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Entrepreneurial Finance: Analyzing the Demand for the Personal Guarantee

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Abstract: This study contributes to the current body of entrepreneurial finance literature by analyzing multiple aspects of personal guarantees. We conducted a survey yielding 1,462 responses from owners or managers of incorporated small businesses geographically dispersed throughout the United States. Of these, 383 C or S corporations had loans in place during 2014. The survey focuses on personal guarantees used on five types of loans: lines of credit, mortgages, equipment loans, vehicle loans, and a loan type referred to as "other loans." We found the variation increase in personal guarantees for equipment loans, vehicle loans, and other types of loans during the 27 years (1987 – 2014) to be significant with a 95% confidence level, with a 5% margin of error. We found an underinvestment problem (Ang, Lin & Tyler, 1995) exists as 12.5% of owners of incorporated small businesses have decided not to undertake a positive net present value project because the lender required a personal guarantee to obtain a loan for the project. We found lenders denied 10.9% of these 383 corporations a loan resulting in credit rationing because of these corporations' inability to meet the lender's personal guarantee requirements. We found more than 15% of the 383 corporation owners refused the lender's requirement to provide a personal guarantee. Almost 42% of the 15% still received a loan from the same lender after refusing to provide a personal guarantee. We found that only 22.2% of female small-incorporated business owners received a loan after refusing to provide a personal guarantee from the same lender. Compared to 51.4% of the male small incorporated business owners still received the loan after refusing to provide a personal guarantee. Overall, we found that only 37% of the 1,462 incorporated small business respondents had a loan in place during 2014 compared to 67% of incorporated businesses documented by the Federal Reserve Board's 1987 National Survey of Small Business Finances.

Keywords: Personal Guarantee; Small Business Loans

1. Introduction

A personal guarantee places all personal assets and future earnings of the incorporated small business owner at risk in loan default. Once an incorporated small business owner provides a personal guarantee for a loan, the lender has effectively pierced the owner's limited liability protection gained through incorporating the business entity. This loss of limited liability protection provides the lender a legal recourse to satisfy the loan with the personal assets (net worth) and future earnings, if necessary, of the incorporated small business owner. In case of loan default, the personal guarantee's execution places the lender in a control position over the incorporated small business owner's personal assets. Lambrecht (2009) found, as did Mann (1997b), that guarantees provided by the small business owner give the lender recourse against the small business owner for any deficiency in payment. The only way to eliminate the small business owner's personal liability on a loan with a personal guarantee is for the owner to file for personal bankruptcy or for the leader to agree to remove the personal guarantee requirement from the loan.

Understanding the distinction between the incorporated small business's financial responsibilities and the incorporated small business owner's personal financial responsibilities is required. When an incorporated business entity enters into a loan with a lender without a personal guarantee, repayment is the total responsibility of the incorporated business entity. In a loan transaction without a personal guarantee, the loan is a two-party transaction between the incorporated small business and the lender. When a personal guarantee is required and provided in a loan transaction with an incorporated small business, it becomes a three-party transaction. The incorporated small business owner signing personally is the third party. In the third-party role, the incorporated small business owner is signing personally, separated from the incorporated small business owner signing as an officer of the corporation. In making the loan, the incorporated small business owner will sign for the business entity as an officer (President, Vice President, Secretary, or Treasurer) committing the business entity and sign a second time as an individual pledging his or her net worth and future earnings.

A personal guarantee liability far exceeds the incorporated small business owner's liability when the lender for a loan requires only collateral, whether business or personally owned collateral. The collateral only loan does not allow the lender to pierce the limited liability protection provided by incorporating the small business entity unless the incorporated small business owner has provided a personal asset as collateral. In that case, the lender can only pierce the owner's limited liability to access the collateral in loan default. Duarte, Gama, and Gulamhussen (2018) found, "collateral removes the downside risk for owners while preserving the upside potential" (p. 592).

In those circumstances, the lender can only take possession of the personal assets explicitly pledged as collateral. Collateral only loan default results in the surrender of the collateral to the lender. The incorporated small business owner has capped the risk of loss at the pledged collateral value in a collateral only loan. The credit rating on the incorporated small business may be diminished due to the default. However, the incorporated small business owner's personal assets and future earnings are not at risk other than the pledged collateral. After proceeds from the collateral sale or liquidation have been applied to the loan, any remaining loan balance is the lender's loss.

To avoid or minimize any loss due to default, lenders often require both collateral (if available) and a personal guarantee. Requiring a personal guarantee along with business or personal collateral allows the lender to minimize any loss incurred through the sale of the collateral. This loan arrangement makes incorporated small business owners financially responsible for any remaining loan balance after the collateral sale or liquidation. This loan arrangement could deter the lender from working diligently to maximize the collateral sale proceeds because the lender has access to liquidate the incorporated small business owner's personal assets as expediently as possible to satisfy the loan balance.

Guaranties are essentially a contract among three parties: a creditor, a debtor, and a guarantor who promises to perform or pay damages on the debtor's behalf. (Katz, 1999) When providing a personal guarantee, the incorporated small business owner has entered into the relationship (loan) as two separate entities: the debtor and the guarantor.

1.1 "Guarantee" vs. "Guaranty"

There is no essential difference between "guarantee" and "guaranty" other than the spelling. Financial scholars use the word "guarantee," while legal scholars use the word "guaranty." The word "guarantee" will be used throughout this document even when addressing the works of legal scholars such as Mann (1998, 1997a, & 1997b) and Katz (1999), who used the word "guaranty."

1.2 Background

Steijvers and Voordeckers (2009) found that, since Ang, Lin, and Tyler (1995), the use of the personal guarantee continues to be overlooked, understudied, and, in general, misunderstood in the field of finance. Steijvers and Voordeckers identified that some studies (Leeth & Scott, 1989; Berger & Udell, 1995; Haroff & Korting, 1998; Cowling, 1999) lump business and personal collateral together, while others (Hernandez-Canovas & Martinez-Salono, 2006; Voordeckers & Steijvers; 2006; Brick & Palia, 2007) address business and personal collateral separately. Unfortunately, all of these prior studies have failed to distinguish between business collateral and personal commitments (personal collateral and personal guarantees). This failure is because personal commitments are not generally or routinely part of finance for publicly traded businesses, the subject of most financial data collection to date. Mann (1997b) supposed that prior legal scholarship had not considered the landscape of small business lending, in which the personal guarantee is an essential factor because commercial law scholarship had also focused on the practices of large companies.

While collateral used by large and small businesses has been the subject of many studies, personal guarantees are unique to small business lending. Prior studies' failure to distinguish between business collateral, personal collateral, and personal guarantees has likely contributed to the mixed results documented. Studies of risk-mitigating tools for loans that focus on collateral use by small businesses, but fail to distinguish between business collateral, personal collateral, and personal guarantees, should be reviewed to determine if this further delineation can explain the mixed or contradictory results. Prior mixed study results are possibly directly linked to the misunderstanding or omission of the personal guarantee's far-reaching impact.

This research study includes a survey that poses questions that appertain to the demand for personal guarantees from the owners of incorporated small businesses, similar to the Federal Reserve Board's 1987 National Survey of Small Business Finances (NSSBF). Data collected will be compared to the results of the 1987 NSSBF to determine the trend in demand by lenders for personal guarantees from owners of incorporated small businesses over a 27-year period.

During the 1980s and 1990s, the banking industry in the U.S. underwent significant changes. Mann (1997b) links these banking sector changes beginning in the early 1990s with the banking industry's deregulation, allowing for interstate branching by individual banks. Interstate banking (branches of the same bank located and operating in multiple states) led to a period of significant merger and acquisition (M&A) activity during which information technology also experienced significant advancements. The banking industry began to find the small business lending sector much more attractive as a growth opportunity based on this new technology. The 1980s and 1990s catapulted the banking sector from an industry consisting of large state banks with many locally owned and operated smaller banks to an industry composed of national banks with branches in multiple states. This transition yielded a constantly decreasing presence of locally owned and operated banks, as the M&A activity continued. Black & Strahan (2002) found that the deregulation of U.S. banks during the early 1990s resulted in an increased presence of larger banks through M&A activity and increased competition. The growth of the banks with a national presence in the U.S., coupled with the advancement in information technology, led to an extremely competitive banking industry.

