How Does Organizational Form Matter?
Distance, Communication and Soft Information

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Abstract

This paper empirically examines how both soft and hard information are transmitted and used within an organization. I explore the hierarchical decision-making approval process of corporate loans in a foreign bank in Argentina for this purpose. Results suggests that loans that go to higher levels for approval embed more hard relative to soft information in explaining credit availability. These results are robust to alternative measures of the vertical dimension in the organization such as: the level of approval, the total number of signatures in the approval process and the total time taken to approve the loan. I also analyze whether geographic location of the ultimate officer approving the loan impacts these results. I find that loans that are approved inside the branch rely significantly more on soft information compared to loans approved elsewhere. Direct communication with the ultimate layer approving the loan implies that soft is relatively more used than hard information. Transmission of soft information is easier if direct personal communication is feasible. I use several complexity measures to analyze alternative channels that could potentially explain the previous results and find that results are robust to the inclusion of such measures. Finally, I question the definition of both hard and soft information measures. Results show that soft information can be transmitted and used along the hierarchical levels, and that further qualifying hard information matters. Namely, I find higher reliance on soft information even at higher hierarchical levels when hard information is not reliable. These last results raise questions regarding the validity of the main assumptions for "non-transmission" of soft information used by current theoretical models of organizational structure.

1 Introduction

Transmission and usage of information are important characteristics in shaping organizational structure. However, questions regarding what type of information flows within organizations and how are still empirical puzzles to be addressed. The existing theoretical models have highlighted the importance of both vertical and horizontal aspects of organizational structure in the process of transmission and communication of information. Most of the existing models assume that soft information cannot be transmitted due to its inherited subjective characteristics. Yet, to this date, there is no empirical attempt to understand how information flows within organizations and what type of information ends is actually transmitted and ultimately used.

Questions such as "How does information flow within organizations?", "Should all information be considered equally along the decision-making process?", "Can soft information be transmitted and eventually be verified across different layers?", or "What happens when direct personal communication is allowed across layers?" are in need of a first empirical answer.

The aim of this paper is to provide *some* answers to these questions.

I explore the credit decision-making process of a multinational bank in order to understand how organizational form matters in terms of transmission and usage of information in explaining loan approvals. The results of this paper should by no means be taken as definite since they rely on a clinical study of a single organization, in this case a foreign bank in Argentina. Nevertheless, to the best of my knowledge, this is the first attempt to narrow the existing gap between theoretical and empirical research in this area.

The discussion proposed in this paper is also relevant to the empirical banking literature as it focuses on the internal credit process of corporate loan approvals. A hierarchical-credit approval process as opposed to a credit-committee approval is studied here. Two points are worth mentioning. First, an analysis of the empirical advantages and disadvantages of each of these two systems[1] and, second, understanding the reasons for the emergence of the existing hierarchy in its current format are beyond the scope of this paper.[2]

This paper is also relevant to the literature on soft and hard information in banking. Since the pioneering work of Berger and Udell (1995) and Petersen and Rajan (1994 and 2002) soft

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[1] Dessein (2003) analyzes theoretically the advantages and disadvantages of hierarchies and committees. He concludes that a trade-off exists between both systems where there is a tendency to "less costly" or faster decisions in hierarchies and more objective decision-making by committees.

[2] There are different theories for the emergence and existence of hierarchies. Among other reasons, hierarchies may emerge from the optimality of parallel information processing as in Radner (1992), from matching problems with human capital as in Garicano (2000) or from the effectiveness of communication affecting the optimal structure of decision-making as in Dessein (2002).

information has been linked to small business lending rather than large corporate business lending. Relational concepts like trust and knowledge of the firm-bank relationship have been generally employed in a small business lending setting. Liberti (2003) however highlights the importance of the usage of soft information in an organizational hierarchical change setup for large corporate clients.

By using a new, hand collected data set for corporate credit approvals, this paper continues along this line of study by exploring the importance of soft information in large business lending from a different angle.

Specifically, I empirically examine how both soft and hard information are transmitted and used across the hierarchies of the organization. I have gathered and manually assembled a unique database on the organizational structure of this bank. I have collected information on *all* corporate credit approvals for clients in 1998 and I followed the approval path of the credit loans across the different layers of the organization.

Liberti (2003) exploited a change in the hierarchical structure of this same organization between 1999-2001. That paper studied how decentralization of decision rights and empowering managers at the lower layer of the hierarchy impacted the incentives of the individuals to exert more effort. Delegation of formal authority was found to be positive from the bank's perspective.

In this paper, I take the hierarchical structure of 1998 as given and attempt to understand how information flows within the organization. I study two main dimensions of the organizational structure: a *vertical* and a *horizontal* dimension. As suggested by the existing theoretical literature, the impact on the amount of soft and hard information to be used under each of these dimensions is an empirical matter.

The *vertical* dimension is given by the hierarchical credit decision-making process of the organization. Loans from corporate clients must follow a determined hierarchical path (*i.e.* levels of approval) to be approved. Such levels are known *ex-ante* to the officer in charge of the approval process. Results show that those loans which must go to higher levels for approval embed more hard relative to soft information in explaining credit availability. Also, I find that communication affects these results. For those loans in which direct communication between the loan officer and the final layer of approval is possible (*i.e.* the final level of approval is inside the branch as opposed to outside the branch or outside the country) soft information matters relatively more than hard information in explaining credit availability. Results are robust to using alternative measures of vertical dimension: the level of approval, the total number of signatures in the approval process and the total time (in days) it takes to approve the loan.

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The *horizontal* dimension is given by the number of account officers working in teams reporting to a supervisor.[3] Interaction among team members and their supervisors may affect the amount and the quality of both hard and soft information used in preparing the credit recommendation form and embedded in the amount of the loan to be approved. Results show that conditional on the level of approval, teams with direct communication between the account officer and their supervisor (*i.e.* single teams) embed more soft relative to hard information in explaining credit availability. The underlying rationale is that transmission of soft information is less costly when the account officer works directly with her supervisor.

Let me now describe the results in greater detail.

First, what type of information is embedded in loans approved at higher levels of the organization? As mentioned, account officers know beforehand how high in the hierarchy the loan approval must go, according to a set of pre-determined rules. These account officers prepare the recommendation forms and the credit analysis, and the loan is then submitted through the hierarchical decision-making process that exists in this organization. I use the level of approval as my first vertical dimension measure. Clearly, the level of approval is linked to the size of the loan, although not uniquely. As alternative measures of the vertical dimension I use: the total number of signatures in each credit approval process and the total time (in days) taken to approve the loan. The former provides an idea of how often the loan approval changes hands, while the latter provides a sense of the complexity of the credit, as more difficult loans may require a longer time to approval regardless of their level. Results from this section show that hard information is used relatively more than soft information in explaining credit availability at higher layers of the organization. Likewise, loans with larger number of signatures and longer time to obtain approval embed relatively more hard than soft information.

Second, I argue that the geographic location of the *final* officer approving the loan may impact the relative usage of information. Direct communication between the account officer and the final layer of approval may entail a differential impact on the type of information being used, regardless of the hierarchical level of approval since soft information might be easier to transmit personally (and eventually verified). To answer this question, I classify loans according to the geographic location of their final level of approval: inside the branch, outside the branch or outside the country. Furthermore I exploit the existing geographic variation *within* one of the middle levels of approval to examine the importance of communication. Results suggest that, ignoring communication effects, more soft relative to hard information is embedded in loans with approvals is inside the branch.

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[3]Account officers are organized into business units, which vary in size.

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Allowing for communication, we observe that for the *same* level of approval, loans in which direct communication is feasible (In Branch) embed more soft than hard information relative to those loans in which direct communication is not feasible (Out Branch).

I address selection issues that may raise a potential problem throughout the analysis of the vertical dimension. I conclude that there is no clear selection between loans that stay inside the branch versus those which are approved outside the branch for the same level of approval.

Third, I examine whether the *complexity* of the loans are driving the results on the differential usage of information. It is possible that more complex approvals move higher in the hierarchy and that these loans are inherently different in their structure. I use several credit *complexity* measures to capture the effects that may not be accounted for by the variables used in the analysis and to control for possible specific firm characteristics that could be driving the results. I gathered three different measures of credit complexity. The most relevant measure is an indicator of whether the loan was rejected at a certain level of approval, and faced a request for a Revise and Resubmit for approval from an approving officer.[4] Other measures of complexity of credit include: (i.) the time (in days) it takes the *credit analyst* to prepare the credit recommendation form and perform the credit analysis of the firm and (ii.) an indicator of whether additional information was requested to the company along the review process. Results are robust to the inclusion of these complexity measures. Under the assumption that these measures are reasonable proxies for credit complexity results suggest that the existence of a few more elaborate loan approvals is not driving the results regarding the differential usage of information at different layers.

Let me now describe my *horizontal* dimension results.

Fourth, I study the horizontal dimension conditioning on the vertical dimension. Specifically, I investigate whether variation in the number of account officers across teams impact the way information is gathered and used in preparing the recommendation forms conditional on the approval level. I exploit variation in the number of account officers across teams to examine this issue. Results from this analysis suggest that account officers who work directly with their supervisor embed more soft relative to hard information compared to those account officers in multiple teams. Easier communication and access to the supervisor suggests a reduction in the cost of transmitting soft information as discussed in Aghion and Tirole (1997) and Stein (2002).[5] Further, I test whether

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[4]Unfortunately I do not know whether the amount of the loan was rejected or required a reduction. I only observe whether the credit approval returned to the account officer in order to be revised. Revisions can include a wide range of questions which can include both objective (hard) and subjective (soft) issues.

[5]Another argument for higher usage of soft information in single teams may be that both the loan officer and her supervisor engage in gathering and collection of soft information. Joint formation of soft information eliminates the need for communication.

these results stem from *authority* to approve a loan by the account officer rather than from *direct* communication. For that matter, I exploit variation in the authority that loan officers hold in approving some of the loans by themselves (*i.e.* lowest level of approval). Results from the team size and authority analysis show that for the subset of loans approved by the account officer (with authority) soft information is relatively more used than hard information. For account officers in single teams the effect of authority is more prominent than for those in multiple teams as the effect of communication and authority move in the same direction and reinforce each other.

Finally, I question the quality of both hard and soft information measures. In particular, I examine two questions. First, how *soft* is soft information?, where I study specific aspects of this type of information as described in Petersen (2004) - subjectivity, verifiability and transmitability. I analyze whether transmission of soft information is bound to be precluded by its subjective content. Second, how *hard* is hard information? where I study whether further qualifying hard information can alter its practical usage.[6]

To tackle the *softness* of soft information I use different measures varying in content and degree of subjectivity, verifiability and transmitability and compare their relevance. I use measures of firm business assessments, which are completed by account officers who assign a numeric rating to different fields and, as an alternative measure I read and interpret answers to specific questions on management characteristics provided by the account officers in their credit recommendation forms. Although a basic template exists for these credit recommendation forms worldwide, the answers to these questions are allowed to be less structured and provide deeper insight into the firm-bank relationship.

Results suggest that some of the *a priori* called soft information behaves as hard information. This illustrates that subjective information that is easier to transmit or verify can be relied upon and treated as hard information by the approving layers. In general terms, the analysis shows that it is not always the case that soft information must be less used than hard information as the loan moves up the hierarchy. It is important to understand all aspects of soft information. This empirically shows the process of hardening soft information as described in Petersen (2004).

To tackle the objectivity of hard information I question the reliability of the hard information measures. It is *a priori* difficult to determine what can be considered as (un)reliable hard information. I classified as "unreliable hard information": (i.) financial statements that were not endorsed by a top quality auditor; (ii.) financial statements that were further *qualified* by the auditor; and

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[6]Theoretical models of information transmission assume that soft information is difficult to transmit because of its costly verification by third parties as in Stein (2002) or that private information of the agent is soft as in Dessein (2002). Particularly, Dessein (2002) argues: "...Private information is then de facto soft...".

(iii.) financial statements which displayed a significant gap (in months) between the month the credit approval took place and the last available fiscal statement. Results show that endorsement by a top quality auditor and lack of further qualifications by the auditors significantly increase the explanatory power of the hard information measures. In particular, I find that soft information is used more heavily along the vertical dimension in the presence of unreliable hard information. Therefore, I conclude that soft information is transmitted and used along the vertical dimension when there are reasonable regarding about the reliability of the hard measures.

In this sense, the paper raises questions regarding the validity of the main assumptions for "non-transmission" of soft information used by current theoretical models of organizational structure.

The paper is organized as follows. Section 2 presents a brief review of the relevant theoretical background. Section 3 describes the institutional setup and Section 4 describes the data used in the paper. Sections 5 describes the vertical dimension results. Section 6 analyzes the credit complexity issues. Section 7 presents briefly the horizontal dimension results. Section 8 and 9 examine how subjective is soft information and how objective is hard information, respectively. Section 10 concludes.

2 Related Literature

2.1 Theories On Vertical Communication

Where and how should decisions be made inside organizations? This question has been vastly studied in the organizational design literature. Researchers have focused on both vertical and horizontal communication theories and on the exchange of information along these dimensions. This paper is more closely related to the vertical communication theories.

The starting point of my analysis is to take the hierarchical organization as given and explore the role that different types of information have along its vertical and horizontal dimension. I take the hierarchical approval level structure as given and attempt to explore the type of information used and transmitted across the its different layers.

One of the building blocks of the existing literature is the incentive view of delegation proposed by Aghion and Tirole (1997). They show that a principal may delegate formal authority to its subordinate in order to give her better incentives to acquire information. The focus of Aghion and Tirole is the linkage and impact between authority and the information structure. In Liberti (2003) I provide a test for this theory by exploiting a change in the hierarchical structure of a large financial institution between 1999 and 2001 where formal authority was delegated only to some

account officers. Liberti shows that decentralization of authority enhances the transmission and usage of soft information as proposed in Stein (2002).

Dessein (2002) studies delegation as an alternative to communication. Dessein shows that it is sometimes optimal to delegate authority in order to avoid the loss of information rather than to communicate it, as long as the incentive conflict between both parties is not too large. Under his framework, Dessein concludes that it is always better to delegate than communicate information to top level decision-makers.

My results also relate to the literature on communication within hierarchies. Seidman and Winter (1997) show that in certain cases when communication is feasible or even perfect the principal never delegates authority since he can verify all the information collected by the agent. In this respect, this paper is closer to the literature on strategic communication ("cheap talk") models based on Crawford and Sobel (1982). These models focus on the quality of decision and allocation of decision making authority. The decision-maker takes decisions that affect the utility of both agents but has a taste for size (empire builder). These agency problems prevent full communication and decrease the quality of the final decision. For example, Krishna and Morgan (2001) consider multiple biased experts, while Harris and Raviv (2002) consider the possibility that the top level decision-maker also has private information about the activities under consideration. Unlike my focus in the present analysis, these papers are more concerned about the structure of hierarchies rather than the distribution of decision-making power and usage of information within a hierarchical structure.

