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Three Essays on External Sources of Corporate Governance

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THREE ESSAYS ON EXTERNAL SOURCES OF CORPORATE GOVERNANCE

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ABSTRACT

Corporate governance is the system by which corporations are controlled. External sources of governance include regulatory and market mechanisms as well as the interplay of goals between managers, the board, and shareholders. Other external sources can include informal institutions which can shape goals as well as suggested by institutional theory, effectively constrain human behavior. In my first essay, I argue that foreign direct investors can act as agents of change in corporate governance. Investigating changes in ownership and control of Swedish firms, I find that active foreign investors' participation move firms away from a Swedish stakeholder orientation toward an Anglo-American shareholder wealth maximization focus. In my second essay, I explore the relationship of informal and formal institutions on microfinance institutions (MFI). Investigating the outreach and performance of MFIs in developing nations, I find that strong formal institutions foster better efficiency and outreach while strong informal institutions' impact is limited to better outreach. In my third essay, I investigate the apparent lack of market discipline in the bank subordinated debt market leading up to the 2008 finance crisis. I find that subordinated debt holders were caught off guard by the suddenness and magnitude of the crisis. I argue that bank opacity created a vulnerable environment in the banking industry that contributed to this collapse.

This dissertation is approved for recommendation
to the Graduate Council.

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DEDICATION

This dissertation is dedicated to my loving wife, Ru-Shiun Liou, and my wonderful children, Abigail Lee and Anderson Lee. Without my wife's unwavering support and understanding, it would have been impossible for me to complete this dissertation.

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OVERALL INTRODUCTION

Principle-agent problem deals with the difficulty in persuading one party, the agent, to act on the behalf of another party, the principle. In the corporate structure, the principle-agent problem is the misalignment of goals between corporate managers (agent) and shareholders (principle). The primary goal of shareholders is wealth maximization or profit maximization. The goals of managers on the other hand can be varied and not always fall in line with profit maximization. Managers can pursue projects for private benefits at the expense of overall corporate performance. Even without obvious divergence in motivation, managers and owners can differ on how to achieve a common goal.

The field of corporate governance is concerned with how corporations are controlled. There are multiple layers of corporate governance. Within the corporation, corporate governance has to do with how effectively the top management team (TMT) controls other agents within the corporation, for example subsidiary managers. Often if there is a conflict within the corporation, it is termed agent-agent problem. This area of corporate governance has gained more interest amongst academia in management and international business as corporations continue to become more complex organizations in part due to growth in global business. The main area of corporate governance still addresses the conflict between managers of a company and its shareholders. Both of these areas of corporate governance have to do with problems and possible solutions within the corporation and between the corporation and its own shareholders. There is extensive literature in finance and management that deals with this area. Beyond this, external sources of governance include regulatory and market mechanisms as well as the external market for control. Other external sources can include informal institutions which can shape goals as well as suggested by institutional theory, effectively constrain human behavior. In this

thesis, I explore different external sources of corporate governance and their impact on managerial behavior. Beyond corporate takeover literature, this area of inquiry is still relatively underdeveloped in the field of finance.

In my first essay, I explore the introduction of foreign shareholders primarily from the United States and the United Kingdom to Sweden. I argue that foreigners can act as agents of change because they are not bound by informal institutional constraints of the host country. Informal institutions not only set the rules of the game but also what are desirable goals for corporations. Foreigners will bring with them different goals and different methods of reaching their goals that are embedded in their native cultural context. In my second essay, I explore the relationship of informal and formal institutions on microfinance institutions (MFI). By looking across many developing nations and studying relatively similar business types, I can distinguish the impact various institutional pillars has on a MFI's outreach and performance. In my third essay, I investigate the lack of market discipline in the banking industry. I identify opacity as a primary reason why market participants did not or could not effectively discipline banks for increased risky behavior.

These three essays together explore various sources of external sources of corporate governance. The three essays also look at corporate governance from three distinct areas of study. The first essay is based on culture which is more common in the field of international business and international management. The second essay is based on institutional theory which is more common in the field of strategy and corporate finance. The third essay explores market discipline which is especially important in banking literature. This wide array of prospective allows me to explore the "big picture" of corporate governance.

1. Foreign Direct Investors as Change Agents

Abstract

Institutional theory suggests that informal institutions effectively constrain human behavior. Culturally embedded norms and values align corporate governance with socially acceptable outcomes. We argue that foreign direct investors can act as agents of change in corporate governance. Investigating changes in ownership and control of Swedish firms, we find that foreign direct investors' participation in conjunction with a reduction of control by the largest domestic shareholder improves firm performance through more efficient capital utilization and labor productivity as firms move away from a Swedish stakeholder orientation toward an Anglo-American shareholder wealth maximization focus.

Keywords: Foreign Direct Investors; Informal Institution; Business Culture

1.1 INTRODUCTION

An extensive literature on institutional economics establishes a causal link between a country's formal institutions and its economic success (North, 1990; La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1998, 2000; Botero, Djankov, La Porta and Lopez-de-Silanes, 2004; Djankov, La Porta, Lopez-de-Silanes, 2002; Acemoglu, Johnson and Robinson, 2001). A well-functioning legal system that protects private property rights and reduces transaction costs in arms-length exchanges, as well as investor protection laws that enable capital to flow from those who have it to those who need it, supports the birth and expansion of innovative firms (Wurgler, 2000; Beck, Levine and Loayza, 2000; Henrekson and Johansson 2009; Johansson, 2010). Disclosure and fraud deterrence encourage broad equity market participation by external investors and informed price discovery improves capital allocation to the most productive firms (Morck, Yeung, and Yu, 2000).

But as North (1990) notes, "informal institutions" can play an equally important role. The tacit rules of the game – social values, cultural norms, as well as traditions, facilitate communication and mutual understanding in societies and establish trust, consensus, and national/ethnic identity among strangers. Informal constraints on behavior, which may not appear in the form of legal statutes and violations thereof may not result in specific monetary or criminal penalties, can nevertheless effectively shape ad influence economic conduct and performance.[1]

In this paper, we make the case that foreign investors are not as deeply invested in maintaining the status quo of local host countries and can have different priorities, business cultures, and practices that reflect their home country's informal institutions. Cross-border

[1]Stulz and Williamson (2003) show that religion and language matters to financial development; and Fogel, Lee, and McCumber (2011), that the profitability and outreach of microbanks are related to Hofstede's cultural dimensions.

investments can change the informal rules of the game that reorients corporate governance, and thereby, impact financial efficiency and firm value. We find that the entry of foreign equity investors over the years 1992-2008 surrounding Sweden's formal admission to the European Union in 1995 improved the financial performance of large publicly-traded, owner-controlled firms in Sweden.[2]

The implications of our significant finding are twofold. In contrast to prior literature, cross-border investments over this distinct 17-year sample period were not motivated by the exceptional performance of Swedish firms. On the contrary, the notable decline in per capita GDP and standard of living of Sweden relative to OECD countries in the two decades following its peak in the early 1970s reflected the underperformance of Swedish firms. Moreover, a significant mean reversion in the performance of Swedish firms during this sample period – utilizing return on assets, return on equity, and earnings per share as proxies, is inconsistent with momentum driven, return-chasing behavior by foreign investors.

Importantly, we also show that the improved performance of Swedish firms was not simply a result of cross-border portfolio investments by institutions as the literature on shareholder activism implies. Gillan and Starks (2003) find that foreign institutional investors play an important role in monitoring management and prompting change in corporate governance practices worldwide; Ferreira and Matos (2008), that foreign institutional ownership is positively correlated with the value and performance of firms outside of the United States; and Aggarwal, Erel, Ferreira and Matos (2010), that foreign investors are able to change corporate governance mechanisms and outcomes. These studies, however, must contend with a significant

[2]The last step of deregulation of Swedish capital market was in 1989, which removed foreign ownership restrictions in Swedish firms. However, foreign participation was minimal and grew slowly until just prior to Sweden's entry into the European Union.

endogeneity issue.[3] Appropriate inferences about the impact of cross-border investments by foreigners on firm performance will require adequate controls for self-selection bias – the incentive of foreigners to concentrate their investments in high performing firms.

Our research design avoids the endogeneity issue entirely. Foreign equity investors in Swedish firms over this 17-year sample period were predominantly institutional. Significant improvements in firm performance occurred only when there was an increase in participation by foreign direct investors coincident with a decrease in the excess voting power of the largest domestic shareholder that gives foreign equity investors a critical "voice" in the management of the firm. Neither an increase in foreign participation nor a decrease in excess voting power of the largest domestic shareholder alone was sufficient. Further, we find that the participation of control-seeking domestic equity investors did not appear to have the same effect. There was no significant change in firm performance from declines in the excess voting power of the largest domestic shareholder that resulted from an increase in participation by control-seeking domestic investors. Only foreign direct equity investors, primarily from the United States and the United Kingdom, can assume leading roles as change agents in reducing the unproductive deployment of capital and labor.

Sweden is an ideal setting to investigate the impact that cross-border investments have on domestic firms because the absence of regulatory restrictions on pyramid structures and the issuance of dual class shares allows for considerably large differences in the distribution of ownership and voting rights among equity shareholders. It is possible for equity investors to have majority control rights with minimal ownership stakes. Table 1.1 shows that Sweden saw a dramatic increase in foreign ownership and voting participation from the early 1990's through

[3]Adams, Hermalin and Weisback (2010) point out the endemic nature of endogeneity in the corporate governance literature.

2008. Over the 17-year sample period 1992-2008, there was a decline in the percentage of ownership and voting rights, and as a result, the excess voting power of the largest domestic shareholder. The use of dual class shares by Swedish firms concurrently fell as well.

[Insert Table 1.1 about here.]

It is also apparent from Table 1.1 that the large influx of foreigners stimulated higher GDP growth and a rise in overall market capitalization and equity share issuance. Improvements in individual firm performance from the entry of foreign direct equity investors starting in 1992, which preceded the admission of Sweden into the European Union in 1995, had a positive long-term effect on the overall economy. The reversal in Sweden's economic performance since 1992 is significant. Until the early 1970's, Sweden's economic performance was stellar. Sweden ranked 5th among OECD countries in standard of living. But in the two decades that followed, Sweden's relative economic performance deteriorated. The McKinsey Global Institute (1995) "Sweden's Economic Performance" report notes that by 1990, Sweden's GDP per capita was surpassed by Germany, France and Japan; and by 1993, surpassed by Italy and the United Kingdom, following the 1990-1993 Swedish economic recession.

The prolonged decline in standard of living, some argue, was primarily due to a fall in labor productivity. Hansson and Lundberg (1991) find that Sweden's total factor productivity growth over the 1970-1985 period was the lowest among OECD countries. Others argue that the economic decline was caused by a lack of economic evolution or entrepreneurship. Low levels of innovation, defined as new or substantially improved products, services or production processes and productivity growth, are important factors in economic evolution. For economic evolution to progress, the environment must encourage job creation and destruction. Inflexibility in labor markets hampers this need (Botero, et al., 2004). Family control and ownership concentration, both salient features in Sweden (Henrekson and Jakobsson, 2003), are correlated with lower rates

of downsizing (Jackson 2005) and lower growth rates (Bjuggren, Daunfeldt, and Johansson 2010). Sako and Jackson (2006) find that the ability of strong labor unions in Sweden to mobilize support, and as a result, exert greater power in the bargaining process creates job security. In addition, a number of institutional changes in credit market regulations, taxes, labor market legislation and access to product markets instituted after World War II provided poor incentives for entrepreneurship (Johansson 2008)[4].

In contrast to prior studies that primarily center on formal institutions, and in particular, how the worldwide spread in shareholder protection laws improves corporate governance (Aggarwal, et al., 2010), focus on Sweden affords a natural experiment for examining the impact of informal institutions on firm performance. Informal institutions influence corporate governance by aligning corporate goals with socially acceptable outcomes. Owners and controlling shareholders of large corporations are heavily vested in and abide by local values and ideals. Such values constrain corporate governance choices. Anglo-American corporations take a shareholder orientation that places efficiency above welfare, but in German and Japanese corporations, they take a stakeholder orientation that places common interests ahead of financial performance (Dore, 2000).

Culturally embedded corporate governance practices cannot be easily displaced even when the gains in economic efficiency are large. Corporate owners stand to benefit from the maintenance of the status quo and may not welcome radical changes that can lead to "creative destruction" of their market power and political dominance. Furthermore, all possible successors of culturally entrenched owners, particularly in closed economies, may share similar traditions

[4]Henrekson (2005) directly points out that "an entrepreneurial culture and a welfare state are very remotely related. As a result, the respective cultures are unlikely to be promoted by a similar set of institutions".

and beliefs. A nonconformist can face intense social ostracism.

The rest of the paper is organized as follows. A brief introduction to the role of institutions is presented in the next section along with important characteristics of Swedish institutions. Section 1.3 describes the data and variable construction. Section 1.4 presents the empirical results and interpretations. Concluding remarks are in Section 1.5.

1.2 INSTITUTIONS AND FOREIGNERS

1.2.1 Institutions and the Role of Foreign Investors

The special role of foreign direct investors as unique change agents for improving corporate governance is rooted in the role of institutions. "Institutions are the rules of the game in a society" that constrain human behavior (North, 1989; 1990). Formal institutions are the written laws and regulations that define a country's legal system and regulatory environment. The enforcement, adjudication, and assessment of civil and criminal penalties are clearly specified. Informal institutions are the unwritten values, beliefs, customs and traditions that define a country's culture and code of conduct. Enforcement is self-policing in nature and penalties take the form of public rebuke and ostracism.

Formal institutions can change. Laws and regulations can be supplemented, modified, or eliminated. Because a lengthy political and legislative process is involved, changes in formal institutions are episodic. There can be long periods of stagnancy, and very often, the catalyst is a response to a significant external shock. In contrast, changes in informal institutions are intergenerational and evolve slowly. Values, beliefs, customs and traditions represent tacit knowledge that requires time to digest, update, and become embedded as a societal norm. It is far easier to effect a legislative change in law than a change in culture.

In making cross-border investments, foreign investors recognize and adapt to the formal

institutions of the host country. The likelihood of detection and severity of punishment for legal infringements are easy to understand. Differences in societal cultures between home and host countries are another matter. Foreign investors may not be fully aware of local customs and traditions nor view these customs and traditions with the same affinity or attachment. Moreover, the benefits from conformity to customs and traditions may be private, that is, are unique to locals and may not accrue to outsiders because of their foreignness. Lastly, the societal penalty for breaching an informal rule of conduct can be perceived differently by a foreigner than by a local. In China the concept of saving or losing "face" is an integral part of the national psyche. To lose face is to subject oneself and familial relations to intense humiliation that is to be avoided at all costs. But for a foreigner, the threat of societal chastisement may be viewed as no more than an inconvenience and embarrassment.

Foreigners are not only more likely to be unaware of or lack appreciation for local customs and traditions, but are also less susceptible to societal pressures for conformity to societal norms of conduct. More importantly, only foreign direct investors have the potential to effectively act as agents of change and an interest in acquiring control rights. Foreign portfolio investors will focus instead on the ownership rights to cash flows from monetary investments and have no interest in challenging the institutions of the host country. Domestic investors, who are already in privileged societal positions, are also unlikely to undertake institutional changes that place their favored positions in jeopardy.

1.2.2 Swedish Institutions

The first democratically elected socialist government took power in Sweden in 1920, and since then, the country is viewed as an exemplary model of the social welfare state. Lindbeck (1997), describes Swedish Corporatism as disciplined cooperation between labor and entrenched

owners of capital that harks back to the "Saltsjöbaden Agreement" of 1938 between the Swedish Confederation of Trade Unions (LO) and the Swedish Employers' Confederation (SAF). Further, Hogfeldt (2005) points out that the Social Democratic Party (SAP) cooperated with both the LO and SAF. Moreover, unlike most other countries in Europe, Sweden's neutrality in two world wars allowed a sufficiently long period of stability during which Social Capitalism attained "cognitively based legitimacy" (Suchman, 1995), and thereby, the relative permanence of its institutions. However, there was some change in the relationship between the SAP, LO and SAF. After World War II, the ties between the SAP and LO strengthened, making labor much stronger in its dealings with SAF. From the late 1970's through early 1980's, relations between LO and SAF (Lindbeck, 1997) deteriorated which led to a decline in the Swedish economy.

Many scholars – Jackson and Deeg (2008), Jacoby (2005), Dore (2000), Hall and Sockice (2001), Hollingsworth, Schmitter, and Streeck (1994), Streeck (2001), Whitley (1992), argue that capitalism can take forms that go beyond the shareholder focused, market oriented Anglo-American norm. In coordinated economies such as Sweden, the corporate governance model seeks to align the differing interests of labor, capital owners, and the state. By achieving a political consensus between labor and major capital owners[5], proponents of the Swedish model describe the governance structure as promoting strong private ownership that embraces a long-term point of view and accepts a social responsibility towards employees and society in general (Agnblad, Berglof, Hogfeldt and Svancar, 2001).

Further, an important aspect of Swedish corporate governance is the reliance on informal enforcement mechanisms with considerable discretion exercised by controlling shareholders. Concerns over reputation and social status limit the abuse of minority shareholders. In Sweden,

[5]Private ownership represented primarily institutional owners like tax exempted pension funds and founding family funds rather than private individuals.

social prestige is a significant private benefit associated with the control of large corporations. Families own many of the large Swedish firms. These families have built long term relationships with employees, bankers and suppliers based on trust (Poza 2007).

Corporate law explicitly favors firms with strong majority control and enables private owners to establish and maintain control of listed firms through pyramidal ownership structures and dual class shares. For example, in 1997, Ericsson had Class A shares with a 1000:1 vote differential to Class B shares. As a consequence, the largest domestic shareholder had a 4.9% ownership stake but 43.4% of the voting rights. In stark comparison, foreign investors in Ericsson represented 51.5% of the ownership but only 1.4% of the voting rights. Moreover, the true degree of disparity between ownership and control rights of the largest domestic owner may be understated when the pyramid structure to which Ericsson belongs is considered.

As shown by La Porta, Lopez-De-Silanes and Shleifer (1999), concentrated control (ownership) is common in most countries but Sweden appears to be an extreme case. Many other countries, especially in Europe, allow similar ownership structures. But few countries permit both pyramid structures and vote-differentiated dual class shares. Moreover, even among countries that allow dual class shares, the proportion of firms that use dual class shares is higher in Sweden than any other country in Europe.

Based on measures proposed by La Porta et al. (1998, 2000), Sweden is a country that provides relatively poor minority shareholder protection compared to Anglo-Saxon countries. However, Swedish institutions effectively protect the interests of minority shareholders. Agnblad et al. (2001) note the absence of evidence that minority shareholders in Sweden are exploited. The deficiency in formal laws that protect minority shareholders is more than offset by high standards of legal enforcement and accounting. La Porta et al. (1998, 2000) rank Sweden far

above other countries on rule-of-law; and Durnev, Errunza, and Molchanov (2009), rank Sweden's transparency 5th out of 69 countries in their study.

In civil law countries like Sweden, changes in formal statutes that protect minority shareholders, involve a political and legislative process that foreign investors are unlikely to initiate. Any improvements in corporate governance will more likely come from informal changes in managerial conduct advanced by foreign investors toward shareholder maximization. But demands for change in Swedish firms can be ignored by well protected, controlling domestic owners. Foreign direct investors will be successful in effecting such changes only when the controlling domestic owner is willing to relinquish some of his voting control. But when such changes are successful, there can be observable improvements in firm performance.

Lastly, Carlsson (2007) contends that the Swedish system of corporate governance minimizes the principal-agent problem because it allows a shareholder to obtain the requisite votes to effectively control management at a lower cost than when the property and voting rights of stock ownership are equalized. Boubakri, Cosset, and Guedhami (2005) find ownership concentration has a positive impact on post-privatization firm performance. However, even when management acts in the best interests of a minority shareholder with majority voting rights, there is an implied assumption that the interests of the shareholders with majority voting rights are aligned with the interests of other shareholders.

As Berle and Means (1932) and Jensen and Meckling (1976) make clear, the incentive misalignment from separating property and voting rights potentially worsens the agency problem. The negative effect of separating ownership and control is corroborated by Bjuggren, Eklund, and Wiberg (2007). With vote-differentiated shares, the market for corporate control is less effective in resolving conflicts of interests between majority and minority shareholders.

Similarly, Cronqvist and Nilsson (2003) document a value discount when a minority shareholder is in control. To the extent foreign investors can decrease excess voting power exercised by the largest domestic shareholder, the performance of Swedish firms should improve.

Deregulation of capital markets during the 1980's, finalized in 1989, and subsequent external public pressure on Sweden to join the European Union in the early 1990's, was an exogenous catalyst that led to an influx of foreign investors. Over our study period 1992-2008, foreign investors were predominantly from the United States and United Kingdom – an overall average of 40% and 14% and at the peak in 2000 52% and 24% respectively of all foreign investors.[6] These Anglo-American foreign investors, who sought an active role, posed a challenge to Swedish corporate governance.[7] Foreign direct investors will demand managerial performance consistent with shareholder-oriented capitalism (Errunza, 2001).

1.3 EMPIRICAL DESIGN

1.3.1 Data Sources

The details of ownership and voting rights[8] on Swedish firms was obtained from annual publications of SIS ÄGARSERVICE AB's *Owners and Power in Sweden's Listed Companies*, which over the 1992 to 2008 sample period covered all companies listed on the Stockholm Stock Exchange and the NGM Exchange. This data does not contain companies listed on the Stockholm Stock Exchange that are domiciled abroad. The publications assemble and track corporate identities and name changes as well as ownership and voting percentages of the largest

[6]In contrast, Denmark, Holland, and Norway represented 3.3%, 2%, and 4.8% respectively. Finland represented 12.9% as the third largest foreign investors.

[7]The conflict of interest between foreign direct investors and the interests of Sweden's system is similar to the conflict between foreign investors and local governments described by Henisz and Zelner (2005).

[8]In a dual class stock structure, all shares confer the same ownership rights but Class A shares have superior voting rights to Class B shares.

domestic shareholders, foreign equity shareholders, and up to a total of 25 largest shareholders. On average, these shareholders represent 80.6% of the vote in all listed companies and 84.2% in dual class issuing companies.

There are five primary sources of information used to construct the Owners and Power dataset. These include: (*i*) two different documents from VPC AB and Swedish Securities Register Centre that are the Public Shareholders' Register and Register of Nominee Shareholders; (*ii*) the Swedish Financial Supervisory Authority's regularly published "flag up" or "flag down" disclosures;[9] (*iii*) required disclosures to the Swedish Financial Supervisory Authority of changes in large block private individuals who either own more than 200 shares or whose shares have a market value of at least SEK 50,000; (*iv*) SIS ÄGARSERVICE AB's proprietary data; and (*v*) voluntary disclosures by shareholders themselves.