In order to reduce transaction costs of processing small business loans and to determine the probability of the small business owners repaying the loan, banks exploited the use of the small business owner's personal credit information, which had become much less expensive to obtain as a result of advancements in the area of informatics. During the late 1980s, lenders began demanding personal guarantees more frequently.

Avery, Bostic, and Samolyk (1998), the second documented study to examine this lack of separation between business and personal risks of small business owners, found a 57% increase in the use of personal guarantees by owners of incorporated small businesses between 1987 and 1993. Mann (1998) challenged Avery et al. (1998)'s findings, maintaining the study had not captured the actual magnitude of the increase in the demand for personal guarantees. Mann found Avery et al. (1998) had included unincorporated businesses in the analysis, and this had allowed the actual percentage of incorporated businesses providing personal guarantees to be understated. Additionally, the 1993 NSSBF did not collect the source of any guarantees. Avery et al. (1998) had imputed the percentages of guarantees provided by the various sources and documented this in Footnote 14 of their paper. This calculation brings into question the validity of the findings of Avery et al. (1998).

Mann (1998), not recognizing that Avery et al. (1998) had imputed the percentages of guarantees from the different sources, encouraged Avery et al. (1998) to continue their research while focusing only on incorporated business entities. A search conducted during 2014 did not identify any published article that accomplished what Mann had encouraged Avery et al. (1998) to do. During the literature search, Cole (2013) surfaced for its research on personal guarantees. Cole (2013) used the 1987 and 1993 NSSBF, and the 1998 and 2003 Survey of Small Business Finances (SSBF) to study capital structures of privately held U.S. firms. Cole used levels of leverage to conclude that incorporated businesses, which she found to be operating with higher leverage levels than unincorporated entities, must be doing so because the corporate firms had not provided personal guarantees. Mach and Wolken (2011) stated that many small business owners rely on personal assets to collateralize loans for their firms. Lambrecht (2009) suggested it could be beneficial to study the effect of personal guarantees on small business loans.

1.3 Theoretical Basis for the Research

While there are multiple research links to this study, two seminal works provide the foundation for the research: Leland and Pyle's "Informational asymmetries, financial structure, and financial intermediation" (1977), and Stiglitz and Weiss's "Credit rationing in markets with Imperfect information" (1981). "Information asymmetries" (Leland & Pyle, 1977) and "Credit rationing" (Stiglitz & Weiss, 1981) have both been, and continue to be, extensively researched and are found to impact a small business' debt structure.

Research indicates that information asymmetries (Leland & Pyle, 1977) are the major underlying issue impacting obtaining finances for small businesses. Credit rationing results from efforts to mitigate information asymmetries. Many times, matters that impact small business debt structure demonstrate linkage with information asymmetries. While collateral (Blazy & Weill, 2013; Menkhoff, Neuberger, & Rungruxsirivorn, 2012; Lambrecht, 2009; Voordeckers & Steijvers, 2006;

Jimenez & Saurina, 2004; Coco, 2000; Cowling, 1999; Black, de Mesa, & Jeffries, 1996; Berger & Udell, 1990; de Mesa & Webb, 1992; Leeth & Scott, 1989; Bester, 1985, 1987, & 1994; Stiglitz & Weiss, 1981; and Jaffee & Russell, 1976); banking relationships (Steijvers, Voordeckers, & Vanhoof, 2010; Chakravarty & Yilmazer, 2009; Neuberger & Rathke, 2009; de Bodt, Lobez, & Statnik, 2005; Jimenez & Saurina, 2004; Boot, 2000; Cole, 1998; Berger & Udell, 1995; Petersen & Rajan, 1994; Sharpe, 1990); loan covenants (Paglia, 2007); and shorter loan maturity periods (Bae & Goyal, 2009; Ortiz-Molina & Penas, 2008) have been identified as information asymmetry-reducing or mitigating tools, collateral has been more closely examined than these other risk-reducing tools. Bosse (2009) suggests that collateral, reputation, and relationships in banking have their unique benefits and that small businesses use a combination of these systematically. Duarte, Gama, and Esperanca (2017) found that market concentration increases "lazy" bank behavior as banks request collateral to reduce screening efforts and not mitigate risk. Collateral has been used to mitigate the asymmetric information obstacle of small businesses for several decades and probably for multiple centuries.

1.4 The Problem Statement

Owners of incorporated small businesses have been, and continue to be, required to accept personal liability for loans extended to their incorporated small businesses. Mann (1998) identified that Avery et al. (1998) documented a 57.5% increase in the use of personal guarantees by owners of incorporated small businesses during the six years starting in 1987 through 1993, as evidenced by the 1987 and 1993 NSSBF data. Avery et al. (1998) imputed percentages of personal guarantees because the 1993 NSSBF did not collect the source of any guarantee. Additionally, neither the 1998 nor the 2003 SSBF collected data on the source of any guarantee. This study's primary focus is on lenders' demand for personal guarantees. Did lenders' demand for personal guarantees from owners of incorporated small businesses increase between 1987 and 2014?

1.5 Significance of the Study

Ang, Lin, and Tyler (1995) recognized that a lack of separation between business and personal risks has significant public policy implications addressing credit market access for small businesses. Wu and Zeng (2008) identified that a dynamic and healthy Small and Medium-Sized Enterprise (SME) sector is vital to developed and developing industrialized countries. Ang et al. (1995), building on Bernanke and Lown (1991) findings, suggested that the demand for personal commitments may help explain why some business owners with little or no personal assets have a higher probability of experiencing credit rationing. Gama and Duarte (2015) find that personal collateral may be a more effective signaling indicator than business owned collateral. Tirelli (2019) points out that small businesses are not required to have audited financial statements, which contributes to small incorporated businesses' opaqueness.

The small business industry's importance in any nation's economy is well documented (Berger & Frame, 2007). The U.S. House of Representatives House Committee on Small Business issued an update to its Small Business Fact Sheet on May 21, 2013. In this document, the Committee provided the following information:

1) There are an estimated 27 million small businesses (generally described as an independent company with fewer than 500 employees).
2.) Small businesses employ about half of all private-sector employees while creating more than half of the nonfarm private gross domestic product.
3.) Small businesses are responsible for having generated 65% of new jobs over the past 17 years.

4.) Small businesses that have been in business for three and five years, which represent less than 1% of all companies, are referred to as “gazelle” firms. “Gazelle” firms, while comprising less than 1% of all companies in the U.S., generate approximately 10% of new jobs every year.
5.) Small businesses help fuel the U.S. economy by generating patents at 16.5 times the rate of large firms.

Both the U.S. Senate and the House of Representatives recognize the importance of small businesses to the U.S. economy and job creation. For example, on March 16, 2014, 137 bills were pending in either the House of Representatives or the Senate focused on assisting small businesses (e.g., Accelerate Our Startups Act, Growing Small Business Act, or Small Business Investment Act).

Ang et al. (1995) identified four potential policy implications. First, an underinvestment issue could exist if risk-averse small business owners decide to forego positive net present value projects because they do not want to place their personal assets and wealth at risk. Second, if some owners are more willing to provide personal commitments, then owners who cannot provide personal commitments may be credit rationed. Third, the availability of personal commitments may diminish or mitigate the adverse impact of asymmetric information between small business owners and lenders. Fourth, finance theory, including capital structure, agency costs, risk aversion, and bankruptcy, may need to be reassessed as they pertain to small business.

No one can overemphasize the importance of capital. Modigliani and Miller (1958) declared that companies should maximize their capital structure's debt element to exploit the tax advantage realized through interest expense deductibility. Myers (1984) explained why it is rational for firms to limit borrowing even though they can gain a tax advantage. Gamba and Triantis (2008) determined, through a survey of American and European CFOs, that the most crucial driver of a firm's capital structure decisions is the desire to have and maintain financial flexibility.