The analysis developed in this paper is closer to the work of Stein (2002) and Dessein (2003). Stein explores differences in transmission and collection costs of soft relative to hard information across hierarchical structures. He concludes that a decentralized structure entails the incentives to gather and to use more soft relative to hard information as opposed to centralized structures. This happens as the agent's cost of collection and transmission of soft information is larger under higher chances of being overruled by the supervisor. Dessein theoretically explores the difference between hierarchical and committee decision-making. He argues that only hard information entails communication costs as it requires a costly state verification process. He concludes that soft information works poorly under committee decision-making, hard information being the optimal way to aggregate information. On the other hand, soft information works better in hierarchical decision-making process avoiding time consuming costly state verification of hard information.

It would be very difficult to match the institutional setup in this paper to any particular theory. I will discuss specific issues and their relation to the literature in detail as they arise throughout the analysis.

2.2 Soft and Hard Information

This paper also fits into the growing literature on the role of hard and soft information affecting economic behavior. Berger et al (2005), Butler (2004), Carruthers and Cohen (2001), Goetzman, Pons-Sanz and Ravid (2005), Liberti (2003) and Mian (2005) are examples of studies on the usage of soft and hard information under different settings. So far, these papers have focused mainly in understanding the impact of soft and hard information on: availability of credit between small and large banks, credit ratings, bond underwritings, screenplays in the movie industry, hierarchical organizational changes in a multinational bank and geographical and cultural distances of foreign and domestic banks in Pakistan, respectively.

The present paper contributes to this literature in understanding the transmission and usage of different information types across layers in the organization. The closest paper in the above set is the work of Berger et al (2005). These authors test the theory developed by Stein (2002) in the context of availability of credit to small business firms. Their results are consistent with the interpretation of small banks being more efficient in collecting and processing soft information than are large banks.

My work extends this analysis by exploring the actual internal credit process of an organization which is what *ultimately* determines how information is structured, collected and transmitted. The size of an institution need not dictate its internal credit process procedure and its corresponding flow of information.

I take the credit approval mechanism of this organization as given and explore its implications for the collection and transmission of information along the hierarchy.[7] In the next section I describe in detail the internal credit process of this organization.

Finally, as discussed in Cole, Goldberg and White (1999), it is widely believed that large multi-national banks use strict "credit scoring" methods leaving very little room for discretion and usage of soft information, in particular under the setting of small business lending. This paper also contributes to this literature as it shows how a multi-national bank collects and uses soft information in its credit approval process under the setting of corporate loans.

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[7] This can be seen as an alternative interpretation of the model developed in Stein (2002).

3 Institutional Setup

3.1 The Corporate Bank

The organization under analysis is a foreign multinational bank in Argentina. The bank is a top tier financial institution in the country with a major participation in the large business lending segment.[8] The bank is ranked as one of the best corporate commercial banks in the world.[9]

The Corporate Bank Division is the heart of the business of any commercial bank. It provides short, medium and long term financing as well as non-lending products and transactional banking services to large corporations. This division is where the relationship between the firm and the bank is shaped and consolidated throughout the years.

Account Officers (AOs) are in charge of developing the firm-bank relationship. They are essentially *financial advisors* to the firms they handle. On average each account officer manages around 20-23 firms.[10]

Account Officers focus on day-to-day credit decisions, credit maintenance of existing credit facilities (loans) and general management of accounts for the firms they handle. Credit facilities are renewed and approved on an annual basis in a pre-determined month of the year.

The Corporate Bank Division is organized in a number of Business Units (BUs), each one in charge of a group of industries. In 1998, each BU was headed by a team leader overseeing 1 (single), 2 (multiple x 2) or 5 (multiple x 5) account officers. The team leader or Unit Head (UH) is in charge of supervising, coordinating and helping AOs in the process of approving the credit facilities. Both the UHs and AOs exert effort in a complementary way gathering information from the client in support of the credit approval process proposed to the upper layers of the organization. AOs may personally review different aspects of the underlying credit process, adding value to the ultimate credit decision if necessary. Each AO reports to the UH of any changes such as potential new deals, new non-lending products that could be sold and any other information she considers relevant to the firm-bank relationship.

In every BU, the UH coordinates and participates in each of the projects in conjunction with the AO. While the UH supervises and has knowledge of all the corporate clients handled by her AOs, each AO handles only a subset of firms in the unit.

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[8] In 1998 the bank was ranked 3rd in terms of total assets and 5th in terms of net worth among all financial institutions in Argentina.

[9] I have signed a non-disclosure agreement with the institution and therefore cannot mention in any written document the name of the institution where the data I use comes from.

[10] For a complete description of individual account officer selection statistics for the period 1999-2001 see Liberti (2003). The organization and distributions of firms among account officers in 1998 is similar both qualitatively and quantitatively to the one in 1999.

Finally, a firm must satisfy specific constraints on the industry and enjoy annual net sales above $50 million pesos to qualify as a corporate client of this bank.[11]

3.2 The Credit Approval Process

All credit facilities extended to a firm must be reviewed and approved on an annual basis. The purpose of this process is to reassess risk, renew old credit facilities and recommend new loans for approval when necessary. The credit recommendation folder is composed by an in depth financial review of the firm. The report includes current financial statements and forecasts, analysis of market conditions and a management and business assessment of the company. The questions and documentation required in the credit approvals are *identical* worldwide for all corporate clients.[12]

Credit facilities approval processes are common to all financial institutions with Corporate Commercial Divisions. However, the format of such process varies across different institutions. While some banks choose a credit committee decision-making process, others adopt a hierarchical decision-making process. The organizational structure at hand takes a hierarchical form.[13]

A hierarchical credit approval process establishes that the loan is approved *independently* by different senior officers in the organization following a pre-determined hierarchical level of approval. The final level of approval is known *ex-ante* by the AO, and the different layers are not necessarily located inside the branch; they can be located outside the branch or outside the country.

Specifically, the hierarchical structure is composed by at most 5 levels of approval, being 1 the lowest and 5 the highest. The level of approval at which a credit folder must arrive is not random. Given certain internal pre-specified rules described in detail in credit policy manuals[14], a level of approval is determined for each corporate client with credit facilities and approval is done in a *sequential* manner through these levels. The total size of the loan is not the sole characteristic that determines the level of approval. For example, Level 4 approves on average loans of size of $ 36.48 million, while Level 5 approves $26.22 on average. For instance, the complexity and degree of difficulty of a loan approval can direct a smaller size loan towards higher approval levels. Final approval level rules are not determined by the reliability of hard information or whether the company has good or bad soft information but rather by the loan size and the degree of risk of the

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[11]During the year 1998 under Convertibility Law 25,445 $1 Argentine Peso was equivalent to 1 US Dollar.

[12]The credit recommendation consists of 6 sections: (1.) Risk Summary; (2.) ndustry, Strategy and Risks; (3.) Management; (4.) Financial Analysis/Risks; (5.) Ways Out Analysis and; (6.) Relationship.

[13]It is not the purpose of this paper to discuss the advantages and disadvantages of one system versus the other. Also, I will not study the reasons for the emergence of the existing hierarchy in its current format.

[14]These internal rules are the core credit policy rules of the institution and are described in a credit policy manual. Such rules are common to *every* country where this bank has large business lending activities.

company among other things. Table II shows a complete description of selected statistics across approval levels.

There are at least, to the best of my knowledge, 37 internal credit rules that affect a loan's level of approval. I am void by the institution to describe these specific rules since these are institution specific and consist of proprietary information.

An important piece of information which appears in the Credit Recommendation Form are the "Bank Stability Criteria". These 10 criteria intend to summarize major characteristics of the company. The categories are: (i.) Obligor is not in the target market of the bank; (ii.) Obligor is above a determined risk acceptance criteria relative to its size; (iii.) Overall exposure with Obligor is above a certain threshold limit; (iv.) Obligor was downgraded twice since last annual review; (v.) Obligor experienced a significant increase in total credit facilities since last annual review; (vi.) Adverse change in industry conditions; (vii.) Major risk event at the company; (viii.) Adverse change in risk profile of the company; (ix.) Significant adverse change in critical success factors; and (x.) Significant adverse change in collateral/support. The purpose of controlling for these internal credit criteria in my conditional analysis is two-fold. First, it enables capturing alternative effects that could be driving the results other than the pure soft and hard information measures. Second, specific criteria might explain particular decisions at different levels of the hierarchy.

AOs are not always able to follow the precise location of a credit folder along its approval process, especially when the loan must travel to higher levels in the organization. At each level there are three possible outcomes: Approval (and moves to next level), Rejection (and end) or Revise and Resubmit. Given that I follow the entire path of each credit folder that ultimately succeeds I observe approvals and revise and resubmits but not rejections.[15]

The organizational structure just described can be summarized in the graph below. The vertical dimension analysis is given by the levels of approvals or alternative measures that proxy for this dimension such as the time (in days) taken to approve the loan and the number of signatures in a credit folder. Variation in the horizontal dimension occur at the lowest level of approval -Level 1. Existence of different team sizes and the fact that some AOs have the ability to approve certain loan amounts by themselves may (or may not) impact the way data collection is gathered and used along the credit approval. I exploit both sources of variation -horizontal and vertical- in the

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[15]Revise and resubmiys of credit folders might vary in context and style. An approving authority at a higher level may ask for more documentation to support the credit approval, a deeper financial analysis or additional information to get acquainted with the management characteristics of the company. There is no specific procedure about what could be asked in a revise and resubmit scenario.

analysis.

Level 5

Level 4

Level 3

Level 2

UH   UH   UH

Level 1

AO   AO   AO   AOs
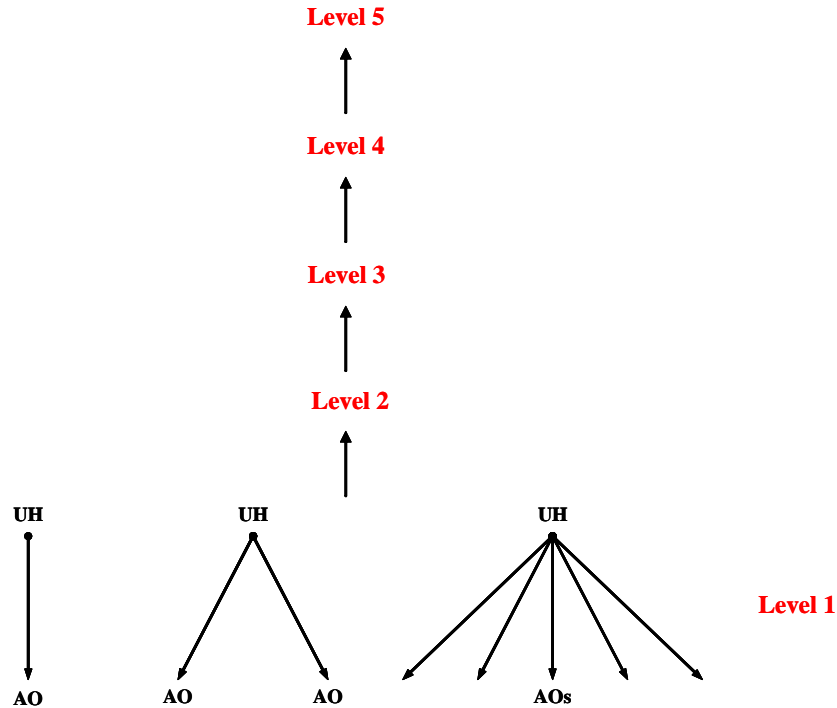
4   Data Description

I personally conducted the field work in the organization in the months of July, August and December of 2004. The hierarchical structure analysis corresponds to the year 1998. There are at least four reasons for choosing this particular year. First, as explored in Liberti (2003) the bank went through a significant change in its hierarchical structure as well as in the definition of the credit roles of certain AOs in 2000. Using 1998 as the year of analysis avoids issues related to this organizational change or with any potential "leakage" of information regarding the change the change which could jeopardize the results if another year was used. Second, 1998 was a positive/stable year for Argentina in terms of aggregate macro-economic activity. Third, I managed to hand-collect and assemble the data for *all* corporate clients which the bank has a relationship with in that year. Finally, only for 1998 I had access to specific information about the credit analysts and the AOs activities, such as the time (in days) it takes the credit analyst and AO to prepare the credit recommendation form and whether the client was contacted by the credit analyst or AO to request additional information to prepare and complete the credit recommendation form. These

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two variables will prove to be extremely valuable as proxies for complexity of credit measures.

4.1   Sources of Data

Let me now describe the sources of the data in more detail. Data collection can be classified into 4 different groups.

I. Credit Approvals and Credit Recommendation Forms:

The most important piece of information in the construction of this database comes from these two sources. From the credit approval form I collected the final level of approval, the total number of signatures, the geographic location of the last officer approving the loan, whether a revise and resubmit was requested along the approval process, the total number of days the credit approval took to be approved[16] and the month the credit approval began its journey through the hierarchy.

From the credit folders and credit recommendation forms I collected hard and soft information measures for *each* of the corporate clients the bank had a relationship with in 1998. As part of the hard information measures I collected: (i.) financial information from annual reports and financial forecasts by credit analysts; (ii.) the quality of the auditor and whether the annual reports are further qualified by that analysts.

Following Petersen (2004), I classify *objective* measures as hard information variables. Hard information is easy to collect, store and transmit. Basically, these are measures that are easy to verify by a third party at no additional cost and that are recorded as numbers. Their interpretation is not to be questioned as is independent of who has collected the information. Among hard information measures I collected are: credit risk rating of the firm, an indicator as to whether the firm is in financial distress, maturity of all facilities over 3 years, % of unsecured facilities, existence of covenant violations, years in industry, length of relationship with the bank, access to capital markets and access to other banks and type of ownership.

Soft information is subjective, impersonal, difficult to transmit and costly to verify by a third party. The degree of subjectivity depends on its content and meaning. I will address this issue in further detail in Section 8. The set of measures I use as soft information vary in the their content and degree of subjectivity. Specifically, I use measures of firm business assessments which are completed by AOs who assign a numeric rating between 1-7 across different fields. Appendix A summarizes the information on the "Business Risk Assessment". This assessment is part of the credit recommendation form and includes subjective information about: (i.) Industry; (ii.)

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[16]Most approval signatures are accompanied by the date in which the corresponding approval took place. I counted the total number of days from the first signature -generally the account officer- to the last.

Competitive Position; (iii.) Management; (iv.) Risk Management Policies and; (v.) Access to Capital.