Firm characteristics as well as accounting data were obtained from Compustat Global over the sample period. Data were merged manually because the only identifier that could be used, company name, was not always consistently recorded in the same manner and changes over time were not always reflected. The fact that many of the names are in Swedish and often abbreviated complicated matters.

1.3.2 Hypothesis

In a prior study, Dahlquist and Robertsson (2004) observe a positive correlation between foreign ownership and firm performance. Foreigners invest in firms with strong recent performance. The resulting increase in the proportion of foreign ownership lowers the cost of equity. In theory, firm performance is enhanced because a lower cost of capital allows firms to undertake more positive net present value (NPV) projects. The causal link between foreign

[9]The "flag up" or "flag down" disclosure happens when an owner moves between the following levels of ownership or votes: 5, 10, 15, 20, 25, 30, 50, 66.67, and 90 percent.

ownership and improved firm performance is, however, unclear. Investing in firms with an established record of strong performance seems to suggest that foreigners chase "winners". Further, a reduction in cost of equity from higher equity valuations may simply be a byproduct of portfolio investments by foreigners in informationally inefficient local equity markets. To establish a causal link between foreign participation and firm performance, it is critically important to distinguish between "direct" and "portfolio" foreign investors in Swedish firms based on their relative interest in property and voting rights, which Manne (1965) and Marris (1964) point out, are both attached to equity ownership.

Specifically, we examine the *Hirschman (1970) Hypothesis*. Portfolio investors are primarily interested in the cash distributions and contingent claim values associated with property rights. For portfolio investors, concern with firm performance is short-term and limited to assessments of its impact on the potential returns from equity ownership. When realized returns fail to meet expectations, foreign portfolio investors will tend to liquidate their investments and reinvest the proceeds in other firms. Because foreign portfolio investors are most likely to invest in well performing firms, only domestic investors (e.g., founder families), who can have other incentives for equity ownership, are apt to show loyalty and retain equity ownership when firm performance is poor.

In contrast, foreign direct investors take a long-term view of the potential benefits of equity ownership and are more interested in improving firm performance by influencing corporate governance that comes from the exercise of voting rights. As Bjuggren and Bohman (2006) argue, only those with the ability to increase residual income stand to benefit from acquiring enough control rights to enforce a value increasing change. Foreign direct investors are more prepared and willing to exercise voting rights to affect managerial behavior that leads to

improved performance. In distinguishing between foreign direct and foreign portfolio investors, we explicitly address the paradox of ownership concentration without commitment (Davis, 2008) – namely that, institutional owners can have large ownership stakes but will likely prefer a share sale exit strategy over an exercise of voting rights to effect a change in corporate governance when firm performance does not meet expectations.

1.3.3 Foreign Portfolio, Foreign Direct, and Control-Seeking Domestic Investor Definitions

We restrict our sample to firms with *Dual Class Shares*. This restriction is necessary to clearly identify control-seeking foreign equity participation. In Sweden, shares of all classes carry the same cashflow rights, i.e., dividend rates, but A shares carry significantly more voting rights than B shares or C shares. Concentrated control of A shares by a few large, domestic owners further reduces the supply of A shares. Consequently, Class A shares sell at a premium price and tend to have lower liquidity. Their acquisition by foreign or domestic investors clearly indicates intent to exert control. Over our sample period, firms with dual class shares represent between 46% and 84% of all publicly traded firms, with the proportion monotonically declining over time.

For each firm, we examine the annual changes in foreign and domestic ownership from the prior year. Three yearly dummy variables – $F\text{-}Portfolio_t$, $F\text{-}Direct_t$, and CSD_t, are used to indicate the nature of the changes in foreign and domestic ownership. A firm is categorized as $F\text{-}Portfolio_t$ in a particular year when the only change in equity investments are by foreign portfolio investors who acquire only class B shares and their ownership changes do not exceed 5%. These restrictions ensure that the interests of foreign portfolio investors are purely financial and do not stem from the exercise of voting rights.

Firms are categorized as CSD_t or $F\text{-}Direct_t$ in a particular year, when the changes in equity investments by control-seeking domestic or foreign direct investors are either through the acquisition of Class A shares or Class B shares that increase ownership by 5% or more, **and** the changes in equity investments result in a decline in the excess and total voting power of the largest domestic shareholder.[10] Focus is on the largest domestic shareholder as opposed to the largest 2, 3, 5, or other arbitrary number of domestic shareholders, for two reasons. First, the largest domestic shareholder exercised (on average) over 50% to 29% respectively, of the votes from the beginning to the end of the sample period 1992 to 2008. Second, as La Porta et al. (1999) point out, 20% is sufficient for one shareholder to effectively control the company.

Because the holdings of Class A shares are concentrated among a few parties, the acquisition of a sufficiently large number of Class B shares in open markets can also be a substitute. Requiring a reduction in total voting power ensures that the largest domestic shareholders do not make compensating changes in loss of control from the sale of Class A shares through the purchase of Class B shares. In other words, it is unambiguous that the largest domestic shareholder voluntarily relinquished some control to other control-seeking investors.

We denote *D1–Vote* and *F–Vote* as the percentages of voting rights exercised by the largest domestic shareholder and the aggregate of all foreign investors respectively; and *D1–Capital* and *F–Capital*, as the ownership percentages of the largest domestic shareholder and the aggregate of all foreign investors, respectively. *Excess Vote* is the difference between the

[10]Our definition of foreign direct and foreign portfolio investor should not be confused with the OECD definition of foreign direct investments. Although conceptually very similar, our threshold is 5% voting control while the OECD definition is 10%. More importantly, because of the high use of dual class shares by Swedish firms as well as the dominant control that can be exerted by the largest domestic shareholder, we also add a requirement that the largest domestic shareholder must relinquish some control. It is possible, though doubtful, that a foreign portfolio investor will choose to accumulate more than 10% voting power slowly over time.

ownership and voting percentages of the largest domestic shareholder.

1.3.4 Summary Statistics

We use three proxies of profitability to capture firm performance. ROA_t, ROE_t, and EPS_t, are defined as: *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ and *Average Numbers of Shares Outstanding*$_{t-1,t}$, respectively; and future one-year changes in firm performance $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ as $ROA_{t+1} - ROA_t$, $ROE_{t+1} - ROE_t$, and $EPS_{t+1} - EPS_t$, respectively. The number of employees is used as a surrogate for $Size_t$ of firm. We use *Average Plant, Property, and Equipment*$_{t-1,t}$ and *Net Revenue*$_t$ divided by *Average Number of Emplyees*$_{t-1,t}$ as proxies for *Capital Intensity*$_t$ and *Labor Productivity*$_t$, respectively, and future changes, Δ*Capital Intensity*$_{t,t+1}$ and Δ*Labor Productivity*$_{t,t+1}$, as *Capital Intensity*$_{t+1}$ – *Capital Intensity*$_t$ and *Labor Productivity*$_{t+1}$ – *Labor Productivity*$_t$, respectively.

[Insert Table 1.2 about here.]

Table 1.2 reports summary statistics on the variables used in this study.[11] On average, Swedish firms are profitable and profitability increased over the sample period. Approximately 23% and 31% respectively, of the firm-year changes in equity ownership involved foreign direct and foreign portfolio investors; 16%, involved control-seeking domestic investors; and in the remaining 30%, there was either no change in foreign ownership or the change in ownership involved domestic portfolio investors. On average, Swedish firms employed almost 9,400 workers and the average excess vote of the largest domestic shareholder was 17.32%.

1.4 EMPIRICAL RESULTS

1.4.1 Univariate Analysis

Table 1.3 is divided into two panels. Panel A reports the bivariate correlations between changes in firm performance or productivity (dependent variables) and level of performance,

[11]Data values were winsorized at the 1% and 99% levels to remove outliers.

ownership, voting rights and size of the firm (independent variables). The negative correlations between firm performance and future changes in performance respectively, of -0.4825, -0.7172, and -0.6654, indicate mean-reversions in firm performance that are statistically significant at the 0.1% level. Moreover, the positive correlations between current productivity and future changes in productivity respectively, of 0.5189 and 0.4187, that are statistically significant at the 0.1% level, imply a positive trend in firm productivity. Lastly, participation by foreign direct investors have significant positive correlations with future changes in firm performance, and foreign portfolio investors have a negative but not always significant correlation with future changes in performance. The correlation between increased participation by control-seeking domestic investors and changes in performance is negative though insignificant.

[Insert Table 1.3 about here.]

Panel B shows that all three alternative measures of performance and both measures of productivity are positively correlated and significant at the 1% level or higher. In addition, the significant positive correlations between foreign portfolio investors and firm performance respectively, of 0.1059, 0.0565, and 0.0826, confirm that portfolio investors are attracted to well performing firms.

This is not true of foreign direct investors. The negative correlations respectively, of -0.0293 and -0.0648 between foreign direct investors and productivity, suggest that foreign direct investors are attracted to firms with low productivity because of potential improvement. The correlation of firm size with current performance is significantly positive. But as evident in Panel A, the relationship between size and future changes in performance is insignificant. Lastly, firms dominated by a large domestic shareholder attract foreign portfolio investors but deter foreign direct and control-seeking domestic investors. The positive correlation between the excess vote of the largest domestic shareholder and participation of foreign portfolio investors of 0.0920, and

negative correlations between the excess vote of the largest domestic shareholder and participation of foreign direct and control-seeking domestic investors respectively, of -0.0639 and -0.0901, are highly significant.

1.4.2 Multivariate Analysis

Two-way fixed effects regressions, $\mathbf{Y_{t+1} = Xb_t + e_t}$, that control for both firm specific characteristics and time are used to assess whether changes in equity investments by foreign direct investors increase firm performance in the subsequent period. The dependent variable, $\mathbf{Y_{t+1}}$: $Performance_{t+1} - Performance_t$, utilizes ROA_t, ROE_t, and EPS_t as surrogates for firm performance. The explanatory variables, X_t, are: (*i*) current change in ownership reflected by the categorical dummy variables $F\text{-}Portfolio_t$, $F\text{-}Direct_t$, and CSD_t; (*ii*) number of employees to capture $Size_t$;[12] (*iii*) current year performance; and (*iv*) excess voting power of the largest domestic shareholder in the current year; and (*v*) capital ownership of foreign direct and foreign portfolio investors for the current year. The change in the subsequent three-year average return from the current year is used to examine the long-term impact of the foreign direct investors.[13]

The results in Table 1.4 indicate that only $F\text{-}Direct_t$, namely, changes in equity investments by foreign direct investors that reduce the excess voting power of the largest domestic shareholder improve firm performance. In model 1, where $\Delta ROA_{t,t+1}$ is the change in firm performance, we find that $F\text{-}Direct_t$ has a coefficient of 0.0809 which is significant at the 0.1% level. In models 2 and 3, where the change in performance are $\Delta ROE_{t,t+1}$ and $\Delta EPS_{t,t+1}$ respectively, the coefficients 0.0845 and 2.9995, are also positive and highly significant.

[12]Results using Total Assets and log of Total Assets as well as Market Capitalization and log of Market Capitalization as alternative proxies for size are similar.

[13]The use of categorical dummy variables of control and ownership along with the use of level variables for control and ownership in the same regression is similar to the approach taken by Claessens, Djankov, Fan, and Lang (2002).

Moreover, increased participation by foreign portfolio and control-seeking domestic investors does not significantly improve and may worsen firm performance. The coefficients for *F-Portfolio*$_t$ are insignificant in models 1 and 2; negative and significant at the 5% level in model 3. The coefficients for *CSD*$_t$ are insignificant and positive in models 1 and 2; insignificant and negative, in model 3.

Further, the positive but insignificant coefficients for *F-Direct Capital*$_t$ confirms that participation by foreign direct investors improves performance but only when there is a concomitant decline in the excess voting power of the largest domestic shareholder. Similarly, the negative coefficient for *F-Portfolio Capital*$_t$, which is statistically significant in model 1 and insignificant in models 2 and 3, confirms that increased participation by foreign portfolio investors tends to worsen firm performance.

[Insert Table 1.4 about here.]

1.4.3 Intensity of Foreign Participation

If foreign direct investors improve firm performance, their impact on firm performance should be greater the more considerable is their involvement. To investigate this, we partition *F-Direct*$_t$ into three categories. *F-Direct*$_t$ *5%, F-Direct*$_t$ *10%, and F-Direct*$_t$ *20%* signifies that foreign direct investors acquire between 5% and less than 10% of the votes, between 10% and less than 20% of the votes, and 20% or more of the votes, respectively. Similarly, we partition *F-Portfolio*$_t$ into the same three categories.

Table 1.5 shows the results of a two-way fixed effects panel regressions controlling for firm and year. Foreign portfolio investors do not significantly improve firm performance regardless of how much voting control is acquired. Only increased participation of foreign direct investors matters. Moreover, the greater is their level of participation, the larger is the positive impact on firm performance. The coefficients are positive and larger as the level of participation

by foreign direct investors increases, $F\text{-}Direct_t$ *20%* > $F\text{-}Direct_t$ *10%* > $F\text{-}Direct_t$ *5%*, and significant when participation by foreign direct investors reach the 10% threshold.

[Insert Table 1.5 about here.]

1.4.4 Long Term Performance Impact

To assess whether the permanence of the improvements in firm performance that result from the participation of foreign direct investors, we examine future three-year changes in firm performance relative the current firm performance as proxies for long-term firm performance. $LTROA_{t,t+3}$, $LTROE_{t,t+3}$, and $LTEPS_{t,t+3}$ are defined as $1/3\sum_{t=1}^{3} ROA_{t+\tau} - ROA_t$, $1/3\sum_{t=1}^{3} ROE_{t+\tau} - ROE_t$, and $1/3\sum_{t=1}^{3} EPS_{t+\tau} - EPS_t$, respectively. Two-way fixed effects panel regressions controlling for firm and year are reported in Table 1.6.

The results in Tables 1.4 and 1.6 are consistent. On average, foreign direct investors are associated with long-term improvements in firm performance. In all three models, the coefficients for $F\text{-}Direct_t$ are significantly positive at the 10% level or better. In addition, note that the coefficients of $F\text{-}Portfolio_t$ are always negative; and the coefficient of CSD_t, is positive in model 1 but negative in models 2 and 3. Though none of the coefficients are significant, the participation of foreign portfolio or control-seeking domestic investors, suggests an adverse impact on firm performance.

[Insert Table 1.6 about here.]

1.4.5 Sources of Efficiency

The two-way fixed effects panel regressions controlling for firm and year reported in Table 1.7 considers labor productivity and capital intensity as potential sources of efficiency that contribute to improvements in firm performance. The dependent variables in columns 1 and 2 are the one-year future changes in revenue per employee and capital-labor ratio, and in columns 3

and 4, the three-year future changes in revenue per employee and capital-labor ratio.

[Insert Table 1.7 about here.]

The highly significant positive coefficients associated with $F\text{-}Direct_t$ in panel regressions 1 and 2 clearly show that only the participation of foreign direct investors increases labor productivity and capital intensity. The involvement either of foreign portfolio investors or control-seeking domestic investors has no impact on labor productivity or capital utilization. Firms are more profitable through lower cost from enhanced deployment of labor and capital. Moreover, the panel regressions in columns 3 and 4 show the improvements in labor and capital efficiency are long-term even after we account for momentum in labor productivity and capital intensity.

These results are consistent with Bjuggren et al. (2006) and Holmen and Hogfeldt's (2009) finding that the exercise of control by minority owners and pyramid ownership structures lead to overinvestment and loss of firm value, as well as with Jackson, Hopner, and Kurdelbusch's (2005) finding, that a change in orientation toward shareholder maximization raised the profitability of German firms. Lastly, our results complement Giannetti and Laeven (2009) who find that foreign pension funds improve firm performance. Their study, however, fails to differentiate between ownership and control. We show that it is voting control rather than ownership that enhances firm performance.[14]

1.4.6 Robustness

A decrease in the excess vote of the largest domestic shareholder as a result of foreign involvement is not sufficient by itself to improve firm performance. Reductions in excess vote

[14]Giannetti and Laeven (2009) examine firms with both single and dual class issues. But in this case, the correlation between ownership and vote percentages is high. In contrast, our study has a relatively high degree of separation between ownership and vote percentages. Consequently, we can account for both simultaneously and show that the impact of foreign votes on firm performance dominates the impact of foreign ownership.

must entail a voluntary acquiescence of control by the largest domestic shareholders to foreign direct investors. Moreover, participation by control-seeking domestic shareholders is not a substitute. Only foreign direct investors can be agents of change.

To underscore these points, we examine two panel datasets that focus on firm-years where there was a decline in the excess vote of the largest domestic shareholder. In the first dataset, declines in the excess vote of the largest domestic shareholder are associated with increases in ownership and vote of foreign direct and control-seeking domestic investors. In the second dataset, declines in the excess vote of the largest domestic shareholder are associated only with increases in ownership and vote of control-seeking domestic investors that more than offset decreases in the ownership and vote of foreign direct investors.

[Insert Table 1.8 about here.]

In the panel regressions, the actual decreases in excess vote percentages of the largest domestic shareholder are denoted by $\Delta Excess\ Vote_t^-$; increases and decreases of foreign vote percentages by $\Delta F - Vote_t^+$ and $\Delta F - Vote_t^-$, respectively; and increases in vote percentages of control-seeking domestic investors, by $\Delta D - Vote_t^+$. Interaction terms $\Delta Excess\ Vote_t^-$ (X) $\Delta F - Vote_t^+$, $\Delta Excess\ Vote_t^-$ (X) $\Delta F - Vote_t^-$, and $\Delta Excess\ Vote_t^-$ (X) $\Delta D - Vote_t^+$, reflect changes in the excess vote percentage of the largest domestic shareholder associated with changes in voting percentages of foreign direct and control-seeking domestic investors.

The two-way fixed effects panel regressions controlling for firm and year in Table 1.8 confirm that a reduction in excess vote as a result of participation by foreign direct or control-seeking domestic investors is insufficient to improve firm performance. The coefficients associated with excess vote and foreign vote are mostly positive but insignificant. Moreover, greater participation by control-seeking domestic shareholders tends to lower rather than raise

firm performance – coefficients are mostly negative though insignificant. Only when reductions in excess vote are accompanied by increases in foreign direct investors' vote does firm performance improve. Coefficients corresponding to these interaction terms are consistently positive and significant. These results indicate the critical importance of our classification of foreign investors as either direct or portfolio investors. Although not shown, the classification of institutional foreign investors does not impact our results. The vast majority of both foreign portfolio and foreign direct investors are institutions, and consequently, institutional investor is not a characteristic that distinguishes foreign portfolio from foreign direct investors.

1.5 CONCLUDING REMARKS

A reversal in the decline in Swedish GDP per capita began in 1994. Sweden's GDP per capita growth between 1998 and 2004 was the strongest amongst OECD nations. High productivity growth was cited as the primary explanation for this positive development by McKinsey Global Institute's report "Sweden's Economic Performance: Recent Development, Current Priorities" (2006). During this period, productivity growth in Sweden's private sector ranked 4th among OECD countries and was 1.5 times higher than the average. Sweden's admission to the EU lowered trade barriers and the influx of foreign owners' willingness to confront labor unions enhanced the competitiveness of Swedish firms. The result was an increase in output without a corresponding increase in labor input[15]. The macroeconomic trends are consistent with the firm level evidence we find in this study, which shows that improved firm performance is associated with higher labor productivity and capital intensity.

As institutions theory predicts, foreign direct investors can be agents of change in firms controlled by culturally entrenched insiders. Foreign investors reorient corporate governance

[15]This is consistent with the view that Sweden's high-growth firms only modestly contribute to job creation (Davidsson and Henrekson 2002).

goals without radically changing the formal rules and regulations that govern corporate choice, and instead, effect changes in corporate culture by challenging the informal rules of the game. Successful change can come only when large domestic shareholders, who are highly entrenched and can obstruct change, are willing to relinquish some control rights. Foreign direct investors, primarily from the United States and the United Kingdom, induced a shift by Swedish firms towards a shareholder orientation that places efficiency above welfare and away from a stakeholder orientation that places common interests ahead of financial performance.

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Table 1.1: Trend in Ownership and Control of Swedish Firms

External public pressure on Sweden to join the European Union in the early 1990's was an exogenous catalyst that led to an influx of foreign investors. *D1–Vote* and *F–Vote*, are the percentages of voting rights exercised by the largest domestic shareholder and the aggregate of all foreign investors respectively; and *D1–Capital* and *F–Capital*, are the ownership percentages of the largest domestic shareholder, the foreign direct investor, and the aggregate of all foreign portfolio investors, respectively. *Excess Vote*$_t$ is the difference between the ownership and voting percentages of the largest domestic shareholder. Average ownership and voting percentages of Swedish firms held by foreigners increased from 4.07% and 3.55% respectively on average in 1992 to 25.53% and 23.43% respectively in 2008. Foreign ownership of total market capital increases from 14.4% to 37.3% during the sample period. There was a corresponding decrease in excess vote of the largest domestic shareholder from 15.15% in 1992 to 7.40% in 2008; their ownership and voting declined from 35.05% and 50.21% respectively in 1992 to 21.32% and 28.72% respectively in 2008. The same period saw a concurrent: (*i*) 53% decrease in the use of dual class shares from 86.63% in 1992 to 45.95% in 2008; (*ii*) 5% annual compounded growth rate in GDP from SEK 1,448 billion in 1992 to SEK 3,182 billon in 2008; (*iii*) 13% annual gain in market capitalization from SEK 552 billion in 1992 to SEK 3,691 billion in 2008; and (*iv*) 8% annual expansion in initial public offerings.

	1992	1996	2000	2004	2008
F–Capital	4.07	17.08	19.47	19.98	25.53
F–Vote	3.55	14.11	18.03	18.52	23.43
Foreign Ownership of Total Capital, %	14.40	32.10	39.20	33.30	37.30
D1–Capital	35.05	26.79	23.05	22.73	21.32
D1–Vote	50.21	39.41	32.92	30.79	28.72
Excess Vote$_t$	15.15	12.62	9.87	8.06	7.40
Firms with Dual Class Shares (%)	86.63	69.95	59.69	54.15	45.95
GDP (SEK billions)	1,448	1,690	2,013	1,926	3,182
Market Capitalization (SEK billions)	552	1,210	3,800	2,115	3,691
Market Capitalization to GDP (%)	38.12	71.60	188.77	109.81	116.00
New Issues (SEK billions)	1.79	2.74	2.73	4.10	6.50

Table 1.2: Summary Statistics

ROA_t, ROE_t, and EPS_t, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ and *Average Numbers of Shares Outstanding*$_{t-1,t}$, respectively, are used as proxies of firm profitability. $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ denote future (t,t+1) one-year changes in profitability. *F-Direct*$_t$, *F-Portfolio*$_t$, and CSD_t, denote changes in equity associated with foreign direct or foreign portfolio investors, and control-seeking domestic investors respectively. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *Capital Intensity*$_t$ and *Labor Productivity*$_t$ are defined as *Average Plant, Property, and Equipment*$_{t-1,t}$ divied by *Average Number of Emplyees*$_{t-1,t.}$ and *Net Revenue*$_t$ divided by *Average Number of Emplyees*$_{t-1,t.}$ Δ*Capital Intensity*$_{t,t+1}$ and Δ*Labor Productivity*$_{t,t+1}$ denote future (t,t+1) one-year changes.