Being required to provide more collateral than is needed to ensure full repayment to the lender in case of loan default is a de facto borrowing constraint placed upon small business owners who may not be able to take a positive net present value project in the future due to the constraining nature of an over-collateralized prior loan. Carbo-Valverde, Rodriguez-Fernandez, and Udell (2008) provided that financial constraints restrict firms' ability to pursue investment opportunities. Scherr and Hulburt (2001) found that small companies differ from each other in fundamental respects that influence the choice between short- and long-term debt financing.

Avery et al. (1998) found that if personal commitments are prerequisites for obtaining credit for small businesses, the small business owner’s wealth will play a vital key role in determining the allocation of credit to small firms and their ultimate survival. These researchers raised the possibility that if personal commitments are prerequisites for small business lending, many small businesses may not appear as financial entities that are entirely separate from their owners. Avery et al. (1998), and Cavalluzzo and Wolken (2005) pointed out that if the personal wealth of the small business owner is critical to underwriting decisions, then owners who lack the resources to provide personal, financial commitments may find themselves unable to secure a small business loan. Avery et al. (1998) found any change in credit flow to small businesses may result in potentially significant economic consequences. Locking out a financial inflow to a small business, based solely on the small business owner’s inability to provide credible personal commitments, may negatively destroy a business concern that could provide more employment and other social benefits to society. Cavalluzzo and Wolken (2005) and Blanchflower, Levine, and Zimmerman (2003) suggested there exists a potential for discrimination in lending decisions against certain demographic groups.

The paper will proceed as follows. Section II will outline the research methodology, provide the research question, and describe the survey instrument. Section III will report the results and summarize the findings. Section IV will conclude the study, discuss limitations, offer an update since the completion of this study, and suggestions for future research.

2. Research Methodology

This study focuses on determining changes in the demand for personal guarantees from owners of incorporated small businesses by lenders during a 27 year period, beginning in 1987 and continuing through 2014. This study has a three-fold purpose. The first is to increase awareness of the differences between business collateral and personal commitments, and between personal collateral and personal guarantees. The second is to document the current demand for personal guarantees by owners of incorporated small businesses for various loan types, categories, and uses, such as lines of credit, mortgages, equipment loans, vehicle loans, and "other loans." The third is to determine if it is possible for an incorporated small business owner to receive a loan from the same lender after refusing to provide a personal guarantee. This study responds to a recommendation by Mann (1998) to continue Avery, Bostic, and Samolyk (1998) initial efforts as more data sets become available and limit the review only to incorporated firms.

This study builds on specific aspects of Ang et al.'s (1995) research into the use of personal commitments by small business owners, which was continued by Avery et al. (1998). Ang et al. (1995) used 692 firms' data from the 1987 NSSBF to identify those small business owners, including S-Corporations and C-Corporations, who had a significant incidence of personal assets and wealth pledged for business loans. They confirmed a lack of separation between business and personal risks, even for incorporated small commercial entities. Avery et al. (1998) used the 1993 NSSBF to determine that guarantees are more prevalent than collateral and that organizational type, such as corporation versus sole proprietorship or partnership, is linked to commitment use. They point out that lending agencies know little about how personal commitments relate to financing arrangements in practice, despite the potential for personal commitments to affect which loans small firms receive. Avery et al. (1998) identified a lack of available data sets containing detailed information about personal commitments (collateral and guarantees) in small business finance as one reason for limited academic literature. They further identified that the few data sets available aggregate all collateral, making no distinctions between business versus personal collateral and provide no information on guarantees.

Initially, this study was planned as an extension of the Avery et al. (1998) research, expanding the analysis to include data collected during the 1998 and 2003 SSBF. Between the 1993 NSSBF and the 1998 survey, the Federal Reserve Board renamed this series of investigations by dropping "National" from the title, and therefore, the last two surveys of the series are titled "Survey of Small Business Finances" (1998 and 2003). Avery et al. (1998) used the 1993 NSSBF to identify trends in the role of personal wealth in small business finance in comparison to data collected during the 1987 NSSBF. They noted that, of particular interest to their study, the NSSBF is the only public data source that identifies if and how small business loans are collateralized and if and by whom each loan is guaranteed. Unfortunately, the 1993 NSSBF, unlike the 1987 NSSBF, did not collect any data on the source of the guarantee. The 1993 NSSBF only collected data on the use of a guarantee. In Footnote 14 of Avery et al. (1998), they provide the following:

> Unfortunately [sic], the 1993 survey did not include questions on loan guarantees' specific sources when guarantees were present. Therefore, we imputed shares of 1993 loan balances that are owner-guaranteed using data from the 1987 survey. Similarly, we are unable to distinguish between owner collateral and other personal collateral.

It is noteworthy that, while imputing the percentage of loan guarantee sources based on the loan type, for 1993's data, there was an increase from 1987's data in the number of guarantees in general.

Both the 1987 and 1993 NSSBF asked if a cosigner or another guarantor was required to get credit line(s), mortgage(s), equipment loan(s), vehicle loan(s), or other loans. The 1987 Survey included the following:

Questions B13 (credit lines), B20 (mortgages), B27 (motor vehicle loans), B34 (equipment loans), and B41 (Other Loans – specifically, loans from partners/stockholders) asked, "Was a cosigner or guarantor required to get (this/any of these) (type of loan)?" Questions B14, B21, B28, and B35 asked, "Were these cosigners or guarantors….a. Owners? b. other individuals or business firms? c. the Small Business Administration? d. another government agency? e. some other source?" The available responses were Yes, No, Don't Know and Refusal. Question B41 only provided two choices for the guarantee – a. owners and b. other individuals or business firms.

The 1993 NSSBF changed the wording from 1987, and questions F14 asked, "Was a personal guaranty, cosigner, or other guarantor required to obtain any line of credit at (Name of Lender)?" Questions F26 (mortgages), F31 (motor vehicle loans), F36 (equipment), and F47 (other loans) asked the same question for the specific loan type. No follow-up question collected data on the specific source of a guarantee. The 1998 SSBF and the 2003 SSBF used the same question format as the 1993 NSSBF, not collecting any data on the specific guarantee source.

The 1998 and 2003 SSBF also collected data regarding whether a guarantee, by either a cosigner or other guarantor, was required to get credit line(s), mortgage(s), equipment loan(s), vehicle loan(s), or other loans. The 1998 and 2003 SSBF, just like the 1993 NSSBF, did not collect any data on the exact source of the guarantee. Only the 1987 NSSBF collected detailed data on the source of any guarantee by inquiring, "Were these cosigners or guarantors ……a) owners, b) other individuals or business firms, c) the Small Business Administration, d) another government agency or, e) some other source?" (Federal Reserve Board, 1987, Survey Questions B14, 21, 28, 35, 42 and 52).

Mann(1998) had credibility issues with Avery et al. (1998) provided data and its methodology. Mann's position is that Avery et al. had understated the demand in 1993 for personal guarantees from incorporated small business owners for each of the loan types. This understatement identified by Mann in Avery et al. for the requirement of personal guarantees in 1993 could be a direct result of the 1993 NSSBF's dropping the question related to identifying the guarantee's source.

A review of 39 published academic articles that reference Avery et al. (1998) confirmed no research had conducted the specific recommendations made by Mann, to focus only on the incorporated firms for future data sets, which would be the investigations for 1998 and 2003.

Mann (1998) found the Avery et al. (1998) study's most essential aspect: it was the first attempt to provide any empirical data about small business owners' personal financial strength in the underwriting of small business loans. Mann (1998) acknowledged that while this may not seem to be of any importance to the casual observer, underwriting changes had made this crucial for banks in the small-business finance market. Mann (1998) had a high level of interest in the work of Avery et al. because during the same general period, Mann (1997a & b) was exploring the use of secured versus non-secured credit for both large and small businesses. Mann (1998) considered the research accomplished by Avery et al. (1998) to be significant and supportive of his positions on the growing demand for the personal guarantee with one exception. He noted that the percentage of loans held by small corporate business owners supported by a personal guarantee was much lower than Mann (1997b &1998) had anticipated. A discussion between a researcher of this study and Mann identified that Mann (1998) did not realize the 1993 NSSBF did not include the collection of guarantee source and that Avery et al. had used imputed values from the 1987 NSSBF.