The process of hardening soft information may imply that some of its content get lost in the process as it loses its main intrinsic characteristic. Nevertheless, it is still personal and subjective. It is this degree of subjectivity which I will explore further in the paper. For example, if an AO assigns a 7 for "*Ability to Act Decisively*" in the field Management it implies that management is *Hopeless* under this criteria. The definition of *Hopeless* however may vary in its interpretation across individuals. As alternative measures of soft information I also use the questions and answers of the Credit Recommendation Form relating to Management Assessment as measures of soft information. AOs convey their personal evaluation of management characteristics when answering these questions.

II. Internal Credit Policy Manual:

From the internal credit policy manual of this institution I collected all relevant information regarding the approval rules. I examined and compared each credit approval recommendation form with the internal credit policy manual to check for consistency of the level of approval assigned.

III. Complexity of Credit Measures:

I also constructed measures which proxy for the complexity of the credit approval. It is difficult to determine which specific measures reflect whether a particular loan is complex and to uncover which are the firm specific variables that could categorize a loan as "more difficult" relative to other one. I use three different measures as proxies of credit complexity. First, I compute an indicator of whether there was a request for a revise and resubmit of the credit along the hierarchical process. Second, I compute an indicator of whether additional information was requested to the client along the approval process.[17] Third, I have access to the time (in days) taken by the credit analyst and the AO to prepare the credit approval and credit recommendation form. These measures provide an indication of potential differences of specific credit accounts and allow for controlling for such conditions in the empirical analysis. They also allow for comparing whether results hold under potentially different samples.

IV. Potential Alternative Stories:

Last, I also collected information related to specific events that may affect the loan approval process and might bias the decision of upper layers in the organization to use more of one type of information relative to the other. From the credit recommendation forms I classified 10 different Bank Stability Criteria on firm specific related issues. One can argue whether these measures are

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[17] I cannot distinguish which type of information -hard or soft- was requested specifically.

objective or subjective measures.[18] I use these measures in the empirical analysis for two reasons. First, it will enable the conditional analysis to capture any effect that could be driving the results other than pure hard or soft information variables. Second, specific criteria might explain particular decisions at different levels of the hierarchy.

I also constructed other measures to address alternative stories: an indicator of whether the firm has "Covenant Violations", whether the firm's auditor had further "Qualified" the its financial reports and whether there are "Negative Checkings" or "Other Negative Issues" relative to the firm performance from the credit recommendation forms.

4.2 Data Aggregation Issues

One of the main challenges assembling this dataset was the methodology to adopt when aggregating information within conglomerates. As I collected information on *all* corporate clients some of them belong to conglomerates and top tier local groups.

Conglomerates may be composed by many different firms, and the bank may have a relationship with the group by lending to only to a subset of all firms. Also it could also be the case that the bank's lending activities are done at the holding company level and funds are re-allocated according to the conglomerate's internal rules. The same AO manages the firms within the conglomerate.

Dealing with each firm independently has the advantage of using its own hard and soft information. For these cases there is no problem in finding the relevant hard and soft information measures.

In certain cases some information was missing for determined firms. In these cases, the credit approval form would outline the amount, the terms of the loan and the name of the firm of the conglomerate for which the funds were being disbursed as well as the name of the firm which was collateralizing/securing the amount. In other words, all specific information relative to the loan contract was available but there was no firm specific information. For these special cases, I used the information of the firm that is *ultimately* responsible for the credit (i.e. collateralizing the loan). This has direct implications on the method the empirical analysis is performed.

The conditional analysis reported in the paper is at the *individual* borrower level and standard errors are clustered at the conglomerate level. Although not reported, I also conducted robustness tests checking the relative importance of each individual borrower in the conglomerate, using the amount of the loan and the outstanding (total amount that has already been disbursed) of each individual borrower as weights. Results are qualitatively and quantitatively similar.

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[18]I will not do so at this stage.

I conducted the same analysis at the *group* level. Results at this level are not reported as well. These results are not always consistent with the ones that are reported in the paper. The reason for this is that there is not an unique or straightforward method of aggregating the information of different companies in a conglomerate. Although hard information aggregates in consolidated financial statements, soft information does not easily consolidate. Furthermore, AOs do not aggregate the information when preparing the credit recommendation forms.[19] The approving officers at higher level receive a credit folder with credit recommendation forms for each of the firms which the bank operates with. For these reasons, in the next section I decide to present the results at the individual borrower level with standard errors clustered at the group level.

5 Vertical Dimension Analysis

In this section I explore how the flow and type of information vary across the vertical dimension *fixing* the horizontal dimension. I use alternative vertical dimension measures such as: (i.) the level of approval; (ii.) the total number signatures in the credit approval; (iii) the time it takes to approve the loan and (iv.) the geographic location of the final officer approving the loan.

5.1 Theoretical Predictions

Theoretical predictions depend on whether direct personal *communication* is feasible across levels or not.[20] When direct personal communication across levels is not feasible (*i.e.* because of geographic restrictions) soft information becomes more costly to transmit. In this case, I expect hard information to have a relatively higher weight than soft information in explaining credit availability. I expect an even higher reliance on hard relative to soft information measures at higher approval levels, as the cost of transmitting soft information increases.

In certain cases AOs can communicate directly with a superior layer of approval, which eases the costs of transmitting and verifying soft relative to hard information. When direct personal communication is feasible, soft information should have higher power in explaining a given proportion of the total size of the loan relative to the no communication case.

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[19]As an illustrative example, take the case of a conglomerate with 5 firms. If the bank operates with the 5 firms, then there will be hard and soft information analysis for each of these firms. There is no reason to believe that information should be aggregated in this case. If anything, the aggregation of information averages out possible idyosincracies.

[20]I have no record of informal communication methods such as phone calls, video conference or e-mails between officers at different levels of approval.

5.2 Empirical Results

I first analyze how the credit approvals are distributed throughout the year in order to check whether there is any particular pattern of overload that may adversely affect the analysis.

Figure I displays the monthly overload of credit folder approvals by number of borrowers and number of groups. Although approvals are not evenly distributed around the year, there is no particular concentration of activity at any given month. The early months of the year are typically slower due to the summer holiday period while June and July are months of higher activity.[21]

Let me first describe some selection issues and descriptive statistics that will shed some light on the organizational structure.

A first glance at the unconditional data displayed in Table I, Panels A and B, shows the distribution of firms across approval levels. Only 43 individual borrowers (12 groups) arrive to Level 5 relative to the 137 borrowers (116 groups) in Level 1. A similar pattern appears when using Number of Signatures. Table I shows selected descriptive statistics across level of approval and number of signatures.

The Average Time To Approve a loan (total time for approval in days) and the Credit Analyst Average Time (time to prepare the credit recommendation form in days) increase with approval level and number of signatures. There is a substantial difference in time to prepare and approve a loan across levels of approval. At Level 1 the approval takes 1.43 days and credit recommendation preparation takes 3.56 days, while at Level 5 these same process take 103.98 and 32.63 days respectively. Revise and resubmits (RRs) increase with level of approval. For example, 25% of the credit folders that arrive to Level 3 are asked for a RR at some stage along the process, while 59% of those reaching Level 4 are asked for a RR. The Client Information Request measure (an indicator of whether additional information is requested to the firm) does not show any particular pattern.[22] There is no distinctive pattern or trend in the Hard Risk Rating and Soft Risk Rating measures, which are rated on a scale of 1-7 where 1 is the number associated with better values. Hard Risk Rating is derived from the internal credit model based on *all* available financial statements and forecasts of the firm. Soft Risk Rating is derived from the Business Risk Assessment shown in Appendix A. Management Characteristics is composed by the average of answers to questions only related to management in the Business Risk Assessment. Again, no clear pattern emerges across

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[21]To check the consistency of this statement, I run the variable "time to approve a loan" as dependent variable against levels of approval, number of borrowers and month fixed effects in order to capture if any particular month has a differential impact on the delay of approval. I find this is not the case. Specifically, June and July do not have a differential impact on the time it takes to approve a loan. Results are not reported in the paper.

[22]There are no specific rules regarding Client Information Requests; a request may consist of simple additional data, or a more thorough analysis of some firm specific event.

levels or number signatures for these measures.

Table II provides Mann-Whitney tests for equality of distributions at different levels of approval and number of signatures. In these tests I compare each level with the one immediately following it. In general, I find that both Hard Risk Rating and Soft Risk Rating measures are not statistically different at each level. Total Facilities and Total Outstanding are found to be statistically different across levels and number of signatures. Total Facilities however does not increase monotonically as the credit approval moves up in the hierarchy, which is consistent with the fact that the size of the loan is not the unique characteristic determining the level of approval.

Financial Measures in Table II show that larger companies tend to move to higher approval levels. These companies have (on average) more years in industry than companies at lower levels. Nevertheless, no significant difference is found for Length of Relationship with the bank. A pattern is observed for Stability Criteria Measures for lower versus higher levels of approval. These issues will be addressed in detail in the conditional analysis.

Using Number of Signatures as a vertical dimension measure helps in understanding the number of hands the credit folder has crossed along the process and serves two purposes. First, AOs can decide to skip a determined level, breaking the sequential nature of the approval process. The Number of Signatures will reflect that. Second, it also provides a proxy for how complex the credit is. For example, if one of the loans under approval involves a specific product, there may be a need to involve a "product specialist" as an internal requirement of the organization, increasing the number of signatures needed along the process without necessarily increasing the level of approval.

The main specification behind the analysis developed in this paper to understand the importance of soft and hard information on credit availability is as follows:

$$
\begin{aligned}
y_i \; = \;\; & \alpha + \beta_1 \text{Hard}_i + \beta_2 \text{Soft}_i + \beta_3 (\text{Hard}_i * \text{High-Level}_i) + \\
& \beta_4 (\text{Soft}_i * \text{High-Level}_i) + \beta_5 \text{High-Level}_i + \gamma \text{X}_i + \varepsilon_i
\end{aligned} \tag{1}
$$

where Hard_i and Soft_i are indicator variables that take a value of 1 if firm i's hard and soft information are considered "good", respectively. Hard (soft) information is qualified as good when it falls above the median of the distribution of hard (soft) measures for the whole bank in the year 1998. High-Level_i is an indicator variable that takes a value of 1 if the Level of Approval is 4 or higher. The vector X_i includes controls for team size, firm specific characteristics and bank stability criteria. Firm specific characteristics include Length of Relationship, Percentage of Unsecure Loans, Percentage of Loan with maturity over 3 years, Existence of Covenants, Years

in Industry, Professional Ownership, Access to Other Banks and Access to Capital Markets. The main dependent variable I use is Total Facilities.

The parameters of interest in the analysis are β_1 and β_2, which allow for a comparison of the relative importance of hard and soft information in explaining credit availability. The parameters β_3 and β_4 measure whether there are any *additional* effects related to reliance on hard and soft information at higher levels of approval.

Equation (1) will be properly modified along the analysis to account for the relevant interaction terms, hierarchical measures or alternative dependent variables.

5.2.1 Levels Of Approvals

Tables III and IV summarize the results for the vertical dimension analysis using the levels of approval as the hierarchical measure conditional on the horizontal dimension.

Table III column (1) is the most stripped down version of equation (1) without interaction terms. Both hard and soft information explain credit availability in different magnitudes. On average, good soft firms receive \$13.3 million more than those firms with bad soft information. In the same way, firms with good hard receive on average \$8.8 million more than firms with bad hard. Columns (2) to (7) show the difference in reliance on hard and soft information across approval levels. Standard errors on columns (2) to (5) are clustered at the group level, while columns (6) and (7) report results weighted by the total size of the loan and the total amount outstanding, respectively.

In particular, hard information is found to be significantly *more* important while soft information is found to be significantly *less* important in explaining the size of the loan at higher approval levels. This result is robust in both sign and magnitude to the inclusion of a variety of controls, as shown in the table, as well as to using weights reflecting the importance of each borrower in its conglomerate. Column (5) includes team size controls, bank stability criteria and firm specific controls. Results suggest that good soft information explains relatively less availability of credit at higher levels in the organization as compared to good hard information. Note that the overall effect of soft information $(\beta_2 + \beta_4)$ is still positive.

Columns (8) and (9) provide additional specifications to equation (1) allowing for variation of responses of soft and hard information at *each* approval level. Results show an increasing importance of hard information and a decreasing importance of soft information at higher levels of approval (relative to the lowest level). Soft information has basically no effect in explaining credit availability at Levels 4 and 5, while hard information has a strong and significant impact. At lower levels, the opposite holds; soft information is relatively more important than hard information.

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Independent regressions at each level of approval (not reported) show the same results displayed in Table III. Dividing the sample across levels of approval has little gain. Results show relatively strong and significant effects of hard information at higher approval levels and relatively strong and significant effect of soft information at lower approval levels. However, at Level 3 *both* hard and soft information explain credit availability. The reason for this will become clear when I introduce the distance dimension into the analysis.

5.2.2 Number of Signatures and Time To Approve

Table IV allows for alternative measures of vertical dimension, namely the number of signatures involved in the approval process and the total time taken to approve the loan. Both measures are good proxies for the vertical dimension to the extent that the frequency at which a loan changes hands and the length of the approval process are associated with the credit folder reaching individuals higher in the hierarchy. These two measures are also proxies for complexity issues. In terms of regression specification, equation (1) is modified to incorporate the appropriate interaction terms.

I find that results are qualitatively similar when using number of signatures as a vertical dimension indicator. Columns (1)-(4) show individual regressions cutting the sample according to the number of signatures in the credit approval. Namely, hard information is significantly more important when a larger number of signatures is present and soft information is significantly more important when a lower number of signatures is involved. For those loan approvals with less than 3 signatures, results in column (5) show that there is a differential impact of soft relative to hard information for credit approvals with less than 3 signatures. For these loans, good soft information explains an additional $10.2 million of credit availability relative to good hard information. Furthermore, column (6) shows that the relative importance of hard (soft) information increases (decreases) as the number of signatures increases. Column (7) repeats the previous specification eliminating approvals with 5 or more signatures since these represent a very small portion of the companies and therefore may indicate particular differences. Results are robust to their omission.

Columns (8) to (11) show the differential impact of soft and hard information using the time it takes to approve a loan as an alternative vertical dimension measure. Long time is defined as an indicator variable which takes a value of 1 if the time taken for approval is in the top 50% of the distribution of time taken for approval of all loans. When using this measure, soft information appears to be significant in the sub-sample of loans that take *longer* to be approved (column 8), which seems to contradict the previous results. One possible explanation is that the complexity of the loan heavily influences the time it takes for a loan to be approved, and complex accounts exist at *all* approval levels. For the sample of firms that are approved faster (column 9) soft information

is more important in explaining credit availability. For the whole sample (column 10) we observe the differential usage of soft and hard information to a lower extent across hierarchical levels, again possibly due to credit complexity. Column 11 shows that results are qualitatively the same as those displayed in column 10 when time is measured in days as opposed to an indicator of the top 50% of the time distribution.

