validation testing of the induced rule. Each subset consisted of 118 cases. Given the small number of failed banks (n=10) in this study, a conscious effort was made to ensure that each of the training and hold-out subsets contained five such cases; otherwise the cases were segregated randomly.

THE TRAINING SUBSET

The historic cases chosen for the development of the induced knowledge base are crucial to the viability of the decision rules. The training set can adversely affect the accuracy of the system should it fail to provide a comprehensive set of alternatives and the full spectrum of critical attributes needed in the decision process. Such an occurrence could lead to the generation of ambiguous rules. Alternatively, should the training set contain too many attributes, it could cause the rules to be so detailed that they diffuse the issue. Fortunately, the rule induction procedure, ID3, discussed in this study can address this potential complication through its optimization approach. The key is to select a training set of cases that is fully representative of the total population of outcomes in as few cases as possible.

THE VALIDATION/HOLDOUT SUBSET

The 118 cases in the hold-out subset were purposely prohibited from influencing the development of the rule structure. Thus, they become 'new' and previously 'unseen' situations to the expert system. When each case in this subset is subjected to the final rule structure, the collective profile of the 'hits' and 'misses' provides an indicator of the classification accuracy of the system.

RESULTS

The induced rule system

The resulting output of the expert system's development stage, where the rule structure is induced from the training subset of cases, takes the form of an efficient decision tree. Recall, the induction algorithm seeks to minimize the number of attributes in the resulting rule structure, and consequently, find the most efficient path to the performance outcome of each case for this application. The rule structure of Figure I below was induced from the 118 cases in the training set of individual banks in the metropolitan Chicago area. Recall, the algorithm builds the rule structure from left-to-right, based on selecting nodes (i.e. discriminating variables) in order of maximal decrease in remaining entropy. Moreover, the algorithm identifies the next remaining candidate factor that has the least uncertainty (i.e. greatest discriminatory power) about its association with an outcome, and builds a decision junction around this factor, which effectively is the most discriminating among categories in the final performance outcome.

The decision tree is constructed by the algorithm such that <u>all</u> training cases are consistent with the rule structure; thus, there is always the potential for the decision tree to become very 'bushy' with very few cases following each of many paths. Given the relative simplicity of the tree in Figure I, this 'bushy' situation did not arise, indicating the presence of some 'heavily-trafficked' underlying pattern or process in reaching an outcome for each case. For instance, the very top path, following the discriminators of Size, Strengths, and Non-Current Loan Ratio to a POSitive

performance outcome, actually has 93 of the 236 total cases consistent with it. Thus, Figure I indicates that a classification pattern was indeed present in the training subset. The pattern never required more than seven of the ten candidate attributes in order to correctly classify any of the cases in the training subset, and many paths required only two or three factors to reach a final outcome.

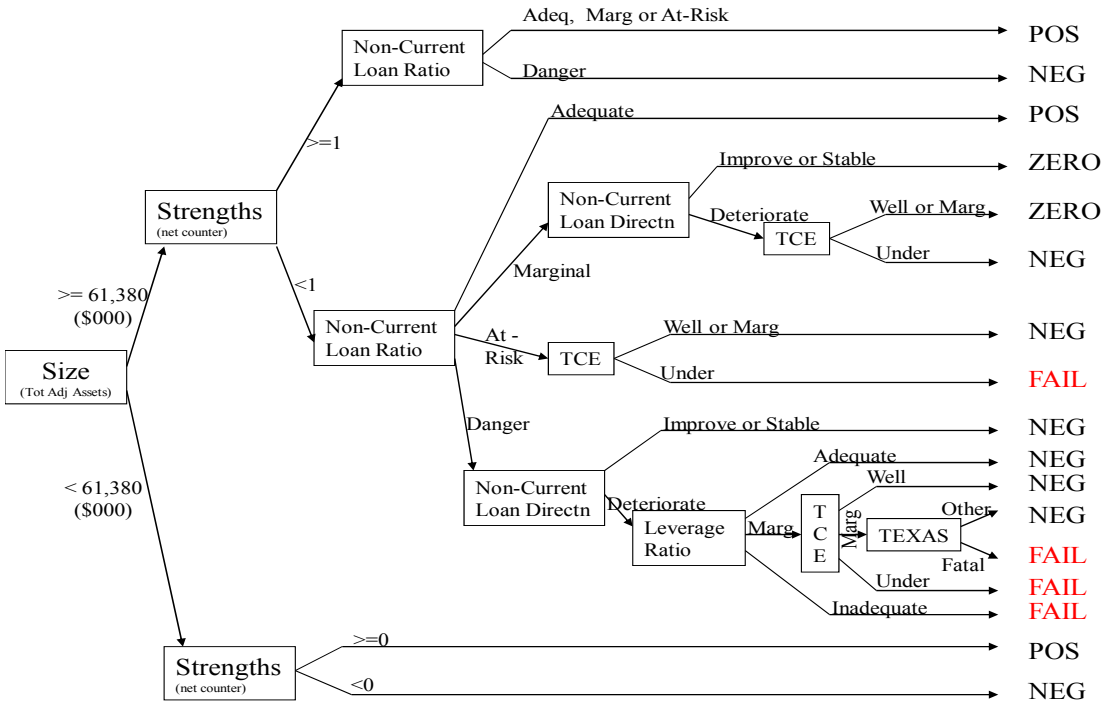

Figure I The Induced Rule Structure

The root node of the decision tree is built around the attribute with the least uncertainty and hence the least measurable entropy. In this case the most discriminating variable was the Size of the bank as measured by Total Adjusted Assets. The algorithm, not the investigator, establishes the threshold of $61.38 mill that best distinguishes paths towards a final performance outcome. Interestingly, banks, from this data set, below this size threshold were not at risk for failure; those with negative net Strengths realized a NEGative performance outcome, while those with a non-negative count of net Strengths are projected to realize a POSitive outcome.

For those banks exceeding the $61.38 mill asset portfolio, additional attributes are required to reach a performance outcome. Again, the net Strengths variable plays a key discriminating role, albeit using a distinct numeric threshold from the smaller banks. When the bank's strengths outweigh its weaknesses (i.e.net Strengths >=1), then only the condition of the loan portfolio distinguishes POSitive from NEGative outcomes. A Non-Current Loan Ratio in the 'Danger' category (i.e. > 5%) drives the NEGative performance.