Mann (1998) considered the data used by Avery et al. (1998), pulled from both the 1987 and 1993 NSSBF, to be the best data available for this type of study. However, based on the rapid changes in the banking industry, specifically with small business underwriting, Mann considered the 1987 and 1993 data to be relatively outdated for studying personal guarantees in 1998. Without an awareness of the deletion of guarantee sources' collection, Mann recognized the 1998 SSBF data set upcoming release. He thought the 1998 SSBF data would provide a much more accurate insight into the personal guarantee's actual demand level.

Mann (1998) referenced that in an earlier document (1997b), he had already indicated that underwriting changes since 1993 had a high probability of altering collateral and guarantee usage in small business lending throughout the 1990s. He further indicated that he hoped that Avery et al. (1998) would continue their ongoing work by updating their findings as future data sets become available. Mann (1998) considered the personal guarantee to be even more critical than Avery et al. suggested.

Mann (1998) made two suggestions on how to best approach analyzing the use of personal guarantees. He suggested that the reviewer examine loans made to firms where the firm's legal, organizational form prevents the small business's principals' personal liability. Secondly, they should assess only the loans in which principals of the borrower provide personal guarantees, and, in doing so, agree to accept personal liability for the loan.

A search for published academic articles referencing Avery et al. (1998) did not identify any researchers who had undertaken the Mann (1998) recommendation. The review did identify, however, Cole (2013), who used the 1987 and 1993 NSSBF, and the 1998 and 2003 SSBF to examine the capital structures of privately-held U.S. firms. Cole speculated that small corporate companies' median leverage ratios would be the same as those used by proprietorships if personal guarantees were required. Cole contended that if the median leverage ratios for incorporated entities are higher than the median leverage ratios of sole proprietorships, owners of incorporated small businesses have not given up their limited liability by executing personal guarantees. When Cole found that proprietorships use far less leverage than incorporated small businesses, she concluded that most owners of incorporated small businesses are not required to provide personal guarantees. This study will validate Cole's assertion or show that Cole came to an incorrect linkage between median leverage ratios and organizational types to conclude personal guarantee usage.

2.1 Research Question

The overarching research question is: Between 1987 and 2014, did the demand for personal guarantees from owners of incorporated small businesses increase for various loan types? Five different loan types will be examined in this survey: lines of credit, mortgages, equipment loans, vehicle loans, and other loans. Fifteen testable hypotheses in this study are as follows:

$H1_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses, including both S and C-Corporations for lines of credit between 1987 and 2014.

$H2_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses, including both S and C-Corporations for mortgages between 1987 and 2014.

$H3_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses, including both S and C-Corporations for equipment loans between 1987 and 2014.

$H4_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses, including both S and C-Corporations for vehicle loans between 1987 and 2014.

$H5_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses, including both S and C-Corporations for other loans between 1987 and 2014.

$H6_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for S-Corporations for lines of credit between 1987 and 2014.

$H7_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for S-Corporations for mortgages between 1987 and 2014.

$H8_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for S-Corporations for equipment loans between 1987 and 2014.

$H9_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for S-Corporations for vehicle loans between 1987 and 2014.

$H10_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for S-Corporations for other loans between 1987 and 2014.

$H11_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for C-Corporations for lines of credit between the years of 1987 and 2014.

$H12_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for C-Corporations for mortgages between 1987 and 2014.

$H13_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for C-Corporations for equipment loans between 1987 and 2014.

$H14_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for C-Corporations for vehicle loans between 1987 and 2014.

$H15_{0:}$ Personal guarantees did not increase in usage for owners of incorporated small businesses for C-Corporations for other loans between 1987 and 2014.

2.2 Survey Instrument

The researchers used the 1987 NSSBF to identify the loan types included in the survey for this paper (i.e., lines of credit, mortgages, equipment loans, vehicle loans, and other loans). Avery et al. (1998) noted that the 1987 NSSBF collected data for for-profit, non-agricultural, non-financial firms with fewer than 500 full-time equivalent employees. The organizations reviewed in the 1987 NSSBF consisted of a nationally representative sample of small businesses operating in the U.S. as of the last day of each survey year.

This study includes a survey of small business lending focused on personal guarantees provided by owners of small incorporated businesses located in the United States. The survey focuses on 1987 NSSBF loan types and guarantee sources to allow for a comparison between the 1987 NSSBF data and the data collected during this study. One significant change in this new study is that this study has a much narrower scope than the 1987 NSSBF. The 1987 NSSBF included other lending issues throughout the U.S. in addition to the demand and source of guarantees. Additionally, the 1987 NSSBF collected data via telephone interviews.

The final survey format went through a multiple phase development consisting of three pilot surveys. The pilot surveys, without a doubt, contributed heavily to the quality and effectiveness of the final questions. SurveyMonkey was used to conduct data collection during April and May 2015 using its SurveyMonkey Audience service.

3. Results

Dun and Bradstreet's Hoover database in October 2014, contained data on slightly more than four million incorporated small businesses in the United States. A confidence level of 95% with a margin of error of 5% for a four million targeted population requires 384. The investigation remained open on SurveyMonkey until 6,197 respondents had identified themselves as either the owner or a small business manager for the owner(s) to obtain the 394 completed responses for Question 8.

The 6,197 respondents included a combined total of 1,462 respondents who owned or managed S and C-Corporations (Question 3). Question 4 of the survey was the first survey question focused on lending. Question 4 inquired, "Did your corporation have any loans during 2014, including any lines of credit that were in place but may not have been used during 2014?" Of the 1,462 respondents identified as an owner or manager of an S or C-Corporation, 17 respondents did not respond to Question 4, reducing the total respondents to Question 4 to 1,445. Of these 1,445 respondents, only 536 (37.09%) had any loans, including lines of credit, in place during 2014.

20 of the 536 respondents with loans during 2014 were eliminated from the study because their corporations were publicly traded (Question 5). An additional 62 respondents were eliminated from the survey because the businesses involved one or more of the following industries: Agriculture, forestry, and fishing industry; Finance and insurance underwriting industry; or Real estate investment trusts industry (Question 6). The researchers eliminated 11 other corporations because they had more than 500 employees (Question 7). This filtering (elimination) process brought the total number of respondents meeting the targeted profile to 443. Of these 443 respondents, only 394 responded to Questions 8 and 9. Question 9 identified 204 of the 394 corporations that had at least one loan that required a guarantee.

Table 1 lists the first eight survey questions and the corresponding number of respondents who responded to each of the first eight questions and the corresponding number of respondents eliminated from the survey as the questions filtered out those respondents who did not meet the targeted profile. Table 2 provides the demographic characteristics of the 394 respondents' small businesses.

Table 1: Summary of Survey Respondents for the First Eight Survey Questions

Question Number	Question	Respondents	Eliminated	Remaining Participants
1	Do you own or manage a small to medium-sized business (1 to 500 employees)?	8,217	2,020	6,197
2	What is the age of your business?	5,936	-	5,936
3	What is the organizational form of your business?	5,936	4,474	1,462
4	Did your corporation have any loans in lace during 2014, including any lines of credit that were in place but may not have been used during 2014?	1,445	909	536
5	Is your business publicly traded?	536	20	516
6	Is your business involved with one or more of the following industries: Agriculture, forestry and fishing Industry; Finance and insurance underwriting industry, and/or Real estate investment trust industry?	516	62	454
7	How many employees does your company currently have? (Please include all full-time, part-time, and any contracted employees.)	454	11	443
8	For loans in place during 2014, were business collateral and/or personal commitments (personal collateral or personal guarantee) pledged as security? It is possible that both types of collateral (business and/or personal) and a guarantee were required to secure a loan. Please indicate all that are applicable for each loan type listed below. Business collateral consists of assets such as real property, equipment, vehicles, etc. owned by the business. Personal collateral are asset(s), owned by an owner of the business, that have been pledged as security for a loan. A guarantee is a promise by a cosigner or a guarantor (usually a business owner) to satisfy (reimburse or repay the lender for) the loan if the business defaults (fails to repay the loan).	394	-	394

Table 2: Number of Businesses with Loans by Organizational (Legal) Form, Gender and Age Compared to Annual Revenue

	Organizational (Legal) Form			Gender		Age of Business (Years)				
Annual Revenue	S & C Corp	S Corp	C Corp	Female	Male	< 3	3 - 5	6 - 10	11 - 20	>20
< $250,000	67	50	17	31	36	6	3	8	28	22
$250,000 - $500,000	53	40	13	24	29	5	3	7	10	28
$500,001 - $1,000,000	68	56	12	25	43	0	3	6	25	34
$1,000,001 - $5,000,000	116	76	40	55	61	0	4	11	26	75
> $5,000,000	79	42	37	21	58	0	0	7	15	57
Totals	383	264	119	*156*	*227*	*11*	*13*	*39*	*104*	*216*

Note: 11 of the 394 Respondents did not provide annual revenue in Question 17.