One alternative explanation to the costly transmission story is simply that bigger size loans need higher levels of approval as shown in Table II. Intuitively a possible explanation is that "the bank" would rather not gamble with large sums so there is a higher reliance on hard relative to soft information for large loans. First, it is worthwhile noting that the number of signatures is not monotonically increasing in Total Facilities. Nevertheless, I try to give a more persuasive argument.

To tackle this communication versus loan size story I propose the following alternatives in Table V. (i.) In Column 1 I eliminate those firms at higher approval levels and test for the same specification as described in equation (1) using only the lower approval levels –Levels 1 to 3. Results are robust to this selected sample. (ii.) Although size of the firm is summarized in the Hard Risk Rating of the company, I added separately size measures (Total Assets, Net Sales and Net Worth) to the specification (column 2). Soft information results are robust to the introduction of these measures (iv.) Results are also robust to the normalization of the dependent variable by Total Assets of the firm (not reported). (v.) Column 3 shows that the results also hold when I instrument level using Total Outstanding, hard information measures and Bank Stability Criteria. This intends to solve the potential selection problems associated with knowledge of level determination.

Perhaps the most compelling analysis to disentangle the loan size versus communication argument will become clearer next section as I discuss issues of geographic location.

5.2.3   Geographic Distance and Communication

The next stage of the analysis studies the role of distance and communication in the transmission and usage of information as direct personal communication between the AO and the final officer approving the loan may allow for a differential impact on the type of information that is ultimately used *independently* of the level of approval.

I classified the credit approvals according to the geographic location of the final officer in charge of approval. Specifically I create three main categories for credit approvals: Inside Branch, Outside Branch and Outside Country.[23]   Table I Panel C and Table VI shows unconditional descriptive

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[23]Branch here stands for the main headquarter of the Corporate Division which is located in Buenos Aires. Corporate Commerical Banking in Emerging Markets operates with one main headquarter where the account officer is located.

analysis for the main variables in the analysis and selection issues.

In Table I Panel C the patterns are similar to those obtained for the level of approval and number of signatures. As the loan is approved outside the branch there is an increase in the Average Time to Approve and the Credit Analyst Average Time from 4.35 days to 103.98 days and from 5.31 to 32.63 days, respectively.

Table VI provides Mann-Whitney tests for the equality of distributions at different geographic locations. Tests are conducted comparing Inside Branch against Outside Branch and Outside Branch against Outside Country. There is a clear pattern in those loans which are *not* approved Inside Branch. Surprisingly, loans approved Outside Branch and Outside Country have better Hard and Soft Risk Rating. The loans of these companies contain on average more covenants and the firms have more years in industry, present better access to capital markets and other banks and their ownership is biased towards family oriented.

Tables VII summarize the conditional results on the distance and communication issues along the vertical dimension. Again, equation (1) is modified to incorporate the relevant interaction terms.

Columns (1) to (3) in Table VII-A display a striking difference in usage of information across loans that are approved Inside Branch from those that are not. Specifically, loans that are approved Inside Branch rely significantly more on soft information while loans that are approved elsewhere rely significantly more on hard information in explaining credit availability. Results are robust to eliminating those loans that are approved Outside Country. This result is displayed in Column (3). Good soft information explains relatively less the total amount of loan compared to those that are approved inside the branch. For those loans approved Outside Branch, Columns (4) through (6) show that higher reliance on hard information and lower reliance on soft information increases with distance.

A possible interpretation for these results is that communication and transmission of soft information is increasingly more difficult as a loan is approved further away from the account officer. This increases the incentives for higher usage of hard information.[24]

I then exploit geographic variation *within* one of the middle levels of approval to examine the importance of communication versus the loan size argument. One particular characteristic of the organizational structure is that within Level 3 there are two locations where loans are approved:

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[24]While for some purposes it may not matter whether distance is outside the branch or outside the country, here such distinction is relevant. One possibility is that outside the branch often involves repeated interactions with the same bank personnel (at main branch), facilitating communication of subjective information, while outside the country involves more isolated interactions with bank personnel at various countries.

(i.) Inside Branch and (ii.) Outside Branch. I exploit this variation to examine the differential reliance of hard and soft information and disentangle the effect of communication.

There is *no* rule or institutional procedure to establish which companies are approved Inside Branch and Outside Branch at Level 3 other than the work overload of Level 3 approval officers. This natural randomization further strengthens my results.

Table VIII displays Mann-Whitney tests to study potential selection issues for the 54 firms at Level 3. Results show no clear selection issues. The only two variables which are statistically and economically different are the Average Days To Approve and the Revise and Resubmit indicator: 11.15 days against 29.35 days and 5% against 38%, respectively. In general there are no other striking differences. Financial measures show that (if any difference) bigger firms are approved Inside Branch.

Table IX shows the results for Level 3 approvals. Columns (1) and (2) show the results only for the Level 3 sample, while column (3) shows the results for all the sample. Again, hard information is significantly more important in explaining credit availability for those loans approved Outside Branch while soft information is significantly more important for those Inside Branch. In column (2) the overall reliance of soft and hard information for those firms Inside Branch is $13.4 million and $2.6 million, respectively. Therefore, when direct communication between AOs and the ultimate officer approving the loan is feasible (Inside Branch), we observe higher reliance on soft relative to hard information as compared to those cases where direct communication is not feasible (Out Branch).

Overall, the analysis of the vertical dimension shows clear results: a positive relation between hard information and levels of approvals. I find significantly higher reliance on hard relative to soft information in explaining credit availability as the level of approval increases, and the opposite relation for lower levels of approval. These results are robust to the usage of alternative measures of vertical dimension such as the total number of signatures and the time to approval, as well as to the inclusion of several controls, such as team size, firm specific characteristics, bank stability criteria and weighting the observations in the conglomerates.

Similar results hold when I use a measure of geographical location. Hard information is found to be significantly more important than soft information for loans that are approved Outside Branch. The opposite holds for those loans approved Inside Branch. Finally, I showed that direct personal communication matters in terms of explaining the usage and transmission of soft information.

There are at least two possible interpretations for these results.

The *first* interpretation is that upper layers in the organization do not act on the soft information

gathered and collected by the AOs because this information is difficult to transmit. They may prefer to use the hard information because it is the one "that can be easily verified by themselves". This literally means they do not trust the soft they received in the credit approval as there is poor communication along the hierarchy.

The *second* interpretation relates to career concerns. One may argue that officers at upper layers may prefer to use the hard information because when (potentially) things go bad, showing that the firm had "good hard" provides a better justification for why a loan was approved ("saves their job") in a way that good soft information doesn't. In contrast to the first interpretation, the issue here is that soft may not be as vastly accepted by the bank as hard in terms of "a loan justification towards the bank" in case of default. A challenge to this alternative explanation is the consistency of the lower level analysis. AOs at the lower levels have career concerns as well (and most likely have a longer horizon in the bank) and bad decisions could jeopardize their career, regardless of the fact that such loans represent smaller amounts from the bank's perspective.[25] Their very usage of (costly) soft information under this scenario would only be consistent if default rates for these smaller loans were considerably smaller and their decisions were hardly questioned, which is not a reasonable assumption. Taken together, this evidence suggests that inability to properly communicate soft information is a reasonable explanation for its lower usage at upper hierarchical levels.

5.3   Are More Complex Loans Driving the Results?

I now examine whether the degree of *complexity* of a credit approval is driving the results on the differential usage of information. It is plausible that more difficult or complex loans move higher in the hierarchy. These loans may be inherently different in their specific characteristics and structure.

Specific firm characteristics could be generating the previous results on the differential usage of information at different levels but it may be fairly difficult to uncover such characteristics. I construct 3 *complexity* measures, related to the organizational structure of the process, to capture potential effects that may not be accounted by firm-specific variables.

These measures are: (i.) an indicator of whether the loan was asked to be revised and resubmitted for approval at a certain stage of its process; (ii.) the time (in days) it takes the credit analyst and AO to prepare the credit recommendation form and (iii.) an indicator of whether additional information is requested to the company during the preparation of the credit recommendation forms.

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[25]The loans that AO's approve might be small from the bank's perspective but not from their own career concern perspective.

Table X examines whether the previous results found for the vertical dimension analysis – for both Level of Approval (Panel A) and Number of Signatures (Panel B)– are robust to the inclusion of these complexity measures. I find that they are. Columns (1), (2) and (3) display the separate impact of these measures on credit availability. Results show a positive correlation between RRs (not statistically significant) and Time Taken by Credit Analyst (statistically significant). Client Information Request is negatively significantly correlated with the size of the loan. Column (4) adds Credit Analyst Fixed Effects to check whether the individual performance of a credit analyst may affect the information embedded in the credit recommendation forms. Results on the differential usage of hard and soft information across levels are robust to the introduction of these measures.

I also checked whether results hold for certain selected firms (not reported) I selected those complex firms with revise and resubmits, client information requested and where the time taken by the credit analyst was the longest. Results still hold on these particular set of more complex firms as well.

Under the assumption that these measures are reasonable proxies for more complex loan approvals, results suggest that inherently more difficult loan approvals are not driving the results on the differential usage of information at different layers.

My last robustness check focuses on whether firm-bank relationship information may potentially bias the approving officer's decision towards the reliance of particular type of information.

In the first page of the Credit Recommendation Form there are 6 questions (Yes/No Format) which may potentially bias the interpretation of the information received by the approving officer. This may affect the reliance on the type of information used. These measures have the purpose of providing the reader with an overall picture of the relationship. They are classified as: Covenant Violations, Qualified Auditor's Opinion, Documentation Exceptions, Negative Checkings, Other Issues, Debt Rating Model Override.[26] The first three measures are self-explanatory. Negative Checkings represents whether the firm is part of a conglomerate or the ownership is a family; Other Issues represents specific concerns the AO may raise and Debt Rating Model Override represents whether the internal bank's model used to compute the Hard Risk Rating is not used.

Table XI, columns (1)-(5) examines the impact of these measures for *each* of the main results previously discussed in the paper – vertical dimension measured as high/low level of approval, total number of signatures, each independent approval level, geographic distance and horizontal dimension. The variable Z_i in the table corresponds to the appropriate measure of interest. Namely, in column (1) Z_i represents high-level; in (2) more than three signatures; in (3) Out Branch and

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[26] There is no variation in Documentation Exception. All corporate firms have a No as an asnwer for this measure.

finally in (4) it represents single teams.

I find that auditor's qualified opinion have a negative significant relation with credit availability. Both family ownership and conglomerates have a positive significant relation with credit availability. Other issues and Model Override have a negative effect on credit availability but are not found to be statistically significant.

More importantly, I find that the results on usage of soft and hard information are robust to the inclusion of these explanatory variables; specifically, the differential effects found for both soft and hard information across hierarchy levels and team size are still statistically significant.

6 Horizontal Dimension Analysis

The horizontal dimension is given by the number of AOs in each BU reporting to a UH. In terms of the hierarchical decision-making process these teams correspond to the lowest layer in the hierarchy (Level 1).

The interaction and degree of communication between the AOs and their supervisors may have an impact on the incentives of the accounts officers to collect and use soft information in the credit recommendation forms and credit approvals.

In this section I exploit variation in the number of team members across BU to study the implications on the usage of soft and hard information on credit availability conditional on the vertical dimension.

Tables XII and XIII display selected descriptive statistics for the horizontal dimension. Table XII shows that firms managed by AOs in multiple (x 5) teams are *less* complex than firms in single and multiple (x 2) teams. Credit Analyst Average Time and Revise and Resubmit for multiple (x 5) are 4.52 days and 0.02, respectively. For single and multiple (x 2) these measures are 11.3 days/0.24 and 18.17 days/0.27, respectively. Table IV shows that Hard Risk Rating and Soft Risk Rating are statistically different among single/multiple (x 2) and multiple (x 5). In general, it is fair to agree that firms managed by this last team are inherently different than those in single and multiple x 2.

No Authority:

If AOs do not have no *authority* to approve loans by themselves, the only mechanism affecting their incentives to gather and use soft information is their interaction with the supervisor (UH). There are at least two alternative theoretical frameworks that provide insight for the expected results of this analysis.

AOs in single teams enjoy more fluent communication with their UHs relative to those working in multiple teams. The extreme case would be one where the AO and UH work together gathering information as frequent communication and joint production eliminate any transmission needs. In contrast, in multiple teams communication is more sparse, and would expect reliance on soft information to be less obvious.

A different argument can be developed with opposite predictions. Since AOs in single teams are likely to be more heavy supervised, monitoring increases the possibility of overruling. The overlapping of activities decrease the incentives for collection and usage of soft information for these AOs in single teams. If decisions are taken ultimately by the UH then there is no need to exert effort in collection and usage of soft information.

Table XIV explores this possibility. Columns (1)-(5) correspond to all team sizes while in column (6) I drop those firms managed by AOs in multiple (x5) teams. Columns (1)-(4) allow for a comparison of relative information usage across AOs working in single teams versus the remaining AOs. AOs in single teams rely significantly more on soft information and less on hard information in explaining credit availability than officers in multiple teams. As displayed, this result is robust to the inclusion of various controls. Column (5) shows the differential effect on information usage for those AOs in single and multiple (x2) relative to multiple (x5). Note that the relative effect of soft information is stronger for single teams, and that multiple (x2) teams also display a differential effect on usage of soft information relative to multiple (x5) teams. However, unlike the results for single teams where hard information has little importance, hard information matters for multiple (x2) teams. Eliminating AOs in multiple (x5) from the sample does not change the main findings.

Results on horizontal dimension are consistent with the view that AOs working in single teams have more opportunities or higher ability to communicate soft information to their supervisors and therefore the reliance on this type of information is higher when compared to those AOs where interaction is scarce.

Authority Case:

There is an additional dimension to the communication channel which might affect the incentives of the individuals to use certain type of information. Some AOs have *authority* to approve certain credit recommendation forms. This subset of credit approvals are Level 1 Approvals. Table I and II display selected characteristics of this credit approvals. They are on average smaller loans $5.71 million, with an average time of approval of 1.43 days and an average folder preparation of 3.56 days. In general they are smaller and less complex credit approvals.

AOs with authority to approve a loan (Level 1) know that there is no need to further transmit the information they gather. This process facilitates the usage of soft information in explaining

credit availability. Soft information is then expected to have a higher impact in explaining credit availability under authority.

From the sample of loans which are approved by the AO, it should then be the case that single teams should embed more soft relative to hard information as opposed to those on multiple teams. I find this is indeed the case.