	No. of Firm-Years	Mean	Standard Deviation	Min	Max
ROA_t	**1512**	0.0112	0.1480	-0.7803	0.4936
ROE_t	**1512**	0.0299	0.3281	-2.0738	1.3924
EPS_t	**1512**	5.2189	10.3212	-42.7807	52.2858
$\Delta ROA_{t,t+1}$	**1353**	0.0013	0.1296	-0.7034	0.7364
$\Delta ROE_{t,t+1}$	**1353**	0.0046	0.3154	-2.9621	2.8013
$\Delta EPS_{t,t+1}$	**1353**	0.3552	9.7142	-45.7407	51.0256
F-Direct$_t$	**1353**	0.2341	0.4236	0	1
F-Portfolio$_t$	**1353**	0.3115	0.4633	0	1
CSD_t	**1353**	0.1581	0.3649	0	1
Size$_t$	**1512**	9.3913	24.8464	0.0010	80.3690
Excess Vote$_t$	**1512**	17.3236	12.6806	-20.2%	50.0%
F-Direct Capital$_t$	**1353**	8.3158	12.2174	0%	78.9%
F-Portfolio Capital$_t$	**1353**	5.3258	11.6084	0%	89.2%
Capital Intensity$_t$	**1512**	1.0335	2.1533	0.0054	34.1235
Labor Productivity$_t$	**1509**	2.0289	4.5026	0.0210	75.5864
Δ*Capital Intensity*$_{t,t+1}$	**1353**	0.0392	0.0429	-4.5703	5.7383
Δ*Labor Productivity*$_{t,t+1}$	**1329**	0.0992	0.0551	-5.4481	5.8997

Table 1.3: Correlation Matrix

ROA_t, ROE_t, and EPS_t, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ and *Average Numbers of Shares Outstanding*$_{t-1,t}$, respectively, are used as proxies of firm profitability. $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ denote future (t,t+1) one-year changes in profitability. *F-Direct*$_t$, *F-Portfolio*$_t$, and CSD_t, denote changes in equity associated with foreign direct or foreign portfolio investors, and control-seeking domestic investors respectively. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *Capital Intensity*$_t$ and *Labor Productivity*$_t$ are defined as *Average Plant, Property, and Equipment*$_{t-1,t}$ divided by *Average Number of Emplyees*$_{t-1,t.}$ and *Net Revenue*$_t$ divided by *Average Number of Emplyees*$_{t-1,t.}$ Δ*Capital Intensity*$_{t,t+1}$ and Δ*Labor Productivity*$_{t,t+1}$ denote future (t,t+1) one-year changes. Panel A shows the correlations between the dependent variables (horizontal axis) and the independent variables (vertical axis). While Panel B reports the correlations between the independent variables. *P*-values are shown in parentheses.

PANEL A	$\Delta ROA_{t,t+1}$	$\Delta ROE_{t,t+1}$	$\Delta EPS_{t,t+1}$	Δ*Capital Intensity*$_{t,t+1}$	Δ*Labor Productivity*$_{t,t+1}$
F-Direct$_t$	0.0732 (0.01)	0.0015 (0.06)	0.0735 (0.01)	0.0439 (0.04)	0.0385 (0.07)
F-Portfolio$_t$	-0.0405 (0.14)	-0.0048 (0.86)	-0.0532 (0.05)	-0.0160 (0.46)	0.0337 (0.12)
CSD$_t$	-0.0136 (0.62)	-0.0127 (0.64)	-0.0067 (0.84)	-0.0037 (0.87)	-0.0037 (0.86)
ROA$_t$	-0.4825 (0.00)	0.0652 (0.02)	-0.2158 (0.00)	0.0063 (0.77)	0.0063 (0.77)
ROE$_t$	0.1574 (0.00)	-0.7172 (0.00)	-0.1957 (0.00)	0.0008 (0.97)	0.0014 (0.95)
EPS$_t$	-0.0629 (0.02)	-0.1200 (0.00)	-0.6654 (0.00)	-0.0064 (0.77)	-0.0007 (0.97)
Capital Intensity$_t$	-0.0007 (0.98)	-0.0071 (0.94)	0.0054 (0.80)	0.5189 (0.00)	0.0465 (0.02)
Labor Productivity$_t$	0.0110 (0.61)	0.0130 (0.55)	0.0269 (0.21)	0.0472 (0.03)	0.4187 (0.00)
Size$_t$	-0.0054 (0.84)	-0.0011 (0.97)	-0.0004 (0.99)	-0.0161 (0.45)	-0.0046 (0.83)
Excess Vote$_t$	-0.0215 (0.43)	-0.0144 (0.60)	-0.0304 (0.26)	0.0142 (0.51)	-0.0108 (0.62)
F-Direct Capital$_t$	0.0207 (0.45)	0.0017 (0.95)	0.0223 (0.41)	-0.0031 (0.89)	-0.0221 (0.39)
F-Portfolio Capital$_t$	-0.0890 (0.00)	-0.0382 (0.16)	-0.0096 (0.72)	0.0179 (0.40)	-0.0037 (0.68)

PANEL B	F-Direct$_t$	F-Passive$_t$	CSD$_t$	ROA$_t$	ROE$_t$	EPS$_t$	Capital Int$_t$	Labor Product$_t$	Size$_t$	Excess Vote$_t$	F-Direct Capital$_t$
F-Portfolio$_t$	-0.2787 (0.00)										
CSD$_t$	-0.2396 (0.00)	-0.2915 (0.00)									
ROA$_t$	-0.0347 (0.18)	0.1059 (0.00)	-0.0909 (0.00)								
ROE$_t$	-0.0080 (0.76)	0.0565 (0.03)	-0.0664 (0.01)	0.1180 (0.00)							
EPS$_t$	-0.0299 (0.25)	0.0826 (0.00)	-0.0073 (0.78)	0.3952 (0.00)	0.2840 (0.00)						
Capital Int$_t$	-0.0293 (0.14)	0.0495 (0.01)	0.0140 (0.48)	0.0217 (0.28)	0.0085 (0.67)	0.0030 (0.88)					
Labor Product$_t$	-0.0648 (0.00)	0.0402 (0.05)	-0.0016 (0.56)	0.0033 (0.87)	-0.0048 (0.81)	-0.0229 (0.25)	0.0610 (0.00)				
Size$_t$	0.0570 (0.30)	0.0065 (0.80)	-0.0023 (0.93)	0.0939 (0.00)	0.0451 (0.08)	0.1566 (0.00)	-0.0292 (0.15)	-0.0157 (0.43)			
Excess Vote$_t$	-0.0639 (0.01)	0.0920 (0.00)	-0.0901 (0.00)	0.0091 (0.36)	0.0125 (0.63)	0.0798 (0.13)	-0.0208 (0.30)	-0.0201 (0.32)	0.0669 (0.01)		
F-Direct Capital$_t$	0.2232 (0.00)	-0.1658 (0.00)	-0.1796 (0.00)	-0.0256 (0.32)	-0.0040 (0.88)	-0.0079 (0.76)	-0.0048 (0.81)	-0.0707 (0.00)	0.2079 (0.00)	-0.1154 (0.00)	
F-Portfolio Capital$_t$	-0.2500 (0.00)	0.2800 (0.00)	-0.1766 (0.00)	0.0440 (0.17)	0.0145 (0.57)	0.0336 (0.19)	0.0052 (0.80)	0.0226 (0.34)	0.1860 (0.00)	0.0502 (0.05)	-0.3616 (0.00)

Table 1.4: Impact of Foreign Investors on Firm Performance

Table reports two-way fixed effects regressions controlling for firm and year. $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ denote future (t,t+1) one-year changes in profitability. $F\text{-}Direct_t$, $F\text{-}Portfolio_t$, and CSD_t, denote changes in equity associated with foreign direct or foreign portfolio investors, and control-seeking domestic investors respectively. Number of employees (000s) is used as a surrogate for firm $Size_t$. ROA_t, ROE_t, and EPS_t, defined as $Net\ Income_t$ divided by $Average\ Total\ Assets_{t-1,t}$, $Average\ Shareholders\ Equity_{t-1,t}$ divided by $Average\ Total\ Assets_{t-1,t,}$ and $Average\ Numbers\ of\ Shares\ Outstanding_{t-1,t}$, divided by $Average\ Total\ Assets_{t-1,t}$ respectively, are used as proxies of firm profitability. $Excess\ Vote_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. $F\text{-}Direct\ Capital_t$ and $F\text{-}Portfolio\ Capital_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *P*-values are shown in parentheses. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	Dependent Variable		
	$\Delta ROA_{t,t+1}$	$\Delta ROE_{t,t+1}$	$\Delta EPS_{t,t+1}$
$F\text{-}Direct_t$	0.0809***	0.0845***	2.9995***
	(0.001)	(0.010)	(0.003)
$F\text{-}Portfolio_t$	-0.0149	0.0113	-1.9306**
	(0.496)	(0.697)	(0.030)
CSD_t	0.0096	0.0185	-0.4044
	(0.540)	(0.371)	(0.524)
$Size_t$	-1.80E-05	-0.0002	-0.0183
	(0.973)	(0.784)	(0.407)
$Excess\ Vote_t$	-0.0003	-0.0007	0.0420
	(0.798)	(0.611)	(0.344)
$F\text{-}Direct\ Capital_t$	0.0015	0.0016	0.0512
	(0.105)	(0.197)	(0.164)
$F\text{-}Portfolio\ Capital_t$	-0.0019**	-0.0016	-0.0122
	(0.029)	(0.165)	(0.730)
ROA_t	-0.7191***		
	(0.000)		
ROE_t		-0.7403***	
		(0.000)	
EPS_t			-0.6004***
			(0.000)
Constant	0.0131	0.0392	2.9215**
	(0.666)	(0.328)	(0.019)
R^2	0.3719	0.4549	0.3167
Number of Firm-Years	1353	1353	1353
Number of Firms	172	172	172

Table 1.5: Intensity of Foreign Participation and Firm Performance

Table reports two-way fixed effects regressions controlling for firm and year. $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ denote future (t,t+1) one-year changes in profitability. *F-Direct*$_t$ *X%*, *F-Portfolio*$_t$ *X%*, and *CSD*$_t$ *X%*, denote changes in equity associated with foreign direct or foreign portfolio investors, and control-seeking domestic investors respectively. Threshold percentages 5%, 10%, and 20%, indicate the magnitudes of the change in voting rights associated with the level of involvement by foreign direct or portfolio investors and control-seeking domestic investors and are defined respectively as $5\% \leq X\% < 10\%$, $10\% \leq X\% < 20\%$, $20\% \leq X\%$. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *ROA*$_t$, *ROE*$_t$, and *EPS*$_t$, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ divided by *Average Total Assets*$_{t-1,t}$, and *Average Numbers of Shares Outstanding*$_{t-1,t}$, divided by *Average Total Assets*$_{t-1,t}$, respectively, are used as proxies of firm profitability. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *P*-values are shown in parentheses. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	Dependent Variable		
	$\Delta ROA_{t,t+1}$	$\Delta ROE_{t,t+1}$	$\Delta EPS_{t,t+1}$
F-Direct$_t$ 5%	0.0335 (0.266)	0.0086 (0.813)	1.3992 (0.209)
F-Direct$_t$ 10%	0.0840* (0.059)	0.1139** (0.031)	3.8938** (0.023)
F-Direct$_t$ 20%	0.1530** (0.012)	0.2136*** (0.006)	4.0896* (0.068)
F-Portfolio$_t$ 5%	0.0066 (0.797)	0.0112 (0.744)	-0.9690 (0.349)
F-Portfolio$_t$ 10%	0.0132 (0.695)	0.0215 (0.620)	0.0294 (0.983)
F-Portfolio$_t$ 20%	-0.0247 (0.460)	-0.0501 (0.247)	-0.7937 (0.550)
Size$_t$	-0.0001 (0.903)	-0.0001 (0.806)	-0.0157 (0.370)
Excess Vote$_t$	0.0002 (0.678)	0.0001 (0.917)	-0.0085 (0.602)
F-Direct Capital$_t$	0.0009 (0.278)	0.0004 (0.545)	0.0181 (0.365)
F-Portfolio Capital$_t$	0.0001 (0.893)	-0.0085 (0.614)	-0.2650 (0.603)
ROA$_t$	-0.2686*** (0.000)		
ROE$_t$		-0.3198*** (0.000)	
EPS$_t$			-0.2591*** (0.000)
Constant	-0.0086 (0.333)	-0.0203 (0.299)	1.6867*** (0.000)
R^2	0.2275	0.2246	0.2241
Number of Firm-Years	1353	1353	1353
Number of Firms	172	172	172

Table 1.6: Impact of Foreign Investors on Long-Term Firm Performance

Table reports two-way fixed effects regressions controlling for firm and year. $LT\Delta ROA_{t,t+3}$, $LT\Delta ROE_{t,t+3}$, and $LT\Delta EPS_{t,t+3}$ denote future (t,t+3) three-year average changes in profitability. *F-Direct*$_t$, *F-Portfolio*$_t$, and *CSD*$_t$, denote changes in equity associated with foreign direct or portfolio investors, and control-seeking domestic investors respectively. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *ROA*$_t$, *ROE*$_t$, and *EPS*$_t$, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ divided by *Average Total Assets*$_{t-1,t}$, and *Average Numbers of Shares Outstanding*$_{t-1,t}$, divided by *Average Total Assets*$_{t-1,t}$, respectively, are used as proxies of firm profitability. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *P*-values are shown in parentheses. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	Dependent Variable		
	$LT\Delta ROA_{t,t+3}$	$LT\Delta ROE_{t,t+3}$	$LT\Delta EPS_{t,t+3}$
$F\text{-}Direct_t$	0.0385**	0.0403*	1.3520*
	(0.019)	(0.075)	(0.087)
$F\text{-}Portfolio_t$	-0.0220	-0.0261	-0.5570
	(0.110)	(0.168)	(0.404)
CSD_t	0.0135	-0.0028	-0.7192
	(0.172)	(0.836)	(0.217)
$Size_t$	-0.0001	-0.0004	-0.0239
	(0.840)	(0.421)	(0.155)
$Excess\ Vote_t$	-0.0003	-0.0013	-0.0116
	(0.722)	(0.218)	(0.589)
$F\text{-}Direct\ Capital_t$	0.0003	0.0004	0.0268
	(0.603)	(0.664)	(0.371)
$F\text{-}Portfolio\ Capital_t$	-0.0007	-0.0002	-0.0119
	(0.224)	(0.803)	(0.662)
ROA_t	-0.8423***		
	(0.000)		
ROE_t		-0.8890***	
		(0.000)	
EPS_t			-0.4985***
			(0.00)
Constant	0.0002	0.0572***	2.8650***
	(0.988)	(0.007)	(0.000)
R^2	0.3933	0.3275	0.2234
Number of Firm-Years	1039	1039	1039
Number of Firms	161	161	161

Table 1.7: Sources of Efficiency

Table reports two-way fixed effects regressions controlling for firm and year. *Average Plant, Property, and Equipment*$_{t-1,t}$ divided by *Average Number of Emplyees*$_{t-1,t}$ and *Net Revenue*$_t$ divided by *Average Number of Emplyees*$_{t-1,t}$ as proxies for *Capital Intensity*$_t$ and *Labor Productivity*$_t$, respectively. *ΔCapital Intensity*$_{t,t+1}$ and *ΔLabor Productivity*$_{t,t+1}$, are future (t,t+1) changes in capital intensity and labor productivity, *LTΔCapital Intensity*$_{t,t+3}$ and *LTΔLabor Productivity*$_{t,t+3}$, are future three-year average changes in capital intensity and labor productivity. *F-Direct*$_t$, *F-Portfolio*$_t$, and *CSD*$_t$, denote changes in equity associated with foreign direct or foreign portfolio investors, and control-seeking domestic investors respectively. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *ROA*$_t$, *ROE*$_t$, and *EPS*$_t$, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ divided by *Average Total Assets*$_{t-1,t}$, and *Average Numbers of Shares Outstanding*$_{t-1,t}$, divided by *Average Total Assets*$_{t-1,t}$, respectively, are used as proxies of firm profitability. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *P*-values are shown in parentheses. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	Dependent Variable			
	ΔLabor Productivity$_{t,t}$	*ΔCapital Intensity*$_{t,t+1}$	*LTΔLabor Productivity*	*LTΔCapital Intensity*$_{t,t+3}$
F-Direct$_t$	279.2525**	194.9466***	139.4983**	241.7478*
	(0.03)	(0.00)	(0.04)	(0.10)
F-Portfolio$_t$	74.4233	-33.1217*	46.5038	-26.4265
	(0.49)	(0.10)	(0.39)	(0.28)
CSD$_t$	59.4255	8.3270	21.1869	-1.3698
	(0.62)	(0.76)	(0.76)	(0.41)
Size$_t$	0.2594	-0.1508	0.1399	0.3063
	(0.94)	(0.84)	(0.94)	(0.96)
Excess Vote$_t$	-2.2377*	-0.3176	-2.9872**	0.2780
	(0.07)	(0.84)	(0.04)	(0.81)
F-Direct Capital$_t$	7.8998	0.3985	-0.3920	2.0710
	(0.12)	(0.64)	(0.90)	(0.83)
F-Portfolio Capital$_t$	-6.7296	-5.8350***	-3.1831	-1.8168
	(0.11)	(0.00)	(0.16)	(0.83)
Capital Intensity$_t$	0.3617***		0.1892***	
	(0.00)		(0.00)	
Labor Productivity$_t$		0.2376***		0.4173***
		(0.00)		(0.00)
Constant	-64.9169	-174.8600***	-201.5610*	-277.7420
	(0.14)	(0.00)	(0.07)	(0.25)
R^2	0.2833	0.3118	0.2479	0.2888
Number of Firm-Years	1329	1353	1035	1046
Number of Firms	170	172	159	160

Table 1.8: Robustness Test

Table reports two-way fixed effects regressions controlling for firm and year focused around firm-years where the excess vote percentage of the largest domestic shareholder declined. In Panel A, declines in excess votes are associated with increases in the voting percentages of foreign direct and control-seeking domestic investors. In Panel B, declines in excess votes are associated with increases in the voting percentage of control-seeking domestic shareholders that more than offset decreases in the voting percentage of foreign direct investors. These voting percentage changes are denoted by $\Delta Excess\,Vote_t^-$, $\Delta F-Vote_t^+$, $\Delta F-Vote_t^-$, and $\Delta D-Vote_t^+$, respectively. $\Delta ROA_{t,t+1}$, $\Delta ROE_{t,t+1}$, and $\Delta EPS_{t,t+1}$ denote future (t,t+1) one-year changes in profitability; and $LT\Delta ROA_{t,t+3}$, $LT\Delta ROE_{t,t+3}$, and $LT\Delta EPS_{t,t+3}$ denote future (t,t+3) three-year average changes in profitability. Number of employees (000s) is used as a surrogate for firm *Size*$_t$. *ROA*$_t$, *ROE*$_t$, and *EPS*$_t$, defined as *Net Income*$_t$ divided by *Average Total Assets*$_{t-1,t}$, *Average Shareholders Equity*$_{t-1,t}$ divided by *Average Total Assets*$_{t-1,t}$, and *Average Numbers of Shares Outstanding*$_{t-1,t}$, divided by *Average Total Assets*$_{t-1,t}$, respectively, are used as proxies of firm profitability. *Excess Vote*$_t$ is the difference between ownership and voting percentages of the largest domestic shareholder. *F-Direct Capital*$_t$ and *F-Portfolio Capital*$_t$ are the ownership percentages of foreign direct and foreign portfolio investors. *P*-values are shown in parentheses. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

PANEL A	Dependent Variable					
	$\Delta ROA_{t,t+1}$	$\Delta ROE_{t,t+1}$	$\Delta EPS_{t,t+1}$	$LT\Delta ROA_{t,t+3}$	$LT\Delta ROE_{t,t+3}$	$LT\Delta EPS_{t,t+3}$
$\Delta F - Vote_t^+$	0.0008 (0.645)	0.0003 (0.953)	0.0624 (0.566)	0.0011 (0.288)	0.0006 (0.399)	0.1241 (0.185)
$\Delta D - Vote_t^+$	0.0007 (0.634)	-0.0023 (0.474)	0.0306 (0.713)	-0.0007 (0.427)	-0.0033 (0.143)	-0.0051 (0.951)
$\Delta Excess\ Vote_t^-$	0.0034 (0.220)	0.0035 (0.572)	0.0862 (0.588)	0.0014 (0.431)	0.0027 (0.603)	0.0372 (0.844)
$\Delta Excess\ Vote_t^-$ (X) $\Delta F - Vote_t^+$	0.0013** (0.037)	0.0036* (0.069)	0.0368* (0.058)	0.0011*** (0.004)	0.0044* (0.087)	0.0359** (0.016)
$\Delta Excess\ Vote_t^-$ (X) $\Delta D - Vote_t^+$	0.0001 (0.840)	-0.0019 (0.611)	-0.0098 (0.300)	-5.28E-06 (0.974)	-8.7E-05 (0.848)	0.0102 (0.537)
$Size_t$	0.0001 (0.825)	-0.0001 (0.940)	-0.0168 (0.639)	-3.14E-07 (0.999)	-0.0005 (0.533)	-0.0326 (0.239)
Excess Vote$_t$	0.0006 (0.652)	-0.0008 (0.812)	0.1662 (0.530)	-0.0019 (0.156)	-0.0048 (0.141)	-0.0897 (0.302)
F-Direct Capital$_t$	0.0004 (0.569)	-0.0010 (0.628)	0.0176 (0.737)	0.0005 (0.272)	-0.0003 (0.804)	0.0225 (0.587)
F-Portfolio Capital$_t$	-0.0017 (0.780)	0.0003 (0.842)	-0.0817 (0.420)	9.94E-05 (0.794)	2.29E-06 (0.998)	-0.0413 (0.240)
ROA_t	-0.5908*** (0.000)			-0.7903*** (0.000)		
ROE_t		-1.0178*** (0.000)			-1.0149*** (0.000)	
EPS_t			-0.9763*** (0.000)			-1.0832*** (0.000)
Constant	-0.0715 (0.126)	0.0604 (0.538)	2.6662 (0.294)	0.0310 (0.810)	0.0156 *** (0.010)	1.0767 *** (0.007)
R^2 Number of Firm-Years Number of Firms	712 0.3601 161	712 0.4604 161	712 0.5047 161	523 0.4008 147	523 0.4309 147	523 0.5147 147