Alternatively, for the larger banks, should the net Strengths be zero or below, (i.e. '<1' where there is either balance between strengths and weaknesses, or dominance by the weaknesses),

then there are very few paths resulting in good performance outcomes. Only an 'Adequate' Non-Current Loan Ratio (i.e. < 2 ½ %) results in a POSitive performance. A 'Marginal' Non-Current Loan Ratio coupled with either i) a stable (or better) directional pattern in the Non-Current Loan Ratio, or ii) a 'Deteriorating" directional pattern compensated by an acceptable capitalization ('Well' or 'Marginal") via the Tangible Common Equity (TCE) ratio can lead to the ZERO performance. All other paths without positive net Strengths are projected to lead to NEGative or FAILure outcomes. Of these, banks with Non-Current Loan Ratios that are either 'At-Risk' or 'Danger' need to have either a non-deteriorating directional pattern in their Non-Current Loan Ratio or strength in some measure of their capitalization to avoid being categorized as 'FAIL'.

The general themes that emerge from this induced rule structure include:

1) The relative importance of i) bank size, ii) the 'critical mass' of strengths versus weaknesses, and iii) the extent of non-performing loans. This decisive role for the net Strengths variable, for both size groupings of banks, affirms the 'critical mass' or 'preponderance of evidence' argument. Together, these three discriminators are able to identify all banks with POSitive short-term performance during this period. It is very important to stress that, for the numeric discriminators 'Size' and 'Strengths', the numeric thresholds for the branches of the induced rule structure are determined by the ID3 induction algorithm, not by the investigator. These thresholds are established by the entropy reduction focus of the algorithm so as to create the greatest separation between groups, yet remain consistent with all the cases of the training subset.
2) The various capital adequacy metrics play a subsequent role only in discriminating troubled banks with NEGative financial performance from those who are projected to FAIL. The Leverage and TCE ratios evidently capture more discriminating information about capitalization and coverage than does the unused TIER1 Ratio. The TIER1 Ratio was never needed for the classification of these banks. Since the rule induction procedure seeks the most efficient path to the final disposition, it did not need to include all the potential attribute variables in order to efficiently reach the outcome side of the decision tree.
3) In terms of identifying problems in the loan portfolio, each of the Non-Current Loan Ratio and its recent directional pattern proved more useful than the Texas Ratio. The role of the Texas Ratio was extremely minimal (only when the Leverage and TCE ratios were both indeterminate),

VALIDATION USING THE HOLDOUT CASES

The rule structure's ability to classify cases beyond the training set was tested via the accompanying "consultative" module of the expert system software. In this test, cases withheld from the development stage of the rule structure, were individually subjected to the rule, and the system's projection was compared against the known outcome for that particular bank. In this environment, the classification performance of rule induction, for the previously unseen cases, is summarized in Table 2 below. The cells along the primary diagonal represent correctly classified cases, while the gray-shaded off-diagonal cells tally the incidence of mis-classified cases.

The six (of 34) banks that were negative performers in reality, yet projected as "POS", along with the seven (of 66) actual positive performers which were mis-classified as "NEG" are indeed problematic; together, these 13 hold-out cases, which were each seriously mis-classified, reflect the major shortcoming of the model. The infrequent mis-classification of the actual ZERO performance banks (n=3) and those incorrectly projected to be ZERO performance banks (n=2) does not follow any systematic pattern. In fact, the correct classification of the failed banks in the hold-out sample was not compromised at all, nor were any positive or zero performers in reality projected to be failed banks. Nearly 90 percent of the positive performing banks, and over three-fourths of the zero-performing banks, were correctly classified. These successes constitute the merits of the model. Collectively, the system's rule structure successfully predicted the outcome in 93 of the 118 cases in the hold-out sample for a 78.8% "hit rate" and, thus, an 89.4% (= (118 + 93) / 236) overall classification success rate for the induced model.

The ability to accurately identify those individual banks that will experience a negative performance outcome ("NEG"), does not appear to be a strength of this model, as 15 of 34 cases that actually resulted in a "NEG" outcome were mis-classified by the system.

Table 2: Induced Rule Structure Applied to Hold-Out Sample (entries are number of occurrences)

Predicted as: Actual:	POS	ZERO	NEG	FAILED	Correct %
POS (n=66)	59	0	7	0	59/66 = 89.4%
ZERO (n=13)	2	10	1	0	10/13 = 76.9%
NEG (n=34)	6	2	19	7	19/34 = 55.9%
FAILED (n=5)	0	0	0	5	5/5 = 100%
Column Total (n=118)	67	12	27	12	93/118 = 78.8**%**

Of these misclassified holdout cases, not all errors are necessarily 'equally bad'. The most disturbing of the misclassifications are the six cases that the system erroneously labeled as "POSitive". Unfortunately, it is not possible to find one common explanation for these misclassifications, as these six cases did not all pass through the same path of the induced rule structure. Two of the six holdout cases followed the very top path (i.e Size, Strengths, Non-Current Loan Ratio) through Figure 1, while another tracked along the path (also Size, Strengths, Non-Current Loan Ratio) leading to the "POS" label in the third outcome position down from the top; the other three cases (small banks) had either 0 or 1 net Strengths and consequently were assigned the POSitive label. The only commonality linking these six misclassified cases is that they all took paths using just a few discriminators (either 2 or 3), when their specific situations may have warranted incorporation of more attributes to achieve a successful classification.

It is noteworthy that seven of those 15 errors projected the bank to fail. It will be interesting to track those seven specific institutions during the subsequent year to see if the model might possess some longer-term 'vision'. If one is seeking to identify 'troubled' banks (those with either NEG or FAILED realities), then these seven mis-classifications are not necessarily problematic. After re-bundling the NEG and FAILED banks together under the category of 'TROUBLED' banks, the correct projection of such 'troubled' banks would be 31 (=

19 + 7 + 5) of 39 (=34 + 5) or 79.5%, and the collective 'hit rate for the hold-out sample would improve to 84.7 percent (= 100/118), as summarized in Table 3 below. This bundling improves the overall classification success rate for the induced model from the 89.4 % reported above to 92.4 percent (= (118 + 100) / 236) when the classification of all cases is acknowledged.