Question 8 is the first question in the survey that seeks specific information on each of the five types of loans, the kind of collateral, and if a guarantee was required to obtain the loan. Additionally, Question 8 provides the respondents the choices of "Have this loan under other arrangements" and "Did not have this type of loan." The number of guarantees identified in Question 10 exceeded the number of guarantees identified in Question 8. Question 8 does not duplicate Question 10 other than requesting if various types of loans required a guarantee. Question 9 asked, "Did any of the loans in the above question require a guarantee?" Questions 8 and 9 do not request any identification of the source of the guarantee. A response of “Yes” to Question 9 then prompted the respondent to answer Question 10, “Please indicate below the source of the guarantee for each applicable loan type?" SurveyMonkey staff recommended using Question 9 to ensure the only respondents provided access to 10 had indicated their corporations were required to provide a guarantee for at least one of the loan types in Question 8. Question 10 is made available only by respondents, indicating in Question 9 that their corporation had a loan with a guarantee — question 10 collected data on the source of the guarantee for specific loan types.

This study's Chi-Square analyzes used the responses to Question 10. Tables 7, 8, and 9 provide a breakdown of the number of S Corporations, C Corporations, and the combined total of S and C Corporations that provided personal guarantees for the five different loan types. Tables 3, 4, and 5 summarize the number of specific loan types that required personal guarantees by organizational form.

Table 3: Percentage of Loans by Type with Personal Guarantees in 2014 Held by Both S & C Corporations

	Question 8			Question 10	
Loan Type	Respondents	Did not have this type of loan	Corps with this type of loan	Number of Personal Guarantees	Percentage of Loans by Type with Personal Guarantees
LOC	394	71	323	161	49.85%
Mortgage	394	272	122	54	44.26%
Equipment	394	263	131	59	45.04%
Vehicle	394	275	119	48	40.34%
Other	394	310	84	40	47.62%

Table 4: Percentage of Loans by Type with Personal Guarantees in 2014 Held by S Corporations Only

	Question 8			Question 10	
Loan Type	Respondents	Did not have this type of loan	Corps with this type of loan	Number of Personal Guarantees	Percentage of Loans by Type with Personal Guarantees
LOC	271	50	221	107	48.42%
Mortgage	271	190	81	40	49.38%
Equipment	271	176	95	42	44.21%
Vehicle	271	188	83	38	45.78%
Other	271	215	56	31	55.36%

Table 5: Percentage of Loans by Type with Personal Guarantees in 2014 Held by C Corporations Only

	Question 8			Question 10	
Loan Type	Respondents	Did not have this type of loan	Corps with this type of loan	Number of Personal Guarantees	Percentage of Loans by Type with Personal Guarantees
LOC	123	21	102	54	52.94%
Mortgage	123	82	41	14	34.15%
Equipment	123	87	36	17	47.22%
Vehicle	123	87	36	10	27.78%
Other	123	95	28	9	32.14%

Table 6 summarizes the percentages provided in Tables 3, 4, and 5 comparing the percentages of loans that required personal guarantees by loan types.

Table 6: Percentage of Loans by Type with Personal Guarantees in 2014 by Organizational Form

Loan Type	S Corporations	C Corporations	S & C Corporations
LOC	48.42%	52.94%	49.85%
Mortgage	49.38%	34.15%	44.26%
Equipment	44.21%	47.22%	45.04%
Vehicle	45.78%	27.78%	40.34%
Other	55.36%	32.14%	47.62%

3.1 Chi-Square Analyses

The researchers applied Chi-Square analysis for each type of loan for the three categories— S & C corporations, S corporations Only, and C corporations. Only to determine if the variation between the 1987 and 2014 percentages of loans with personal guarantees was significant. Tables 7, 8, and 9 have the results of the fifteen Chi-Square analyses. There is an increase in the use of personal guarantees in 14 of 15 comparisons. In 6 of these comparisons, the increase is statistically significant at the 5% level.

Table 7: Results of Chi-Square Analyses for Both S and C Corporations Combined, by Loan Type Between the Years of 1987 and 2014

Null Hypothesis	Type of Loan	1987 NSSBF	2014	Increase in Demand	p-Value (Single Tail)	Statistically Significant (5%)
H1	Lines of Credit	44.22%	49.85%	12.73%	0.09	**No**
H2	Mortgages	38.88%	44.26%	13.86%	0.28	**No**
H3	Equipment	28.80%	45.04%	56.36%	0.00	**Yes**
H4	Vehicle	18.18%	40.34%	121.85%	0.00	**Yes**
H5	Other Loans	28.98%	47.62%	64.31%	0.00	**Yes**

Table 8: Results of Chi-Square Analyses for S Corporations Only, by Loan Type Between the Years of 1987 and 2014

Null Hypothesis	Type of Loan	1987 NSSBF	2014	Increase in Demand	p-Value (Single Tail)	Statistically Significant (5%)
H6	Lines of Credit	48.08%	48.42%	0.71%	0.83	**No**
H7	Mortgages	39.45%	49.38%	25.18%	0.17	**No**
H8	Equipment	32.58%	44.21%	35.68%	0.11	**No**
H9	Vehicle	17.36%	45.78%	163.80%	0.00	**Yes**
H10	Other Loans	22.67%	55.36%	144.22%	0.00	**Yes**

Table 9: Results of Chi-Square Analyses for C Corporations Only, by Loan Type Between the Years of 1987 and 2014

Null Hypothesis	Type of Loan	1987 NSSBF	2014	Increase in Demand	p-Value (Single Tail)	Statistically Significant (5%)
H11	Lines of Credit	43.07%	52.94%	22.91%	0.07	**No**
H12	Mortgages	38.68%	34.15%	-11.72%	0.57	**No**
H13	Equipment	27.60%	47.22%	71.10%	0.02	**Yes**
H14	Vehicle	18.41%	27.78%	50.89%	0.17	**No**
H15	Other Loans	30.96%	32.14%	3.81%	0.90	**No**

Vehicle loans and "other loans" for S-Corporations showed statistically significant variation from 1987 until 2014. Equipment loans for C-Corporations showed statistically significant variation from 1987 until 2014. Three loan types have experienced statistically significant variation during 27 years for all corporations combined (S and C corporations) - equipment loans, vehicle loans, and other loans.

3.2 Findings from Questions 11 through 16

385 of the 394 Question 8 respondents whose corporations had loans responded to Questions 11, 12, and 13. The 385 responses to each of these three questions yield a 95% confidence level with a 5% margin of error when making inferences about the total population of incorporated small businesses located in the United States. These three questions focused on actions taken since 2008 by

an incorporated small business owner who either decided not to provide a personal guarantee to obtain a loan or the lender declined (denied) a loan because of the corporate small business owner's inability to meet the lender's personal guarantee requirements. In response to Question 11, 48 (12.5 %) of 385 respondents indicated that their corporation decided not to undertake a positive net present value project because the lender required a personal guarantee. Question 12 identified that 42 (10.9%) of 385 respondents indicated their corporation had been declined (denied) a loan because of the owner's inability to meet the lender's personal guarantee requirements. Question 13 identified six (1.6%) of 385 respondents' corporations where the lender denied credit to the corporation because a minority shareholder refused to provide a personal guarantee. Question 13 regarding minority shareholders' stems from the Small Business Administration's (SBA's) 504 Loan Guarantee program. This SBA program requires all individuals holding more than 20% of the corporation's equity to provide a personal guarantee for all loans secured by the SBA. This SBA requirement places a burden on minority shareholders to execute personal guarantees when the minority shareholder is not in a control position.