PANEL B	Dependent Variable					
	$\Delta ROA_{t,t+1}$	$\Delta ROE_{t,t+1}$	$\Delta EPS_{t,t+1}$	$LT\Delta ROA_{t,t+3}$	$LT\Delta ROE_{t,t+3}$	$LT\Delta EPS_{t,t+3}$
$\Delta F - Vote_t^+$	0.0016	0.0015	-0.0227	0.0003	0.0010	-0.0193
	(0.433)	(0.760)	(0.857)	(0.739)	(0.839)	(0.946)
$\Delta D - Vote_t^+$	-0.0024	-0.0034	-0.1505	-0.0013	-0.0068	-0.2550
	(0.126)	(0.367)	(0.115)	(0.383)	(0.280)	(0.111)
$\Delta Excess\ Vote_t^-$	-0.0029	-0.0022	0.2001	0.0001	0.0027	0.2685
	(0.386)	(0.780)	(0.330)	(0.937)	(0.638)	(0.229)
$\Delta Excess\ Vote_t^-$ (X) $\Delta F - Vote_t^+$	-0.0004	-0.0009	-0.0147	-0.0005	0.0047	-0.1071
	(0.507)	(0.555)	(0.700)	(0.148)	(0.174)	(0.584)
$\Delta Excess\ Vote_t^-$ (X) $\Delta D - Vote_t^+$	5.28E-05	0.0003	-0.0088	-0.0001	-0.0008	-0.0587
	(0.801)	(0.586)	(0.486)	(0.394)	(0.550)	(0.169)
$Size_t$	1.07E-04	1.00E-04	0.0020	-2.45E-05	6.82E-05	-0.1330
	(0.903)	(0.998)	(0.970)	(0.943)	(0.980)	(0.217)
$Excess\ Vote_t$	-0.0018	-0.0015	0.0489	-0.0023	-0.0028	-0.2403
	(0.364)	(0.762)	(0.692)	(0.270)	(0.395)	(0.153)
$F\text{-}Direct\ Capital_t$	0.0061	0.0033	-0.0321	0.0002	0.0184	-0.0868
	(0.579)	(0.900)	(0.962)	(0.643)	(0.170)	(0.830)
$F\text{-}Portfolio\ Capital_t$	-0.0013	2.86E-05	-0.0032	0.0003	0.0007	-0.0048
	(0.562)	(0.996)	(0.998)	(0.397)	(0.401)	(0.984)
ROA_t	-0.9416***			-1.0238***		
	(0.000)			(0.000)		
ROE_t		-0.6492***			-0.9190***	
		(0.000)			(0.000)	
EPS_t			-1.0294***			-1.1388***
			(0.000)			(0.000)
Constant	0.0297	0.1249	0.0528	0.0325	0.0693	1.0278
	(0.377)	(0.118)	(0.510)	(0.034)	(0.240)	(0.010)
R^2	632	632	632	296	296	296
Number of Firm-Years	0.3566	0.3314	0.3010	0.2966	0.2846	0.2506
Number of Firms	141	141	141	102	102	102

2. Institutional Impact on the Outreach and Profitability of Microfinance Organizations

Abstract

In 2006, Dr. Muhammad Yunus shared the Nobel Peace Prize with the institution he founded, Grameen Bank, a microfinance organization and community development bank in Bangladesh. More than three decades after its founding, formalized microfinance has expanded to hundreds of countries by way of thousands of institutions, all extending financial services to the traditionally underserved, whom we call the "non-banked", especially the rural poor and micro-entrepreneurs. In this study, we investigate the impact of formal and informal institutions on the outreach and profitability of microfinance organizations. We find that strong formal institutions foster better efficiency and outreach while strong informal institutions' impact is limited to better outreach.

2.1 INTRODUCTION

In 2006, Dr. Muhammad Yunus shared the Nobel Peace Prize with the institution he founded, Grameen Bank, a microfinance organization and community development bank in Bangladesh. More than three decades after its founding, formalized microfinance (as opposed to traditional, often predatory, money-lending) has expanded to hundreds of countries by way of thousands of institutions, all extending financial services to the traditionally underserved, whom we call the "non-banked", especially the rural poor and micro-entrepreneurs.

As microfinance organizations continue to grow and expand their services, various forms of organizational structure emerge. Some remain purely philanthropic, relying on governments and NGOs for funds. These organizations focus on reaching the poor; loan performance is a lesser concern. Others introduce funds from the private sector and gradually move away from the micro-loan models and shift resources toward larger loans. Yet many others aspire to strike a subtle balance between profitability and outreach, aiming at financial self-sustainability while providing needed social services to the poor. The organizational structure chosen by a microfinance institution largely depends on the community they serve, which has its unique social characteristics, including cultural heritage and popular values, commonly referred to as "informal institutions", and legal rules, government effectiveness, and regulatory environment, known as "formal institutions".

This paper attempts a first pass analysis to understand the impact of formal and informal institutions on the success of microfinance institutions. We are interested to see how a microfinance organization's external environment affects its profitability and outreach goals. This study will provide policy makers and investors some guidance as to what changes are necessary to accompany the improved access to capital in an effort to reduce and ultimately

eradicate poverty.

The rest of this paper is organized as follows. Section 2.2 introduces microfinance business models around the world. Section 2.3 explores the definitions of formal and informal institutions and explains why they matter in the context of microfinance. Section 2.4 introduces the data used in this paper. Sections 2.5 and 2.6 discuss what constitutes success by exploring profitability and outreach metrics and their relation to the external institutions of a society. Section 2.7 concludes.

2.2 MICROFINANCE AND MICROFINANCE INSTITUTIONS (MFIs)

While microfinance service has expanded in some areas to include savings accounts, deposit taking, and insurance services, most microfinance service is microcredit, that of granting small (or 'micro') loans to the poor, usually without pledges of traditional collateral. There are a number of reasons why traditional banks cannot or choose not to provide services to the poor. The poor often have little or no net worth and therefore cannot pledge collateral as a personal guarantee of loan repayment. They often need very small loans but the costs to service loans do not depend upon loan size; that is, the costs incurred by the bank in servicing a small loan are comparable to that of servicing a large loan. It is therefore much more cost efficient for a bank to lend larger amounts and have minimum loan amounts that exclude small borrowers. And in the absence of collateral, financial statements, and credit histories, the risk that micro borrowers may default is difficult for traditional banks to gauge accurately. Physical distance may also be an issue for both the borrower and the traditional bank as it is difficult for borrowers to travel any distance to repay their loans and costly for bank representatives to visit rural borrowers and monitor loans.

Microfinance institutions (MFIs) charge higher interest rates to their borrowers to cover

the higher costs of servicing microloans. Reported interest rates vary considerably, and are reported as high as 20% per day, or 18%-200% annually on declining loan balance. [1] How, one may ask, would 20% per day be satisfactory to the borrower? One must take into consideration the explosive gains in efficiency that credit affords the rural, poor, entrepreneur. For example, consider a small grocer in a rural village in a developing country. With relatively poor infrastructure, transportation, and limited financial resources, the grocer must close her shop every other day as she travels a far distance to buy inventory for her shelves, which she pays for with the profits from the previous day's sales. If, however, she has a small loan for a week she is able to buy a week's worth of inventory and close the shop only on the one day needed to travel for supplies. Her store is better stocked with a larger and broader inventory, is open for business more frequently, and the efficiencies gained mean more opening hours, more product sold, and more attention paid to other business needs (other than inventory procurement). More efficiency ultimately means more revenues at lower cost and part of these 'efficiency improvement profits' are used to repay the loan and interest. And much like business in the developed world that relies upon short term credit and liquidity, the grocer then gets another week-long loan for another week of inventory.

If MFIs can charge higher fees to cover their higher administrative costs, one large impediment to providing financial services to the underserved is overcome. As important, however, are the combined effects of several innovations in microfinance that allow MFIs to be successful where traditional banks are not.

A profound innovation in microfinance is the practice of joint liability through group lending. The MFI harnesses the power of group dynamics, the intimate communal knowledge

[1] Robinson, Marguerite S. 2001. *The Microfinance Revolution: Sustainable Finance for the Poor.*

shared by locals, and collective advancement or consequences to outsource a significant portion of information gathering and loan monitoring. Groups, as opposed to individuals, apply for a loan. Members of the group are then jointly responsible for loan repayment. If the loan is repaid the group is in good standing to receive another loan. If one member defaults the entire group is responsible and is less likely to get a loan in the future (Khandker, 1998). Progressive lending practices allow for future loans to be larger than the initial loans, adding incentive for groups to repay their loans. Importantly, where traditional banks would increase interest rates to offset increased repayment risk, MFIs use group monitoring – as members monitor each other and have to rescue defaulting members on their own – to decrease repayment risk and/or offset default costs.[2] Furthermore, there is a smaller probability of strategic default[3] since members jointly suffer even if only one member defaults.

Frequent and public loan payments also serve to increase the likelihood of repayment. Frequent repayments decrease the likelihood that excess funds – from a profitable business, for example – are used by extended family members in need, a common practice in rural and developing communities, instead of meeting loan obligations. Of course, most of us share the common temptation to spend more as funds increase and are otherwise idle. The rural poor are no different. Public repayment increases the social stigma of non-repayment and potentially increases the village or group's trust in those who make payments. Frequent and public repayment also decreases the possibility that MFI officials or loan representatives are corrupted as the public knows who paid, how much, and how often. It also keeps MFI administrative costs

[2] Armendariz de Aghion and Morduch, *The Economics of Microfinance*, 2005.

[3] Strategic default refers to the decision of a borrower to default because the perceived cost of default to the borrower is less than the cost of keeping the loan current. For example, a homeowner may choose to strategically default on her mortgage (walk away from her home and let the property fall into foreclosure) if home prices have plummeted, making her loan balance much greater than the market value of the home.

in check if representatives are able to meet with many clients locally at one time.

MFIs may also accept pledges of non-traditional collateral as a guarantee of repayment. Non-traditional collateral may be anything that the owner values, regardless of how the market would price the collateral. Often items with family history or sentimental value attached are 'worth' more to their owners than the market. As a condition to receiving loans, MFIs may have savings requirements. Savings serve as collateral, as a means of providing other loans as savings are mobilized among the community, and/or simply serve as an additional applicant screening mechanism.

Many MFIs work disproportionally with women clients as, regardless of local or regional gender equity norms, women have higher repayment rates than men. Women often have less access to traditional banking services than men. Women may also be more attuned to group dynamics, social advancement, and repercussions, making them less risky in group lending environments.

[Insert Table 2.1 about here.]

MFIs started simply by offering small loans to rural poor entrepreneurs; in the ensuing decades microfinance became a dynamic subset of global finance offering diverse financial services to the traditionally underserved. MFIs differ in size, scope, services offered, organizational structure, regulatory environment, profitability, dependence upon government or nongovernmental subsidies and grants, outreach, as well as client mix, among other measures.

Many MFIs, particularly those financed by non-philanthropic funds, find themselves serving two – although not necessarily mutually exclusive – masters: social outreach and profitability. MFIs strive to be an agent of development in the greater community as well as self-sustaining – not relying upon the vagaries of external grants and donations. However outreach

and profitability are often at odds and MFIs face tradeoffs between social outreach metrics, which are more difficult to quantify and traditional profitability measures.

The business model and organizational structure chosen by an MFI depends to a large degree upon the community it serves, taking into account such things as cultural norms, values, infrastructure, the regulatory environment, size of the community, existence of competition, and many other factors. Flexibility, the ability of an MFI to adapt to changing circumstances, is important for survival. Some of the more common permutations of the MFI model are presented in Table 2.2.

[Insert Table 2.2 about here.]

An MFI is born of both social needs and entrepreneurial activity. The practices and organizational structure of each institution evolve over time within the structure and norms of local formal and informal institutions. The rest of this study explores the definitions of formal and informal institutions and explains why they matter in the context of microfinance. We then examine what constitutes success by exploring profitability measures and outreach metrics. We provide a snapshot of microfinance around the world, and conclude with closing comments and suggest areas requiring future research and development.

2.3 INSTITUIONAL ATTRIBUTES AND MFI SUCCESS

The financial success and self-sustainability of microfinance institutions depend upon the social, political, economic, and cultural environments of the host country, aggregated as the institutional attributes of a society. As all other players in society, MFIs are subject to the constraints required by the formal "rules of the game", including the nature of its host country's legal system, the strength of property right protection, the regulatory stance and efficiency of its government, as well as the breadth and strength of industry-specific regulations. The success of

MFIs also hinge on the set of societal factors that affect the behavioral norms of citizens, commonly termed informal institutions, which include culture, religious beliefs, social hierarchy, and trust among strangers. The following section describes how each institutional feature affects the financial and social performance of microfinance institutions in different countries.

2.3.1 Formal Institutions

Formal institutions include governance, regulation, legal origin and the rule of law, property rights, as well as the level of bureaucratic corruption. Governmental structure and the degree to which the citizenry can lend their voice to governmental action are important. The relative freedom of individuals to change their status and move freely within the system encourages or discourages entrepreneurial activity, and thus microfinance lending. In contrast to London and Hart (2004), we find that formal institutions, such as property rights protection and formal contract enforcement are still relevant in determining MFI success.

As the legal system of many countries is in large part a function of prior colonial rule, legal origin lends itself to governance, legal and regulatory norms. Civil law holds legislation as the primary source of law and precedent is not binding for courts. An example of a civil law system is the Napoleonic Code. Common law, on the other hand, is the compilation of court rulings that forms legal precedent. New issues and cases are decided keeping in mind how similar preceding cases were decided. The British and United States have common law systems. The common – but contested – wisdom in academic literature is that common law systems tend to foster more developed financial markets, wherein market mechanisms steer the rise and fall of business developments. Economic resources are more likely to be prioritized and/or directed by the state in civil law countries.

Regulatory environment, especially with regard to the financial system, is an important

issue for microfinance. Regulation of financial institutions adds a layer of bureaucratic requirements, filings, and oversight that increases institutional costs. However regulation should come with benefits as regulated firms also have access to lines of credit or insured deposits that they would not enjoy without regulation. Many MFIs have the ability to choose, at least in the beginning, whether or not to be regulated, with all of the opportunities and costs associated with such status. Once an MFI grows to a certain size it may be required by the state to be regulated. Efficient regulation can help an MFI grow; burdensome regulation with high compliance costs could drive smaller, weaker MFIs to fail. One would expect regulated MFIs, with their higher costs, to have stronger profitability metrics and weaker outreach metrics while unregulated organizations would be freer to pursue social outreach but at the expense of profitability.

Corruption, as related to government, bureaucracy, and regulation, is an added cost to MFIs, both in terms of social cost and actual cost. Significant corruption increases the cost of doing business and erodes the level of trust between bureaucrats and MFIs as well as between MFIs and their clients to the extent that the clientele view the MFI as part of the establishment.

2.3.2 Informal Institutions

The financial sustainability of microfinance institutions also depends upon the implicit rules of the game, or informal institutions. Dimensions of informal institutions include culture, religion, hierarchical structure, and the perception of trustworthiness among strangers. The lending and borrowing relationships between a microfinance institution and its borrowers reflect not only a formal contract that specifies the terms of the loans and repayments, but also an implicit agreement involving trust and a mutual understanding of the consequences of a particular outcome. These consequences may include culturally embedded rewards and punishments like increases in status or loss of reputation. The strength of informal institutions

will have a direct impact on the severity of punishment, such as social stigma, when an agreement is violated.

Cultural differences also manifest in a society's ability to create new enterprises. Research shows that some cultures value entrepreneurial spirit more than others (see, for example, Casson, 1993). A culture valuing strict hierarchy in organizations and demands docile respect from subordinates tends to discourage entrepreneurial activity, as it is unlikely the entrepreneur would be 'allowed' an increase in status. This reduces the demand for microloans, thus adversely affecting the outreach and financial performance of microfinance institutions in these circumstances.

In order to make meaningful comparisons we employ Geert Hofstede's four cultural dimensions: power distance, individualism, masculinity, and uncertainty avoidance. Each dimension is presented as an index. A higher value on the power distance index (PDI) indicates that members of the lower strata of society more willingly accept hierarchical structure and the unequal distribution of wealth and power. For example, the PDI values for the United Kingdom and the United States are 35 and 40, respectively, as citizens in these countries value their ability to question authority and pursue their dreams. In contrast, the PDI index for both China and the Arab countries is 80. In these societies, people have significantly less upward mobility, obey authority, and tolerate both unequal power and wealth distributions.

A higher value on the individualism index indicates a societal preference for maximizing personal as opposed to collective well-being. The U.S., U.K., and Australia have the greatest individualism. China, Guatemala, and Columbia are at the other end of the scale. An individualist culture may encourage independent thinking; stimulate entrepreneurial ventures; thus increasing the demand for microloans and the success of microfinance institutions.

Hofstede's third cultural dimension, masculinity, reflects the distribution of gender roles. A higher index value implies that the culture's men are more aggressive, assertive, competitive, and that their societal role is distinctly separate from that of women than in societies with lower values. Although these 'masculine' tendencies – assertiveness, competitiveness – are also more prevalent in women in cultures with high masculinity values, the gap between male and female behavior is still wider in these countries than in ones with lower values.

The last dimension, uncertainty avoidance, measures societal tolerance for uncertainty and risk. Higher levels of uncertainty avoidance – preference for certainty – indicate a lower societal preference for 'taking a chance'. Entrepreneurs, by definition, take greater risk and explore new ideas. Countries that value certainty over risk taking are therefore expected to have less entrepreneurial activity and, therefore, less demand for microcredit.

2.4 DATA

The Microfinance Information Exchange (or MIX Market) provides detailed data on the financial and social performance of microfinance institutions in our study. The data include observations from 1997 to 2008, approximately 6,000 firm-year observations. Table 2.3 provides a yearly summary of different types of MFIs in our sample.

[Insert Table 2.3 about here.]

An international comparison of microfinance lenders must take into account the level of regulation to which each entity is subject. We hand collect this information on each entity in MIX Market, creating a binary variable equal to one if the entity is regulated, zero if not. Banking literature (Flannery et al., 2004 and Stiroh and Rumble, 2006) generally suggests that regulation increases the cost of doing business, thus reducing financial performance. This cost is

often called regulatory burden. A simple t-test[4] comparing regulated and unregulated MFIs shows that regulated MFIs tend to be older, have greater assets, and are more likely to be for profit rather than non-profit entities. Regulated MFIs issue larger, traditionally safer loans. Regulated MFIs tend to show higher performance but lower outreach measures and the clientele of regulated MFIs tend to be wealthier.

Our MFI financial and social performance indicators build upon United Nations Capital Development Fund (UNCDF) publications. Financial performance indicators include profitability, as measured by return on assets (ROA), efficiency, as measured by operating expense as a percentage of total outstanding loans and cost per client, and loan performance, measured by the ratio of loan write-offs to outstanding loans. Social performance, or outreach, measures include the number of accounts, the percentage of women borrowers to total active borrowers, and client poverty level, measured by the average outstanding loan size as a percentage of per capita gross national income.

[Insert Table 2.4 about here.]

2.5 PROFITABILITY

Our primary interest is a cross country comparison of the effect of national characteristics on MFI profitability and outreach. We adopt a random effect panel approach to model the institutional differences among countries. Because our sample includes multiple microfinance organizations coupled with country-level institutions, we cannot treat each organization as separate independently identically distributed observations. Statistically, those locally correlated factors produce biased estimates of standard errors. We therefore use random effects panel regressions with the Moulton correction (Moulton, 1986) to cluster the standard errors at country

[4] Results are not reported but are available from authors.

level to account for unobserved, locally correlated factors[5].

In this section we investigate the effects of selected formal and informal institution measures on profitability (ROA), collection performance (impaired loans to assets) and efficient cost control (operating expense to assets). Table 2.5 shows the results from random effects panel regressions using robust clustered standard errors at the country level. Columns 1, 2, and 3 investigate select formal institution measures on profitability, collection performance, and cost control, respectively. We control for year and country to take into account economic development measures and firm-specific measures. We use eleven economic development variables divided into two distinct types: infrastructure and economic development. Infrastructure variables include, for example, the number of miles of roads, road density, and whether or not the roads are paved. Economic variables include gross domestic product the percentage of agriculture to total economic activity. As representatives of these two types, we chose roads and gross domestic product at purchasing power parity per capita (GDPpercapita-PPP in thousands) for our regressions. Our results are robust using alternative measures. For firm-specific controls, we control for the age, size, capital structure, and non-profit status. Age and size must be controlled because MFIs can suffer "mission drift" as they grow in size, scope, or age. Also a MFIs capital structure may affect the extent to which they may lend and under what conditions. For profit and non-profit MFI will also differ in business modeling.

For formal institution measures we use the control of corruption index (Kaufmann et al., 2003) and a dummy variable for common law legal origin. Though other measures can be substituted, such as the regulation, rule, and voice indices, they are highly correlated. In one way or another each variable measures the quality of government and the power of the citizenry.

[5] We thank Oliver Falck for pointing out the appropriateness of using this methodology.

Legal origin, however, is specifically correlated with the quality of laws. Variables such as investment protection, director liability, and disclosure indices specifically address commercial law. All are found to be highly related to legal origin and greater in common law countries than civil law countries. Legal origin is therefore our independent variable. Column 1 shows a negative relationship between performance (ROA) and the strength of formal institutions. The coefficient for control of corruption is -0.0164 but statistically insignificant while the coefficient for common law origin is -.1006 and statistically significant at the 1% level. This indicates that MFIs operating in a less corrupt environment have lower performance. This may seem puzzling, but our results indicate that these same firms tend to offer smaller loans at lower interest rates than MFIs in civil law countries, and therefore receive lower returns (See Table 2.6). Columns 2 and 3 show mixed results for impaired loans and operating expenses. Overall, better corruption control is associated with lower levels of loan impairment and a lower operating expense to asset ratio. On the other hand, common law legal origin is positively associated with levels of impairment and operating expense.

The control variables for economic development are all significant in the first three columns. The road variable coefficient is 0.1002, -0.0237, and -0.3037 for ROA, impairment and operating expense respectively. The better the infrastructure the more efficient and profitable the MFIs. This is probably due to the fact that it is easier for MFIs to monitor their loans and meet with their clientele in sparsely populated rural areas with better roads. GDP per capita shows the opposite signs of infrastructure development. MFIs tend to perform more poorly in richer nations. For example, attempts to provide microcredit to the rural poor in the U.S. have proved unsuccessful. For firm-specific control variables, age and for-profit measures are the significant and show similar relationships with performance and efficiency. As expected, older MFIs tend to

be more profitable. This may be due in part to "mission drift" as these institutions move to serve wealthier clients. Debt to equity does not seem to affect profitability of the MFIs measured by ROA, but shows significantly negative coefficients for efficiency.

