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ocaiced1@eafit.edu.co

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Muñoz Mendoza, Jorge Andrés; Sepúlveda Yelpo, Sandra María
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Research Article

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Jorge Andrés Muñoz Mendoza^{a*}, Sandra María Sepúlveda Yelpo^b

Key words: Debt maturity, agency costs, ownership structure, managerial discretion, monitoring.

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Abstract

We address debt maturity determinants for Chilean firms using data whose information was drawn from the Longitudinal Survey of Companies (ELE). Results from pooled Tobit regressions indicate that for firms with high growth opportunities, managerial discretion will encourage longer debt terms, a decision that contributes to reducing liquidity risk. For firms with low growth opportunities, managerial discretion does not affect debt maturity, while external monitoring reduces it. These results provide new evidence for international literature. Other conclusions suggest that debt maturity is positively related to firm size, capital structure, and asset tangibility and negatively related to agency costs and belonging to business holdings. These findings support international studies.

Resumen

Abordamos los determinantes de la madurez de la deuda de las empresas chilenas utilizando datos, cuya información se extrajo de la Encuesta Longitudinal de Empresas (ELE). Los resultados de las regresiones agrupadas de Tobit indican que para las empresas con altas oportunidades de crecimiento, la discrecionalidad gerencial estimulará plazos de deuda más largos, decisión que contribuye a reducir el riesgo de liquidez. Para las empresas con bajas oportunidades de crecimiento, la discrecionalidad gerencial no afecta la madurez de la deuda, mientras que la supervisión externa la reduce. Estos resultados proporcionan nueva evidencia para la literatura internacional. Otras conclusiones sugieren que el vencimiento de la deuda está relacionado positivamente con el tamaño

a, b. Department of Business Management, University of Concepcion, Chile

* Principal contact for correspondence:
jormunozm@udec.cl

de la empresa, la estructura de capital y la tangibilidad de los activos; y está relacionado negativamente con los costos de la agencia y la membresía en una compañía de cartera. Estos hallazgos son consistentes con estudios internacionales.

1. Introduction

Decisions on debt terms have been widely researched in recent corporate finance literature. A large part of documented evidence shows that debt maturity is positively related to firm size and regulations, but inversely related to growth opportunities and ownership concentration, among other factors.

Transversely, a factor that also influences debt term is managerial discretion. Managerial discretion should be understood as the opportunist behavior of the manager, who can make decisions for personal benefit, rather than in favor of the company, and its owners. These behaviors can increase the risk of bankruptcy for the company. The managerial discretion has been mainly considered by using agency theory and information asymmetries.

Costs associated with managerial discretion affect financing policies and terms. Theoretical and empirical literature has shown that firms adjust their capital structure to debts in response to higher agency costs (Jensen, 1986). This fact becomes more relevant when managerial discretion takes place in larger, inefficient firms with low growth opportunities and low debt firms.

Such an effect also influences debt term decisions. Companies with high agency costs usually reduce debt maturity periods to mitigate overinvestment. Reducing debt terms disciplines administrators, making debt payment a priority over asset accumulation under their control (Leland, 1998; Lasfer, 1999; Ozkan, 2000; Jiraporn and Tong, 2008; Alcock et al., 2011). Endogenously, this form of financing policy reduces managerial discretion.

The degree of discretion and its effect on debt maturity can also be seen through the asymmetric information theory. A greater degree of asymmetric information promotes opportunistic behavior by managers, generating conflicts of interest and in turn affecting company credit quality (Ross, 1977). This fact can increase the liquidity risk or default probability (Flannery, 1986).

Most studies focus on developed markets such as those in the United States and Europe. However, in emerging markets, and specifically in Chile, evidence is sparse, and the effect of managerial discretion on debt maturity is still an unexplored subject.

In Chile, access to financing by companies is heterogeneous, mainly respect to the debt maturity contracted. On the one hand, mature and long operating history firms have access to the markets of bank debt and fixed incomes, which are usually contracted in the long term. Although these companies are characterized by low growth opportunities, financing appears to be explained more by the composition of their assets and diluted ownership structure. According to data from the Longitudinal Business Survey (ELE), these companies would not represent more than 20% of Chile's universal businesses. On the other hand, companies with greater growth options are generally subject to greater operational risk and a limited pool of assets, which restrict debt from a purely bank and short-term source. This type of debt in many cases leads these companies towards a high liquidity risk that, afterwards can lead to bankruptcy.