A response of "yes" to either Questions 11, 12, or 13 provided the respondent the opportunity to address Question 14, which focused on the impact of the incorporated small business owner not meeting the lender's personal guarantee requirements or the incorporated small business owner's decision not to provide a personal guarantee. While 15 (19.7 %) of the 76 respondents indicated no impact on their corporation, 40 (52.6%) of the 76 respondents indicated they had to seek funding elsewhere. 27 (35.6%) of 76 respondents indicated they could not pursue new products or services. 21 (27.6%) of 76 respondents indicated that their corporations had to forego an expansion project, and the same number of respondents indicated their corporations could not hire additional staff. 17 (22.4%) of the 76 respondents indicated their corporations had to lay off staff, and two (2.6%) of the 76 respondents indicated their corporations could not fulfill an order or contract. The small number of only 76 respondents does not yield a high level of confidence for making inferences about the total population of incorporated small businesses with loans located in the United States.

Question 15 inquired if the respondent’s corporation had ever refused to provide a personal guarantee to obtain a loan. A little over 15% (58) of the 383 respondents who answered this question indicated they had refused to provide a personal guarantee to obtain a loan. The 383 respondents are just below the 384 required responses to have a 95% confidence level with a 5% margin of error for making inferences about the total population of incorporated small businesses located in the United States with loans.

In response to Question 15, 58 respondents indicated they had refused to provide a personal guarantee to obtain a loan. Of that number, 55 responded to Question 16, pointing out that 23 (41.82%) of these 58 corporations still received a loan or credit from the same lender after refusing to provide a personal guarantee.

3.3 Summary of Findings

Incorporated small business owners with loans in 2014 provided personal guarantees to secure five different types of loans. Between the years of 1987 and 2014, the percentage of loans with personal guarantees from the incorporated small business owners, as reflected in Table 11, increased by 12.73%, 13.86 %, 56.36%, 121.85%, and 64.31% for lines of credit, mortgages, equipment loans, vehicle loans, and other loans respectively.

The importance of a dynamic and healthy Small and Medium-Sized Enterprise (SME) sector to developed and developing countries has been well documented (Wu & Zeng, 2008). Ang et al. (1995) recognized the existence of a lack of separation between business and personal risks for the owners of small businesses might limit and, in some cases, eliminate access to credit for small business owners with limited or no personal net worth. Restricted access to capital negatively impacts the current and future opportunities for owners of small businesses and for communities where small businesses operate. The importance of small businesses in the United States economy cannot be overstated (Berger & Frame, 2007). The U.S. House of Representatives House Committee on Small Business has identified access to capital for small businesses as a critical priority. Simultaneously, the Committee recognizes that small businesses employ more than 50% of the United States workforce, create two-thirds of new jobs, and generate more than 40% of the private sector's contribution to the gross domestic product (Small Business Committee, 2016).

The results of this survey documents that almost one out of every two loans held by the owner of an incorporated small business contains a risk-shifting mechanism, the personal guarantee. This risk-shifting mechanism effectively provides the lender access to the borrower's total net worth and future earnings in loan default. Coco (2000) noted that there might exist a gap between the entrepreneur's and the bank's valuation of the asset. Coco continued with, "In this case, the use of collateral, by increasing the riskiness of the return to the entrepreneur, provokes an inefficient risk allocation among the agents" (p. 193). Agents, in this case, referring to the lender and the borrower. The same holds on a loan with a personal guarantee. The incorporated small business owner's risk increases when providing a personal guarantee. The financial impact of the Great Recession is beyond the scope of this study. The Great Recession's financial impact on owners of incorporated small businesses continues to be experienced in many communities across the United States today. If one out of every two loans held by an incorporated small business contains a personal guarantee, there are many loans with potential inefficient risk allocation. Risk allocation in favor of the lenders, whom many argue today, contributed heavily to the Great Recession's root cause.

The survey data finds incorporated small businesses in the United States are underleveraged. In 2014, less than 37% of incorporated small businesses had loans. In 1987, more than 67% of incorporated small companies located in the United States had loans. Modigliani and Miller (1958) declared that companies should maximize their capital structure's debt element to exploit the tax advantage realized through the interest expense deductibility. This decrease of more than 45% in the percentage of incorporated small businesses with loans between 1987 and 2014 should be of great concern to every member of the U.S. House of Representatives, House Committee on Small Business.

This study has documented the occurrence of two of the four implications raised by Ang et al. (1995) that could exist or may occur due to the lack of separation between personal and business risk. Actions by owners of incorporated small businesses since 2008 support the following determinations. These determinations have a 95% level of confidence, with a 5% margin of error. First, an underinvestment problem exists as 12.5% of owners of incorporated small businesses with at least one loan have decided not to undertake a positive investment opportunity (positive net present value project) because the lender required a personal guarantee. Closer analysis of this particular data shows that half of the 12.5% of S and C Corporations were greater than 20 years of age. 22.2%, 27.6%, 18%, 13.87% of corporations with a business age of 3 to 5 years, 6 to 10 years, 11 to 20 years, and greater than 20 years respectively decided not to undertake a positive net present value investment because the lender required a personal guarantee.

Second, lenders have denied a loan to 10.9% of small business corporations with at least one loan resulting in credit rationing because of their inability to meet the lender's personal guarantee requirements. This 10.9% of S and C Corporations included 13.7% of corporations with 1 to 9 employees, 24.5% of corporations with 10 to 19 employees, and 12.5% of corporations with 20 to 49 employees. Lenders have not denied S and C Corporations with 50 to 250 employees and 251 to 500 employees a loan because of their inability to meet the lender's guarantee requirements.

This study also identified an occurrence of immediate importance to owners of incorporated small businesses seeking loans. Of 58 corporations that refused to provide a personal guarantee when requested by the lender, 23 (39.7%) still received financing from the same lender. The percentage that still received a loan varied by gender. Only 22.2% of female respondents still received the same lender loan after refusing to provide a personal guarantee compared to 51.4% of male respondents. This high percentage of lending demonstrates that lenders sometimes request personal guarantees when they are willing to make the loan without a personal guarantee. No corporations under five years of age received the loan after refusing to provide a personal guarantee.

4. Conclusion

An entrepreneur strives to determine and understand all risks for any project they are considering undertaking. Financial theory demands that an entrepreneur take on any positive net present value (NPV) project. To correctly assess the overall project risks, the entrepreneur must understand the additional risk assumed when providing a personal commitment (personal collateral or personal guarantee) to obtain a loan for a potential investment opportunity. The incorporated small business owner should consider all project risks when determining the discount rate for an NPV analysis. The requirement to provide a personal guarantee and or personal collateral creates additional risk for the owner on the project beyond the future cash flows' risk.

The personal guarantee frequency makes it critical that both undergraduate and graduate students know the differences between business collateral and personal commitments. Business students need to understand the far-reaching loan default consequences when they provide personal commitments to obtain or secure funding for an incorporated small business. This study provides insight into the percentage of loans in 2014 that involve personal collateral and personal guarantees.

Stiglitz and Weise (1981), in their seminal article on the use of collateral in bank loans, did not distinguish between collateral owned by the business and collateral owned personally by the owner. It was not until Ang et al. (1995) that researchers documented the lack of separation between the small business owner's business and personal risks. Mann (1998) provided the importance of distinguishing between incorporated (S and C corporations) and non-incorporated entities (sole proprietorships and partnerships) because personal guarantees only increase the risk of owners of incorporated small businesses. Non-incorporated entities do not have limited liability protection, and therefore, the owner of a non-incorporated entity is personally responsible for any liabilities of the business. Some Limited Liability Companies (LLCs) operate as non-incorporated entities. Some U.S. states allow LLCs to operate as either an incorporated or non-incorporated entity.