Columns 4 through 6 reexamine performance and efficiency using informal institution measures. The economic development and firm-specific control variables are largely consistent with the first three models. Using Hofstede's cultural dimensions as defined above we find that individualism leads to lower profits, higher loan impairment, and higher expenses. The latter are both significant at the 1% level. Individualism appears to be the most important determinant in performance and efficiency among all cultural measures. Although group lending reduces monitoring costs, MFIs in high individualism areas may not benefit if less importance is placed upon group dynamics and collective well-being. Power distance and uncertainty avoidance seem to have little explanatory power in MFI performance or efficiency. Masculinity is also insignificant in models 4 and 6. However, it is positively and significantly related to impairment of loans, indicating poorer loan performance in male dominated societies and societies intolerant of new ideas.

[Insert Table 2.5 about here.]

2.6 OUTREACH

In this section we investigate the effects of select formal and informal institution measures on outreach (number of active borrowers) and target clientele (percentage of women borrowers and average loan size). Table 2.6 shows the results from random effects panel regressions using robust clustered standard errors at the country level. Columns 1, 2, and 3 investigate select formal institution measures on outreach and target clientele. Columns 4 through 6 reexamine these models using informal institution measures. With controls for year

and country we take into account economic development measures and firm-specific measures as in prior regressions.

Starting with the economic development variables, we see roads contributing to better outreach overall although the coefficient in the first model is insignificant. Increasing roads also show a negative impact on the proportion of female borrowers as well as an increase in loan size. This is similar to what we would expect for larger, older MFIs. The roads variable is an infrastructure development variable. It is conceivable that there is a correlation between infrastructure development and micro financing development. If this is the case, then we expect MFIs to have grown in these countries and have more clientele. At the same time we expect them to shift away from the poor and toward profit generating lines of business by issuing larger, more secure loans. GDP per capita is associated with fewer borrowers and larger loan sizes. As the citizenry is better off, they may take their businesses to more traditional banks rather than MFIs since the citizens are in a better position to provide credit histories, financial statements, traditional collateral, and thereby pay lower interest rates on their loans. Therefore there is probably more competition between MFIs and traditional banks in richer countries. Loan size should also be expected to be larger with greater client wealth.

Firm-specific control variables indicate the importance of age, size, capital structure, and non-profit status to outreach and target clientele. As MFIs get older and or larger, they tend to increase the number of borrowers but issue larger loans to relatively fewer women. The coefficients for size are all significant for the first three models while those for age are significant in two of the first three models. For profit MFIs shift away from female borrowers and the poor and toward a more traditional clientele. However, location will affect the number of clients that profit institutions have. MFIs with high debt ratios reach fewer total borrowers, shift

away from female borrowers and offer larger loans. High debt ratios may hamper MFIs from being able to offer riskier loans to women and the poor. The results for debt to equity ratio are consistent and highly significant across all 6 models.

The corruption variable in Columns 1 through 3 is not significant in any of the models but the signs of the coefficients are consistent with expectations. Better protection against corruption increases participation in MFIs and allows smaller average loan size. The common law legal origin variable shows signs consistent with those of the corruption protection variable. In this case, however, all coefficients are significant at the 10% level or better. MFIs in countries with common law have significantly more borrowers, a higher percentage of female borrowers, and offer smaller loans on average. This means these MFIs have greater market penetration and reach a greater percentage of the traditionally underserved, namely women and the rural poor.

In columns 4 through 6 we reexamine the relationships between outreach and target clientele measures with informal institution measures. The economic development and firm specific control variables are consistent with the first three models with the notable exception of for profit in models 1 and 4. Using Hofstede's cultural dimensions we find that individualism shows a positive and significant impact on number of borrowers. Individualism likely increases the number of borrowers as individuals as opposed to groups or villages apply for loans. This is consistent with the result that individualism is negatively associated with the size of the loan (see column 6) as individual loans are usually smaller than village or group loans. Masculinity shows a similar pattern (although statistically insignificant), as individuals may be more assertive and aggressive in pursuing goals by acquiring loans. Power distance has an insignificantly negative impact on the number of borrowers but a negative significant impact on the size of the loan. It may be that the poor in high power distance countries have realistic expectations as to social

mobility, or lack thereof, and do not bother seeking credit. Those who do may require smaller loans. High power distance may suffocate entrepreneurial spirit in the lower income populace. We also see that individualism and power distance have a positive statistical impact on the proportion of female borrowers. The only unexpected result again involves uncertainty avoidance. Contrary to expectations, it appears that societies with a greater preference for certainty also have more borrowers. The findings are significant at the 10% level. It is also robust to a different specification that controls for the size of total population in the country.

[Insert Table 2.6 about here.]

2.7 SUMMARY AND CONCLUSIONS

As commercial, governmental, and philanthropic organizations continue to channel resources to providing microfinance services to the poor, it is essential to understand what makes such efforts successful. In this paper, we conduct a first pass analysis attempting to understand the impact of formal and informal institutions, the legal, political, economic, and cultural aspects of society, on the financial performance and outreach of microfinance services.

We show that societies with strong formal institutions, as represented by common law legal origin, foster more efficient MFIs in terms of social outreach. These MFIs often must endure lower profitability, relatively, to provide greater outreach and communal economic development. Lower corruption assists by lowering loan impairment, which in turn should lower overall costs to MFIs.

The effects of cultural dimensions on MFI performance are more complex, as one might expect. Individualism increases the number of borrowers and decreases the size of the loans but at the expense of increasing the cost and risk of lending. In addition, a society more comfortable with certainty, rather than entrepreneurial spirit, has better outreach performance as measured by

number of borrowers but seems to shift away from female and poor borrowers.

Microfinance is in many ways still in its infancy as a subset of global finance. More work needs to be done to help tailor the availability of microcredit and other financial services to those unable to access the traditional banking system. Just like the clients they serve, MFIs can benefit greatly if they have access to better tools, which in turn aids the continued development and well being of the groups, villages, women, and entrepreneurs served by microfinance institutions. MFIs, on the other hand, must also be profitable and sustainable in order to continue to serve the rural poor and break the cycle of poverty.

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Table 2.1: Key differences between traditional banking and microfinance[6]

	Traditional Banking	**Microfinance**
Lending	Competitive interest rates; borrowers sensitive to rates	Access to credit more important than rate charged, high rates prevalent
Client Relationship	Contractually formal, arm's length	Ongoing intimate knowledge of client/business/needs, actively collaborative relationships
Loan Security	Primarily collateral	Collective monitoring, trust, reputation, nontraditional collateral
Client Base	Small	Large
Loan Size	Large; minimums apply	Very small on average
Administrative Costs	Proportional	Very high

[6] Compiled by authors, source material Koveos and Randhawa, 2004

Table 2.2: Common MFI models[7]

Model	Grameen Bank	Bangladesh Rural Advancement Community (BRAC)	Co-operative	Village Bank
Institutional Form	Licensed Bank	Non-Governmental Organization (NGO)	Owner Managed Firm	Limited Bank
Clientele	Poor women, no net worth	Poor households	Non-banked households	Rural groups, micro-enterprises
Loan Type	Short duration small loans	Short duration small loans	Members' savings mobilization	Rural savings mobilization
Regulation of Services	Mutual assistance and monitoring by small groups, access to legal system	Group monitoring and delivery	Members are owners of entity, have interest in performance	Legal enforcement
Funding	Financial institutions	NGOs	Savings mobilization	Financial institutions and rural savings
Allocation of Funds	Group procedures for screening, monitoring	Socially oriented to the needy, a priori	Allocated to members, mutual responsibility	As per traditional banking though mobile and closer to rural clients

[7] Source: Koveos and Randhawa, 2004, World Bank Publications, online sources

Table 2.3: Sample by Organizational Forms

year	Non-Profit (NGO)	Bank	Co-Op or Credit Union	Non-Bank Financial Institution	Rural Bank	Other	Total
1997	21	8	2	12	1	0	44
1998	36	11	5	27	0	1	80
1999	48	14	9	38	0	1	110
2000	73	17	17	50	4	3	164
2001	103	21	49	69	4	8	254
2002	196	33	77	106	10	11	433
2003	269	40	110	147	43	16	625
2004	356	49	129	192	51	16	793
2005	395	56	160	218	58	16	903
2006	376	57	151	229	65	14	892
2007	332	59	154	218	61	20	844
2008	271	54	134	198	61	18	736

Table 2.4: Selected Performance and Outreach Measures

Variables	Obs.	Mean	Std. Dev.	Min	Max
total assets	6595	3.04e+07	1.92e+08	0	6.45e+09
active borrowers	6535	51756	326421.2	0	6792978
depositors	5692	85453	1093258	0	3.23e+07
pct of women borrowers	5702	66%	28%	0	100%
avg. loan to GNI per capita	6488	1.466	52.672	0	4236
borrowers per staff	6505	137	252	0	13709
operating expense to assets	5249	0.197	0.170	0	2.215
loan write off percentage	4743	1.7%	5.5%	0	100%
return on assets	5250	0.75%	13.95%	-214%	101%

Table 2.5: Effects of formal and informal institutions on performance and efficiency measures

	ROA	impaired loans to assets	operating expense to assets	ROA	impaired loans to assets	operating expense to assets
	(1)	(2)	(3)	(4)	(5)	(6)
control of corruption	-0.0164	-0.0045 **	-0.028			
	(0.23)	***(0.02)***	*(0.19)*			
common law legal origin	-0.1006 ***	0.0078 **	0.1378 ***			
	(0.00)	***(0.03)***	***(0.00)***			
individualism				-0.0036 *	0.0004 ***	0.0061 ***
				(0.06)	***(0.00)***	***(0.00)***
masculinity				0.0013	0.0002 **	9.87E-05
				(0.36)	***(0.00)***	*(0.95)*
power distance				0.0011	-5.70E-05	0.001
				(0.34)	*(0.58)*	*(0.28)*
uncertainty avoidance				0.0012	0.0002	0.0008
				(0.31)	*(0.21)*	*(0.55)*
roads	0.1002 ***	-0.0236 ***	-0.3056 ***	0.2525 ***	-0.0565 ***	-0.5941 ***
	(0.00)	***(0.00)***	***(0.00)***	***(0.01)***	***(0.00)***	***(0.00)***
gdp per capita (ppp)	-0.0110 ***	0.0014 ***	0.0209 ***	-0.0072	-0.0003	0.0181 **
	(0.01)	***(0.00)***	***(0.00)***	*(0.45)*	*(0.67)*	***(0.04)***
age	0.0011 **	-0.0002 **	-0.003 ***	5.60E-04	-0.0003 ***	-0.0026 ***
	(0.02)	***(0.02)***	***0.00***	*(0.30)*	***(0.01)***	***(0.00)***
debt to equity	0.00001	-0.00008 ***	-0.00036 ***	0.00007	-0.00008 ***	-0.00029 ***
	(0.26)	***(0.00)***	***(0.01)***	*(0.24)*	***(0.00)***	***(0.00)***
total assets (millions)	-3.08E-08	4.17E-06	-5.42E-05 *	1.86E-05	5.23E-06	-8.76E-05
	(1.00)	*(0.17)*	***(0.10)***	*(0.51)*	*(0.22)*	*(0.20)*
for profit	0.014 **	-0.0034 **	-0.0556 ***	0.0215 *	-0.0019	-0.0627 ***
	(0.05)	***(0.05)***	***(0.00)***	***(0.08)***	*(0.49)*	***(0.00)***
constant	0.0322	0.0201 ***	0.241 ***	-0.1871	0.0039	0.003
	(0.25)	***(0.00)***	***(0.00)***	*(0.27)*	*(0.68)*	*(0.98)*
Number of observations	4408	4389	4407	1806	1801	1808
R-Squared	0.373	0.2541	0.4412	0.5355	0.591	0.7551

Note: *, **, and *** represent statistical significance at the 10, 5 and 1 percent levels, respectively.

Table 2.6: Effects of formal and informal institutions on outreach measures

	borrowers (1)	% women borrowers (2)	loan size (3)	borrowers (4)	% women borrowers (5)	loan size (6)
control of corruption	10807.95	0.0114	-435.55			
	(0.30)	*(0.64)*	*(0.19)*			
common law legal origin	57505.53 *	0.1662 ***	-765.96 ***			
	(0.09)	***(0.00)***	***(0.00)***			
individualism				1944.2 ***	0.0051 *	-46.63 ***
				(0.00)	***(0.08)***	***(0.00)***
masculinity				790.27	-0.002	-16.97
				(0.13)	*(0.42)*	*(0.25)*
power distance				-223.35	0.0036 *	-31.89 ***
				(0.48)	***(0.09)***	***(0.00)***
uncertainty avoidance				713.17 *	-0.0026	-8.56
				(0.06)	*(0.23)*	*(0.31)*
roads	43563.44	-0.235 ***	1522.78	54274.75	-0.2994 *	3554.79 ***
	(0.25)	***(0.00)***	*(0.17)*	*(0.49)*	***(0.10)***	***(0.00)***
gdp per capita (ppp)	-9260 *	0.0019	174.20 **	-8170 **	-0.0020	153.10 **
	(0.06)	*(0.74)*	***(0.02)***	***(0.05)***	*(0.90)*	***(0.04)***
age	2600	-0.0022 **	23.10 ***	815.02 *	-0.0011	22.57 **
	(0.27)	***(0.02)***	***(0.00)***	***(0.08)***	*(0.34)*	***(0.00)***
debt to equity	-523 ***	-0.0006 ***	1.94 *	-485 ***	-0.0007 ***	0.8300 **
	(0.00)	***(0.00)***	***(0.08)***	***(0.00)***	***(0.00)***	***(0.02)***
total assets (millions)	1400 **	-0.0001 *	2.60 *	500 ***	0.0000	2.07
	(0.03)	***(0.10)***	***(0.08)***	***(0.01)***	*(0.65)*	*(0.13)*
for profit	-15999.3	-0.1186 ***	244.68 **	10554.88	-0.1409 ***	120.29
	(0.22)	***(0.00)***	***(0.03)***	*(0.27)*	***(0.00)***	*(0.37)*
constant	13715.21	0.7408 ***	-305.28	-76500	0.7010 ***	4172.05 ***
	(0.62)	***(0.00)***	*(0.59)*	*(0.31)*	***(0.01)***	***(0.00)***
Number of observations	5273	4634	5251	1957	1791	2123
R-Squared	0.3497	0.3587	0.2358	0.4256	0.4486	0.5692

Note: *, **, and *** represent statistical significance at the 10, 5 and 1 percent levels, respectively.

3. Market Discipline and Bank Subordinated Debt Yields during the lead up to the Financial Crisis

ABSTRACT:

This paper examines the lack of market discipline in the subordinated debt market of banks leading up to the financial crises in 2008. We also investigate why market monitoring and discipline appear to wane after 2001 until the financial crisis of 2008. In general, we find that subordinated debt holders were caught off guard by the suddenness and magnitude of the crisis. We argue that bank opacity created a vulnerable environment in the banking industry that contributed to this collapse.

"We conclude this financial crisis was avoidable" - The U.S. Financial Crisis Inquiry Commission (2011)

3.1 INTRODUCTION

The Financial Crisis Inquiry Commission (FCIC) concluded in its January 2011 report that the 2008 financial crisis was caused by failures in financial regulation and breakdowns in corporate governance. Empirical evidence[1] has suggested that market discipline should have at least partially contributed to monitoring and managing risk in the absence of effective regulatory controls. However, participants in the unsecured bank debt market apparently failed to recognize the signs of growing risk in the banking system[2]. The recent financial crisis provides clear evidence that monitoring mechanisms have ether not materialized or have not been sufficient (Flannery 2008).

This paper examines the lack of market discipline as evidenced by the lack of relationship between accounting measures of bank risk and the yield spread in the subordinated debt market of banks leading up to the financial crisis in 2008. We also investigate why market discipline appear to wane after the economic downturn of 2001 until the financial crisis of 2008. In general, we find that bank subordinated debt-holders were caught off guard by the suddenness and magnitude of the crisis. We argue that bank opacity created a vulnerable environment in the banking industry that contributed to this collapse.

Flannery and Sorescu (1996)[3] argue that the losses to debt claimants during the collapse of First Republic Bank Corporation in 1988 softened the perception of the Too Big To Fail

[1] See Bliss and Flannery 2001, Flannery and Rangan, 2008, Morgan and Stiroh 2001, etc.,
[2] These cited causes of the financial crisis are similar to Llewellyn(2002) who cites both ineffective regulatory supervision and a lack of market discipline as causes of various banking crises in Asia from 1990-1997.
[3] We replicate methodology of Flannery and Sorescu (1996) to analyze the relationship between subordinated debt yield spreads and bank risk.

(TBTF) subsidy. This encouraged market participants to once again monitor and discipline the risk-taking behavior of banks.[4] We find that after the resurgence of market discipline in 1991, it disappeared after 2001. Bank opacity may have been a contributing factor to the apparent departure of market discipline as an effective method to control risk-taking. The banking industry may have appeared less risky to market participants due to obscurity in valuation procedures.

In this paper we argue that bank opacity has increased over time, which impaired market discipline. In some ways, the increased opacity of the banking industry is a greater problem than the existence of TBTF.[5] From a regulator's perspective, a TBTF institution should require even more oversight to ensure its safety because a failure of a TBTF institution could potentially trigger a contagion. That is, a lowering of market discipline should be associated with an increase in regulatory discipline. An increase in opacity on the other hand would diminish the ability of both market participants and regulators to accurately gauge the risk of a bank (Bliss 2001). The remainder of the paper will proceed as follows. In section 3.2, we briefly discuss the literature on market discipline in the banking industry and develop our hypotheses. Section 3.3 describes the data and methodology. Section 3.4 presents and discusses the results. Section 3.5 concludes.

3.2 LITERATURE REVIEW AND BACKGROUND

In an efficient market, prices reflect relevant information collected, analyzed, and disseminated by market participants. In the bank subordinated debentures market, if a bank's risk increases, yields should rise. Effective market discipline requires two conditions:

[4] However, Solidad, Peria and Shmukler (2001) show that safety nets do not diminish market discipline.

[5] Jones et al, 2010 find opaque assets decreases charter value and thereby decreasing yet another avenue of discipline.

1) Market participants monitor banks' behavior, which allows them to collect and update their information set.

2) Market participants act rationally in regards to new information such that the price of the bond reflects this new information.

If these conditions hold, market discipline will affect the cost of debt for a given bank. However, this discipline may not actually influence the bank's behavior (Bliss and Flannery, 2001; Krishnan et al. 2005). For example, a bank may take more risk if it does not increase its perceived likelihood of bankruptcy. This could be especially true for banks considered to be TBTF that are likely to be rescued by regulators during times of financial turmoil. Regardless, if the perception from market participants is that a TBTF subsidy exists, they may choose not to discipline the banks for excessive risk-taking.

Flannery and Sorescu (1996) indicate that the implicit TBTF status hindered market discipline. They found insignificant relationship between bank risk measures and the subordinated debt yield spreads to treasury from 1983 to 1988. However, bank regulators made it increasingly clear by the late 1980s and early 1990s that bank subordinated debt holders were not protected by removing the implicit guarantee of TBTF policy. Flannery and Sorescu (1996) found that from 1988 to 1991, the yield spread was positively correlated to bank-specific risk measures. Still, the perception of TBTF could change over time; thus, there is no guarantee that it may not reappear again in later periods.

Regardless of the TBTF subsidy, the first condition for effective market discipline is that market participants can actually monitor the banks. Over the last two decades, banks have evolved into more complex organizations that engage in a wider array of business activities. Banks have always been considered relatively opaque because loans - their primary asset - are

opaque in nature to market participants outside the bank that do not have the private information collected by the banks on their counterparty. However, banks have become much more opaque recently (Gu 2010) due to the growth of off balance sheet activities and trading activities such as high-risk mortgage backed securities (MBS) and other collateralized debt obligations (CDOs).[6]

As opacity increases, market participants' ability to monitor bank risk may diminish due to their inability to effectively price, or in some cases even identify, the liabilities and assets of the bank. In this case, if the first assumption is not satisfied, then market discipline will likely be ineffective regardless of the market's perception of the TBTF subsidy.

In the official FCIC report, the commission states that there was a lack of regulatory enforcement and that rating agencies did not fully measure the risks involved. This conclusion is consistent with the assertion that opacity impaired both regulators and rating agencies. If these two groups could not gauge bank risk, it would have been even more difficult for market participants to do so. Based on this discussion, we offer the following three hypotheses.

H1: Bank opacity has increased over time.

H2: The relationship that bank specific risk has on subordinated debt spreads weakens over time.

H3: Opacity and not TBTF is the primary reason for the lack of market discipline leading up to the financial crisis in 2008.

3.3 DATA AND METHODOLOGY

3.3.1 Sources of Data

Accounting risk measures of banks and all opaque asset measures were constructed from data gathered from FRY-9C quarterly reports from 1994 to 2008. New debt issues were collected

[6] This is consistent with the view that opacity is a consequence of inherent complexity and nature of the underlying assets (Jones, et al. 2010).

from Thomson Reuters SDC Platinum New Issues Database (SDC) to identify BHCs and FHCs and matched with transactions data from the National Association of Insurance Commissioners (NAIC). NAIC data provides us with the investment activities of life/accident/health, property/casualty, title, fraternal and health companies, from which subordinated debt spreads are calculated. Finally, we pulled yields for the subordinated debts from Bloomberg to verify the consistency of our NAIC data[7].

3.3.2 Variable Definitions

To test our three hypotheses, we identify and categorize specific bank assets as opaque.[8] We construct three loan variables, all scaled by total assets. The three variables are labeled *REAL_LOANS, OTHER_LOANS* and *TOTAL_LOANS*. *REAL_LOANS* represent the summation of all residential and non-residential real estate loans divided by total assets. *TOTAL_LOANS* are simply the bank's total loans divided by total assets. *OTHER_LOANS* is the difference between *TOTAL_LOANS* and *REAL_LOANS*. The variables *MBS* and *ABS* represent mortgage-backed and asset-backed securities, respectively, that are not guaranteed by any government agency or government sponsored enterprise. Both of these variables are also scaled by total assets. Mortgage-backed and asset-backed securities issued by GSEs are not classified as opaque assets and therefore are not included in the analysis.