In relation to managerial discretion in Chile, the ELE reports that in companies with high growth opportunities there is a greater turnover of managers and a greater asymmetry of information associated with their performance. If the opportunistic behavior of the managers increases the risk of insolvency or liquidity of the firm, then these could be associated with the issuance of short-term debt. However, greater supervision of the owners or self-imposed non-discretionary behavior by the managers themselves could mitigate this risk, promoting longer-term debt. The latter may occur if growth opportunities are themselves an implicit control mechanism such as [Smith and Watts \(1992\)](#) and [Gaver and Gaver \(1995\)](#) point out. These authors indicate that the managers associate the firm's growth opportunities with greater economic compensation, which leads them to act in line with business objectives.

This leads us to believe that the growth opportunities of Chilean companies not only condition the maturity of the debt they contract, but also the manager's preference over the debt contracted. That is, between encouraging or mitigating the risk of financial insolvency of the firm they manage.

The main objective of this research is to analyze the factors that determine the debt maturity of Chilean companies. This requires data on a large sample of firms drawn from the Longitudinal Survey of Companies (ELE). This study contributes to the existing literature through two aspects. Firstly, we empirically analyze the effect of past managerial discretion on debt terms in current firms. In this research, discretion is associated with behaviors that the manager developed in other companies in the past, and that potentially can be propagated or controlled in their current companies, affecting the debt maturity decision. The final effect on debt maturity depends on the trade-off between past managerial discretion and actual internal monitoring mechanisms implicit in their growth opportunities. Secondly, we analyze the interaction between the preference for liquidity or control of the problems associated with non-optimal investment policies.

The sample characteristics also reinforce this study's empirical contribution. The diversity of companies in terms of size, organizational structures, ownership structures and growth options allow us to analyze the determinants of debt maturity beyond the companies listed on the stock exchange. These features differ from previous studies in Chile.

Our results demonstrate that debt maturity is positively affected by past managerial discretion when firms have high growth opportunities. Nonetheless, it does not have a significant effect when these opportunities are low. These observations validate the trade-off hypothesis and the greater effects of internal monitoring mechanisms on managerial discretion in firms with high growth opportunities.

The rest of this article is organized as follows. In [Section 2](#), we review the theoretical and empirical literature on relevant topics of debt maturity and its relationship with agency theory, asymmetric information, and managerial discretion. In [Section 3](#), we present the hypotheses of this research. The [section 4](#) presents the variables and statistical and econometric methods while in [Section 5](#) we present the main results. Finally, [Section 6](#) compiles our main conclusions as well as possible extensions of this research.

2. Literature review

2.1. International evidence

Theoretical and empirical literature has extensively studied debt maturity determinants with a clear emphasis on developed markets. Among these factors is managerial discretion, whose effects on debt maturity have been analyzed by agency theories and information asymmetries.

The effect of managerial discretion on debt maturity is studied by the agency theory and typically focusing on the problem of overinvestment. [Berle and Means \(1932\)](#) and [Jensen and Meckling \(1976\)](#) showed that firms adjust their capital structures towards debt when faced with higher agency costs. This aspect has been corroborated by various empirical studies, such as those conducted by [Kim and Sorensen \(1986\)](#), [Ang et al. \(2000\)](#), [Harvey et al. \(2003\)](#), [Fleming et al. \(2005\)](#), [Mohd et al. \(2012\)](#), [Kokoreva and Ulugova \(2013\)](#), and [Rakesh and Lakshmi \(2013\)](#). The purpose of debt, as described by Jensen (1986), is to discipline managers and endogenously mitigate managerial discretion costs. This result has been confirmed mainly for larger, inefficient firms with low growth opportunities ([Jensen, 1986](#); [Stulz, 1990](#); [Hart and Moore, 1995](#); [Rajan and Winton, 1995](#); [Stulz, 2000](#)).

Capital structure adjustments towards debts are normally associated with a shortening of maturity. [Leland \(1998\)](#) developed a theoretical basis, indicating that companies shorten debt maturity in response to higher agency costs. [Lasfer \(1999\)](#) empirically argued that large companies, characterized by high agency costs, make use of short-term borrowing mechanisms to meet such costs.