7 How *Soft* Is Soft Information?

This section explores the quality of the soft information measures used throughout the paper. I question whether different soft information measures convey different explanatory power over credit availability across the vertical dimension.

I study specific characteristics of soft information as described in Petersen (2004) – subjectivity, verifiability and transmitability. I analyze whether transmission of soft information is bounded by its subjective content. I use various measures varying in content and degree of subjectivity and compare their relevance for this purpose.

I have used an *aggregate* measure of soft information along the analysis: Soft Risk Rating is the Overall Business Rating from the Business Risk Assessment from Appendix A. This is an overall measure across different subjective fields: (i.) Industry; (ii.) Competitive Position; (iii.) Management; (iv.) Risk Management Policies and; (v.) Access to Capital. Although all these measures are subjective in nature, they vary in their content. Some of these measures are *more* firm-specific than others, while other measures may behave closer to hard information.[27]

The process of hardening soft information may imply that some of its content gets lost in the process and that loses its main intrinsic characteristic. Therefore, subjective information that is difficult to verify and costly to transmit should have less explanatory power in the total loan amount relative to soft information that is easier to verify.

I create 4 new indicator dummies from the Business Risk Assessment. These indicator variables take a value of 1 if firm i's Management, Competitive Position, Industry and Risk Management Policies are considered "good". These soft information measures are qualified as good when it falls above the median of the distribution of that particular measure for the whole bank in the year 1998.

Table XV displays the results of using these alternative measures of soft information for Level of Approval (Panel A) and Number of Signatures (Panel B). Each column represents a different

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[27]For example, the mesaure "Industry" reflects specific information about the industry, therefore, it is not really subjective information specific to the firm.

indicator for soft information. For example, in column (1) Good Soft Information represents Good Management. All 4 measures are subjective but vary in their content, which has implications on the transmission and verifiability of the information.

Results show that subjective information which is harder to transmit and verify explains less of the total amount of the loan as the level of approval increases. Results on "Good Management" and "Good Competitive Position" are similar to the ones obtained with the aggregate measure Soft Risk Rating, meaning that there is less reliance on these measures at higher levels of approval. Information on Management and Competitive Position tend to be more personal, difficult to verify and transmit. On the contrary, "Good Industry" behaves closer to a hard information measure since it is easier to verify and it is not firm-specific. Finally, "Good Risk Management Policies" has no effect at higher levels of approval since it is highly correlated with Good Hard Information. That is, liquidity and leverage policies from risk Management Policies is information that is summarized in the financial statements of the firm which the officers approving the loans have access to.

Some of the *a priori* so-called soft information –due to its subjective content– behaves as hard information. This illustrates that some subjective information which is easier to transmit or verify can be relied upon and treated as hard information by the approving layers.

The last step in this section is to use an alternative measure of soft information. As Petersen (2004) argues "soft information is often communicated in text". Therefore I read and coded answers provided by the AOs in the Credit Recommendation Form regarding their assessment on Management characteristics (Part 3). The three questions are:

1. What is your assessment of management's ability to formulate and execute its business strategy and respond to changes in the economy, industry and the environment? How have they evidenced this? How has the obligor's respond to management's own forecast?

2. What is our access to key company seniors? What is our view of their integrity and character? Comment on overall management depth and any changes to management structure. Has there been any turnover in management? Comment on the company's ability to react to this.

3. Does the obligor ownership and legal/organizational structure affect our risk assessment? (Focus on issues such as: transfer of assets among Obligors within related obligors, importance of specific Obligors to achievement of the related obligors objectives, access to information regarding the related obligors business, ability of the related obligors to attract/retain capable professional managers, and dispute among owners management regarding strategy and management successions.

I assigned a numeric value of 1 to any *positive* assessment of the management of the company.

Table XV Column (5) display the results for Good Soft Information using "Management Credit Folder Questions". Results are similar to those in column (1) where Good Soft Information is Good Management from the numerical rating in the Business Risk Rating. Transmission of text reported by the AO's personal assessment and evaluation of the management is difficult to verify by the upper layers of approval making management characteristics personal, subjective and difficult to verify and transmit.

8 How *Hard* is Hard Information?

Finally, I question the quality and objectivity of the hard information measures. Hard information is conventionally understood as easily verifiable objective information. However, a closer look at the data raises the possibility that further qualifying hard information suggests a differential reliance on it. This qualification might have a potential impact on the transmission of soft information.

It is *a priori* difficult to determine what can be considered as (un)reliable hard information. For this purpose, I construct three measures to assess the quality of hard information. I classify as "unreliable hard information" the following measures: (i.) financial statements are not endorsed by a top quality auditor; (ii.) financial statements are further *qualified* by the auditor; and (iii.) financial statements that display a significant gap (in months) between the month the credit approval takes place and the last available fiscal statement.

Presumably, financials endorsed by top auditors, financials from firms that are financially healthy and financials that are more readily available convey hard information of higher quality than those where hard information is unreliable.

To examine whether there is in fact a role for differential quality of hard information in the analysis, I focus on the subsets where hard information is *not* relevant in explaining credit availability, namely the lower levels of approval (Low Level) and the smaller teams (Teams 1 and 2).

Table XVI displays the results of this analysis. Good hard information is re-defined as (Good Hard*X_i), where X_i stands for good quality as represented by Top Auditors, No Financial Distress and Gap in Financials. This re-definition helps in explaining credit availability even for those samples of firms where hard information was not significant before. Both the size and the significance of the parameters are affected by this re-definition of hard information; for both lower levels and single teams, hard information does bring a positive and significant impact on credit availability. Still, the impact of hard information is smaller than the impact of soft information for these samples.

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Last I examine the relative usage of soft and hard information through the vertical dimension when hard information is unreliable using Bad Auditors and Financial Distress as measures of reliability. In Table XVII column (1) I define as unreliable the hard measures endorsed by a bad auditor and in (2) I use a combination of Bad Auditor and Financial Distressed to define unreliable hard information.

Table XVII shows that hard information remains able to explain a larger position of credit availability than soft information as a loan moves in the approval process. However, soft information is shown to explain a larger amount of credit availability as we further qualify hard information: specifically as we distinguish between good hard and unreliable hard, the incremental amount of credit that soft information is able to explain at lower levels is reduced.

I also note that Bad Auditors and Financial Distress provides good measures of poor or unreliable hard information, as shown by their (differential) negative impact. Results (not shown) are not as clear for the measure Gap in Financials. However, the fact that a large gap exists between the last fiscal statement and the month of the review does not imply that the bank has no access to drafts of more recent financial reports from some firms, compromising the validity of this measure.

Overall, the analysis developed at this stage shows that there is no rigid definition in practice regarding the transmission of soft and hard information. Subjective information can be transmitted and verified depending on its content. Furthermore, soft information can be transmitted and relied upon when there are reasonable doubts about the quality of the hard information.

9   Concluding Remarks

This paper takes the position of searching for an empirical answer to the debate regarding the economic role of soft and hard information across organizational structures. Although the theoretical literature is extensive, to the best of my knowledge, there is no empirical answer to how and which type of information flows within organizations.

I analyze the hierarchical credit-approval process and the importance of transmission of soft and hard information within an organization for this purpose. I explore two dimensions of this organization: a vertical dimension given by the hierarchical approval level and a horizontal dimension given by the number of account officers working in teams at the lower level.

The evidence provided in the analysis supports the view that hard information is relatively easier to use and transmit than soft information and more heavily used in explaining credit availability as the credit recommendation forms reach higher levels of approval. The opposite holds at lower levels.

The possibility of direct communication strengthens the use of soft information suggesting that this type of information is easier to transmit in person. I show these results in two ways. First, across the horizontal dimension as smaller teams rely more heavily on soft information than do larger teams in their credit approvals. Second, across the vertical dimension as credit recommendations approved inside the branch rely more on soft information than do credit approvals elsewhere.

I perform a variety of robustness checks throughout the analysis. I check both if the loan size and the complexity of the credit are driving the results on the differential usage of the information and find that results are robust to these alternative specifications.

Finally, in the last two sections of the paper I address the issue of how subjective and objective are soft and hard information respectively. Results suggest that not all subjective information behaves as "soft" information as some of these measures are verifiable and easier to transmit. I also show that the importance of hard information decreases and reliance on soft information increases when hard information is unreliable. Such results question the conventional assumptions over transmission of soft information taken by most theoretical papers in organizations which state that, by definition, soft information is difficult to transmit. I find that soft information can be transmitted depending on its content and on the reliability of the hard information.

This paper has taken a first step in understanding transmission of information across hierarchical structures. The underlying analysis confirms that organizational form matters in transmission of the information. These results should be taken with caution since they rely on a clinical study of a single organization. They provide a first attempt to narrow the gap between theoretical and empirical research in the area.

Finally, the paper contributes to the literature on hard and soft information in banking. Information about small businesses has been considered primarily soft in the empirical banking literature, and its use has been studied in the context of small business lending activities. This paper provides empirical evidence on the use of soft information for *large* business lending activities. Additional research is needed to understand in depth the consequences and the value of soft information in this type of lending practices.

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BUSINESS RISK ASSESSMENT

1 *Industry*		RR1-RR2	RR3	RR4	RR5	RR6	RR7
Trend in Output		Very Strong Growth	Strong Growth	Growth	Stable	Uncertain / Declining	Declining
Trend in Earnings		Very Strong Growth	Strong Growth	Growth	Stable	Uncertain / Declining	Declining
Cyclicality (Fluctuations)		Very Stable	Very Limited	Small	Moderate	Large	Large & Unpredictable
External Risks		No Risks	Few Risks, Non Cyclical	Few Critical Risks	Variuos Critical Risks	Numerous Critical Risks	Widespread Risks

2 *Competitive Position*		RR1-RR2	RR3	RR4	RR5	RR6	RR7
Market Position		Over 50% / Clearly Dominant	Over 20% / Dominant	Over 10% / Major Player or Strong Niche	Over 5% / Known Player or Established Niche	2 to 3% / Minos Player	Below 2% / Minor Player; Declining Share
Product Line Diversity		Over 3 Growing Lines	Over 3 Lines	At least 2 Growing Lines	At least 2 Stable Lines	Only 1 Stable Line	Only 1 Declining Line
Operating Cost Advantage		Global Leader	Achieves Low Global Costs	Has Lowest Local Costs	Some Cost Advantages	No Cost Advantages	High Cost Producer
Technology Advantage		Global Leader in Many Areas	Global Player in Some Areas	Leader in Local Market	Mostly New; Upgrading Old	Technology Follower	Predominantly Outdated
Key Success Factors		Global Capabilities in All Factors	Global Capabilities in Most Factors	Strong Locally in All Factors	Strong Locally in Some Factors	Strong in Some; Weak in Others	None

3 *Management*		RR1-RR2	RR3	RR4	RR5	RR6	RR7
Professionalism		At all Levels With Extensive Experience	At all Levels in Operations & Management	At all Key Posi- tions in Operations & Management	At Most Key Positions & Most Levels	At Some Key Positions	In Few Positions
Systems and Controls		Meets Highest Global Standards	Meets Highest Local Standards	Very Reliable and Strong	Acceptable	Unreliable	Largely Absent
Financial Disclosure		Meets Highest Global Standards	Always Timely and Accurate	Usually Timely and Accurate	Satisfactory Reporting	Delayed, Inaccu-rate or Incomplete	Unreliable
Ability to Act Decisively		Proven to be Very Strong	Proven to be Strong	Good, but Untested	Good, but Untested	Weak	Hopeless

Risk Management Policies	RR1-RR2	RR3	RR4	RR5	RR6	RR7
Leverage Policy	Extremely Conservative	Very Conservative	Low Tolerance	Some Tolerance	High Tolerance	Unlimited Appetite
Liquidity Policy	Extremely Conser-vative Cushion	Conservative Cushion & Contingency Plan	Some Cushion & Sound Contingency Plan	Maintains Some Cushion	Low Liquidity Acceptable	No Policy
Hedging Policy	All Risks Understood; No Open Positions	Most Risks Understood; No Open Positions	Most Risks Understood; Few Open Positions	Risks Understood but Not Always Covered	Risks Understood but Most Not Covered	No Hedging Policy / Speculative Policy

4 *Access to Capital*		RR1-RR2	RR3	RR4	RR5	RR6	RR7
Capital Markets		Wide Access; Domestic & International	Wide Access; Domestic & International	Primarily Domestic; Some International	Primarily Domes-tic Banking; Some Capital Markets	Limited Largely to Domestic Banking	No access to Capital markets
Banks		Established Re-lationships; Strong Commitments	Established Re-lationships; Strong Commitments	At Least One Bank Strongly Committed	At Least One Bank Strongly Committed	No Bank Strongly Committed or Some Banks Getting Out	Bank Cutting Lines; Some Locked-in

Overall Business Rating
(Do not use +/- in the final Business Rating)