Table 3: Induced Rule Structure Applied to Hold-Out Sample with Bundled "Troubled' Banks

(entries are number of occurrences)

Predicted as: Actual:	POS	ZERO	"TROUBLED"(i.e. either NEG or FAILED)	Correct %
POS (n=66)	59	0	7	59/66 = 89.4%
ZERO (n=13)	2	10	1	10/13 = 76.9%
"TROUBLED"(i.e. either NEG or FAILED) (n=39=34+5)	6	2	31	31/39 = 79.5%
Column Total (n=118)	67	12	39	100/118 =84.7**%**

The hit rates (from either Table 2 or Table 3) for the induced model support the efficacy of the model in identifying a plausible linkage between various historical measures of an individual bank's capital adequacy and loan portfolio and a categorical classification of the bank's performance. Whether these results can be generalized to banks in other geographic markets and / or other time periods, remains unaddressed. However, it does appear that the results presented here are evidence that a pattern recognition approach certainly has merit for the sample examined in this study.

CONCLUSIONS AND DIRECTION FOR FUTURE RESEARCH

The recent Great Recession and crisis in the nation's financial institutions have hopefully re-awakened an awareness of the critical importance of a bank's contingency planning for both liquidity and capital needs. In March 2010, the Fed, the Treasury Department and the FDIC published guidelines on liquidity risk management that, unfortunately, do not ensure that banks hold enough cash-like assets to avoid collapse should overnight lending once again dry up. In addition to the need for a short-term infusion of capital, banks need to develop contingent plans for assuring the stability of their capital adequacy throughout the phases of the business cycle. Once acquired, the additional capital needs to be used to support a restructuring of the bank's balance sheet. This would involve re-building the loan loss reserve accounts, a gradual disposition of the non-performing assets at other than 'fire-sale' prices, possible acquisition of highly rated (AAA) securities, in addition to the obvious need to re-energize normal lending activities. Thus, while liquidity and capital adequacy issues are at the forefront of bankers' consciousness today, there remains much follow-up work to be done to strengthen the balance sheet of individual banks. Predicting the near-term performance of individual banks will continue to be a useful undertaking.

The conceptual model for this study posited individual bank performance during the Great Recession, to be driven by some combination of its own capitalization adequacy, asset performance, and size. The induced rule structure documents the relative importance of (in rank order): i) bank size, ii) the 'critical mass' of strengths versus weaknesses, and iii) the extent of non-performing loans. The decisive role for the net Strengths variable supports the 'critical mass' or 'preponderance of evidence' argument. Strengths and weaknesses in key attributes can compensate for each other, but when sufficient corroboration is present, the prognosis for the bank's performance is better focused. The Leverage and TCE ratios evidently capture more discriminating information about capitalization and coverage than does the TIER1 Ratio. In terms of identifying problems in the loan portfolio, each of the Non-Current Loan Ratio and its recent directional pattern proved more useful than did the Texas Ratio.

The current process for identifying institutions on the 'problem list' involves Federal regulators assigning a composite rating to each financial institution, based upon an evaluation of financial and operational criteria. The rating is based on a scale of 1 to 5 in ascending order of regulator concern. "Problem" institutions are those institutions with financial, operational, or managerial weaknesses that threaten their continued financial viability. Depending upon the degree of risk and supervisory concern, they are rated either a "4" or "5." Such operating practice could effectively be complemented by an objective perspective from pattern recognition, as was used here; the correct classification of 'Troubled' banks in this study was nearly 80 percent (Table 3).

This pattern recognition model correctly classified 78.8% of all banks in the hold-out sample, and actually identified all banks that failed in this data set (Table 2). The robust results reported here support the conclusion that the characteristics of the individual bank's capital adequacy and asset portfolio do indeed have a formal impact on institutional performance. In addition, it appears that there is a substantive role for the size of the institution to affect just which such characteristics are most influential and in what order. The generalization of these results across geographic markets or economic climates remains an intriguing test for further examination. Further, this data-mining approach may be useful in analyzing behaviors or performance outcomes in specific functional areas within the overall institution, such as lending practices, trust management, or investment banking.

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WORKPLACE EMPOWERMENT AND ORGANIZATIONAL EFFECTIVENESS: AN EMPIRICAL INVESTIGATION OF INDIAN BANKING SECTOR.

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ABSTRACT

While a lot of literature has been written about workplace empowerment and its effect on organizational effectiveness, the parameters chosen for evaluating effectiveness do not reflect the entire picture. The present study has used the Competing Values Framework for assessing the effectiveness of the organization as perceived by the employees of the private and public sector banks. Empowerment levels have been assessed using the Spreitzer measure or Psychological Empowerment Questionnaire (PEQ). The relationship between the perceived levels of psychological empowerment and the organizational effectiveness has been analyzed using statistical technique of correlation and Chi-square. Regression estimates have been used to study the impact of empowerment antecedents and cognitions on effectiveness. The results indicate that the employees of the public sector banks perceive themselves to be more empowered than the private sector employees. The research implications and suggestions for further research are also discussed.

INTRODUCTION

The tenacity of the Human Relations movement led the zealous practitioners to incorporate all strategies that would 'bring out the best in their human resources'. The strategies were given diverse names and forms; industrial democracy, workers' participation in management etc. The anticipated results, of course, were more productive and efficient workforce that was capable of taking decisions and hence reduce or even eliminate completely the need for supervision making the prospect of 'flat, lean, mean' organizations seem real and approachable. While the efficacy of such strategies has been and still remains a matter of hectic discussion, the concept of Employee Empowerment has recently aroused the interest of many. Since the concept is relatively new, a universal definition has yet to emerge, yet its implementers have reported a sense of satisfaction on the gains accrued at individual as well as organizational fronts. The paper has examined the impact of empowerment antecedents on the perceived levels of psychological empowerment and the resultant effects on organizational effectiveness that has been assessed using the competing values framework. We would first discuss briefly the two concepts building their theoretical framework. A brief look at some studies on empowerment and

organizational effectiveness would follow. The rest of the sections would deal with the methodology, results, analysis and discussions and lastly conclusion with the research implications.