Empirical studies, such as those by [Ozkan \(2000\)](#), [Jiraporn and Tong \(2008\)](#), and [Alcock et al. \(2011\)](#), confirmed previous results with the addition that ownership concentration also affects this relationship by acting inversely on debt maturity. This is due to the fact that short-term debts and concentration of ownership exercise a monitoring role for administrators. [Datta et al. \(2005\)](#), in an empirical study of 4,514 companies from the United States, concluded that ownership concentration and/or higher managerial shareholdings are inversely related to debt maturity. [Alcock et al. \(2011\)](#) provided further insight into the preliminary analysis, indicating that as owners and managers have increasingly aligned interests, the inverse effect of agency costs on debt maturity is reduced.

Other international studies have addressed the effects of managerial discretion on debt maturities from the perspective of ownership dilution. [Berger et al. \(1997\)](#) noted that debts increase when managers notice that their equity share in the company has decreased. This is explained by the role of managers in generating agency costs. [Datta et al. \(2005\)](#), [Benmelech \(2006\)](#), [Harford et al. \(2008\)](#), and [Tanaka \(2015\)](#) added that entrenched managers increase debt maturity, making more space for future discretionary behavior. Nevertheless, evidence has shown that managerial discretion is mitigated endogenously with the use of shorter-term debt ([DeAngelo et al., 2002](#)).

Companies with high agency costs also have other characteristics that, according to empirical evidence, determine debt maturity. [Barclay and Smith \(1995, 1996\)](#) and [Cuñat \(1999\)](#) noted that large or regulated companies with low growth opportunities are characterized by a higher proportion of long-term debt in their capital structure. Although international evidence has shown that large companies shorten debt terms to mitigate agency costs, the authors added that the incidence of size is explained in the sense that smaller companies rely more on bank credit. This aspect is corroborated by [Johnson \(1997\)](#).

The effect of managerial discretion on debt maturity is studied by the asymmetric information theory, typically focusing on the problem of underinvestment. [Myers \(1977\)](#) and [Myers and Majluf \(1984\)](#) argued that firms shorten debt maturity in response to underinvestment problems that are generated by managerial/owner discretion. Authors suggest that if companies have higher growth opportunities in their investment set, these companies should use short-term debts to eliminate the disincentive to invest. [Billet et al. \(2007\)](#), [Jiraporn and Tong \(2008\)](#), and [Alcock et al. \(2011\)](#) added that this measure reduces managerial discretion as the manager is exposed to external monitoring.

Information asymmetry can promote opportunistic behavior by managers. Such behavior is based on underinvestment, in order to increase their wealth at the expense of the firm's credit quality. ([Leland and Pyle, 1977](#); [Ross, 1977](#)). [Johnson \(2003\)](#) noted that companies exchange the costs of underinvestment with liquidity risk costs when choosing debt maturities. This reflects the contradictory results found in empirical evidence. On one hand, [Flannery \(1986\)](#), [Diamond \(1991\)](#), [Guedes and Olper \(1996\)](#), and [Berger et al. \(2005\)](#) noted that lower risk firms prefer debts with shorter maturities. For these companies, the cost of underinvestment problems is more relevant than liquidity risks. On the other hand, [Barclay and Smith \(1995\)](#) and [Stohs and Mauer \(1996\)](#) indicated that low risk firms have longer debt maturities due to the greater importance of liquidity risk.

But [Smith and Watts \(1992\)](#), [Collins et al. \(1995\)](#) and [Gaver and Gaver \(1995\)](#) argue that managers associate the greatest growth opportunities with better economic compensation. These results could generate a reduction effect of managerial discretion greater than that obtained by the issuance of short-term debt ([Myers, 1977](#); [Myers and Majluf, 1984](#)), allowing a greater proportion of long-term debt to mitigate the firm's insolvency risk

Asset composition also determines debt maturity. [Stohs and Mauer \(1996\)](#), [Graham and Harvey \(2001\)](#), [Scherr and Hurlburt \(2001\)](#), [Ozkan \(2000, 2002\)](#), and [Heyman et al. \(2008\)](#) added that firms attempt to match the maturity of their debts with their assets. Thus, as investments in assets are more tangible, firms will employ long-term debt in order to mitigate liquidity risk.

Studies addressing debt maturity determinants in emerging markets are limited, due to differences in the economic and institutional context. [Joeveer \(2013\)](#), analyzed companies from 9 emerging European countries and concluded that country characteristics have a greater impact on the level and term of small company debts, while firm characteristics have a greater influence on large companies. Similar results were found by [Mokhova and Zinecker \(2014\)](#).