Figure I: MONTHLY OVERLOAD OF CREDIT FOLDER APPROVALS

Monthly Distribution of Approvals for Individual Borrowers and Consolidated Groups
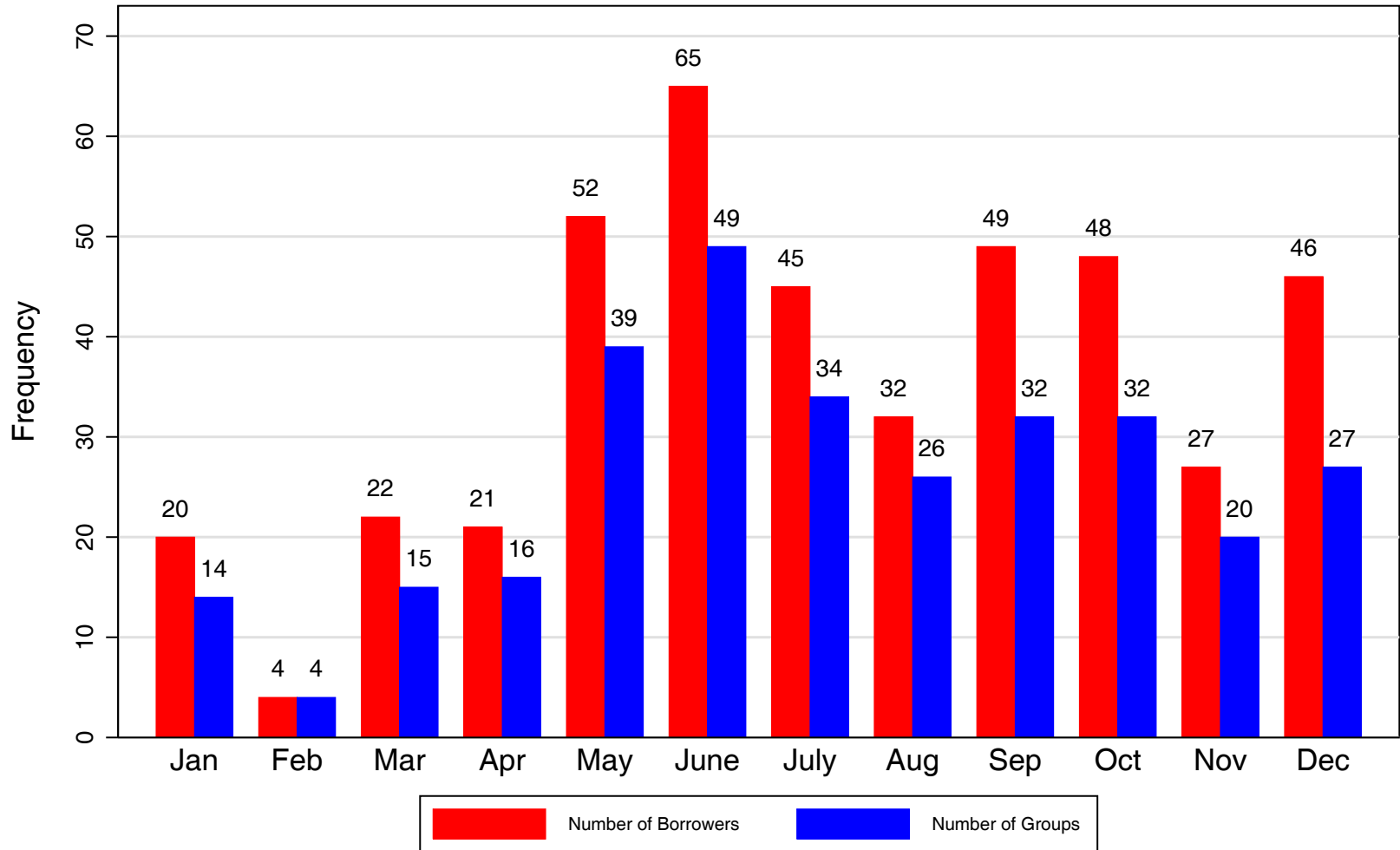
Table I
Vertical Dimension Descriptive Statistics

Panel A
By Level of Approval

Level of Approval	Number of Borrowers	Number of Groups	Number of Firms In Group	Credit Analyst Average Time	Average Time To Approve	Revise and Resubmit	Client Information Request	Hard Risk Rating	Soft Risk Rating	Average All Soft	Management Characteristics	"Credit Folder" Soft Measure
1	137	116	1.33	3.56	1.43	0.03	0.46	5.38	4.76	4.55	4.64	0.00
			(1.02)	(4.30)	(2.01)	(0.17)	(0.50)	(0.66)	(0.56)	(0.52)	(0.53)	(0.00)
2	169	125	1.63	5.99	11.00	0.06	0.53	5.23	4.59	4.47	4.47	0.01
			(0.24)	(8.46)	(8.49)	(0.23)	(0.50)	(0.92)	(0.64)	(0.53)	(0.58)	(0.08)
3	59	43	1.78	17.79	22.66	0.25	0.41	4.67	4.51	4.33	4.32	0.02
			(1.81)	(18.85)	(15.93)	(0.44)	(0.49)	(0.72)	(0.57)	(0.50)	(0.60)	(0.14)
4	58	34	2.66	21.09	58.90	0.59	0.16	4.68	4.16	4.17	4.20	0.02
			(1.69)	(17.00)	(40.83)	(0.50)	(0.36)	(0.89)	(0.71)	(0.56)	(0.65)	(0.14)
5	43	12	5.35	32.63	103.98	0.37	0.40	5.10	4.26	4.08	4.09	0.15
			(2.49)	(12.62)	(44.09)	(0.49)	(0.49)	(1.07)	(0.77)	(0.83)	(1.05)	(0.36)

Panel B
By Number of Signatures

Number of Signatures	Number of Borrowers	Number of Groups	Number of Firms In Group	Credit Analyst Average Time	Average Time To Approve	Revise and Resubmit	Client Information Request	Hard Risk Rating	Soft Risk Rating	Average All Soft	Management Characteristics	"Credit Folder" Soft Measure
1	146	125	1.31	3.64	1.64	0.03	0.45	5.36	4.76	4.56	4.66	0.00
			(0.99)	(4.33)	(2.34)	(0.18)	(0.50)	(0.65)	(0.54)	(0.51)	(0.53)	(0.00)
2	183	133	1.60	6.43	8.01	0.05	0.53	5.18	4.56	4.45	4.43	0.01
			(1.39)	(8.65)	(12.44)	(0.23)	(0.50)	(0.93)	(0.64)	(0.52)	(0.57)	(0.11)
3	89	57	2.48	21.78	42.98	0.51	0.26	4.68	4.31	4.23	4.24	0.01
			(1.95)	(19.24)	(33.81)	(0.50)	(0.44)	(0.84)	(0.68)	(0.57)	(0.66)	(0.11)
4	28	11	3.68	30.39	87.89	0.36	0.43	4.70	4.22	4.04	4.07	0.15
			(1.78)	(12.79)	(35.48)	(0.49)	(0.50)	(1.06)	(0.64)	(0.46)	(0.57)	(0.38)
5	13	3	6.85	26.62	118.15	0.69	0.38	5.46	4.08	3.94	3.85	0.00
			(2.93)	(11.08)	(66.14)	(0.48)	(0.50)	(0.97)	(0.95)	(1.26)	(1.62)	(0.00)
6	7	1	7	45	129	0	0	5.57	4.86	4.72	4.83	0.17
			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.79)	(0.38)	(0.27)	(0.31)	(0.41)

Panel C
By Distance to Approval

Distance To Approval	Number of Borrowers	Number of Groups	Number of Firms In Group	Credit Analyst Average Time	Average Time To Approve	Revise and Resubmit	Client Information Requested	Hard Risk Rating	Soft Risk Rating	Average All Soft	Management Characteristics	"Credit Folder" Soft Measure
Inside Branch	327	258	1.48	5.31	4.35	0.46	0.50	5.25	4.64	4.48	4.51	0.01
			(1.24)	(7.61)	(7.10)	(0.21)	(0.50)	(0.83)	(0.61)	(0.54)	(0.58)	(0.08)
Outside Branch	96	60	2.42	20.93	46.95	0.50	0.24	4.68	4.33	4.27	4.28	0.01
			(1.92)	(18.61)	(36.28)	(0.50)	(0.43)	(0.85)	(0.68)	(0.52)	(0.62)	(0.11)
Outside Country	43	12	5.35	32.63	103.98	0.37	0.40	5.10	4.26	4.08	4.09	0.15
			(2.49)	(12.63)	(44.09)	(0.49)	(0.49)	(1.07)	(0.77)	(0.83)	(1.05)	(0.36)

Table II
Vertical Dimension Selection Issues

	Panel A: Level of Approval					Panel B: Number of Signatures					
	Level 1	Level 2	Level 3	Level 4	Level 5	1	2	3	4	5	6
Group Level Measures											
Analyst Average Days Taken	3.56*	5.93***	17.79	21.09***	32.63	3.64**	6.43***	21.78***	30.39	26.62	45.00
Average Days To Approve	1.43***	5.99***	22.66***	58.9***	103.97	1.64***	8.01***	42.98***	87.89	118.15	129
Revise and Resubmit	0.03	0.06*	0.25**	0.59***	0.37	0.03	0.05***	0.51	0.36	0.69	0
Client Information Request	0.46	0.53	0.41**	0.16**	0.40	0.45	0.53**	0.26	0.43	0.38	0
Number of Firms In Group	1.33*	1.63	1.78***	2.66***	5.35	1.31*	1.60*	2.48	3.68	6.85	7
Individual Borrower Measures											
Hard Risk Rating	5.38	5.23	4.67	4.68	5.10	5.36*	5.18***	4.67	4.70*	5.46	5.57
Soft Risk Rating	4.76**	4.59	4.52***	4.16	4.26	4.76***	4.56***	4.31	4.22	4.08**	4.86
Average All Soft Information	4.55	4.47	4.33*	4.17	4.08	4.56**	4.45**	4.23*	4.04	3.94	4.72
Management Characteristics	4.64**	4.47	4.32	4.21	4.09	4.66***	4.43*	4.24	4.07	3.85	4.83
Problematic Companies (Over 4)	1.18	1.15***	1.36	1.22**	1.91	1.17	1.24	1.17	1.68***	2.08	2.00
Total Facilities (in $ Million)	5.71***	15.41	13.89***	36.48*	26.22	5.88***	15.51	28.94	28.64***	18.29***	22.24
Total Outstanding (in $ Million)	3.53***	9.60	8.06***	24.54	20.93	3.51***	9.59	18.99***	22.82***	15.8***	17.22
Tenor Over 3 Years	0.11*	0.14	0.28	0.25	0.26	0.12**	0.15	0.25	0.38***	0.08	0.25
% Unsecured	0.82	0.86	0.65	0.68	0.71	0.82	0.84***	0.67	0.67*	0.85	0.50
Covenants	0.03	0.03	0.17**	0.34	0.36	0.04	0.03***	0.30	0.35	0.33	0.33
Years In Industry	19.62	24.75	31.47	31.30	31.37	19.53	26.01**	31.00	31.43	39.77*	16.00
Length of Relationship (logs)	7.46	7.53	7.78	7.70	7.52	7.46	7.55	7.78*	7.35	7.89	7.47
Access to Capital Markets	4.87*	4.61	4.55**	4.10	4.19	4.90**	4.56**	4.29	4.11	4.46	4.33
Access to Banks	4.52	4.34	4.01*	3.77	3.95	4.52**	4.30***	3.86	3.85	3.85	4.67
Professional Ownership	0.93	0.92	0.74	0.68	0.69	0.93	0.91***	0.69	0.79	0.58	0.57
Stability Criteria Measures											
SC$_1$: Target Market Exception	0.12	0.1***	0.52	0.64	0.65	0.13	0.14***	0.60	0.58	0.86	0.67
SC$_2$: Risk Acceptance Exception	0.02	0.05***	0.37	0.42	0.44	0.02**	0.08***	0.41	0.46	0.29	0.50
SC$_3$: Obligor Limit Exception	0	0**	0.02	0	0	0	0.01	0	0	0	0
SC$_4$: Downgrade in ORR since Last Full Review	0.01	0.01***	0.12	0.13	0.06	0.01	0.02	0.12	0.08	0.00	0.17
SC$_5$: Significant Increase in Total Facilities	0	0***	0.08**	0**	0.09	0	0***	0.05	0.08	0	0.16
SC$_6$: Adverse Change in Industry/Outlook	0.04	0.02***	0.25**	0.09*	0	0.04	0.04***	0.17**	0	0	0
SC$_7$: Major Risk Event at the Company	0	0.01	0.02	0.02**	0.15	0	0.01	0.01***	0.15	0	0.17
SC$_8$: Adverse Change in Risk Profile	0	0	0	0	0.03	0	0	0*	0.04	0	0
SC$_9$: Adverse Change KSF, Risk Mitigants	0	0	0	0.02	0	0	0	0.01	0	0	0
Covenant Violations	0	0.01***	0.08	0.04	0	0	0.02	0.05	0	0	0
Qualified Auditors' Opinion	0	0.01	0	0.04	0	0	0.01	0.02	0.04	0	0
Negative Checkings	0.02	0.01***	0.10	0.03	0	0.02	0.02	0.05	0.00	0	0
Other Issues	0.07	0.07***	0.46**	0.25	0.38	0.07	0.10***	0.37*	0.19*	0.57	0.67
DRM Override	0.04	0.01	0.04	0.04	0.09	0.04	0.02	0.04	0.08	0.00	0.17
Financial Measures											
Net Sales (in $ Million)	57.1**	139.9***	304.9**	488.3	545.7	69.9***	157.7***	424.6	647.1	300.5	322.3
Net Income (in $ Million)	0.61	1.16***	14.7	14.2	55.5	1.67	2.39***	14.1	70.4	34.1	12.1
Net Worth (in $ Million)	24.7***	57.1***	139.9***	389.6*	590.2	28.22***	69.7***	289.9	725.3	409.2	132.1
Leverage	3.58	4.64	1.86	2.42	1.70	3.54	4.46	2.18	1.42	1.30***	3.05

Notes: * Denotes that the numbers in question are different at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table III
Vertical Dimension Conditional Analysis

	High-Low Level							Levels 1-5	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable = Total Credit	S.E. Clustered Group Level					Weighted		Clustered Group Level	
Good Hard Information	8.858*	5.625	8.558	6.041	5.484	10.163*	2.995	5.222	3.063
	(4.873)	(5.767)	(7.151)	(5.698)	(7.535)	(6.327)	(5.432)	(4.812)	(5.681)
Good Soft Information	13.281***	15.290***	15.881***	14.921***	14.399***	17.483***	15.941***	10.790***	11.477***
	(3.060)	(3.660)	(4.184)	(3.781)	(3.895)	(4.287)	(3.980)	(2.994)	(4.086)
High/Low Level	1.56	3.525	0.003	0.593	1.742	1.393	2.322		
	(2.789)	(2.497)	(3.904)	(3.964)	(5.170)	(7.881)	(7.604)		
High Level*Good Hard		13.926*	15.643*	16.614*	14.792	7.857	15.293		
		(10.000)	(10.642)	(11.137)	(13.942)	(13.955)	(12.745)		
High Level*Good Soft		-10.800**	-13.483**	-9.992*	-12.283*	-11.934	-13.264		
		(4.674)	(6.952)	(5.741)	(7.272)	(12.562)	(11.804)		
Level 5								16.317***	12.791***
								(4.500)	(4.281)
Level 4								22.522***	12.444**
								(3.851)	(6.112)
Level 3								5.254**	2.987
								(2.237)	(3.733)
Level 2								8.254***	8.128***
								(2.810)	(2.503)
Level 5*Good Hard									37.831*
									(21.448)
Level 4*Good Hard									14.470**
									(7.040)
Level 3*Good Hard									11.558*
									(7.261)
Level 2*Good Hard									3.886
									(6.174)
Level 5*Good Soft									-10.231*
									(6.168)
Level 4*Good Soft									-9.906*
									(5.264)
Level 3*Good Soft									-5.419
									(7.664)
Level 2*Good Soft									2.281
									(6.524)
Team Size Controls									
Team of One					11.576**	16.373**	16.623***		8.346**
					(4.681)	(5.082)	(4.721)		(4.182)
Team of Two					8.474**	10.532**	10.071**		7.863**
					(3.567)	(4.849)	(4.487)		(2.748)
Weights	No	No	No	No	No	O/S	Facility	No	No
Firm Specific Controls[1]	No	No	Yes	No	Yes	No	No	No	No
Bank Stability Criteria	No	No	No	Yes	Yes	Yes	Yes	No	Yes
R-Squared	0.09	0.10	0.19	0.11	0.22	0.15	0.13	0.15	0.20
Number of Observations	424	424	352	409	352	258	291	424	409

1. Regression includes Length of Relationship (logs), % Unsecured, Tenor Over 3 Years, Covenants, Years In Industry, Ownership, Access To Other Banks, Access To Capital Markets.