We construct a variable called *HIGH_OPAQUE* which is the sum of the variables *MBS* and *ABS*, as well as other trading assets, intangible assets, and investments in unconsolidated subsidiaries, all divided by total assets. As stated earlier, MBS and ABS are both securitized assets and are characterized as being very opaque. CDOs, which for banks are primarily made up of resecuritized MBSs and ABSs, increasingly become a larger part of trading assets along with

[7] The NAIC and Bloomberg data were similar in most cases.
[8] See appendix for a full listing of FR Y-9C line items used to construct bank specific variables.

other hybrid financial instruments. Intangible assets are by definition opaque because they are non-monetary assets that cannot be physically measured while accounting treatment of investments in unconsolidated subsidiaries makes them opaque[9]. The variable *OTHER_OPAQUE* is the sum of premises and fixed assets, goodwill, other assets and other real estate owned, divided by total assets. We distinguish between *HIGH_OPAQUE* and *OTHER_OPAQUE* because the *HIGH_OPAQUE* are more complex and harder to price. Summary statistics of BHC asset composition over time (Table 3.1) as well as graphs of select opaque asset classes (Figures 3.1 – 3.6) support our hypothesis that opacity has increased over time.

We test for the presence of market discipline in the subordinated debt market during the period of 1994 – 2007. We build on the methodology used by Flannery and Sorescu (1996). Our data offer a higher frequency (quarterly observations instead of yearly observations). As with Flannery and Sorescu, we use fixed effects panel regressions controlling for both firm and time effects to test our second hypothesis. Specifically, by using the same variables, we replicate their main results in their table 3, without trying to reproduce their later tables which look at alternative measures of bank specific risk (theoretical measure of fair default premium), linearity assumption of the model. Below is the model we utilize.

$$SPREAD_{it} = \beta_1 NATA_{it} + \beta_2 PDTA_{it} + \beta_3 OREOTA_{it} + \beta_4 AGAP_{it} + \beta_5 MKTLEV_{it} + \beta_6 ROA_{it} + \beta_7 lnTA_{it} + YearDummy_{it} + \varepsilon_{it} \quad (1)$$

[9] Financial statements of subsidiaries where the BHC has between 20% and 50% common equity voting rights are not included in the consolidated financial statements of the BHC. Instead, this type of subsidiary appears as a line item investment where the initial investment is recorded at book value and adjustments are made based on proportional profits or loss reported by the subsidiary. Therefore the risk profile of the subsidiary is not disclosed.

The dependent variable, *SPREAD* is the difference between the yield of subordinated debt and the yield of a treasury bond with the closest maturity. The independent variables are classified as bank specific risk measures. An increase in any of the risk measures are expected to increase the spread between subordinated debt and treasure yields. *NATA* is the ratio of nonaccruing loans to total assets. *PDTA* is the ratio of accruing loans that are at least 90 days past due to total assets. *OREOTA* is the ratio of other real estate owned to total assets. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. The maturity gap is the difference in the amount of assets and liabilities that are maturing or repricing within one year. *ROA* is used as a contra-risk measure and it is calculated as net income divided by total assets. It is expected to have a negative relationship with *SPREAD*. Finally we use the log of total assets, *lnTA*, to control for bank size effects, and the year dummy variables capture inter temporal variations that may affect the spread.

Severe multicollinearity prevents us from using opacity measures and risk measures in the same model. Specifically, we see strong multicollinearity between the *HIGH_OPAQUE* measure and *MKTLEV* as well as between *HIGH_OPAQUE* and *lnTA*. This is consistent with the view that larger banks increasingly engaged in leveraged securitization. As an alternative, we run our analysis on subsamples of BHCs based on size.

To test if opacity was driving our results, we screen out the TBTF[10] banks and rerun the fixed effects panel regression model from equation 1 above. Because larger banks have more

[10] We identify the ten largest commercial banks based on the average total assets throughout the sample period and categorize these banks as TBTF. The top five banks are consistently in the top 6 every quarter. Classifying only the top five banks as TBTF yields similar results.

issuances of subordinated debt securities, TBTF banks represent 64.55% of the individual subordinated debt observations and account for 33.48% of the banks in our sample. If we do not observe a positive relationship between our risk measures and *SPREAD*, then there is no evidence of market discipline in the smaller banks and we can conclude that TBTF was not the key factor impeding market discipline during the run up to the financial crisis.

3.3.3 Summary Statistics

Table 3.1 shows the summary statistics of all variables used in our analysis. It is divided into two panels with the first showing the summary statistics for TBTF banks and the second for other banks. The summary statistics indicate that TBTF banks on average have loans that constitute 50.9% of their total assets. This is about 14.5 percentage points less than the 65.3% of total assets for non-TBTF banks, and this difference is statistically significant at the 1% level. Two other variables that show dramatic differences are *HIGH_OPAQUE* and *MKTLEV*. TBTF banks have substantially higher market leverage and a greater portion of their total assets are highly opaque. *HIGH_OPAQUE* is primarily composed of trading assets which include CDOs. During the 2005 to 2008 period, the issuance and trading of CDOs increased greatly. Although *MBS* accounts for less than 1% for TBTF, this figure could be misleading. Since *MBS* increasingly became the main underlying asset for CDOs, much of its value is likely captured in the trading assets measure. As banks repackaged securitized assets and created derivatives of derivatives, the line items for *MBS* became underreported.

[Insert Table 3.1 Here]

3.4 RESULTS

3.4.1 Hypothesis 1

[Insert Figure 3.1 Here]

To investigate our first hypothesis, we look at the changing asset composition of banks across time in our sample. In Figure 3.1 we see evidence that total opaque assets increased relative to total assets from 1994 to 2008. This indicates that banks have shifted their allocation towards opaque assets. Figures 3.2, 3.3 and 3.4 subcategorize the opaque assets into *TOTAL_LOANS*, *HIGH_OPAQUE*, and *OTHER_OPAQUE* assets. Although many assets may be opaque, the degree of opacity varies. Looking at Figures 3.2, 3.3, and 3.4 together, we notice that *TOTAL_LOANS* decline as a percentage of total assets while both *HIGH_OPAQUE* and *OTHER_OPAQUE* increase. This pattern indicates that banks are not only shifting from transparent assets to opaque assets, but the composition of opaque assets is shifting from less opaque to more opaque.

[Insert Figure 3.2, 3.3, and 3.4 Here]

Figure 3.5 shows that real estate loans grew steadily as a percentage of total assets, while the ratio of total loans to total assets declined. This pattern is consistent with the real estate bubble. Finally, Figure 3.6 shows the percentage of total opaque assets to total assets for all BHCs that file FRY-9C reports. We do this to verify that the pattern we see is not isolated to just the banks in our sample. The similarity between Figure 3.6 and Figure 3.1 indicates that banks became more opaque.

[Insert Figures 3.5 and 3.6 Here]

3.4.2 Hypothesis 2

We investigate the measure of perceived risk in the bank subordinated debt market by comparing the yield spread to treasury and the yield across each year of our sample. Table 3.2 panel A shows the summary statistics for the spread between the yield of the subordinated debt

and a treasury bond with a similar maturity[11]. Panel B shows the actual yield of the subordinated debt. Figure 3.7 illustrates the data in Table 3.2. Prior to 2001, the average yield was never below 6.5%. From 2002 onwards, the yield never surpasses 5.5%.

The yield spread is relatively stable between 1995 and 2000. In 2001 and 2002, the yield spread rises in response to the slowing economy and the tragic events of September 11, 2001 as investors retreated to safer treasuries in face of growing uncertainty. After 2002, we see a steady decline in the yield spreads, reaching their lowest point in our sample in 2006 right before the bursting of the real estate bubble. In 2007, we witness a spike in yields in reaction to the credit crises in the investment banking industry. Finally in 2008, the continued deterioration of the health of the financial sector and confidence in the banking industry led to another drastic rise in subordinated debt yields.

[Insert Table 3.2 and Figure 3.7 Here]

Motivated by the above observations, we investigate the presence of market discipline in two separate time periods, 1994 to 2001 and 2002 to 2007. Although we show 2008 data in the summary statistics and in previous graphs, we do not include it in our regression analysis. Our primary objective is to see if market participants disciplined banks during the run up to the 2008 financial crisis.

[Insert Table 3.3 Here]

Table 3.3 reports the results of our fixed effects panel regressions on all sample banks. Column 1 examines the quarterly data from 1994 to 2007. Columns 2 and 3 show the 1994 to

[11] 10-year treasury notes and 30-year treasury bonds are issued every quarter on the 15th of February, May, August, and November. 2-year to 7-year treasury notes are issued every month either on the 15th or the end of the month. We match subordinated debt by quarter. This means that the most the maturities between a treasury security and subordinated debt will be off is 15 days for maturities less than 7 years and 45 days for longer maturities. We also censor out all observations with subordinated debt maturities of less than one year.

2001 and 2002 to 2007 sub periods, respectively. The results in column 1 show that *NATA* and *MKLEV* are both positive and highly significant as expected. The performance measure of *ROA* is negative and significant, also consistent with expectations. All else equal, better performing banks should be at less risk of default. The other three risk variables (*PDTA*, *OREOTA*, and *AGAP)* show mixed signs but are all insignificant. The control variable for size, *lnTA*, is negative and significant at the 10% level. This indicates that there seems to be a minor perception that larger banks are less likely to default on their subordinated debt obligations. Overall, these results indicate the presence of market discipline over the entire sample period from 1994 – 2007.

When we divide our sample, the results become stronger. In column 2, *NATA* and *MKTLEV* are once again significantly positive. In addition, *AGAP* is significantly positive, indicating that interest rate risk caused by the short term maturity mismatch between liabilities and assets are being priced into the subordinated debt market. The remaining two risk measures, *PDTA* and *OREOTA*, are not significant but unlike the first column, they show consistent positive signs. *ROA* remains negative and significant although the coefficient is much smaller. The results of column 2 show stronger evidence of market discipline than the first column. Also notice that size of the bank no longer influences the yield spread.

Looking at the later period leading up to the 2008 financial crisis, we see that only *ROA* is consistent with expectations. All of the other risk measures are either insignificant, or the signs are in the wrong direction. *AGAP* stands out as it is negative and highly significant at less than 1%. This indicates that market participants actually reward banks that increase their interest rate sensitivity risk. We also notice that *lnTA* is again negatively related to *SPREAD*. This indicates that during the later period, larger banks were viewed as safer. Market participants

rewarded good performance but did not punish increased risk. Overall, these results do not show strong evidence of market discipline of banks during the period leading up to the financial crisis.

[Insert Table 3.4 Here]

Table 3.4 shows the results of annual cross-sectional OLS regressions. The results are less consistent but looking at the two sub-periods, we can draw similar inferences as from the results in Table 3.3. Counting the number of risk variable coefficients that are significant and in the expected direction, we see from 1995 to 2001, there are 18 with only 3 that are significant and in the wrong direction. In contrast, from 2002 to 2007, there are 11 risk coefficients that are significant and in the expected direction but there are 9 that are significant and in the wrong direction. In addition, during the earlier period, *lnTA* is never significant while it is significantly negative 5 out of the 6 years from 2002 to 2007, indicating that the perception of the TBTF subsidy may have returned. Examining each year in turn, the coefficients are significantly in the wrong direction more often than not from 2004 to 2007.

3.4.3 Hypothesis 3

The results up to now indicate that opacity increased during the latter half of our sample and evidence of market discipline seems to disappear. These results may be coincidental, or they may suggest that opacity is a proxy for other factors that could be causing the lack of market discipline. Flannery and Sorescu (1996) suggest the TBTF subsidy is the cause. Our own analysis also shows that there are strong correlations between our variables *HIGH_OPACITY* and *lnTA*. To test whether opacity or TBTF is the source of the lack of market discipline from 2002 to 2007, we rerun our analysis looking at two subsamples. In the first subsample, we remove the TBTF banks and look only at the remaining banks. If TBTF is dampening market participants' incentive to discipline banks, this incentive should still be present for banks not

deemed as TBTF. Table 3.5 column 1 shows the results for the banks that are not considered TBTF. The only risk measure that is significant with the expected sign is *MKTLEV* at the 10% level. *AGAP* is negative and significant at the 1% level. Overall, little evidence of market discipline exists in this subgroup.

[Insert Table 3.5 Here]

A possible explanation for the results in column 1 is that the TBTF subsidy has a spillover or "contagion" effect on other banks that are not TBTF. If the perception of the TBTF subsidy is in place, then the perception of this contagion risk is lowered. Therefore, the non-TBTF banks would at the very least face less contagion risk. To show further support for hypothesis 3, we introduce a new variable, *LEAST_OPAQUE*, which classifies the banks that are in the bottom quartile based on their average *HIGH_OPACITY* measure. In column 2 we regress only on the subsample of banks classified as *LEAST_OPAQUE*. In column 3 we regress on all other banks in our sample. The results in column 2 indicate that less opaque banks are subject to market discipline while the more opaque banks are not (Column 3). In column 2, three of the risk measures are positive and significant and *ROA* is negative and significant. Although *PDTA* and *AGAP* are negative, they are not significant. In column 3 we find only one significant risk variable, *AGAP*, and the sign is in the wrong direction. Overall, Table 3.5 strongly supports H3.

3.4.4 Robustness

For robustness purposes, we verify that our results are consistent when we include other potential explanatory variables (Table 3.6) as well as when we use alternative measures of loan quality (Table 3.7 and Table 3.8). In Table 3.6, we include subordinated debt issue characteristics. Specifically, we include the coupon rate of the subordinated debt as well at time to maturity. Both *COUPON* and *TTM* are highly significant and positively associated with

SPREAD in all three models. However, even with the inclusion of these variables, our results are very consistent with Table 3.3. In the full sample, *NATA*, *MKTLEV*, and *ROA* are all significant and in the expected direction just like the results in Table 3.3. From 1994 to 2001, *NATA*, *AGAP*, *MKTLEV*, and *ROA* are all significant and in the correct direction just like column 2 of Table 3.3. In the sub period of 2002 to 2007, ROA is in the expected direction and significant. The only difference is *PDTA* is significant and in the wrong direction instead of *AGAP* as in Table 3.3. However, these two variables are consistent in direction in both tables. Overall we see evidence of market discipline in our sample from 1994 to 2001 and see little evidence from 2002 to 2007.

In Table 3.7, we substitute in *ALLTA*, allowance for loan and lease losses minus recoveries to total assets, for *NATA*, *PDTA*, and *OREOTA*. Net allowance is a write down of assets as banks conclude that some value of assets will not be recovered. Therefore this is an alternative measure of loan and lease quality to *NATA*, *PDTA* and *OREOTA*. The results in Table 3.7 once again are consistent with the results from Table 3.3. For the full sample, *MKTLEV* and *ROA* are significant and in the correct direction. For 1994 to 2001 period, *AGAP*, *MKTLEV* and *ROA* are significant and in the correct direction. For the latter part of our sample, only *ROA* is in the expected direction and significant. Both *ALLTA* and *AGAP* are significant and in the wrong direction. Once again, there is little evidence of market discipline from 2002 to 2007.

Finally, in Table 3.8, we report the results using all for measures of loan quality, *ALLTA*, *NATA*, *PDTA*, and *OREOTA*. The results for the full sample are less consistent than in the previous tables. *NATA*, *MKTLEV* and *ROA* are significant and in the expected direction, but *ALLTA* is in the opposite direction and significant at the 10% level. However, looking at the earlier and later sub periods, we find consistent results with previous tables. From 1994 to 2001, *NATA*, *AGAP*, *MKTLEV* and *ROA* are all significant and in the expected direction. *PDTA*,

OREOTA, and *ALLTA* are also in the expected direction but not statistically significant. From 2002 to 2007, *ALLTA* and *AGAP* are significant and in the opposite direction of expectations. Again we see evidence of market discipline in our early sample period but little evidence of market discipline in our later period leading up to the financial crisis.

3.5 CONCLUSION

This paper contributes to the literature in two distinct ways. First, we extend the work of Flannery and Sorescu (1996) by expanding the sample period and utilizing higher frequency data. We find results consistent with the view that the increased opacity in the banking industry contributed to the lack of market discipline observed during the build up to the 2008 financial crisis. We show that opacity's impact on market discipline is a unique factor that is independent of the impact that TBTF can have on the incentive of market participants to discipline banks.

These results imply that market discipline is not a suitable substitute to regulatory discipline in an opaque banking market. The calls for regulators to incorporate more market information (Berger et al. 2000; Flannery 1998 2001; Krainer and Lopez 2004) into their analysis of the banks they are charged with may be flawed.[12] The assumption is that regulators can improve their assessment of banks by incorporating market signals. However there is also an unstated assumption that the banks are transparent enough for the market to gauge their levels of risk accurately. This seems not to be the case. Regulators and policy makers need to limit opacity and promote transparency in the banking industry (Stiroh 2006). Only then will the incorporation of market signals improve regulators' assessment of banks.

[12] In fact, some (Hamalainen2004; Pop 2009) have argued for mandatory subordinated debt issuances by banks to expose them to market discipline. Basel II also emphasizes the importance of market discipline as a way to make banks more sensitive to risk.

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Appendix A: Opacity Variable Definitions

Total Assets	Total inflation-adjusted assets	BHCK2170
Real Loans	Commercial and residential real estate loans and leases, net	BHCK1410
Total Loans	Total Loans	BHCK2122
Other Loans	All other loans, net	Total Loans - Real Loans
ABS	Asset Backed Securities classified as available-for-sale (AFT) or held-to-maturity (HTM) that are not issued or guaranteed by government agencies or government sponsored enterprises	BHCKB838 + BHCKB842 + BHCKB846 + BHCKB850 + BHCKB854 + BHCKB858 + BHCKB841 + BHCKB845 + BHCKB849 + BHCKB853 + BHCKB587 + BHCKB861 (2001 - 2005) BHCKC026 + BHCKC027 (2006 - 2008)
MBS	Mortgage Backed Securities classified as available-for-sale (AFT) or held-to-maturity (HTM) that are not issued or guaranteed by government agencies or government sponsored enterprises	BHCK1709 + BHCK1733 + BHCK1736
Trading	All other trading assets	BHCK3545 - (MBS + ABS)
Goodwill	Goodwill	BHCK3163
IIUS	Investments in unconsolidated subsidiaries	BHCK2130
Intangible	Intangible assets	BHCK3164 + BHCK5506 + BHCK5507 (1994 - 1998) BHCK3164 + BHCKB026 + BHCK5507 (1999 - 2000) BHCK0426 (2001 - 2008)
OREO	Other real estate owned	BHCK2744 + BHCK2745 (1994 - 2000) BHCK2150 (2001 - 2008)
Other Assets	All other assets	BHCK2160
Premises	Total premises and fixed assets	BHCK2145
HIGH OPAQUE	Sub category of opaque assets deemed to have high opacity	MBS + ABS + Trading + Intangible + IIUS
OTHER OPAQUE	Sub category of opaque assets that are nether HIGH OPAQUE or loans	Premises + Goodwill + Other Assets + OREO
TOTAL OPAQUE	All opaque assets	Total loans + High Opaque + Other Opaque

Appendix B: Accounting Risk Variable Definitions

ALLTA	Net allowance for loan and lease losses to total assets	(BHCK4635 - BHCK4605) / BHCK2170
MKTLEV	Market leverage	BHCK2948 / (market value of common shares outstanding + BHCK3283)
NATA	Non-accruing loans to total assets	BHCK5526 / BHCK2170
OREOTA	OREO divided by total assets	OREO / BHCK2170
PDTA	Loans that are greater than 90 days past due to total assets	BHCK5525 / BHCK2170
ROA	Return on assets	BHCK4340 / BHCK2170
SHORT[13]	Net value of assets and liabilities subject to maturity or repricing within one year	(BHCK3365 + BHCK3545 + BHCK1292 + BHCK1296 + BHCK 3197 + BHCK0383) - (BHCK3298 + BHDMA242 + BHFNA245 + BHCK3548 + BHCK2332 + BHCK3408 + BHCK3409)
AGAP	Maturity gap between short term assets and short term liabilities	Abs |SHORT| / (market value of common shares outstanding + BHCK3283)

[13] Our construction of SHORT is slightly different from Flannery and James (1984) because they use line items from the FDIC's Report of Conditions and Income (Call Report) while we use line items from the FR Y-9C. Alternatively we calculated SHORT = BHCK3197 – (BHCK3296 + BHCK3298 + BHCK3408 + BHCK3409) which comes from the interest rate sensitivity table of the FR Y-9C. Results are consistent under both definitions.

Figure 3.1: Total Opaque Assets to Total Assets

Shows the mean percentage composition of Total Assets accounted for by opaque assets over time from 1994 to 2008. There is presence of a positive trend as opaque assets represents approximately 73% of total assets in 1994 and represents almost 82% of total assets by 2008. The sample consists of 3360 bank-quarter observations.

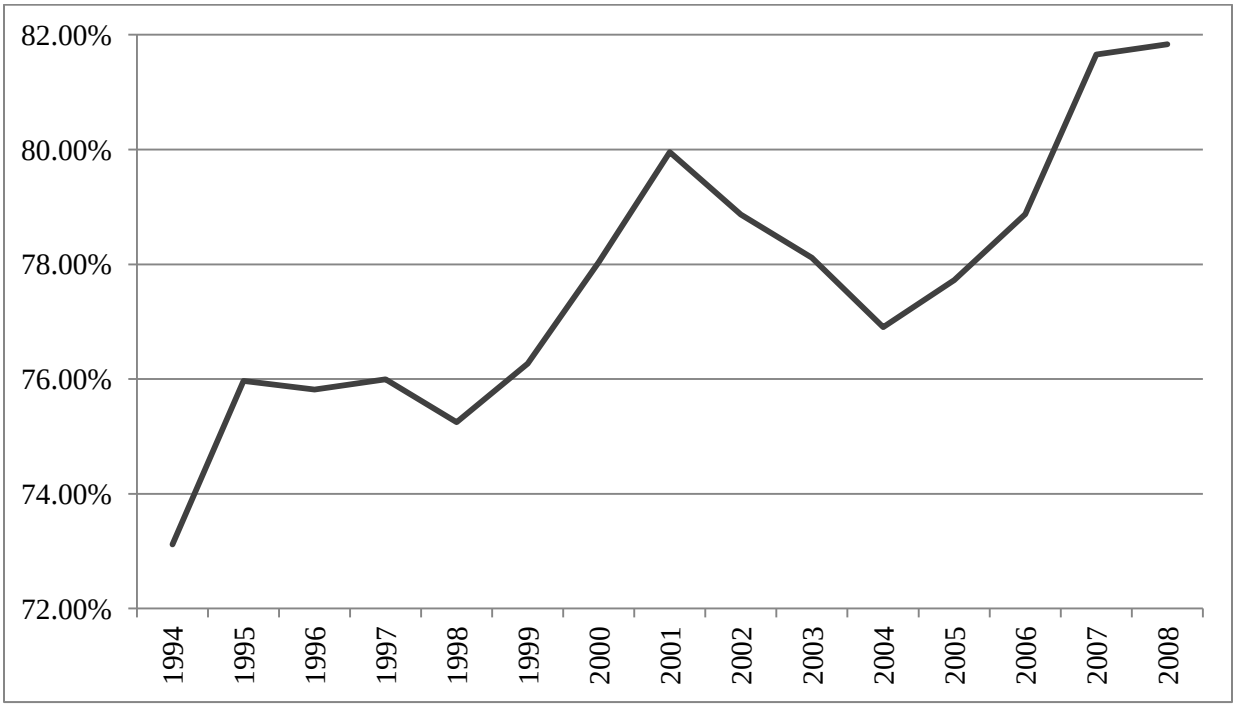

Figure 3.2: Total Loans to Total Assets

Shows the mean percentage composition of Total Assets accounted for by loans over time from 1994 to 2008. There is presence of a positive trend from 1994 to 2001 but in the latter half of our sample, this trend disappears. Overall, loans represent approximately the same amount of total assets in 1994 and 2008. The sample consists of 3360 bank-quarter observations.