In the Latin American market there is also relevant evidence about the factors that determine the debt maturity. [Kirch and Soares \(2012\)](#) point out that the financial development of Latin American markets does not affect corporate debt maturity. However, a higher quality institutional environment does affect debt maturity positively, favoring long term debt.

[Mateus and Terra \(2013\)](#) studied debt maturity for 986 Latin American firms and 686 Eastern European firms. Their results highlight the differences between these markets. In Latin America, debt and maturity are considered complementary policies, while they are considered substitutes in Eastern Europe. [Soares \(2009, 2011\)](#) supported these results for companies in Latin America.

2.2. Evidence in the Chilean market

There are few studies on debt maturity in Chile, and all of them are oriented toward companies listed on the stock market.

[Azofra et al. \(2004\)](#) developed an empirical analysis using incomplete panel data for 169 companies between 1990 and 2001. The authors noted that the high ownership concentration, along with the presence of growth opportunities in Chilean companies, favored debt as a financing source. Furthermore, when these companies require external funding, they decide to fund their growth opportunities through short-term debts. Another result from their research is that larger companies with a greater need for funds prefer more extensive debt maturities. [Saona and Valledado \(2005\)](#) supported earlier findings, concluding that firms with high growth opportunities, concentrated ownership, and the need for external funding, issue short-term debts to finance their investments. This evidence supports the idea that short-term debt is an efficient funding mechanism that mitigates problems related to agency costs and information asymmetries.

More recently, [Saona and Valledado \(2014\)](#), in a comparative study of Chilean and Spanish firms, maintained that firms confront a trade-off between debt maturity and bank share in the firm's ownership structure. In firms that allow banks to become stockholders, managers shorten maturity as an instrument of corporate governance. The authors further added that this decision depends on the firm's growth opportunities.

[Castañeda and Contreras \(2016\)](#) elaborated an empirical study based on 50 Chilean companies and concluded that debt maturity, mainly greater than a year, is concentrated mostly in large regulated companies with low growth opportunities. They add that information asymmetries tend to shorten Chilean company debt terms.

Our work extends literature on debt maturity for Chilean firms, but differs from previous studies for two reasons. First, our study measures the effect of managerial discretion on the debt maturity decision. Second, through medium-sized, small and micro-enterprise sampling, it was possible to analyze the debt maturity decision in a different context in terms of access to financing. Nearly two thirds of the samples were taken from small and micro firms, for which credit access and liquidity conditions could affect debt maturity, differing from firms listed on the stock exchange.

3. Hypotheses

The main objective of our investigation is to determine factors that affect debt maturity of Chilean companies in a context of differentiated growth opportunities. The hypotheses seek to answer this question, focusing the analysis on managerial discretion, debt and agency costs.

[Johnson \(2003\)](#) points out that the relationship between debt term and debt will depend on the trade-off between the preference to mitigate liquidity risks or the underinvestment problem. When this relationship is positive, firms prefer to mitigate the liquidity problem over the underinvestment problem, and vice versa. In the case of Chile, given the difficulty faced by companies when accessing financing and the pressure to ensure payment, we believe that there is a preference for liquidity at the moment of acquiring the debt. A decision that results in the issuance of longer term debt. Therefore, the following hypotheses are proposed:

H1: In Chilean firms exists a positive relationship between debt and debt term.

As mentioned, Chilean firms with greater growth opportunities are mainly financed by short-term bank debt and have a high operational risk associated with them. These factors raise the risk of insolvency of the firm. Additionally, in this type of companies, there is a greater rotation of managers and ignorance about their past performance. For this reason we believe that managerial discretion may be another factor that affects the maturity of the debts contracted by firms according to the level of growth opportunities they have.

Discretionary managerial behavior can increase the risk of firm insolvency, especially if the firm lacks growth opportunities. However, [Smith y Watts \(1992\)](#), [Collins et al. \(1995\)](#) and [Gaver and Gaver \(1995\)](#) argue that managers associate the greatest growth opportunities with better economic compensation. According to the authors, this relationship reduces managerial discretion, allowing them to act in alignment with the corporate objectives. If conduct is aligned with business objectives, the risk of insolvency is mitigated by selecting a longer debt term. Therefore, we formulate the following hypotheses for Chilean firms:

H2: In Chilean firms exists a positive relationship between past managerial discretion and debt term.