Through personal interviews with a non-random small group of small business bankers, Mann (1997b) concluded, "To the extent small business lenders require secured credit, they do so largely for one significant benefit: secured credit allows small business lenders to obtain a credible commitment that borrowers will refrain from excessive future borrowing" (p. 2). Mann continues, "Secured credit provides little in the way of liquidation value because the assets of small businesses tend to have low liquidation values. Similarly, it does little to improve the borrower's incentives, because the lender can accomplish the same goal by taking a guarantee from the borrower's principal" (p. 2). Mann used these points to support his position that small business borrowing is unsecured even though this contrasts with Berger and Frame (2007) findings. Small business loans backed by a personal guarantee from the owner of an incorporated small business provide the lender access to the owner's net worth and future earnings, if necessary, to repay the personally guaranteed loan. The only personal assets not reachable by the lender are those personal assets used to secure other loans. Most jointly owned personal assets are also protected from the lender if the other joint owner(s) did not provide a personal guarantee for the defaulting loan.

Capital and access to capital are essential. Modigliani and Miller (1958) declared that businesses should maximize the debt element of their capital structure fully to exploit the tax advantage realized through the deductibility of the interest expense, but at what risk? Again, entrepreneurs must have a thorough understanding of the risks associated with any loan the entrepreneur undertakes.

This study documents that over 15% of incorporated small businesses with a minimum of at least one loan in 2014 have successfully negotiated away the requirement to provide personal guarantees by refusing to provide the guarantee. While the lender may decline the loan, this study documented that over 41% of the 15% of owners of incorporated small businesses who refuse to provide a personal guarantee when requested still received the loan from the same lender.

Second, the findings of this study support the positions taken by previous researchers. This study confirmed the existence of a potential underinvestment issue suggested by Ang et al. (1995), as 12.5% of incorporated small businesses with at least one loan did not undertake positive net value projects because owners did not want to place their personal assets and wealth at risk. This study confirmed an additional implication raised by Ang et al. (1995) as 10.9% of corporations were credit rationed because of the owner's inability to meet the lender's personal guarantee requirements.

This study documents that personal guarantees are prevalent in small business lending. While Cole (2013) concludes that owners of incorporated small business owners are not required to provide personal guarantees, this study's results indicate otherwise.

4.1 Conclusions Drawn from the Study

Personal guarantees are a factor in lending to privately held incorporated small businesses. Data shows for five loan types in place during 2014 – lines of credit, mortgages, equipment loans, vehicle loans, and other loans, personal guarantees were required for almost 50% of the loans. The presence of personal guarantees probably contributes to the inconsistencies of prior studies. Studies that focused on either or both business and personal collateral required for securing business loans without any recognition or consideration given to the presence of personal guarantees.

The finding that only 37% of incorporated small businesses had any loans during 2014 documents that the United States small business sector has not recovered from the Great Recession. The 1987 NSSBF data identified 67% of incorporated small businesses had existing loans in 1987. This 45% decrease in the percentage of incorporated small businesses requires further research.

4.2 Limitations

Owners of incorporated small businesses must have a thorough understanding of the risks associated with borrowing money for their businesses. This study's researchers anticipate that the percentage of loans with personal guarantees is probably much higher than reflected by the data collected during this study. Two factors support the researchers' position. First, if an owner does not have an understanding of what constitutes a personal guarantee, the owner might not know was provided. Mann (1997b) raised the concern that many small business owners have relatively limited financial expertise. Mann believed that small business owners were probably ill-prepared to adequately assess the cost and benefits of various secured and unsecured transactions. He concluded that if this were the case, banks could require personal commitments from the owners because the borrowers would not evaluate those financial risks accurately in deciding whether to accept the lender's terms. When they can obtain the loan, they just accept the terms potentially without recognizing that they are providing a personal guarantee. After all, some will say, if one borrows money, one should pay it back. Mann's conclusion of small business owners' financial understanding may have contributed to an understatement of the percentage of loans during 2014 with personal guarantees.

Second, Question 8 of the survey provided a choice of "Have this loan under other arrangements." For this analysis, these arrangements consist of loans without business collateral, personal collateral, or personal guarantee. This assumption would lead to a potential understatement of the percentage of loans with personal guarantees if these arrangements were not some form of a loan.

Conducting future research on the demand for either business or personal collateral without also determining the presence of a personal guarantee for each specific loan distorts the research from the start. Failure to consider the presence of personal guarantees in past studies may have contributed to the mixed and sometimes contrasting findings of the individual studies. Based on the prevalence of personal guarantees in the lending process for incorporated small businesses, this study's researchers recommend incorporating some personal guarantees coverage in all undergraduate and graduate introductory level finance courses.

4.3 Update since This Study

Ang (2018) presents a corporate finance theory for the entrepreneurial firm. Ang defines an entrepreneurial firm as a firm with the potential to create significant wealth well beyond the owner's wealth. The wealth beyond the "wealth of the owner" is the wealth created for a new industry and, subsequently, the macro-economy. Ang points out that entrepreneurial firms' projects may generate an aggregate positive net present value (NPV) at the industry/economy-level while remaining negative for an extended time for the firm owner. Ang identifies three corporate finance models for financing firm projects with no positive cash flow projected over multiple periods. One of these models addresses the government subsidizing innovation with useful indicators since the pending project will benefit the whole economy. Ang does challenge this model's effectiveness, suggesting its success will rely heavily on the experience of the government workers selecting the projects to receive funding. The second model uses the traditional sources of equity investors outside the entrepreneur's friends and family. The third model proposes a debt arrangement taken on by the entrepreneur that does not require any principal or interest payments for some extended time. Should the government guarantee debt for a project with a projected disproportional macro-economic payoff? Maybe a fourth model should be added with combined aspects of the proposed models one and three with the government providing the guarantee for the entrepreneurial firm's debt.

In a follow-up to its 2003 Small Business Survey, some Federal Reserve districts began in 2014 conducting coordinated small business credit surveys. Since 2014 the Federal Reserve has been conducting annual Small Business Credit Survey (SBCS) and issuing reports. By the issuance of its 2016 SBCS Report on Employer Firms in early 2017, the Federal Reserve had successfully coordinated the report between all twelve of its district banks. The 2016 report was the first report to collect consolidated data for personal guarantees and personal collateral. The 2016 SBCS Report on Employer Firms finds, "Personal assets and personal guarantees are commonly used to secure financing, even among larger firms." The 2017 report survey questionnaire separated the data elements of personal guarantees and personal assets. The 2020 SBCS Report on Employer Firms found, "a majority of firms with debt used a personal guarantee to secure their debt."

4.4 Recommendations for Future Research

Research is needed to identify tactics that should be taken by incorporated small business owners to avoid providing personal guarantees while still obtaining required loans. Every business owner should have a strategy to maximize the owner's understanding and identification of all business risks. Additionally, an incorporated small business owner should minimize any risk to the lowest possible level for the selected project. Minimizing risk for a project needs to include avoiding the use of personal guarantees whenever possible. One research recommendation is that other ongoing small business finance surveys incorporate the same or similar questions from this study. Other ongoing surveys include the Federal Reserve's ongoing previously mentioned efforts and the periodic survey accomplished by the National Federation of Independent Businesses (NFIB). The NFIB surveys are generally accomplished with the telephonic and written medium through the U.S. Postal Service and could yield different results based on the surveyor's opportunity to explain to the respondent what is meant by a personal guarantee. The data collected by the Federal Reserve through its annual Small Business Credit Surveys (SBCS) over the recent past years should aid researchers in better understanding debt in the small business environment.

Future research of Question 8 of the survey choice of "Have this loan under other arrangements" could provide greater granularity of how some owners of incorporated small businesses are meeting their capital requirements.