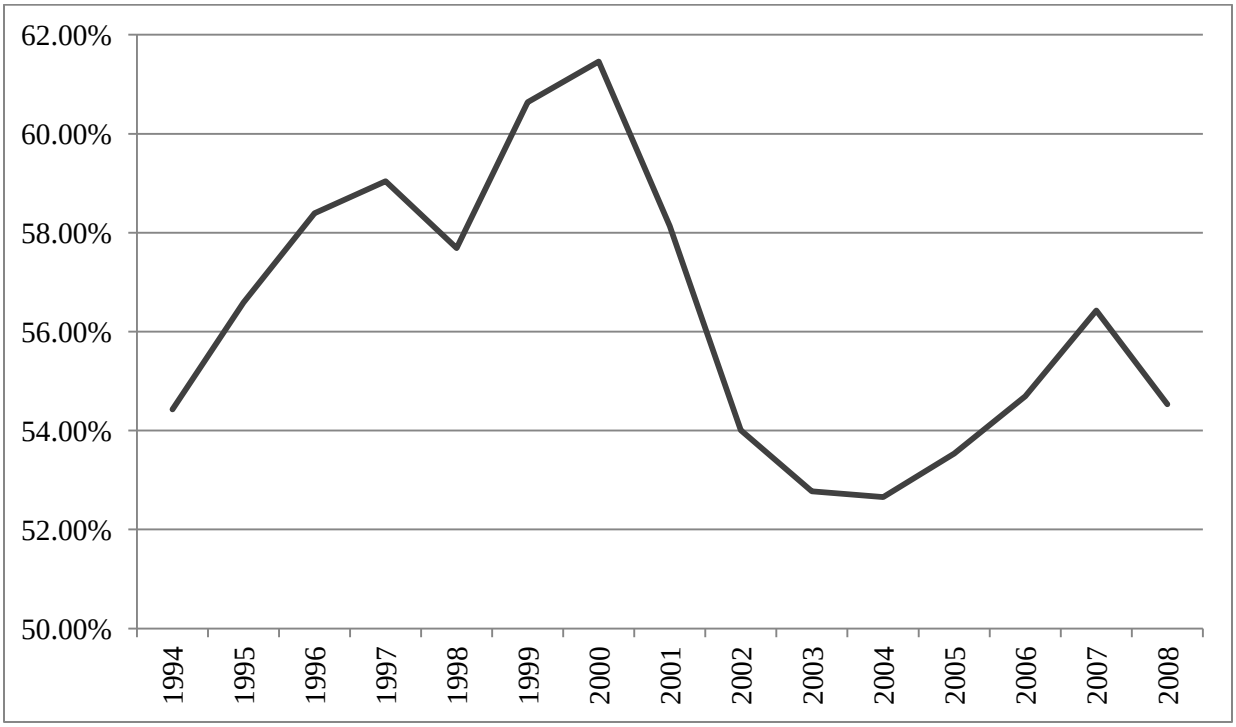

Figure 3.3: High Opaque Assets to Total Assets

Shows the mean percentage composition of Total Assets accounted for by high opaque assets (MBS + ABS + other trading assets + intangible assets + investments in unconsolidated subsidiaries) over time from 1994 to 2008. There is presence of a negative trend as high opaque assets represents approximately 12.5% of total assets in 1994 and represents less than 8% by 2000. The trend becomes positive in the latter half of our sample as high opaque assets more than double to almost 17% of total assets by 2008. The sample consists of 3360 bank-quarter observations.

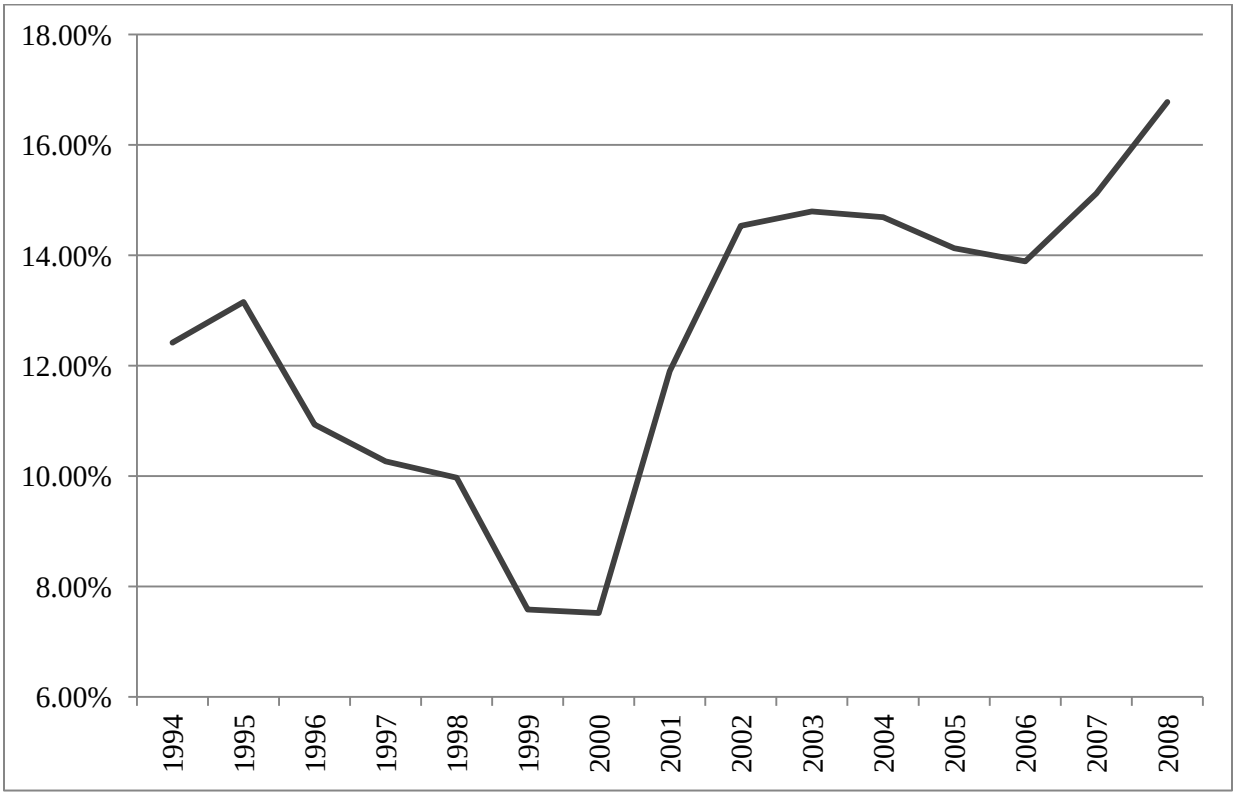

Figure 3.4: Other Opaque Assets to Total Assets

Shows the mean percentage composition of Total Assets accounted for by other opaque assets (premises + goodwill + other assets + OREO) over time from 1994 to 2008. There is presence of a positive trend as other opaque assets represents approximately 6% of total assets in 1994 and represents approximately 10.5% by 2008. The sample consists of 3360 bank-quarter observations.

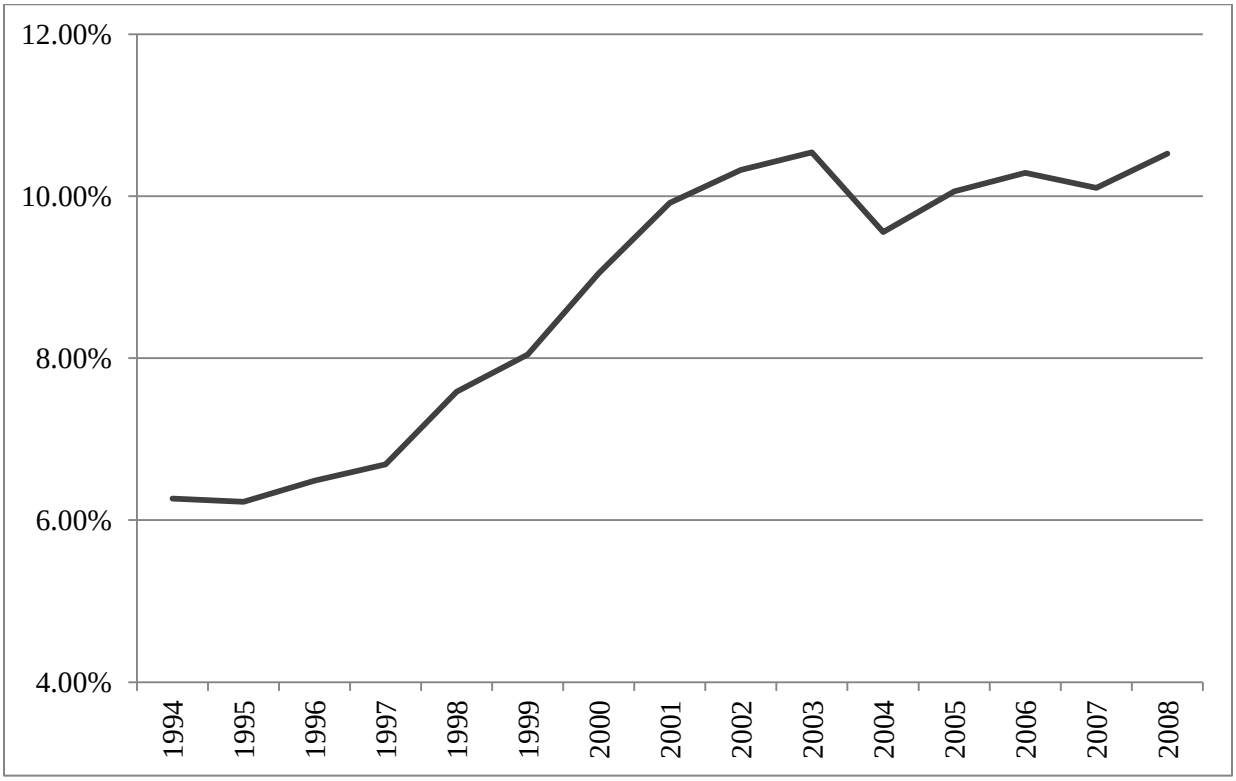

Figure 3.5: Real Estate Loans to Total Assets

Shows the mean percentage composition of Total Assets accounted for by real estate loans over time from 1994 to 2008. There is presence of a positive trend as real estate loans represents approximately 22% of total assets in 1994 and almost 30% by 2008. In conjunction with Figure 3.2, the composition of total loans shifts towards real estate loans over our sample period. The sample consists of 3360 bank-quarter observations.

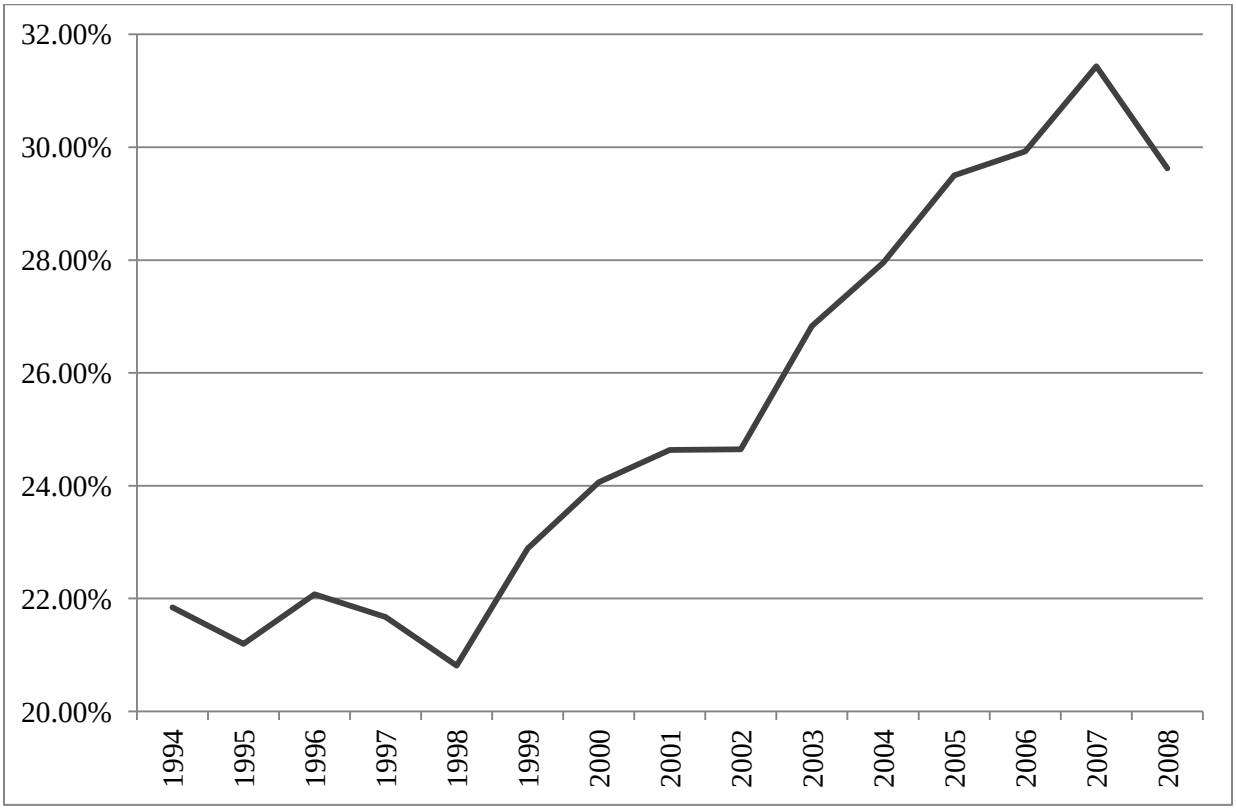

Figure 3.6: Total Opaque Assets to Total Assets (All FRY-9C Banks)

Shows the mean percentage composition of Total Assets accounted for by opaque assets over time from 1994 to 2008. There is presence of a positive trend as opaque assets represents approximately 62.5% of total assets in 1994 and represents almost 80% of total assets by 2008. This pattern is very similar to the pattern shown in Figure 3.1, indicating that the positive trend of opaque assets to total assets is not isolated to our sample banks. The sample consists of 108,867 bank-quarter observations.

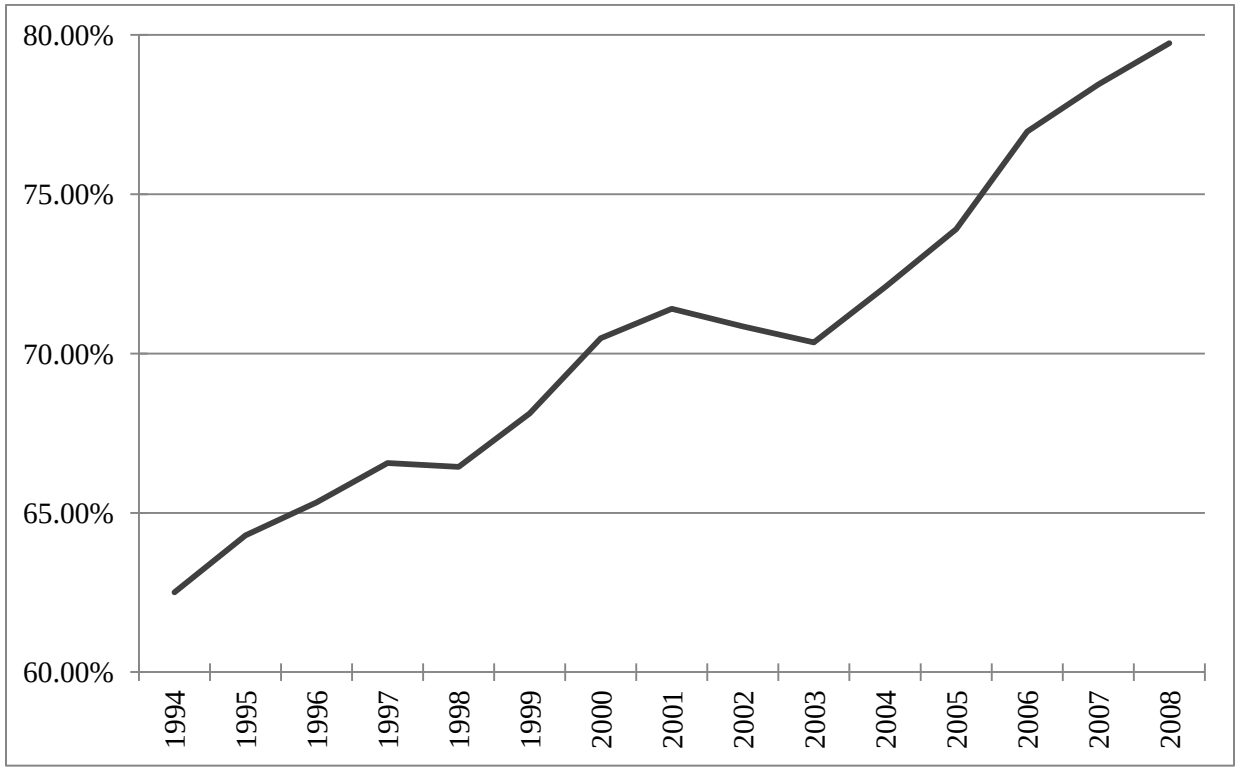

Figure 3.7: Spreads and Yields on bank subordinated debentures

Shows the mean and median yields and spreads over treasury of subordinated bank debt over time from 1994 to 2008. Subordinated debt yields are higher in the earlier half of our sample as it never drops below 6% while it is never above 5.5% in the later half. Yield spread rise from 2000 to 2002 and then steadily falls until 2008. The sample consists of 3360 bank-quarter observations. Figure 3.7 corresponds directly with Table 3.2, Panel A and B.

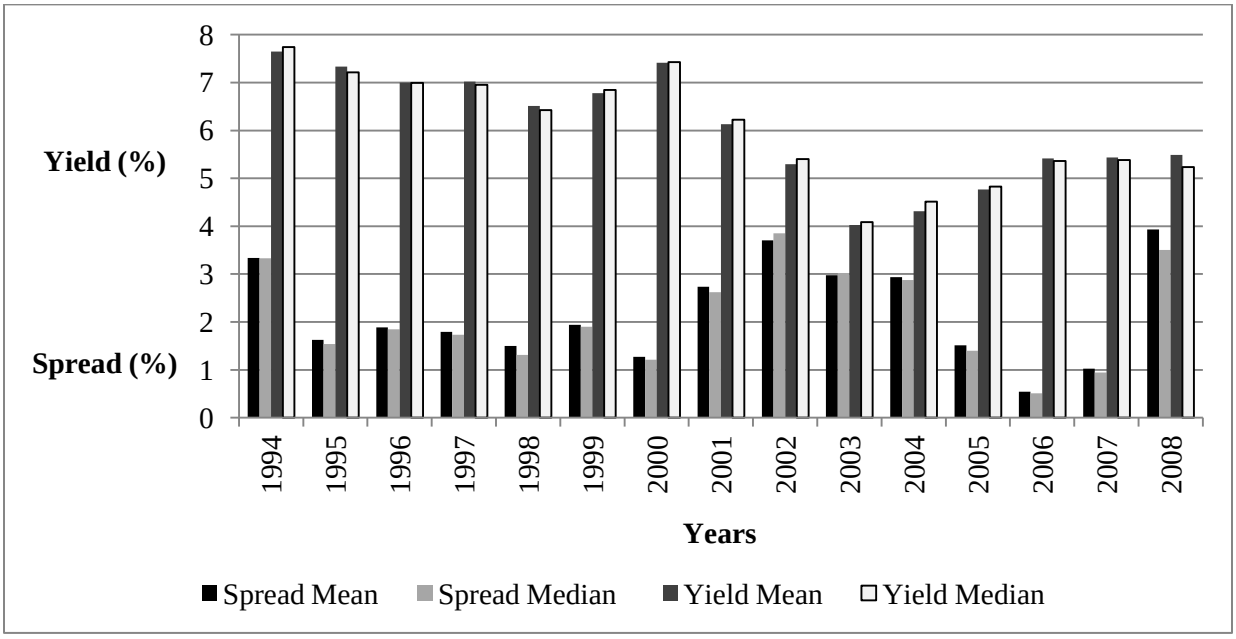

Table 3.1: Summary Statistics

REAL LOANS is all real estate loans to total assets. *OTHER LOANS* represents the difference between *TOTAL LOANS* and *REAL LOANS* to total assets. *MBS* represents all mortgage backed securities not guaranteed by a government sponsored entity to total assets. *HIGH OPAQUE* represents the sum of *MBS*, *ABS*, other trading assets, intangible assets, and investments in unconsolidated subsidiaries divided by total assets. *OTHER OPAQUE* represents the sum of premises, goodwill, other assets, and OREO divided by total assets. *SPREAD* is the percentage spread between bank subordinated debt yields and the yield of a treasury security with a similar maturity. *NATA* represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity.[14] *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. Panel A shows the summary statistics for banks classified as too big to fail. Panel B shows the summary statistics for all other banks in our sample.

[14] See Flannery and James (1984) for additional information on the construction of AGAP.