Depending on growth opportunities, loan decisions and managerial discretion can act together on debt maturity in Chilean firms. When growth opportunities are high, the effect on the debt maturity from potential agency costs are associated with non-optimal investment policies (overinvestment/underinvestment) which may be lower relative to the costs associated with liquidity risk ([Stohs and Mauer, 1996](#)). In this case, managers can reinforce their preference for liquidity, increasing the term of the additional debt. However, when growth opportunities are low, agency costs can lead to the reduction of debt maturities in order to mitigate non-optimal investment policy problems ([Myers and Majluf, 1984](#); [Leland, 1998](#); [Lasfer, 1999](#)). Therefore, the following hypotheses are raised:

H3: The Chilean firms prefer to mitigate liquidity risks with respect to non-optimal investment policies.

4. Data and Methods

4.1. Data

Data used in this research was obtained from the Longitudinal Survey of Companies (ELE), prepared by Chile's Ministry of Economy, Development, and Tourism. Surveys were published in version 1 (ELE1), 2 (ELE2) and 3 (ELE3), containing qualitative and quantitative information on Chilean firms for the periods of 2007, 2009 and 2013, respectively. According to the ministry, the objective of this survey is to characterize the country's enterprises by size and economic activity, in order to identify business development determinants.

Table 1. Size and structure of firm samples.

Legal organization	Firm size by net sale level				
	Larger	Medium	Small	Micro	Total
Open corporation (OC)	149	27	18	8	202
Closed corporation (CC)	1391	618	401	195	2604
Limited liability company (LLC)	937	1044	1546	1008	4535
Individual limited liability company (ILLC)	60	67	156	119	402
Natural person (NP)	61	262	1636	4475	6434
Other structures	99	77	125	240	541
Full sample (firms)	2697	2096	3881	6045	14719
Firm size distribution (%)	18.32	14.24	26.37	41.07	100

Source: Own elaboration

The main advantage provided by the ELE is the possibility of obtaining a representative sample in terms of size and organizational structures that have not been previously studied in Chile. According to Table 1, the total sample from all three versions of the ELE is distributed over 2697 large (18.32% of the sample), 2096 midsize (14.24%), 3881 small (26.37%), and 6045 micro (41.07%) enterprises. Large enterprises are mainly public companies (open and close equity) in which ownership and corporate control are separated, while micro and small enterprises are structured mainly as limited liability companies or one-person companies in which it is possible to observe total ownership concentration in the manager.

Utilizing information contained in the all versions of the ELE, a set of relevant information was developed mainly for accounting, financing, and administration. A pooled database was compiled from 14719 companies, distributed across 6647 (ELE1), 3882 (ELE2), and 4190 companies (ELE3). Firms with incomplete records and those in the financial intermediation sector were eliminated. Table 2 summarizes the categories of variables and their measurements.

Table 2. Categories and variable measurement.

Variable	Definition
A. Agency costs	
Operating expenses to sales (AC)	Annual operating expenses to sales ratio
B. Growth opportunities	
Return on assets (ROA)	Net income to total assets ratio
C. Ownership structure (OS)	
Owner/manager	Dummy 1 if the manager is total owner and 0 otherwise

Variable	Definition
Business associate manager	Dummy 1 if the manager is an associate manager and 0 otherwise
Outsider Manager	Dummy 1 if the manager is outsider (non-owner) and 0 otherwise
D. Manager discretion (MD)	
Previous dismissal	Dummy 1 if the manager was fired from his previous managerial job
Non-operating business	Number of non-operating businesses previously managed by the manager
E. Financing and external monitoring	
Debt to equity (LEV)	Total debt to equity ratio
Monitoring of external funders (EM)	Years extension of the relationship with external funders
Debt maturity (M)	Long-term liabilities on total debt ratio
F. Other control variables	
Size (SIZE)	Natural logarithm of total assets
Holding (HD)	Dummy 1 if the firm belongs to business holding and 0 otherwise
Tangibility (TANG)	Long-term assets on total assets ratio

Source: Own elaboration.

The dependent variable of the study is the debt maturity and the variable for growth opportunities is the variable used to separate the sample into two subsamples; which are then defined.

Debt maturity. This is the dependent variable of the investigation. The debt maturity of the firm (M) is measured by the long-term debt to total debt ratio. This form of measurement has been widely used in previous studies carried out both in Chile ([Azofra et al., 2004](#), [Saona and Valledado, 2005](#)) and in other countries ([Lasfer 1999](#), [Mateus and Terra, 2013](#)). Measures ranked in years as elaborated by [Barclay and Smith \(1995\)](#) and [Jiraporn and Tong \(2008\)](#) are not possible to apply without an exact record of debt maturity from the companies within the sample.