The low percentage (37%) of incorporated small businesses with a loan in 2014 indicates an underlying economic issue. Is the issuance of the 2010 Dodd-Frank Act contributing to this under-levered situation for incorporated small businesses? By the issuance of the Dodd-Frank Act, has the government eliminated all potential bank failure to the point that it is decimating small business lending? It is essential to focus on the relationship between Government (Federal, State, or Municipal), the lending institutions, and the entrepreneurs. There are links between each of the three entities that determine the risk each is willing to take. For example, due to the Great Recession, the Dodd-Frank Act has potentially placed restrictions on the lenders drawing funds through the Federal Reserve Discount Window. The Federal Government tightened requirements levied upon the lenders to reduce the risk of the occurrence of another Great Recession. The new requirements result in a change in the lenders' behavior as they adjust their operations to minimize their operational risk while maximizing their returns. This altered behavior by the lending institutions potentially led to a decrease in the percentage of incorporated small businesses with loans in 2014. While this study focused on personal guarantees, the low percentage of incorporated small businesses with loans in 2014 is a crucial observation worthy of future research.

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Appendix: Survey Instrument

1. Do you own or manage a small to medium-sized business (1-500 employees)?
   ___ Yes
   ___ No
2. What is the age of your business?
   ___ Less than 3 years
   ___ 3 - 5 years
   ___ 6 - 10 years
   ___ 11 - 20 years
   ___ Greater than 20 years
3. What is the organizational form of your business?
   ___ Sole Proprietorship
   ___ Partnership
   ___ Limited Liability Company (LLC)
   ___ S-Corporation
   ___ C-Corporation
   ___ Other
4. Did your corporation have any loans during 2014, including any lines of credit that were in place but may have not been used during 2014?
   ___ Yes
   ___ No
5. Is your business publicly traded?
   ___ Yes
   ___ No
6. Is your business involved with one or more of the following industries: Agriculture, forestry, and fishing industry; Finance and insurance underwriting industry; and/or real estate investment trusts industry?
   ___ Yes
   ___ No
7. How many employees does your company currently have? (please include full-time, part-time, and any contracted employees)
   ___ 1 to 9 employees ___ 10 to 19 employees
   ___ 20 to 49 employees ___ 50 to 250 employees
   ___ 251 to 500 employees ___ 500+ employees

8. For loans in place during 2014, were business collateral and/or personal commitments (personal collateral or personal guarantee) pledged as security? It is possible that both types of collateral (business and/or personal) and a guarantee could be required to secure a loan. Please indicate all that are applicable for each loan type listed below.

Business collateral consists of assets such as real property, equipment, vehicles, etc. owned by the business. Personal collateral are asset(s), owned by an owner of the business, that have been pledged as security for a loan. A guarantee is a promise by a cosigner or a guarantor (usually a business owner) to satisfy (reimburse or repay the lender for) the loan if the business defaults (fails to repay the loan).

For the corporation’s largest line of credit, which of the following was required?

___ Business Collateral (Asset Owned by Your Corporation)
___ Personal Collateral (Asset Owned by An Owner)
___ Guarantee
___ Have this loan under other arrangements
___ Did not have this type of loan

For the corporation's largest mortgage, which of the following was required?

___ Business Collateral (Asset Owned by Your Corporation)
___ Personal Collateral (Asset Owned by An Owner)
___ Guarantee
___ Have this loan under other arrangements
___ Did not have this type of loan

For the corporation's largest equipment loan, which of the following was required?

___ Business Collateral (Asset Owned by Your Corporation)
___ Personal Collateral (Asset Owned by An Owner)
___ Guarantee
___ Have this loan under other arrangements
___ Did not have this type of loan

For the corporation's largest vehicle loan, which of the following was required?

___ Business Collateral (Asset Owned by Your Corporation)
___ Personal Collateral (Asset Owned by An Owner)
___ Guarantee
___ Have this loan under other arrangements
___ Did not have this type of loan

For any other type of loan such as a loan from a minority shareholder or outside investor?

___ Business Collateral (Asset Owned by Your Corporation)
___ Personal Collateral (Asset Owned by An Owner)
___ Guarantee
___ Have this loan under other arrangements
___ Did not have this type of loan

9. Did any of the loans in the above question require a guarantee?
    ___ Yes
    ___ No
10. Please indicate below the source of the guarantee for each applicable loan type. It is possible that a guarantee for a loan can be required from more than one source. For example, a loan guaranteed by the United States Small Business Administration (SBA) currently requires all shareholders with more than 20% equity in a firm to provide a personal guarantee to support the loan the SBA is guaranteeing. Please indicate all applicable guarantee sources for each loan identified in Question 8 as requiring a guarantee.
    For the corporation’s largest line of credit, which of the following was required?
    ___ Guarantee provided by the Owners
    ___ Guarantee provided by other individuals or business firms
    ___ Guarantee provided by the Small Business Administration (SBA)
    ___ Guarantee provided by a State Government
    ___ Guarantee provided by some other source
    ___ Did not have this type of loan
    For the corporation's largest mortgage, which of the following was required?
    ___ Guarantee provided by the Owners
    ___ Guarantee provided by other individuals or business firms
    ___ Guarantee provided by the Small Business Administration (SBA)
    ___ Guarantee provided by a State Government
    ___ Guarantee provided by some other source
    ___ Did not have this type of loan
    For the corporation's largest equipment loan, which of the following was required?
    ___ Guarantee provided by the Owners
    ___ Guarantee provided by other individuals or business firms
    ___ Guarantee provided by the Small Business Administration (SBA)
    ___ Guarantee provided by a State Government
    ___ Guarantee provided by some other source
    ___ Did not have this type of loan
    For the corporation's largest vehicle loan, which of the following was required?
    ___ Guarantee provided by the Owners
    ___ Guarantee provided by other individuals or business firms
    ___ Guarantee provided by the Small Business Administration (SBA)
    ___ Guarantee provided by a State Government
    ___ Guarantee provided by some other source
    ___ Did not have this type of loan
    For any other loan the corporation may have that does not fall into one of the other four loan types?
    ___ Guarantee provided by the Owners
    ___ Guarantee provided by other individuals or business firms
    ___ Guarantee provided by the Small Business Administration (SBA)
    ___ Guarantee provided by a State Government
    ___ Guarantee provided by some other source
    ___ Did not have this type of loan

11. Since 2008, has your corporation decided not to undertake a positive investment opportunity (positive net present value project), because the lender required a personal guarantee to obtain a loan for the project?
    ___ Yes
    ___ No
    ___ Don't Know
12. Since 2008, has your corporation been declined (denied) a loan because of your inability to meet the lender's personal guarantee requirements?
    ___ Yes
    ___ No
    ___ Don't Know
13. Since 2008, has your corporation been declined (denied) credit because a minority shareholder refused to provide a personal guarantee?
    ___ Yes
    ___ No
    ___ Don't Know
14. What was the impact of the lender's personal guarantee requirement and your inability to meet it, or your decision to not meet it? Please select all responses that are applicable.
    _____ Had to forgo an expansion project
    _____ Could not hire additional staff
    _____ Had to lay off staff
    _____ Could not pursue new products or services
    _____ Could not fulfill an order or contract
    _____ Had to seek funding elsewhere
    _____ No impact
15. Since 2008, have you refused to provide a personal guarantee in order to obtain a loan?
    ___ Yes
    ___ No
    ___ Don't Know
16. If you answered "yes" to Question 15, did your corporation still receive credit or a loan from the individual lender after you refused to provide a personal guarantee?
    ___ Yes
    ___ No
    ___ Don't Know
17. Which of the following describes your business's annual revenue?
    ___ Less than $250,000
    ___ $250,000, - $500,000
    ___ $500,000, - $1,000,000
    ___ $1,000,000, - $5,000,000
    ___ Greater than $5,000,000
18. What is your age?
    ___<18 ___18 - 29
    ___30 - 44 ___45 – 59
    ___60+
19. What is your gender?
    ___ Female
    ___ Male

20. How much total combined income did all members of your household earn last year?

___ 0 - $9,999
___ $10,000 - $24,999
___ $25,000 - $49,999
___ $50,000 - $74,999
___ $75,000 - $99,999
___ $100,000 - $124,999
___ $125,000 - $149,999
___ $150,000 - $174,999
___ $175,000 - $199,999
___ $200,000 and up

21. U.S. Region?

___ New England
___ Middle Atlantic
___ East North Central
___ West North Central
___ South Atlantic
___ East South Central
___ West South Central
___ Mountain
___ Pacific