PERSPECTIVES OF EMPLOYEE EMPOWERMENT

The present literature on empowerment shows two clear perspectives. One, introduced first by Conger and Kanungo (1988), carried further by Thomas and Velthouse (1990), concretized by Spreitzer (1995) has come to be known as the *psychological perspective*. As the term signifies, the concept of empowerment has been discussed as a motivational and a relational construct that had its roots in Bandura's 'self- efficacy'as proposed by Conger and Kanungo.The 'intrinsic task motivation' as termed by Thomas and Velthouse was investigated and researched further by Spreitzer in the Empowerment cognitions, viz. *Meaning, Competence, Self-determination* and *Impact*. The *Meaning* dimension reflects the degree of fit between an employees values and beliefs and job requirements. *Competence* reflects confidence in one's ability to perform a job well. *Self-determination* reflects feelings of personal control over the job. *Impact* describes feelings of being able to influence major decisions in an organization.

Menon (1996) introduced the psychological construct of empowerment in terms of perceived control, perceived competence and goal internalization. Perceived control includes beliefs about authority, decision-making, latitude and availability of resources, autonomy in scheduling, etc. The second dimension of perceived competence reflects role mastery that in addition to successful completion of assigned tasks also requires coping up with the non-routine tasks. The goal internalization dimension captures the energizing property of a worthy cause or exciting vision provided by the organization leadership.

This perspective has been the basis of many studies that sought to determine the empowerment levels in the employees in diverse organizations. A few measures were also developed to measure the levels of empowerment as perceived by the employees themselves; Worker Empowerment Scale (WES) by Leslie,1998; leader Empowering Behaviour Questionnaire (LEBQ) by Konczack, 2000; Employee Empowerment Questionnaire (EEQ) by Cloete, et al (2002). The Spreitzer measures have been found to be adequate for studying a sense of empowerment as these have been tested by many and in different samples. These have also been tested on the reliability, convergent and discriminant validity and content validity.

Though the psychological perspective provides a very useful insight into the cognitive nature of empowerment yet it is very individual centric. While the role of organizations has been discussed in creating conditions for empowerment, it remains passive …to say the least.

The *structural perspective* has its roots in Kanter's theory of power. According to Kanter (1982), formal and informal systemic structures are the sources of workplace empowerment. Job discretion, recognition and relevance to organizational goals are the important dimensions of formal power. High levels of job discretion ensure that the work is non-routinized and permits

flexibility, adaptation and creativity. Recognition reflects visibility of employee accomplishments among peers and supervisors. Finally, relevance of job responsibilities and accomplishments to the organization's key strategic plans is also important. Another key systemic structure is informal power, which comes from the employees' network of interpersonal alliances or relationships within and outside the organization. One of the key outcomes of the structural approach has been the identification of those pre-requisites that facilitate and encourage empowerment efforts. These can be termed *empowerment antecedents*. The most cited antecedents are:

- *Information and Communication Resources*: Kanter (1977) suggested that in order to be empowering, organizations must make more information available to more people at more levels through more devices.
- *Rewards and Incentives*: Individual performance based rewards are found to be important for empowerment because a) these recognize and re-inforce personal competencies and b) provide individuals with incentives for participating in the decision making processes and impacting them.
- *Autonomy*: It may be defined as the degree to which one may take significant decisions without the consent of others.
- *Skills and Knowledge*: Employees armed with the right knowledge and skills report a host of indirect economic benefits in addition to the direct ones. The indirect economic benefits like the better teamwork, better coping up with changes at the work place etc. promote a creative, empowered employee.
- *Self- esteem and Locus of* Control: Spreitzer (1995) also included these two variables as important personality traits as antecedents to empowerment. Self-esteem is defined as general feeling of self- worth. Individuals who hold themselves in high self-esteem are more likely to see themselves as active participants in the work context than those who have a low self-esteem. Locus of control explains the degree to which people believe that they rather than their external influences are in a position to influence the work context. Individuals with an internal locus of control regarding life in general are more likely to feel capable of shaping their work environments and hence to feel empowered.

This increasing interest in the prerequisites of empowerment has brought the role of the organization to the forefront in facilitating empowerment. No longer can empowerment be viewed as a functional style, which needs to be carried out by the supervisors only. The entire organizational system needs to gear itself up to facilitate the empowerment process in terms of introducing policies and procedures that make the task of implementing the empowerment programmes less arduous and complex.

ORGANIZATIONAL EFFECTIVENESS: APPROACHES AND INDICATORS

The concept of effectiveness is filled with obstacles regarding assessment namely criteria problems, criteria choices, and unique attributes of organizations involved (Verma and Jain 1999). This probably led Campbell to remark-"Since an organization can be effective or ineffective on a number of different facets that may be relatively independent of each other, organizational effectiveness has no universal definition."(Campbell, 1977).

The present literature on organizational effectiveness broadly discusses the following major approaches:

(i) Goal Attainment Model

By definition an organization is created deliberately to achieve one or more specified goals. Therefore, it is not surprising that the Goal Attainment Model is the most widely used model. Cost-Benefit analysis, MBO, etc are examples of the goal attainment approach. Followers of this approach usually cite productivity, efficiency, profitability etc. as indicators of effectiveness However, defining goals is beset with its own problems like multiple goals, incompatibility of short- term vs. long- term goals, social responsibility vs. profitability, etc. are factors that hamper the feasibility of this model further.

(ii) Systems Model

It has been argued that defining Organizational Effectiveness (OE) solely in terms of goal attainment results only in partial measurement of OE.Goals focus on outputs. But an organization should also be judged on its ability to acquire inputs, process these inputs, channel the outputs and maintain stability and balance. Another way to look at OE, therefore, is through the systems approach.

Systems models emphasize criteria that will increase the long- term survival of the organization, such as the organization's ability to acquire resources, maintain itself internally as a social organism, and interact successfully with its external environment. So, the systems approach focuses not so much on the specific ends as the means needed for the achievement of those ends. Thus, to assess OE one should try to find out whether an organization is internally consistent, whether its resources are being judiciously distributed over a variety of coping mechanisms, whether it is using up its resources faster than it should and so on. The systems approach has found expression in a number of models like OD model, ISR-Likert model, etc.