Growth opportunities. We measure the firm's growth opportunities through Returns On Assets (ROA). [Danbolt et al. \(2011\)](#) note that accounting indicators of actual returns such as ROA or ROE are positively and significantly correlated with measures of future firm growth (market to book equity, price to earnings per share, or Tobin's Q). The ROA is used to separate samples between firms with high and low growth opportunities as well as to verify the conditional effect of other variables on debt maturity. We calculated ROA for each company to later determine this indicator's average in each economic sector and survey. Firms with high growth opportunities possess an above-average ROA, while firms with below-average ROAs were classified as having low growth opportunities.

Control variables correspond to managerial discretion, agency costs, capital structure, external monitoring, ownership structure, assets tangibility, belonging to business holdings and firm size. These variables are detailed below.

Managerial discretion. Managerial discretion (MD) is measured by the dummy variable previous dismissal (value 1 if the manager was dismissed from his/her previous management position and 0 otherwise) and by the number of previous businesses that ceased to operate under the management of the manager. Both measures have not been evaluated in the empirical literature. [Hambrick and Abrahamson \(1995\)](#) and [Finkelstein and Boyd \(1998\)](#) point out that the measurement of managerial discretion is a complex process. But the advantage of measuring these past discretionary behaviors is that they make it possible to determine if such behaviors are mitigated or prevailing in their current companies, which will depend on the effectiveness of the implicit monitoring mechanisms of these

companies. If such mechanisms are effective, these opportunistic behaviors would be mitigated, which would reduce the liquidity risk of the current company through the choice of long-term debt. Otherwise, the discretionary behavior of the manager will increase liquidity risk by encouraging the issuance of short-term debt. Finally, the effect of managerial discretion on the debt maturity will depend on the trade-off between the effectiveness of the monitoring mechanisms implicit in growth opportunities and the past discretionary behavior of the manager.

Agency costs. Agency costs (AC) are used to measure the effect of non-optimal investment policies (overinvestment/underinvestment) on debt maturity ([Lasfer, 1999](#); [Ozkan, 2000](#); [Jiraporn and Tong, 2008](#); [Alcock et al., 2011](#)). This measure was proposed by [Ang et al. \(2000\)](#) and has been widely used in a variety of empirical studies.

Capital structure. Debt (LEV) is measured by the debt to equity ratio. As a maturity determinant, is included to quantify the preference for mitigating overinvestment/underinvestment ([Flannery, 1986](#); [Diamond, 1991](#); [Guedes and Olper, 1996](#); [Berger et al. 2005](#)) or liquidity risk ([Barclay and Smith 1995](#); [Stohs and Mauer, 1996](#)).

External monitoring. The monitoring of external financiers (EM) is measured by the length of the business relationship between the company and its financiers ([Ang et al., 2000](#); [Fleming et al., 2005](#)). The longer this term, the greater the monitoring done by external financiers. However, this variable implicitly quantifies the trust or distrust of the external financiers as to the term of payment of the funds that contribute to the financing of the company. A negative (positive) relationship between this variable and the debt maturity is indicative of commercial mistrust (trust), so that greater external monitoring will promote a reduction (extension) of such maturity.

Ownership structure Ownership structure (OS) is measured by three dummy variables associated with the role of the manager in the ownership structure (owner/manager, partner, and manager/outsider). These ownership structure variables are used to measure alignment effects ([Ozkan, 2000](#); [Jiraporn and Tong, 2008](#); [Alcock et al, 2011](#)) or managerial entrenchment ([Datta et al, 2005](#); [Benmelech., 2006](#); [Harford et al, 2008](#); [Tanaka, 2015](#)) caused by concentration and dilution of ownership, respectively.

Assets tangibility. Tangible assets (TANG) is measured by long-term assets to the total assets ratio of the company. This measure of tangibility or maturity of the assets has been widely used by various international studies to verify if the term of the debts is matched with the maturity of the assets ([Stohs and Mauer, 1996](#); [Graham and Harvey, 2001](#); [Scherr and Hurlburt, 2001](#); [Ozkan, 2000, 2002](#); [Heyman et al., 2008](#)).

Other control variables are included such as size and whether the company belongs to a business holding, which are in line with other empirical studies.