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table IV
Vertical Dimension Conditional Analysis: Alternative Measures

Dependent Variable: Total Credit	Number of Signatures							Time To Approve Loan			
	S_{12}	S_3	S_4	S_{56}	All Sample		No S_{56}	Longest	Shortest	All Sample	In Days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Good Hard Information	-2.917	15.350*	35.160*	11.701*	25.174	3.157	3.126	10.332*	-7.837	-2.076	-1.103
	(4.134)	(9.310)	(17.549)	(5.910)	(18.382)	(4.229)	(4.389)	(5.909)	(6.079)	(5.961)	(5.011)
Good Soft Information	10.956***	14.216**	0.279	3.722	0.388	10.814***	10.780***	12.492***	9.891***	11.676**	11.860***
	(3.441)	(6.371)	(8.111)	(10.430)	(7.268)	(3.643)	(3.680)	(3.930)	(3.700)	(4.668)	(3.371)
Less 3 Signatures					-7.307*						
					(4.440)						
Less 3 Signatures*Good Hard					-20.720						
					(18.853)						
Less 3 Signatures*Good Soft					14.311*						
					(7.913)						
Long Time										2.039	0.045
										(3.539)	(0.045)
Long Time*Good Hard										14.412*	0.177*
										(8.568)	(0.102)
Long Time*Good Soft										1.068	-0.008
										(6.063)	(0.047)
S_3						1.966	3.263				
						(3.953)	(4.564)				
S_4						1.684	7.032				
						(4.370)	(5.940)				
S_{56}						6.379**					
						(2.369)					
S_3*Good Hard						13.005	12.315				
						(10.207)	(10.63)				
S_4*Good Hard						37.969**	43.305**				
						(18.539)	(19.685)				
S_{56}*Good Hard						8.164					
						(7.513)					
S_3*Good Soft						5.937	6.241				
						(6.376)	(7.24)				
S_4*Good Soft						-10.842*	-18.819***				
						(6.244)	(6.915)				
S_{56}*Good Soft						-6.550					
						(6.385)					
Team Size Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Specific Controls[1]	No	No	No	No	No	No	No	No	No	No	No
Bank Stability Criteria Controls	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.10	0.18	0.21	0.37	0.15	0.16	0.17	0.11	0.11	0.14	0.15
Number of Observations	290	87	27	20	411	411	396	230	181	411	411

1. Regression includes Length of Relationship (logs), % Unsecured, Tenor Over 3 Years, Covenants, Years In Industry, Ownership, Access To Other Banks, Access To Capital Markets.

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table V
Robustness Checks: Size Of Loan

Dependent Variable: Total Credit	No HighLevel (1)	(2)	(3)	IV 4
Good Hard Information	4.254	1.572	0.915	6.123
	(4.309)	(5.457)	(5.164)	(5.019)
Good Soft Information	11.427***	11.822***	13.321***	17.369***
	(3.441)	(3.055)	(3.606)	(4.088)
High Level	3.339	1.952	2.484	1.618
	(4.046)	(2.080)	(2.154)	(1.687)
Good Hard*Highlevel	14.763**	4.193	4.158	11.667
	(5.920)	(6.650)	(6.842)	(9.128)
Good Soft*Highlevel	-5.817*	-12.176***	-11.867***	-11.743**
	(4.885)	(4.334)	(4.311)	(6.176)
Net Sales		0.025***		
		(0.007)		
Net Worth			0.0214***	
			(0.003)	
R-Squared	0.09	0.27	0.22	
Number of Observations	325	423	423	423

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

In column (1) highlevel indicate loans at higher levels in the restricted sample of low level loans. Columns (2), (3) and (4) include all loans.

Table VI
Vertical Issues Selection Issues

Location Final Approval of Loan	Geographical Distance		
	Inside Branch	Outside Branch	Outside Country
Group Level Measures			
Analyst Average Days Taken	6.95***	21.09***	32.63
Average Days To Approve	6.94***	58.90***	103.98
Revise and Resubmit	0.08***	0.59	0.37
Client Information Request	0.48***	0.16***	0.40
Number of Firms in Groups	1.54***	2.66***	5.35
Individual Borrower Measures			
Hard Risk Rating	5.19***	4.68**	5.10
Soft Risk Rating	4.64***	4.16	4.26
Average All Soft Information	4.47***	4.17	4.08
Management Characteristics	4.50***	4.21	4.09
Problematic Companies (Over 4)	1.20	1.22**	1.91
Total Facilities (in $ Million)	11.51***	36.5*	26.22
Total Outstanding (in $ Million)	7.07***	24.54	20.93
Tenor Over 3 Years	0.15	0.25	0.26
% Unsecured	0.81**	0.68	0.70
Covenants	0.05***	0.34	0.36
Years In Industry	24.01***	31.30	31.37
Length of Relationship (logs)	7.54	7.70	7.52
Access to Capital Markets	4.69**	4.11	4.20
Access to Banks	4.35***	3.77	3.95
Professional Ownership	0.90***	0.68	0.69
Stability Criteria Measures			
SC_1: Target Market Exception	0.18***	0.64	0.65
SC_2 : Risk Acceptance Exception	0.09**	0.42	0.44
SC_3: Obligor Limit Exception	0.01	0	0
SC_4: Downgrade in ORR since Last Full Review	0.03***	0.13	0.06
SC_5: Significant Increase in Total Facilities	0.01	0**	0.09
SC_6: Adverse Change in Industry/Outlook	0.06	0.09*	0
SC_7: Major Risk Event at the Company	0.01	0.02**	0.15
SC_8: Adverse Change in Risk Profile	0	0	0.03
SC_9: Adverse Change KSF, Risk Mitigants	0**	0.02	0
Covenant Violations	0.02	0.04	0
Qualified Auditors' Opinion	0.01	0.04	0
Negative Checkings	0.02	0.04	0
Other Issues	0.13**	0.25	0.38
DRM Override	0.03	0.04	0.09
Financial Measures			
Net Sales (in $ Million)	138.3***	488.3*	545.7
Net Income (in $ Million)	3.18***	14.2	55.5
Net Worth (in $ Million)	59.5***	389.6*	590.2
Leverage	3.81	2.42	1.7

Notes: * Denotes that the numbers in question are different at the 10% level, ** denotes 5% level and *** denotes

Table VII
Vertical Dimension Analysis
Distance and Communication

	Panel A - Distance To Approval					
Dependent Variable Total Credit	In Branch	Not In Branch	Inside Country	All Sample		
	(1)	(2)	(3)	(4)	(5)	(6)
Good Hard Information	2.313	19.431**	2.411	18.471***	2.388	3.055
	(5.722)	(8.592)	(5.753)	(8.303)	(5.768)	(5.925)
Good Soft Information	13.460***	4.403	13.491***	4.394	13.474***	13.585***
	(3.211)	(3.287)	(3.255)	(3.292)	(3.263)	(3.374)
Inside the Branch*Good Hard				-16.013*		
				(10.025)		
Inside the Branch*Good Soft				9.129**		
				(4.368)		
Outside the Branch * Good Hard			8.476		8.538	9.405
			(7.000)		(7.026)	(7.241)
Outside the Branch * Good Soft			-11.389**		-11.482**	-11.722**
			(4.901)		(4.946)	(5.567)
Outside the Country*Good Hard					30.633*	31.367*
					(17.616)	(20.422)
Outside the Country*Good Soft					-10.448**'	-10.386*
					(4.488)	(6.299)
Inside the Branch				1.957		
				(3.042)		
Outside the Branch			-3.869		-3.817	-5.128
			(3.635)		(3.605)	(3.866)
Outside the Country					1.868	3.590
					(2.361)	(3.878)
Team Size Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Specific Controls[1]	No	No	No	No	No	No
Bank Stability Criteria	No	No	No	No	No	Yes
R-Squared	0.13	0.16	0.13	0.14	0.15	0.16
Number of Observations	307	117	382	424	424	409

Table VIII
Selection Issues: In Branch vs. Out Branch

	Level of Approval 3	
	Inside the Branch	Outside the Branch
Group Level Measures		
Analyst Average Days Taken	12.3	20.9
Average Days To Approve	11.15***	29.35
Revise and Resubmit	0.05***	0.38
Client Information Request	0.48	0.38
Number of Firms In Group	1.29	2.08
Individual Borrower Measures		
Hard Risk Rating	4.67	4.68
Soft Risk Rating	4.35	4.59
Average All Soft Information	4.13*	4.42
Management Characteristics	4.13	4.41
Problematic Companies (Over 4)	1.62	1.22
Total Facilities (in $ Million)	13.86	13.91
Total Outstanding (in $ Million)	4.68	9.98
Tenor Over 3 Years	0.24	0.31
% Unsecured	0.71	0.62
Covenants	0.12	0.20
Years In Industry	40.44*	27.11
Length of Relationship (logs)	7.90	7.71
Access to Capital Markets	4.41	4.62
Access to Banks	3.47**	4.27
Professional Ownership	0.83	0.70
Stability Criteria Measures		
SC_1: Target Market Exception	0.59	0.49
SC_2 : Risk Acceptance Exception	0.29	0.40
SC_3: Obligor Limit Exception	0.00	0.03
SC_4: Downgrade in ORR since Last Full Review	0.07	0.14
SC_5: Significant Increase in Total Facilities	0.00	0.11
SC_6: Adverse Change in Industry/Outlook	0.17*	0.41
SC_7: Major Risk Event at the Company	0.06	0.00
SC_8: Adverse Change in Management	0.00	0.00
SC_9: Adverse Change KSF, Risk Mitigants	0.00	0.00
Covenant Violations	0.06	0.08
Qualified Auditors' Opinion	0.00	0.00
Negative Checkings	0.06	0.11
Other Issues	0.53	0.43
DRM Override	0.06	0.03
Financial Measures		
Net Sales (in $ Million)	489.7**	219.9
Net Income (in $ Million)	18.8	12.7
Net Worth (in $ Million)	173.1	124.8
Leverage	1.69	1.94

Notes: * Denotes that the numbers in question are different at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table IX
Vertical Dimension Analysis
Distance and Communication

Panel B - Communication			
Dependent Variable Total Credit	Level 3 Only		All Sample
	(1)	(2)	(3)
Good Hard Information	12.132***	15.468***	6.141
	(4.071)	(5.031)	(5.500)
Good Hard*Level 3 Inside		-12.924*	-4.800
		(9.476)	(11.906)
Good Hard* Level 3 Outside			7.069
			(7.013)
Good Soft Information	1.610	1.667	10.787***
	(3.161)	(3.788)	(3.213)
Good Soft * Level 3 Inside		11.787**	-2.444
		(5.702)	(6.051)
Good Soft* Level 3 Outside			-10.389**
			(5.287)
Inside		0.434	-1.374
		(3.701)	(3.622)
Team Size Controls	Yes	Yes	Yes
Firm Specific Controls[1]	No	No	No
Bank Stability Criteria	Yes	No	No
R-Squared	0.27	0.35	0.21
Number of Observations	54	54	424

1. Regression includes Length of Relationship (logs), % Unsecured, Tenor Over 3 Years, Covenants, Years In Industry, Ownership, Access To Other Banks, Access To Capital Markets.

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table X

Complexity of Credit Measures

Dependent Variable Total Credit	Panel A: Level of Approval						Panel B: Number of Signatures				
	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)
Good Hard Information	2.191	2.646	1.237	2.992	1.236	Good Hard Information	4.281	4.595	3.963	4.786	3.994
	(5.566)	(5.644)	(5.827)	(5.175)	(5.669)		(4.526)	(4.612)	(4.674)	(4.247)	(4.558)
Good Soft Information	13.445***	13.139***	13.692***	12.785***	13.322***	Good Soft Information	14.464***	13.828***	14.321***	13.427***	13.733***
	(3.273)	(3.138)	(3.244)	(3.261)	(3.174)		(2.897)	(2.770)	(2.988)	(2.931)	(2.832)
High Level*Good Hard	16.013*	15.841*	17.191*	18.306*	17.122*	S_{456}*Good Hard	20.994	21.022	21.814	24.380*	21.565
	(10.002)	(9.995)	(10.113)	(10.321)	(10.148)		(16.367)	(16.043)	(16.109)	(15.894)	(16.466)
High Level*Good Soft	-9.122**	-8.212*	-9.997**	-11.689***	-9.131**	S_{456}*Good Soft	-15.945***	-14.461***	-15.403***	-12.569**	-14.631***
	(4.520)	(4.566)	(4.425)	(4.459)	(4.712)		(5.427)	(5.014)	(5.312)	(6.211)	(5.151)
High Level	-2.219	-2.096	-3.405	-3.201	-3.669	S_{456}	6.075*	5.329	4.946	-1.340	4.112
	(3.142)	(3.083)	(3.023)	(2.934)	(3.093)		(3.525)	(3.604)	(3.741)	(6.199)	(4.136)
Revise and Re-Submit	2.717				0.826	Revise and Re-Submit	1.919				0.734
	(3.678)				(3.716)		(4.162)				(4.221)
Client Information Request		-5.701***			-5.892***	Client Information Request		-4.368**			-4.477**
		(2.148)			(2.086)			(2.162)			(2.102)
Time Taken by Credit Analyst			4.892*		5.085*	Time Taken by Credit Analyst			2.251		2.592
			(3.104)		(3.169)				(3.307)		(3.330)
Analyst Fixed Effects				Yes		Analyst Fixed Effects				Yes	
Team Size Controls	Yes	Yes	Yes	Yes	Yes	Team Size Controls	Yes	Yes	Yes	Yes	Yes
R-Squared	0.13	0.14	0.14	0.18	0.15	R-Squared	0.14	0.15	0.14	0.18	0.15
Number of Observations	424	423	421	424	420	Number of Observations	409	408	406	409	405