(iii) The Strategic Constituencies Model

This approach proposes that an effective organization is one that satisfies the demand of those constituencies in its environment from whom it requires support for its continued existence. This is similar to the systems view, except that it is not concerned with the organization's entire environment. It is concerned only with those, which can threaten the organization's survival. This approach views organizations as political areas where vested interests compete for control over resources. In such a context, organization effectiveness becomes an assessment of how successful the organization becomes at satisfying those critical constituencies upon which the future survival of the organization depends.

(iv) Competing Values Model

In order to have a comprehensive understanding of OE, it is necessary to identify all the key variables in the domain of effectiveness and then determine how the variables are related. The competing values approach offers such an integrative framework. The main theme underlying the competing values approach is that the criteria we value and use in assessing an organization's effectiveness-return on investment, market share, new product innovation, job security-depend on who we are and the interests we represent. It is not surprising that the stockholders, unions, suppliers, management or internal specialists in marketing, personnel, production or accounting may be looking at the same organization but evaluate its effectiveness entirely in a different way.

Competing values approach acknowledges these diverse preferences. It also assumes that these diverse preferences can be consolidated and organized. There are common elements underlying any comprehensive list of OE criteria and these elements can be combined in such a way as to create a set of competing values.

Research studies on organizational effectiveness have used a number of *indicators* that can be broadly classified as-

- Objective indicators-profit, production rate, etc. proposed by Bidani and Mitra, George (as quoted by Sayeed, 1992).
- Subjective indicators-employee satisfaction, quality of work life, lob satisfaction, organizational climate etc. Ghosh & Ghosh, Khandwalla and Jain. (Sayeed 1992).
- Social Indicators-contribution to society, development of infrastructure, etc. Hage (Sayeed 1992).

RESEARCH FRAMEWORK AND OBJECTIVES

The variables were taken up for studying the construct of *structural empowerment* are have been identified after a careful review of literature. These are defined as below:

1. *Locus of Control*: A personality trait that explains the degree to which people believe that they rather than the external forces, determine what happens in their lives. It can be internal as well as external (Spreitzer 1995).
2. *Self Esteem* : A general feeling of self- worth. It is assumed that it is positively related to empowerment. (Spreitzer 1995)
3. *Role Clarity* : This dimension measures the extent to which he/she is aware of role responsibilities and extent of authority
4. *Autonomy* : This implies the freedom to carry out the jobs and to take job related decisions without the need for supervision. (Hackman and Oldham 1976).

5. *Information & Communication*: Access to information and the kind and degree of communication is related to empowerment. Two types of information are critical for empowerment-information about an organization's mission and purpose and second, information about performance. Also, regular communication regarding organization's plans as well as suggestions from employees also serve to increase a sense of empowerment. (Lawler, 1992;Zollers and Callahan, 2003).
6. *Reward System* : The organization's reward system that recognizes individual contribution rather than group performance.
7. *Climate* :Overall environment in the organization in terms of respect for meritorious employees, respect for knowledge, trust among superior and subordinates, open, frank and honest relations between departments and employees are the signs of an empowerment friendly climate in the organization.
8. *Skills and Knowledge*: Efforts that the organization takes to upgrade the skills and knowledge of the employees, support for individual efforts made by the employees themselves as well as appreciation for creative and innovative behaviour comprise this dimension

Psychological empowerment, as discussed earlier, represents cognitions that are shaped by the work environment. Hence, it can be conceived as a construct that is represented by the following:

1. *Meaning*: Value of a work goal or purpose judged in relation to an individual's own ideals or standards. Meaning involves a fit between requirements of a work role and beliefs values, and behaviour. (Spreitzer, 1995)
2. *Competence*: Competence is an individual's belief in his or her capability to perform activities with skill. . (Spreitzer, 1995)
3. *Self- determination* : This is an individual sense of having choice in initiating and regulating behaviour. (Spreitzer,1995)
4. *Impact*: The extent to which an individual can influence strategic, administrative or operating outcomes at work. (Spreitzer, 1995).

In this paper, an endeavour has been made to measure organizational effectiveness through the Competing Values Approach (CVA). This approach reduces all the criteria of effectiveness into four broad discernible areas. These areas are defined below (Quinn and Rohr Baugh, 1983):

1. 1.*Rational Goal Model*: It places a great deal of emphasis on external focus and would lay stress on planning, goal setting, productivity and efficiency.
2. *Internal Process Model*: It lays emphasis on control and internal focus. It stresses on the role of information management and communication as means. Stability and control represent the ends.
3. 3.*Open Systems model*: The focus of the open systems model is flexibility and external orientation. It emphasizes readiness, growth, resource acquisition and external support.

4. *Human Relations Model*: this places a great deal of emphasis on flexibility and internal focus and stresses criteria such as cohesion and morale to achieve human resource development.

The above discussion can be consolidated in the following figure:

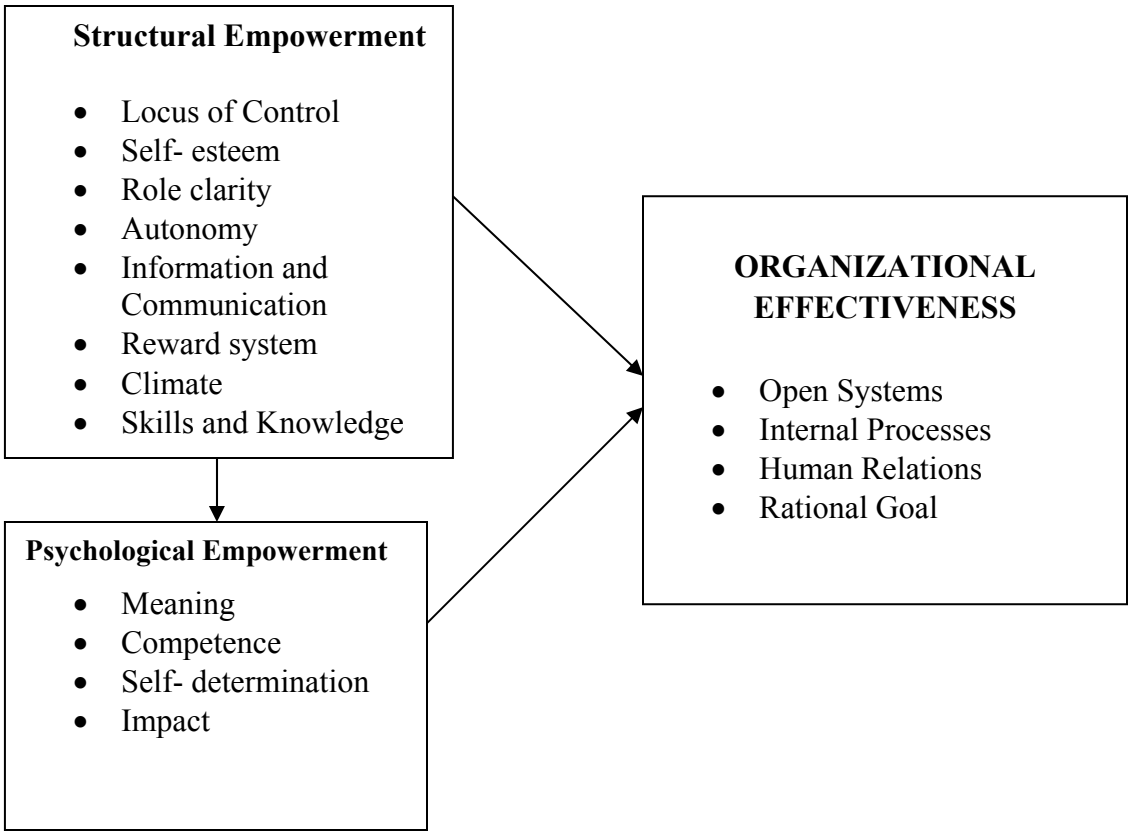

Figure 1.Schematic model

HYPOTHESES

H1: There *exists a positive relationship between Structural Empowerment and Psychological Empowerment.*

H2: There exists a positive relationship between Structural Empowerment and Organizational Effectiveness.

H3: There exists a positive relationship between Psychological Empowerment and Organizational Effectiveness.

H 4: The ownership pattern affects the perception of employees regarding empowerment levels.

METHODOLOGY

The sample was drawn from public and private sector banks located across the states in Northern parts of India. As many as 400 employees from public and private sector banks were contacted by the interviewed to collect their responses. Random stratified sampling was adopted and employees were taken from branches spread across ten cities of North India. Three questionnaires were used. First questionnaire contained statements pertaining to the existence of conditions conducive to empowerment in the organization as well as personality attributes. This was self-designed and yielded a Cronbach alpha of 0.96 that shows high reliability. The second questionnaire is also popularly known as Spreitzer measure or PEQ, which assesses the levels of empowerment as perceived by the employees in relation to their own selves. As this measure is widely used, there was no need to test its reliability. The third questionnaire contained statements on the employees' perception regarding effectiveness of the organization. The Competing Values Framework was the basis of the statements. The reliability measure of Cronbach alpha was 0.94 that is demonstrative of high reliability.

RESULTS

If we examine the descriptive statistics given in Table1, the employees of the public sector banks are reporting highest levels of conditions that facilitate empowerment. (M=4.21,SD=0.39). Well-established systems, a long history of banking operations leading to a better understanding of the business requirements and hence a better organizational design could be the reasons that can be cited to support the above. The private sector banks that tried to match the reach of the public sector banks by being techno-savvy reported lower levels of empowering conditions than public sector banks.(M=4.03,SD=0.44).

Table 1
Structural Empowerment- Total and Components

Variables	Public Sector		Private Sector	
	Mean	SD	Mean	SD
Individual Psychological Attributes	4.20	.38	4.08	.51
Locus of Control	4.10	.46	4.06	.54
Self Esteem	4.30	.43	4.10	.57
Job centric factors	4.28	.38	4.02	.43
Role Clarity	4.38	.42	4.16	.53
Autonomy	4.18	.46	3.88	.41
Organization centric factors	4.16	.43	3.99	.46
Information and communication	4.18	.45	4.12	.54
Reward System	4.06	.57	4.08	.52
Climate	4.25	.49	4.07	.60
Skills and Knowledge	4.14	.56	3.99	.46
Structural Empowerment	4.21	.36	4.03	.44

Psychological empowerment, as discussed earlier, is an outcome of structural empowerment. More conducive the employees perceive the organizational design to be among other factors; higher would be the levels of perceived psychological empowerment. Table 2 amply demonstrates this relationship. The employees of the public sector banks perceive themselves to be more empowered (M=4.34,SD=0.42) than the private sector bank employees. (M=4.32,SD=0.49)

Table 2
Psychological Empowerment: Total and Components

Variables	Public Sector		Private Sector	
	Mean	SD	Mean	SD
Psychological Empowerment	4.34	.42	4.32	.49
Meaning	4.62	.47	4.50	.54
Competence	4.52	.40	4.35	.62
Self Determination	4.14	.66	4.22	.66
Impact	4.10	.74	4.22	.63

The perception regarding organizational effectiveness also varies with the perception regarding levels of empowerment. The employees of the public sector banks perceive their organizations to be more effective (M=4.05,SD=. 53) than the employees of the private sector banks.(M=4.02,SD=.54).While the public sector bank employees pay a stronger emphasis on the rational goal model as a component of organizational effectiveness, the private sector bank employees regard the human relations as a stronger indicator of the same.

Table 3
Organizational Effectiveness: Total and Components

Variables	**Public Sector**		**Private Sector**	
	Mean	**S.D**	**Mean**	**S.D**
Human Relations	4.00	0.61	4.04	0.55
Rational Goal Model	4.11	0.62	4.02	0.60
Internal Process Model	4.03	0.61	3.96	0.60
Open Systems	4.07	0.59	3.98	0.63
Organizational Effectiveness	4.05	0.56	4.02	0.53

The correlation provides a test of association between two variables without the influence of other variables. Table 4 gives us the correlation figures between structural empowerment and organizational effectiveness. The correlation between structural empowerment and organizational effectiveness is higher for the employees of the public sector banks(r=0. 71,p<. 01) than the private sector banks (r=0.67,p<. 01). In the case of both these sectors the correlation is highest between the organization centric factors and all the four components of organizational effectiveness. However, if we examine the individual components then for the public sector banks skills and knowledge(r=0.73,p<. 01) and for the private sector banks reward system (r=. 63,p<. 01) are most highly correlated with organizational effectiveness.