4.2. Econometric method

To estimate the determinants of debt maturity for Chilean companies, a pooled Two-limit Tobit regression (2LTR) model was estimated. The use of the 2LTR model is justified because the debt maturity is a continuous variable censored between 0 and 1, for firms that have between 0% and 100% of long-term debt. This model is estimated by maximum likelihood (ML) and problems of efficiency associated with the estimation are corrected with the use of robust variances. The empirical model used is as follows:

$$M_{it} = \beta_0 + \beta_1 OS_{it} MD_{it} + \beta_2 AC_{it} + \beta_3 SIZE_{it} + \beta_4 EM_{it} + \beta_5 LEV_{it} + \beta_6 HD_{it} + \beta_7 TANG_{it} + \delta_0 DSector + \delta_1 DYear + \varepsilon_{it} \quad (1)$$

Where M_{it} is the variable for debt maturity, which is censored in the $[0,1]$ interval. The OS_{it} variable measures ownership structure, defined by three dichotomous variables described in table 2. The MD_{it} variable corresponds to managerial discretion, measured by the number of previous non-operating businesses and the dummy variable for previous dismissal. The AC_{it} variable represents agency costs, $SIZE_{it}$ is the firm size measured by the natural logarithm of total assets, EM_{it} is the variable that measures monitoring of external funders, LEV_{it} is the debt to equity ratio, HD_{it} is a dummy variable assigned to a value of 1 if the company belongs to a business holding, and 0 otherwise, and $TANG_{it}$ indicates asset tangibility.

The estimated model includes dummies in order to control differences by economic sector and by time-year.

5. Empirical results

5.1. Descriptive analysis

[Table 3](#) shows the data descriptive statistics. It is important to note that the surveys are not strictly comparable due to differences in sample size and the fact that companies are not necessarily repeated from one sample to another.

Descriptive results show that agency costs, measured by the operating expenses to sales ratio, represent 11.38%, 24.50%, and 17.75% on average, respectively. Regarding ELE1, an incremental tendency of agency costs is shown towards other surveys.

From ELE1, we observe that the percentage of companies managed by their owners falls from 35.71% to 18.15%, while those with an outsider manager increases from 27.23% to 45.19%. This is due to the fact that in ELE1 sampling design, small and micro enterprises have greater participation, while large enterprises are most likely to participate in ELE3. Regarding 2007, the proportion of companies managed by an owner/manager fell to 14.07% in 2009 and 17.56% in 2013. Accordingly, we observed lower managerial ownership, with figures ranging from 52.57% equity in ELE1 to 35.45% in ELE3. This fact is related to the greater agency costs described previously.

Measures of managerial discretion for 2007 indicate that 5.86% of current company managers were dismissed from their previous managerial job and/or 1.33 companies stopped operating under their previous management. This first proportion dropped to 2.89% and 1.51% for 2009 and 2013, respectively, while the second figure fell from 0.39 to 0.25. This may be due to the increased participation of large enterprises in ELE3.

As the managers are contracted for current managerial jobs, the history of discretion behavior could be offset by restriction mechanisms imposed by the manager himself to improve his discretion, or by means of internal monitoring by owners. This variable captures two expected potential effects on debt maturity given past history. On one hand, a negative ex-ante effect will be defined, marked by the dominance of past managerial discretion on their current behavior. On the other hand, positive

ex-post effects are defined and outlined by internal monitoring mechanisms, and restrictions are set by managers for their current performance. It was anticipated that the trade-off between both of these would define the final effect on debt maturity.

Table 3. Descriptive Statistics.

Variables	2007		2009		2013	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
A. Agency costs						
Operating expenses to sales (%)	11.38	15.74	24.50	21.12	17.75	18.30
B. Ownership structure						
Owner/manager (%)	35.71	49.60	21.64	41.21	18.15	38.54
Business associate manager (%)	38.04	48.66	41.05	49.29	36.63	48.18
Outsider Manager (%)	27.23	45.85	38.29	47.47	45.19	49.77
C. Manager discretion						
Previous dismissal (%)	5.86	22.49	2.89	12.64	1.51	12.21
Non-operating business	1.33	1.44	0.39	0.93	0.25	0.65
D. Financing and external monitoring						
Debt to equity	1.45	2.14	1.52	2.13	2.09	2.56
Monitoring of external funders	12.82	12.54	12.65	10.16	16.33	11.56
Debt maturity	16.63	28.81	17.01	28.16	19.72	28.96
E. Other control variables						
Firm size (Total assets, Million \$)	20443	338402	150163	816120	168401	683462
Holding (%)	13.57	34.25	21.52	41.10	29.37	45.55
Tangibility (%)	28.56	27.62	29.31	26.67	22.65	26.05

Source: Own elaboration.