Panel A: TBTF = 1

	N	Mean	Median	Minimum	Maximum	Std Dev
REAL LOANS	2169	22.57%	24.34%	0.85%	49.69%	12.25%
OTHER LOANS	2169	28.30%	25.80%	13.35%	54.77%	8.91%
MBS	2169	0.86%	0.31%	0.00%	5.36%	1.20%
HIGH OPAQUE	2169	17.56%	14.77%	1.80%	54.42%	10.32%
OTHER OPAQUE	2169	9.09%	9.59%	3.86%	14.30%	2.09%
SPREAD	2169	2.16%	1.89%	-2.43%	8.56%	1.34%
NATA	2169	0.53%	0.43%	0.11%	2.59%	0.35%
PDTA	2169	0.22%	0.12%	0.00%	1.78%	0.27%
OREOTA	2169	0.14%	0.09%	0.00%	1.59%	0.17%
MKTLEV	2169	820.6%	681.7%	281.6%	3972.1%	420.8%
AGAP	2169	168.0%	150.5%	14.7%	752.1%	99.6%
ROA	2169	0.61%	0.58%	-4.20%	2.18%	0.49%
lnTA	2169	19.979	19.993	18.096	21.581	0.832

Table 3.1 Continued

Panel B: TBTF = 0

	N	Mean	Median	Minimum	Maximum	Std Dev
REAL LOAN	1191	30.51%	29.94%	1.28%	58.58%	12.71%
OTHER LOAN	1191	34.75%	35.01%	10.54%	60.42%	10.83%
MBS	1191	1.17%	0.50%	0.00%	18.68%	2.21%
HIGH OPAQUE	1191	4.34%	3.03%	0.09%	30.13%	4.38%
OTHER OPAQUE	1191	8.26%	7.52%	2.64%	26.39%	3.47%
SPREAD	1191	2.29%	1.99%	-1.59%	12.13%	1.32%
NATA	1191	0.54%	0.43%	0.02%	2.26%	0.39%
PDTA	1191	0.20%	0.16%	0.00%	1.70%	0.17%
OREOTA	1191	0.10%	0.06%	0.00%	0.75%	0.13%
MKTLEV	1191	602.1%	524.7%	167.3%	3281.7%	297.6%
AGAP	1191	168.8%	156.4%	2.5%	1693.3%	121.5%
ROA	1191	0.81%	0.73%	-2.65%	3.08%	0.49%
lnTA	1191	18.046	18.114	15.378	19.583	0.670

Table 3.2: Yearly Summary Statistics for Spread and Yield

Panel A shows the summary statistics over time for the spread over treasury of subordinated bank debt over time from 1994 to 2008. Yield spread rise from 2000 to 2002 and then steadily falls until 2008. Panel B shows the summary statistics for bank subordinated debt yields, which are higher in the earlier half of our sample as it never drops below 6% while it is never above 5.5% in the later half. Figure 3.7 corresponds directly with Table 3.2, Panel A and B.

Panel A: Spread (%)

Year	N	Mean	Median	Minimum	Maximum	Std Dev
1994	179	3.34	3.33	1.04	6.59	0.69
1995	270	1.63	1.54	-0.37	5.79	0.70
1996	255	1.89	1.85	-1.59	5.18	0.61
1997	264	1.79	1.74	0.29	4.05	0.50
1998	219	1.50	1.31	0.26	3.93	0.64
1999	141	1.94	1.90	0.92	3.25	0.46
2000	92	1.27	1.21	0.22	2.38	0.48
2001	228	2.74	2.62	0.57	5.66	1.11
2002	256	3.70	3.85	0.85	6.05	1.04
2003	263	2.97	3.02	-2.43	6.70	1.31
2004	278	2.94	2.88	0.67	6.32	1.11
2005	244	1.51	1.40	-0.64	5.67	0.69
2006	244	0.55	0.51	-0.88	2.61	0.44
2007	228	1.03	0.95	-0.91	3.89	0.82
2008	199	3.93	3.50	1.22	12.13	1.68

Table 3.2 Continued

Panel B: Yield (%)

Year	N	Mean	Median	Minimum	Maximum	Std Dev
1994	179	7.65	7.74	4.70	10.10	0.86
1995	270	7.33	7.22	5.15	11.31	0.77
1996	255	7.00	7.00	3.37	10.33	0.64
1997	264	7.02	6.95	5.57	9.25	0.47
1998	219	6.51	6.43	5.19	8.46	0.57
1999	141	6.78	6.84	5.55	8.14	0.55
2000	92	7.42	7.43	6.33	8.37	0.35
2001	228	6.13	6.23	3.02	8.36	0.87
2002	256	5.30	5.40	2.18	7.70	1.09
2003	263	4.03	4.09	-1.34	7.65	1.31
2004	278	4.31	4.51	1.63	7.36	1.03
2005	244	4.77	4.83	2.26	8.25	0.60
2006	244	5.42	5.36	3.96	7.70	0.43
2007	228	5.44	5.38	4.25	7.84	0.46
2008	199	5.49	5.24	3.18	13.88	1.35

Table 3.3: Linear Panel Regression of Spread on Bank Accounting Ratios

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_{it} = \beta_1 NATA_{it} + \beta_2 PDTA_{it} + \beta_3 OREOTA_{it} + \beta_4 AGAP_{it} + \beta_5 MKTLEV_{it} + \beta_6 ROA_{it} + \beta_7 lnTA_{it} + YearDummy_{it} + \varepsilon_{it}$$

NATA represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. *D1995, D1996*, … *D2007* represent year dummies. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	(1) 1994 - 2007		(2) 1994 - 2001		(3) 2002 - 2007	
NATA	0.254	***	0.239	**	0.084	
	(2.94)		(2.25)		(0.48)	
PDTA	-0.246		0.254		-0.201	
	(-1.56)		(0.84)		(-1.02)	
OREOTA	0.235		0.081		0.320	
	(1.44)		(0.47)		(0.69)	
AGAP	-0.009		0.053	*	-0.209	***
	(-0.32)		(1.85)		(-3.52)	
MKTLEV	0.039	***	0.031	**	0.021	
	(3.88)		(2.55)		(1.07)	
ROA	-0.2000	***	-0.081	**	-0.379	***
	(-6.16)		(-2.07)		(-8.12)	
lnTA	-0.145	*	0.099		-0.786	***
	(-1.70)		(1.01)		(-4.41)	
D1995	-1.470	***	-1.518	***		
	(-21.36)		(-25.66)			
D1996	-1.100	***	-1.208	***		
	(-12.79)		(-15.40)			
D1997	-1.152	***	-1.249	***		
	(-11.59)		(-13.31)			
D1998	-1.433	***	-1.515	***		
	(-12.99)		(-14.35)			
D1999	-1.077	***	-1.106	***		
	(-8.86)		(-9.54)			
D2000	-1.708	***	-1.819	***		
	(-12.87)		(-14.03)			
D2001	-0.783	***	-0.844	***		
	(-5.69)		(-6.04)			
D2002	0.540	***				
	(4.02)					
D2003	-0.161				-0.667	***
	(-1.19)				(-11.05)	
D2004	-0.161				-0.726	***
	(-1.09)				(-7.84)	
D2005	-1.640	***			-2.078	***
	(-10.26)				(-17.41)	
D2006	-2.716	***			-3.198	***
	(-16.18)				(-23.50)	
D2007	-2.731	***			-3.211	***
	(-15.23)				(-20.28)	
Nobs	3030		1577		1453	
R^2	0.5399		0.4060		0.5212	

Table 3.4: Cross-section, Linear Regressions of SPREAD on Bank Accounting Ratios

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_i = \beta_1 NATA_i + \beta_2 PDTA_i + \beta_3 OREOTA_i + \beta_4 AGAP_i + \beta_5 MKTLEV_i + \beta_6 ROA_i + \beta_7 lnTA_i + \varepsilon_i$$

NATA represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
NATA	-0.125	0.111	0.421 **	0.035	-0.037	0.129	-0.62 *	0.989 ***
	(-0.61)	(0.60)	(2.26)	(0.19)	(-0.13)	(0.30)	(-1.76)	(2.98)
PDTA	1.787 *	0.728	0.425	0.891 **	0.646	1.440 ***	0.616	1.416 **
	(1.86)	(1.28)	(0.71)	(2.18)	(1.25)	(2.80)	(0.77)	(2.06)
OREOTA	0.213	-0.598	0.496	-0.488	0.400	1.893 *	-1.538	-2.371
	(0.73)	(-1.44)	(1.08)	(-1.42)	(0.69)	(1.89)	(-1.48)	(-1.59)
AGAP	0.018	0.063 *	0.106 **	-0.079	-0.006	-0.113	0.217 ***	0.189
	(0.52)	(1.80)	(2.19)	(-1.48)	(-0.08)	(-1.41)	(2.78)	(1.35)
MKTLEV	-0.021	-0.041 **	0.031 **	0.009	0.088 ***	0.054 **	-0.034	0.198 ***
	(-0.92)	(-2.23)	(1.99)	(0.71)	(4.72)	(2.15)	(-1.21)	(4.35)
ROA	-0.745 ***	-0.660 ***	0.061	-0.714 ***	0.555 ***	0.007	-0.487 ***	1.432 ***
	(-4.44)	(-4.06)	(0.50)	(-8.52)	(4.43)	(0.09)	(-4.43)	(7.52)
ln(TA)	0.027	0.048	0.038	-0.040	-0.014	-0.058	-0.060	0.114
	(0.25)	(0.70)	(0.75)	(-1.06)	(-0.24)	(-1.23)	(-0.76)	(1.20)
Nobs	172	259	244	253	210	135	88	219
R^2	0.1462	0.0696	0.0265	0.2328	0.1297	0.1584	0.2093	0.2467

Table 3.4 Continued

	2002	2003	2004	2005	2006	2007
NATA	0.176	-0.025	-1.045 ***	-1.050 ***	-0.687 ***	-0.343
	(0.78)	(-0.07)	(-2.59)	(-3.78)	(-3.14)	(-1.14)
PDTA	1.544 **	0.480	-1.280 ***	-0.167	0.029	-0.883 ***
	(2.29)	(0.65)	(-3.02)	(-0.69)	(0.11)	(-4.04)
OREOTA	2.099 **	3.486 ***	2.442 ***	0.646	0.610	-4.183 ***
	(2.32)	(3.18)	(2.81)	(0.37)	(0.53)	(-5.33)
AGAP	0.180	0.098	-0.080	0.079	0.057	-0.149 **
	(1.42)	(0.68)	(-0.50)	(0.70)	(0.74)	(-2.09)
MKTLEV	0.031	0.089 **	-0.010	-0.126 *	0.025	0.438 ***
	(1.12)	(2.45)	(-0.18)	(-1.86)	(0.34)	(8.86)
ROA	-0.542 ***	0.479 **	-0.921 ***	-1.014 ***	-0.311 ***	-1.454 ***
	(-3.18)	(1.97)	(-4.74)	(-10.11)	(-5.05)	(-13.46)
ln(TA)	-0.222 **	-0.154	-0.338 ***	-0.221 ***	-0.089 *	-0.308 ***
	(-2.43)	(-1.46)	(-3.96)	(-3.39)	(-1.68)	(-5.52)
Nobs	245	252	266	234	234	219
R^2	0.138	0.0486	0.1384	0.3709	0.166	0.649

Table 3.5: Subsample of Fixed Effects Regression 2002 – 2007

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_{it} = \beta_1 NATA_{it} + \beta_2 PDTA_{it} + \beta_3 OREOTA_{it} + \beta_4 AGAP_{it} + \beta_5 MKTLEV_{it} + \beta_6 ROA_{it} + \beta_7 lnTA_{it} + YearDummy_{it} + \varepsilon_{it}$$

Column 1 regresses only on banks not classified as TBTF. Column 2 regresses only on banks in the bottom quartile of banks ranked by *High Opaque*. Column 3 regresses on banks in the top three quartiles of banks ranked by *High Opaque*. *NATA* represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. *D1995*, *D1996, … D2007* represent year dummies. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	(1) Non-TBTF		(2) Least Opaque		(3) More Opaque	
NATA	0.223		0.500	**	0.600	
	(0.91)		(2.02)		(1.49)	
PDTA	-0.186		-0.533		0.754	
	(-0.04)		(-1.33)		(0.63)	
OREOTA	0.089		0.198	**	-0.044	
	(0.10)		(2.43)		(-0.59)	
AGAP	-0.273	***	-0.078		-0.378	***
	(-2.67)		(-0.79)		(-3.34)	
MKTLEV	0.126	*	0.137	**	0.017	
	(1.84)		(2.33)		(0.69)	
ROA	-0.334	***	-0.228	***	-0.414	***
	(-4.79)		(-2.74)		(-5.38)	
lnTA	-1.646	***	-0.146		-1.190	***
	(-3.54)		(-0.74)		(-4.15)	
D2003	-0.568	***	-0.642	***	-0.601	***
	(-5.34)		(-5.42)		(-5.98)	
D2004	-0.561	***	-0.542	***	-0.508	***
	(-3.87)		(-3.60)		(-3.02)	
D2005	-1.842	***	-1.978	***	-1.559	***
	(-9.52)		(-10.78)		(-7.35)	
D2006	-3.186	***	-3.386	***	-2.683	***
	(-14.75)		(-16.92)		(-11.84)	
D2007	-3.217	***	-3.276	***	-2.696	***
	(-12.87)		(-14.94)		(-10.60)	
Nobs	419		364		1089	
R^2	0.3102		0.5335		0.5280	

Table 3.6: Linear Panel Regression with the Addition of Subordinated Debt Characteristics

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_{it} = \beta_1 NATA_{it} + \beta_2 PDTA_{it} + \beta_3 OREOTA_{it} + \beta_4 AGAP_{it} + \beta_5 MKTLEV_{it} + \beta_6 ROA_{it} + \beta_7 lnTA_{it} + \beta_8 COUPON_{it} + \beta_9 TTM_{it} + YearDummy_{it} + \varepsilon_{it}$$

NATA represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. *COUPON* is the coupon rate of the bank subordinated debt. *TTM* is the time to maturity of the bank subordinated debt in terms of years where partial years are kept in decimal form. *D1995*, *D1996*, … *D2007* represent year dummies. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	(1) 1994 - 2007		(2) 1994 - 2001		(3) 2002 - 2007	
NATA	0.092	*	0.079	**	0.081	
	(1.76)		(2.25)		(0.84)	
PDTA	-0.192		0.029		-0.323	***
	(-1.39)		(0.17)		(-3.18)	
OREOTA	0.012		0.109		0.065	
	(0.10)		(0.94)		(0.21)	
AGAP	0.012		0.030	**	-0.020	
	(0.78)		(2.06)		(-0.52)	
MKTLEV	0.012	*	0.016	*	0.022	
	(2.17)		(1.87)		(1.02)	
ROA	-0.152	***	-0.064	*	-0.247	***
	(-4.58)		(-1.70)		(-4.59)	
lnTA	-0.032	**	-0.055		-0.036	***
	(-2.34)		(-1.47)		(3.06)	
COUPON	0.213	***	0.270	***	0.148	***
	(18.01)		(19.26)		(7.85)	
TTM	0.077	***	0.052	***	0.105	***
	(31.52)		(18.29)		(26.50)	
D1995	-1.549	***	-1.557	***		
	(-23.14)		(-28.28)			
D1996	-1.180	***	-1.183	***		
	(-16.01)		(-19.01)			
D1997	-1.221	***	-1.207	***		
	(-15.42)		(-17.55)			
D1998	-1.458	***	-1.422	***		
	(-17.16)		(-19.10)			
D1999	-0.994	***	-0.927	***		
	(-10.65)		(-11.44)			
D2000	-1.562	***	-1.503	***		
	(-15.42)		(-17.16)			
D2001	-0.558	***	-0.481	***		
	(-5.86)		(-5.69)			
D2002	0.918	***				
	(10.56)					
D2003	0.350	***			-0.562	***
	(4.09)				(-8.27)	
D2004	0.468	***			-0.489	***
	(5.25)				(-6.36)	
D2005	-0.821	***			-1.797	***
	(-8.88)				(-20.95)	
D2006	-1.825	***			-2.830	***
	(-19.53)				(-33.02)	

D2007	-1.762	***		-2.811	***
	(-17.67)			(-30.16)	
Nobs	3030		1577	1453	
R^2	0.6587		0.6053	0.7593	

Table 3.7: Linear Panel Regression of Spread on Alternative Measure of Loan Quality

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_{it} = \beta_1 ALLTA_{it} + \beta_2 AGAP_{it} + \beta_3 MKTLEV_{it} + \beta_4 ROA_{it} + \beta_5 lnTA_{it} + YearDummy_{it} + \varepsilon_{it}$$

ALLTA represent net allowance for loans and lease losses to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. *D1995*, *D1996*, … *D2007* represent year dummies. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	(1) 1994 - 2007		(2) 1994 - 2001		(3) 2002 - 2007	
ALLTA	-0.122		0.164		-0.600	***
	(-1.10)		(1.19)		(-3.50)	
AGAP	-0.007		0.051	*	-0.180	***
	(-0.25)		(1.88)		(-3.19)	
MKTLEV	0.043	***	0.036	***	0.020	
	(4.32)		(3.16)		(1.19)	
ROA	-0.200	***	-0.131	***	-0.252	***
	(-4.95)		(-2.65)		(-4.24)	
lnTA	-0.176	**	0.043		-0.661	***
	(-2.08)		(0.45)		(-3.73)	
D1995	-1.565	***	-1.576	***		
	(-24.99)		(-29.72)			
D1996	-1.225	***	-1.288	***		
	(-15.69)		(-17.69)			
D1997	-1.306	***	-1.360	***		
	(-14.49)		(-15.58)			
D1998	-1.595	***	-1.623	***		
	(-15.88)		(-16.33)			
D1999	-1.210	***	-1.184	***		
	(-10.68)		(-10.63)			
D2000	-1.801	***	-1.894	***		
	(-14.42)		(-15.26)			
D2001	-0.838	***	-0.875	***		
	(-6.49)		(-6.56)			
D2002	0.544	***				
	(4.33)					
D2003	-0.205				-0.764	***
	(-1.60)				(-12.87)	
D2004	-0.263	*			-0.899	***
	(-1.84)				(-11.30)	
D2005	-1.763	***			-2.286	***
	(-11.37)				(-22.37)	
D2006	-2.852	***			-3.434	***
	(-17.55)				(-29.09)	
D2007	-2.861	***			-3.427	***
	(-16.52)				(-25.01)	
Nobs	3030		1577		1453	
R^2	0.5414		0.4137		0.5418	

Table 3.8: Linear Panel Regression of Spread on Four Measures of Loan Quality

Dependent variable is the SPREAD measured in percent for each subordinated debt transaction by quarter. Estimation method is fixed effects panel estimation, in which each bank is permitted to have its own intercept term. Robust standard errors are employed and heteroskedasticity consistent t-statistics are reported in parentheses below each coefficient estimate. Fixed effects model and explanatory variables are defined as follows:

$$SPREAD_{it} = \beta_1 NATA_{it} + \beta_2 PDTA_{it} + \beta_3 OREOTA_{it} + \beta_4 ALLTA_{it} + \beta_5 AGAP_{it} + \beta_6 MKTLEV_{it} + \beta_7 ROA_{it} + \beta_8 lnTA_{it} + YearDummy_{it} + \varepsilon_{it}$$

NATA represent non-accruing loans to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *ALLTA* represent net allowance for loans and lease losses to total assets. *PDTA* represents loans that are greater than 90 days past due to total assets. *OREOTA* represents other real estate owned to total assets. *AGAP* is the absolute value of the bank's one-year maturity gap divided by market value of equity. *MKTLEV* is the market leverage and is constructed as the ratio of book value of total liabilities divided by the sum of market value of common stock outstanding and the book value of preferred stock. *ROA* is calculated as net income divided by total assets. Natural log of total assets is represented as *lnTA*. *D1995*, *D1996*, … *D2007* represent year dummies. ***Significant at the 0.01 level **Significant at the 0.05 level *Significant at the 0.10 level.

	(1) 1994 - 2007		(2) 1994 - 2001		(3) 2002 - 2007	
NATA	0.300	***	0.230	**	0.269	
	(3.34)		(2.16)		(1.50)	
PDTA	-0.225		0.225		-0.114	
	(-1.42)		(0.75)		(-0.58)	
OREOTA	0.190		0.105		0.388	
	(1.15)		(0.60)		(0.85)	
ALLTA	-0.212	*	0.144		-0.681	***
	(-1.82)		(1.04)		(-3.72)	
AGAP	-0.008		0.054	*	-0.199	***
	(-0.29)		(1.90)		(-3.37)	
MKTLEV	0.039	***	0.030	**	0.028	
	(3.96)		(2.46)		(1.43)	
ROA	-0.151	***	-0.113	**	-0.219	***
	(-3.56)		(-2.26)		(-3.45)	
lnTA	-0.131		0.093		-0.625	***
	(-1.53)		(0.94)		(-3.42)	
D1995	-1.466	***	-1.517	***		
	(-21.30)		(-25.64)			
D1996	-1.084	***	-1.213	***		
	(-12.53)		(-15.43)			
D1997	-1.130	***	-1.255	***		
	(-11.29)		(-13.35)			
D1998	-1.415	***	-1.518	***		
	(-12.77)		(-14.38)			
D1999	-1.065	***	-1.105	***		
	(-8.75)		(-9.53)			
D2000	-1.682	***	-1.832	***		
	(-12.61)		(-14.07)			
D2001	-0.764	***	-0.854	***		
	(-5.54)		(-6.09)			
D2002	0.571	***				
	(4.22)					
D2003	-0.150				-0.739	***
	(-1.11)				(-11.71)	
D2004	-0.158				-0.830	***
	(-1.07)				(-8.63)	
D2005	-1.636	***			-2.201	***
	(-10.23)				(-17.85)	
D2006	-2.721	***			-3.358	***
	(-16.21)				(-23.64)	
D2007	-2.729	***			-3.368	***
	(-15.23)				(-20.65)	

Nobs	3030	1577	1453
R^2	0.5402	0.4062	0.5523

OVERALL CONCLUSIONS

In my first essay, I find that direct foreign investors move firms away from a Swedish stakeholder orientation toward an Anglo-American shareholder wealth maximization focus. Foreign shareholders as opposed to domestic shareholders are agents of change because they push Swedish firms to behave more in accordance with what is the accepted goal of a corporation within the Anglo-American cultural context. We find that these corporations increase both capital intensity and labor productivity primarily by cutting unproductive portions of labor and shifting towards more efficient uses of capital.

In my second essay, I find that strong formal institutions foster better efficiency and outreach while strong informal institutions' impact is limited to better outreach. Overall, strong formal and informal institutions help support MFIs and also mitigate the potential of mission drift. Because MFIs' goals are not usually profit maximization but rather sustainability and outreach, these results indicate that strong formal and informal institutions help minimize principle-agency problems.

In my third essay, I investigate the apparent lack of market discipline in the bank subordinated debt market leading up to the 2008 finance crisis. I find that subordinated debt holders were caught off guard by the suddenness and magnitude of the crisis. I find that bank opacity created a vulnerable environment in the banking industry that contributed to this collapse. Subordinated bond holders, as well as regulators and credit agencies failed to accurately gauge the level of risk within the banking industry. Here we find that opacity, or a lack of transparency made market discipline ineffective. I conclude that regulators and policy makers must act to ensure transparency to allow markets to function properly. Once again, a lack of good formal institutions (regulations and enforcement in the banking industry)

contributed to a lack of corporate governance.

Overall, I find that beyond internal matters of corporate governance, external sources of corporate governance can have a real impact on the financial outcome of firms. The impact of formal and informal institutions and agents who challenge these institutions should not be dismissed. By looking beyond the traditional principle-agent conflict and its impact on firm performance, I offer a richer landscape of corporate governance.