Table 4
***Pearson's correlation coefficients for Structural Empowerment and Organizational Effectiveness- Total and components**

Variables	Human Relations		Rational Goal model		Internal Process		Open Systems		Organizational Effectiveness	
	Pub	Pvt.	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.
Individual Psychological Attributes	.51	.58	.52	.49	.49	.61	.50	.57	.55	.63
Locus of Control	.49	.56	.44	.48	.44	.56	.42	.52	.49	.59
Self Esteem	.37	.51	.44	.41	.40	.59	.44	.51	.45	.56
Job centric factors	.49	.54	.55	.51	.53	.55	.54	.51	.58	.59
Role Clarity	.26	.49	.37	.45	.35	.50	.39	.46	.37	.53
Autonomy	.58	.51	.56	.48	.55	.52	.52	.47	.60	.55
Organization centric factors	.74	.65	.73	.55	.71	.61	.66	.57	.78	.69
Information and communication	.59	.60	.62	.49	.61	.58	.59	.53	.66	.62
Reward System	.72	.59	.64	.52	.65	.57	.59	.56	.71	.63
Climate	.41	.58	.47	.49	.44	.55	.44	.51	.48	.59
Skills and Knowledge	.74	.46	.69	.41	.68	.41	.58	.36	.73	.46
Structural Empowerment	.66	.63	.67	.55	.65	.63	.63	.59	.71	.67
(pub-public sector banks; pvt.-private sector banks) $p<0.01$										

The correlations between psychological empowerment and organizational effectiveness are depicted in Table 5.Again, a high correlation is seen between the perceived levels of psychological empowerment and organizational effectiveness($r=0.54, p<.01$; $r=0.53, p<.01$) for public and private sectors respectively).Among the individual components the highest correlation is observed between self- determination and organizational effectiveness ($r=0.51$, $p<.01$; $r=0.48$, $p<.01$ for public and private sectors respectively).

Table 5
***Pearson's correlation coefficients for Psychological Empowerment and Organizational Effectiveness Total and components**

Variables	Human Relations		Rational Goal model		Internal Process		Open Systems		Organizational Effectiveness	
	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector
PE	.51	.47	.51	.41	.49	.49	.46	.51	.54	.53
Meaning	.20	.41	.31	.36	.21	.39	.24	.36	.26	.42
Competence	.51	.33	.44	.29	.24	.38	.23	.35	.27	.38
Self-Determination	.48	.44	.42	.34	.49	.45	.45	.42	.51	.48
Impact	.51`	.35	.51	.33	.43	.36	.38	.42	.47	.41

The intra bank observation given in Table 6 reveals that the variable emerging as the strongest predictor in the public sector banks is Information and Communication with beta value of 0.865 accounting for 74.7% of the variance ($R^2 = 0.747$). It is followed closely by Autonomy

(β=0.757, R^2=0.733). The other variables in decreasing order of impact are Locus of Control (β=0.782), Climate (β=0.749), Self Esteem (β=0.743*),* Skills and Knowledge (β=0.732*)* and Role Clarity (β=0.667). It is interesting to note that Role Clarity that has the weakest beta value is still capable of accounting for 44.2% of the variance.

Structural Empowerment in the Private Sector banks is seen to be affected most again by Information and Communication with beta value of 0.898.The R square value of 0.806 implies that this variable alone can explain 80.6% of the variance in the structural empowerment.

Table 6
Regression Estimates for Structural Empowerment

Variables	Public sector Banks				Private Sector Banks			
	β**	t	R^2	F*	β**	t	R^2	F*
Locus of Control	0.782	17.67	0.610	312.54	0.892	27.76	0.795	770.75
Self Esteem	0.743	15.68	0.550	244.53	0.835	21.34	0.696	455.74
Role Clarity	0.667	12.59	0.442	158.63	0.856	23.29	0.731	542.64
Autonomy	0.857	23.37	0.733	546.18	0.859	23.55	0.736	554.96
Information and Communication	0.865	24.24	0.747	587.70	0.898	28.87	0.806	828.27
Reward System	0.736	15.30	0.539	234.13	0.845	22.24	0.713	494.96
Climate	0.749	15.88	0.558	252.28	0.838	21.60	0.701	466.80
Skills and Knowledge	0.732	15.13	0.534	229.15	0.670	12.68	0.446	160.91
** all values significant at p<.01 * df=1,198								

An analysis of the Table 7 reveals that self-determination is the strongest predictor of psychological empowerment both in public as well as private sector banks and its magnitude is higher in the private sector banks (β=0. 87,t (1,198)=24.32,p<. 01) than the public sector banks((β=0.86,t(1,198)=23.59,p<.01).This variable can explain variance of almost 75% in the psychological empowerment levels of the private sector employees (R^2=.75,F(1,198)=591.81).The corresponding figure for the public sector employees is 74%(R^2=. 74,F (1,198)=556.68)

Table 7
Regression Estimates for Psychological Empowerment components

Predictor Variables for PE	Public sector Banks				Private Sector Banks			
	β**	t	R^2	F*	β**	t	R^2	F*
Meaning	0.571	9.80	0.323	96.03	0.737	15.36	0.541	235.92
Competence	0.701	13.83	0.491	191.35	0.828	20.81	0.685	433.24
Self-determination	0.859	23.59	0.736	556.68	0.866	24.32	0.748	591.81
Impact	0.795	18.43	0.630	339.79	0.781	17.60	0.608	310.09
** all values significant at p<. 01 * df=1,198								

The internal process component emerges as the strongest variable capable of explaining maximum variance in the construct of organizational effectiveness both for public as well as private sector banks (β=0. 95,t (1,198)=42.07,p<. 01) and (β=0. 91,t (1,198)=31.18,p<. 01). Internal process also explained a significant proportion of variance (89% and 83% respectively for public and private sector banks). Table 8 depicts regression estimates of all the components of organizational effectiveness.