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table XI
Robustness Checks

Dependent Variable Total Credit	High/Low Level (1)	Signatures (2)	Distance (3)	Team Size (4)	All Levels (5)
Z_i is =	High Level	More 3 S	Out Branch	Single	All Levels
Good Hard Information	2.783 (5.728)	4.093 (4.748)	2.714 (5.738)	6.550* (4.339)	3.828 (5.623)
Good Soft Information	13.368*** (3.244)	14.268*** (2.892)	13.329*** (3.272)	6.475*** (2.354)	10.979*** (4.086)
Z_i*Good Hard	14.752* (9.573)	19.779* (12.149)	8.601* (5.972)	-7.135* (5.583)	
Z_i*Good Soft	-8.594* (4.924)	-13.515* (7.978)	-11.991** (5.148)	12.897* (7.699)	
Z_i	-1.065 (3.696)	7.693* (4.269)	-3.572 (4.171)	-0.881 (2.929)	
L_5* Good Hard / L5* Out Country			28.854* (20.241)		35.945* (20.414)
L_4* Good Hard					15.263** (6.906)
L_3* Good Hard					11.826 (13.791)
L_2* Good Hard					-3.451 (5.925)
L_5* Good Soft / L5* Out Country			-9.821* (5.569)		-8.484* (5.069)
L_4* Good Soft					-10.643** (5.183)
L_3* Good Soft					5.079 (7.434)
L_2* Good Soft					1.403 (4.203)
Covenant Violations	0.344 (4.968)	1.037 (5.069)	3.658 (3.773)	-1.365 (3.659)	2.956 (3.456)
Auditor's Opinion	-8.424* (4.514)	-13.934** (5.536)	-9.340** (3.822)	-13.662*** (4.646)	-15.838*** (4.957)
Negative Checkings	5.209* (3.385)	0.044 (3.894)	5.958* (3.282)	6.634** (2.762)	4.989 (2.735)
Other Issues	-2.360 (3.312)	-4.415 (3.121)	-2.457 (3.296)	-3.629 (2.965)	-4.334 (2.974)
Model Override	-1.496 (5.739)	-2.931 (5.786)	-2.611 (5.857)	-4.461 (6.252)	-2.167 (4.985)
Team Size/Level Controls	Yes	Yes	Yes	Yes	Yes
Firm Specific Controls[1]	No	No	No	No	No
Bank Stability Criteria	No	No	No	No	No
R-Squared	0.13	0.15	0.15	0.17	0.2
Number of Observations	409	395	409	409	409

1. Regression includes Length of Relationship (logs), % Unsecured, Tenor Over 3 Years, Covenants, Years In Industry, Ownership, Access To Other Banks, Access To Capital Markets.
Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table XII - Horizontal Dimension Descriptive Statistics

Number of Members in Team	Number of Borrowers	Number of Groups	Number of Firms In Group	Credit Analyst Average Time	Average Time To Approve	Revise and Resubmit	Client Information Request	Hard Risk Rating	Soft Risk Rating	Average All Soft	Management Characteristics	"Credit Folder" Soft Measure
One	154	83	2.77	18.17	34.71	0.27	0.34	5.01	4.52	4.44	4.46	0.01
			(2.13)	(17.99)	(39.98)	(0.44)	(0.47)	(0.93)	(0.64)	(0.50)	(0.58)	(0.12)
Two	138	101	2.01	11.30	29.88	0.24	0.36	4.92	4.30	4.21	4.18	0.02
			(2.10)	(13.12)	(47.99)	(0.42)	(0.48)	(0.94)	(0.74)	(0.70)	(0.79)	(0.12)
Five	174	146	1.40	4.52	5.42	0.02	0.58	5.37	4.75	4.51	4.60	0.03
			(1.19)	(7.76)	(13.82)	(0.15)	(0.49)	(0.72)	(0.51)	(0.49)	(0.54)	(0.16)

Table XIII
Horizontal Dimension: Selection Issues

Number of AOs in Teams	One	Two	One	Five	Two	Five
Group Level Measures						
Analyst Average Days Taken	18.17**	11.30	18.17***	4.52	11.3***	4.52
Average Days To Approve	34.71**	29.88	34.71***	5.42	29.88***	5.42
Revise and Resubmit	0.27	0.24	0.27***	0.02	0.24***	0.02
Client Information Request	0.34	0.36	0.34***	0.58	0.36***	0.58
Number of Firms in Groups	2.77**	2.01	2.77***	1.40	2.01	1.40
Individual Borrower Measures						
Hard Risk Rating	5.01	4.92	5.01***	5.36	4.92***	5.36
Soft Risk Rating	4.52***	4.29	4.52***	4.75	4.29***	4.75
Average All Soft Information	4.44**	4.21	4.44	4.51	4.21***	4.51
Management Characteristics	4.46***	4.17	4.46**	4.59	4.17***	4.59
Problematic Companies (Over 4)	1.23	1.17	1.23	1.37	1.17	1.37
Total Facilities (in $ Million)	21.46	22.58	21.46***	6.02	22.58***	6.02
Total Outstanding (in $ Million)	15.55	13.99	15.55***	3.42	13.99***	3.42
Tenor Over 3 Years	0.26*	0.19	0.26***	0.09	0.19***	0.09
% Unsecured	0.69**	0.80	0.69***	0.86	0.80	0.86
Covenants	0.20	0.14	0.20***	0.02	0.14***	0.02
Years In Industry	23.67***	29.94	23.67	23.93	29.94***	23.93
Length of Relationship (logs)	7.37***	7.84	7.37	7.50	7.84**	7.50
Access to Capital Markets	4.51*	4.36	4.51***	4.79	4.36***	4.79
Access to Banks	4.23*	3.92	4.23**	4.51	3.92***	4.51
Ownership	0.81	0.81	0.81***	0.92	0.81***	0.92
Stability Criteria Measures						
SC_1: Target Market Exception	0.39	0.36	0.39***	0.10	0.36***	0.10
SC_2 : Risk Acceptance Exception	0.26	0.21	0.26***	0.03	0.21***	0.03
SC_3: Obligor Limit Exception	0.00	0.01	0.00	0	0.01	0
SC_4: Downgrade in ORR since Last Full Review	0.06	0.07	0.06***	0.01	0.07*	0.01
SC_5: Significant Increase in Total Facilities	0.04**	0	0.04**	0.01	0	0.01
SC_6: Adverse Change in Industry/Outlook	0.04**	0.13	0.04	0.03	0.13**	0.03
SC_7: Major Risk Event at the Company	0.01	0.02	0.01	0.03	0.02	0.03
SC_8: Adverse Change in Risk Profile	0.01	0	0.01	0	0	0
SC_9: Adverse Change KSF, Risk Mitigants	0	0	0	0.01	0	0.01
Covenant Violations	0.01	0.03	0.01	0.01	0.03	0.01
Qualified Auditors' Opinion	0.01	0.01	0.01	0.01	0.01	0.01
Negative Checkings	0.01	0.05	0.01	0.01	0.05*	0.01
Other Issues	0.22	0.23	0.22***	0.06	0.23***	0.06
DRM Override	0.03	0.06	0.03	0.02	0.06	0.02
Financial Measures						
Net Sales (in $ Million)	293.2	337.4	293.2***	62.3	337.4***	62.3
Net Income (in $ Million)	13.5	16.5	13.5**	0.54	16.5**	0.54
Net Worth (in $ Million)	172.9**	289.1	172.9***	23.6	289.1***	23.6
Leverage	4.27**	2.33	4.27	3.55	2.33	3.55

Notes: * Denotes that the numbers in question are different at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table XIV
Horizontal Dimension Analysis

| | All Account Officers | | | | | | Account Officers with Authority to Approve a Loan | | | |
| | All Team Sizes | | | | | Only 1 and 2 | All Teams | Only 1 and 2 | All Teams | Only 1 and 2 |
Dependent Variable Total Credit	(1)	(2)	(3)	(4)	(5)	(6)	(7) Authority	(8) By Level	(9) Authority	(10) By Signatures
Good Hard Information	4.618	6.135	8.799	7.051	4.777**	6.204	1.179	-0.083	0.544	-1.386
	(4.821)	(5.272)	(6.714)	(6.829)	(2.049)	(6.876)	(4.442)	(7.457)	(3.382)	(5.036)
Good Soft Information	10.416***	7.050***	5.657**	5.731**	1.404	9.670**	3.717	7.061	5.133**	8.378*
	(2.978)	(2.347)	(2.713)	(2.777)	(1.976)	(4.099)	(2.560)	(6.331)	(2.188)	(4.585)
Team of 1*Good Hard		-7.646	-4.429	-6.972	-3.704	-6.094	-20.85	-19.468	-19.083	-17.161
		(12.288)	(13.729)	(14.765)	(11.023)	(12.060)	(18.175)	(19.634)	(13.101)	(13.717)
Team of 1*Good Soft		12.761*	14.392*	14.234*	18.291**	10.898*	36.173***	32.616**	27.704**	24.717**
		(7.683)	(8.253)	(8.260)	(7.841)	(6.729)	(13.585)	(14.816)	(11.437)	(12.099)
Team of 1	7.335*	-0.822	-1.562	-2.146	1.173	-1.858	0.379	-2.389	0.901	-0.807
	(3.970)	(3.079)	(3.655)	(3.691)	(3.227)	(3.440)	(3.778)	(5.941)	(3.077)	(4.458)
Team of 2*Good Hard					9.458					
					(6.862)					
Team of 2*Good Soft					9.491**					
					(4.882)					
Team of 2	5.529**				2.498					
	(2.492)				(3.684)					
Level of Approval Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Specific Controls[1]	No	No	Yes	Yes	No	No	No	No	No	No
Bank Stability Criteria	No	Yes	No	Yes	Yes	No	No	No	No	No
R-Squared	0.16	0.17	0.24	0.26	0.19	0.13	0.18	0.16	0.15	0.13
Number of Observations	424	409	352	346	409	274	236	103	290	147

1. Regression includes Length of Relationship (logs), % Unsecured, Tenor Over 3 Years, Covenants, Years In Industry, Ownership, Access To Other Banks, Access To Capital Markets.
Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table XV
How *Soft* Is Soft Information?

Measures of Soft	Panel A					Panel B				
	Level of Approval					**Number of Signatures**				
	Soft Information Given By					Soft Information Given By				
	Management	Competitive Position	Industry	Risk Managament	Credit Folder Questions	Management	Competitive Position	Industry	Risk Managament	Credit Folder Questions
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Good Hard Information	1.047	0.718	3.227	2.626	3.252	4.342	5.356	8.799**	8.845	6.609*
	(3.617)	(3.754)	(3.125)	(2.999)	(3.272)	(4.928)	(4.656)	(4.317)	(4.357)	(3.935)
Good Soft Information	12.964***	11.228***	-0.765	0.971	7.718***	12.039***	11.747	1.865	0.868	10.640***
	(3.273)	(3.339)	(2.247)	(2.567)	(2.032)	(2.909)	(2.952)	(2.362)	(2.447)	(6.334)
High/Low Level	7.745**	3.943	5.063	1.288	13.740**					
	(3.369)	(4.451)	(4.814)	(4.717)	(5.762)					
High Level*Good Hard	36.137**	34.095**	29.505*	30.317*	31.948*					
	(17.337)	(16.215)	(15.844)	(16.281)	(18.488)					
High Level*Good Soft	-15.453**	-8.218	9.214**	0.992	-10.952**					
	(6.200)	(5.945)	(4.589)	(9.082)	(6.374)					
More than 3 Signatures						4.725	1.793	-4.968	-1.002	-1.333
						(3.629)	(4.484)	(4.430)	(4.201)	(6.531)
More 3 Signatures* Good Hard						19.899	18.650	15.102	15.103	18.013
						(16.579)	(15.478)	(15.481)	(15.860)	(17.660)
More 3 Signatures*Good Soft						-11.188**	-7.551	5.387	1.614	-13.400**
						(5.758)	(5.132)	(4.452)	(8.057)	(6.558)
Team Size Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.15	0.14	0.11	0.11	0.14	0.15	0.13	0.10	0.09	0.14
Number of Observations	424	424	424	424	424	411	411	411	411	411

Table XVI
Re-Defining Hard Information

Dependent Variable Total Credit	X_i = Top Auditors		Xi = No Financial Distress		Xi = Gap in Financials	
	Low Level	Teams 1 and 2	Low Level	Teams 1 and 2	Low Level	Teams 1 and 2
	(1)	(2)	(3)	(4)	(5)	(6)
Good Hard Information* X_i	5.435*	5.325*	3.317	5.885	13.778	6.723
	(3.532)	(3.910)	(5.924)	(5.890)	(9.243)	(7.752)
Good Soft Information	12.051***	13.956***	13.398***	14.510***	11.470***	14.696***
	(3.178)	(4.196)	(3.107)	(4.318)	(2.933)	(3.702)
X_i	6.005**	8.343***	-2.208	0.529	-6.442***	-10.718***
	(2.955)	(2.878)	(3.328)	(3.758)	(2.213)	(2.552)
Team Size Controls	Yes		Yes		Yes	
Level of Approval Controls		Yes		Yes		Yes
Bank Stability Criteria	No	No	No	No	No	No
R-Squared	0.14	0.13	0.13	0.13	0.15	0.14
Number of Observations	328	274	328	274	328	274

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.

Table XVII
How *Hard* is Hard information?

Dependent Variable Total Credit	Bad Auditor		Unreliable Information	
	(1)	(2)	(3)	(4)
X$_i$ is =	Bad Auditor		Bad Auditor, Financial Distress	
Good Hard Information	5.370	5.805	6.094	6.481
	(6.591)	(6.741)	(6.795)	(6.937)
Good Hard Information * X$_i$	-13.014*	-12.352*	-16.311**	-15.058**
	(7.381)	(7.528)	(7.231)	(7.391)
Good Hard*Highlevel	13.615	14.708	17.545*	17.677*
	(10.863)	(12.019)	(11.061)	(11.229)
Good Hard Information * X$_i$ * Highlevel	-3.001	-1.059	-19.239*	-22.894*
	(11.576)	(11.667)	(12.858)	(13.418)
X$_i$*HighLevel	4.396	3.559	11.708**	15.202**
	(4.372)	(4.699)	(4.302)	(4.841)
X$_i$	-4.672	-5.012	-1.427	-2.464
	(3.333)	(3.670)	(2.877)	(3.145)
Good Soft	12.439***	12.497***	12.789***	12.687***
	(3.192)	(3.922)	(3.177)	(3.315)
Good Soft * HighLevel	-4.863	-4.579	-4.914	-3.249
	(4.395)	(5.477)	(4.141)	(5.054)
Highlevel	-2.800	-3.811	-9.171**	-10.276**
	(3.322)	(4.276)	(3.748)	(3.924)
Team Size/Level Controls	Yes	Yes	Yes	Yes
Bank Stability Criteria	No	Yes	No	Yes
R-Squared	0.14	0.15	0.15	0.15
Number of Observations	424	409	424	409

Notes: * Denotes significance at the 10% level, ** denotes 5% level and *** denotes 1% level.