Table 8
Regression Estimates for Organizational Effectiveness components

Predictor Variables for Organizational Effectiveness	Public Sector Banks				Private Sector Banks			
	β**	t	R^2	F*	β**	t	R^2	F*
Human Relation System	0.917	32.24	0.839	1039.53	0.903	29.63	0.815	878.38
Rational Goal System	0.907	30.21	0.821	913.01	0.873	25.13	0.760	631.53
Internal Process	0.948	42.07	0.899	1770.64	0.912	31.18	0.830	972.50
Open System	0.899	28.92	0.808	836.60	0.883	26.50	0.779	702.23
** all values significant at p<.01, * df=1,198								

Table 9 depicts the regression estimates of organizational effectiveness in terms of all the variables of structural and psychological empowerment. Skills and Knowledge significantly predicted organizational effectiveness scores for the public sector banks. (β=0. 73,t (1,198)=15.32,p<. 01). The corresponding variable for the private sector banks was reward system. (β=..63,t (1,198)=11.32,p<. 01). Both these variables were capable of explaining 54% and 39% of the variance in organizational effectiveness as depicted by the respective R^2 values

Table 9
Regression Estimates for Organizational Effectiveness

Predictor variables for Organizational Effectiveness.	Public sector Banks				Private Sector Banks			
	β**	t	R^2	F*	β**	t	R^2	F*
Locus of Control	0.486	7.83	0.233	61.39	0.595	10.42	0.351	108.66
Self- Esteem	0.453	7.15	0.202	51.23	0.556	9.42	0.306	88.76
Role Clarity	0.375	5.68	0.136	32.32	0.530	8.80	0.278	77.48
Autonomy	0.603	10.64	0.361	113.35	0.555	9.39	0.305	88.31
Information and Communication	0.656	12.22	0.427	149.35	0.618	11.06	0.379	122.52
Reward System	0.710	14.19	0.502	201.49	0.627	11.32	0.390	128.30
Climate	0.483	7.754	0.229	60.12	0.595	10.42	0.351	108.72
Skills and Knowledge	0.737	15.32	0.543	234.82	0.458	7.25	0.206	52.67
Meaning	0.264	3.86	0.065	14.87	0.424	6.58	0.175	43.28
Competence	0.268	3.92	0.067	15.34	0.380	5.78	0.140	33.44
Self-Determination	0.513	8.40	0.259	70.58	0.482	7.74	0.228	59.86
Impact	0.468	7.46	0.215	55.60	0.413	10.99	0.166	40.64
** all values significant at p<.01 * df=1,198								

Chi-square analysis was carried out to examine whether the perceptions regarding empowerment vary due to ownership patterns. Three degrees of empowerment were defined Low (mean less than 2.5), Moderate (mean from 2.5 to 3.5), High (mean more than 3.5). It can be observed that out of the individual psychological attributes, self- esteem reported significant results i.e., it differed by ownership pattern ($\chi^2$2,N=400)=13.66,p=. 01.The job centric factors that contain role clarity and autonomy also reported significant results. ($\chi^2$2,N=400)=14.41,p=.01.Among the organization centric factors climate (($\chi^2$2,N=400)=7.35,p=.01 and skills and knowledge($\chi^2$2,N=400)=9.82,p=.01 differed on account of ownership pattern. Overall psychological empowerment also exhibited significant results ($\chi^2$2,N=400)=4.17,p=. 05. Only Competence differed on account of ownership pattern amongst all the components of psychological empowerment ($\chi^2$2,N=400)=22.16,p=.01

DISCUSSION

It is evident from the above results that the hypothesized structural empowerment has a positive impact on the levels of psychological empowerment as perceived by the employees of the banks. This has been supported by a few studies undertaken earlier (Laschinger, et al 2000; Knol, Jeanette & Roland van, 2009; Meyersen, Shauna & Kline Theresa, 2008). This implies that the organizations can no longer sit back and concentrate merely on assessing empowerment levels. It is important that organizations create conditions that facilitate and heighten the sense of 'being empowered'. A very high degree of correlation between the four components of psychological empowerment and all the empowerment antecedents (structural empowerment) is also indicative of this positive relationship.

Organizational effectiveness has been taken as a dependant variable in the study that is contingent on the perception of presence of enabling conditions i.e. empowerment antecedents. It is also dependant on the levels of empowerment as perceived by the employees themselves. The above results demonstrate this relationship too. (Spreitzer1996).

It is pertinent to note that all the three constructs are being predicted significantly by their individual components as well as by the other constructs and their components, e.g. information and communication that is predicting a significant proportion of structural empowerment levels is also a very strong predictor of organizational effectiveness though not the strongest. In fact none of the variables under study is statistically non significant. This itself is indicative of a very strong relationship between all the three constructs.

The results drawn from the present study indicate that the antecedents and the cognitions are important controllable elements in the workplace context. As the data suggests, the above-mentioned antecedents and cognitions become a positive factor in influencing empowerment in organization. When certain aspects present in the organizational design as well as processes are perceived as capable of fulfilling aspirations and desires, the employees will experience being

empowered. Organizations concerned with developing high levels of employee empowerment need to focus their attention on providing a lot of opportunities regarding these antecedents.

The study also attempted to highlight the importance of measuring the perceived level of empowerment through four cognitions, namely, meaning, competence, self-determination and impact. The perceived levels of these cognitions can give a fair idea about the efforts required in this direction to the policy makers and ambitious implementers of the empowerment programmes.

Many studies have been carried out on empowerment. However, only a limited number of these have taken organizational model as a whole. Only a few indicators at best have been taken to represent only a partial picture. The study has used the competing values approach to measure the perceived levels of organizational effectiveness, which has not been done in the banking sector in India and probably in any other non-western setting.

CONCLUSION

This study has tried to fill the gap created by lack of empirical studies linking structural empowerment to psychological empowerment as has been noted by a few other authors (Ahearne et al., 2005; Spreitzer, 2007). Also, there is little research guidance to help researchers select those socio-structural practices that have the potential to generate expected psychological and behavioral outcomes.

Another area where this study becomes very relevant is the investigation of the effects of both kinds of empowerments with organizational effectiveness. Infact, despite best of efforts we could not trace a single empirical study that researched the effect of empowerment on organizational effectiveness via the competing values approach. Hence, there is scope for further investigation.

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