Regarding capital structure, it is observed in aggregate terms that Chilean companies mostly use debt as a financing source in relation to equity; this debt is mainly short-term. Firms maintain commercial relations with external funders who play a monitoring role for companies and their management. This relationship ranges between 12 and 16 years on average.

Results also show that most Chilean companies do not belong to business holdings and tend to adopt an important proportion of long-term assets (tangibility), although not primarily in their accounting structure.

5.2. Univariate analysis for growth opportunities

In this section, we will conduct non-parametric tests aimed at verifying the differences in company samples according to their growth opportunities.

Growth opportunities were measured using Return on Assets (ROA). Since the ELE only provides accounting data and not market data, this proxy may impose a limitation. However, Danbolt et al. (2011) note that accounting indicators of actual returns such as ROA or ROE are positively and significantly correlated with measures of future firm growth (market to book equity, price to earnings per share, or Tobin's Q). This justifies the use of this proxy.

For characterization of each company, based on said quality, we calculated ROA for each company to later determine this indicator's average in each economic sector and survey. Firms with high growth opportunities possess an above-average ROA, while firms with below-average ROAs were classified as having low growth opportunities. By this criterion, the original sample was divided into 6,917 companies with high growth opportunities (2,984 companies from ELE1, 1,817 from ELE2 and 2,116 from ELE3) and 7,802 with low growth opportunities (3,663 companies from ELE1, 2,065 from ELE2 and 2,074 from ELE3).

Separating samples according to growth opportunities is based on the approaches of [Jensen \(1986\)](#) and [Barclay and Smith \(1995\)](#). Companies with high growth opportunities are characterized by a high ownership concentration. This aspect acts by monitoring managerial discretion, which may implicitly affect the debt maturity decision. [Furthermore, Muñoz and Sepulveda \(2016\)](#) corroborated this idea and added that for firms with low growth opportunities, internal monitoring is less effective on agency costs, leading greater company debt.

The results from [Table 4](#) indicate differences between the groups of companies. Despite differences in company sizes, the Wilcoxon test results are cross-sectional with each of the ELE surveys.

It was noted that firms with high growth opportunities have lower agency costs with respect to companies with low growth opportunities. Differences between operating expenses to sales ratio are significant at 1%. These results are consistent with [Jensen \(1986\)](#) in the sense that firms with low growth opportunities have a greater incentive to incur agency costs associated with overinvestment.

Table 4. Wilcoxon test, mean differences by growth opportunity level.

Variables	2007			2009			2013		
	High	Low	z	High	Low	z	High	Low	z
A. Agency costs									
Operating expenses to sales (%)	11.55	12.91	(-4.26)***	23.43	26.38	(-4.94)***	15.24	19.47	(-9.80)***
B. Ownership structure									
Owner/ manager (%)	52.18	24.96	(24.43)***	40.16	17.04	(19.13)***	39.62	9.85	(21.58)***
Business associate manager (%)	32.26	40.03	(-5.85)***	38.57	41.11	(-2.06)**	31.26	34.86	(-3.80)***
Outsider Manager (%)	15.56	35.01	(-21.49)***	21.27	41.85	(-17.03)***	29.12	55.29	(-22.89)***
C. Manager discretion									
Previous dismissal (%)	8.47	4.45	(6.35)***	2.44	1.51	(2.9)***	2.36	0.94	(4.48)***
Non-operating business	1.32	1.35	(-0.31)	0.37	0.41	(-1.02)	0.28	0.21	(1.58)
D. Financing and external monitoring									
Debt to equity	1.17	1.63	(-8.88)***	1.24	1.77	(-8.56)***	1.81	2.70	(-9.93)***
Monitoring of external funders	10.96	14.84	(-13.79)***	10.84	14.54	(-14.60)***	14.87	17.31	(-8.13)***
Debt maturity	12.73	21.20	(-12.86)***	10.48	20.91	(-15.43)***	15.15	22.59	(-10.77)***

Variables	2007			2009			2013		
	High	Low	z	High	Low	z	High	Low	z
E. Other control variable									
Firm size (Total assets, MM\$)	9113	28303	(-3.33)***	10919	237292	(-4.28)***	21692	301479	(-5.77)***
Holding (%)	6.36	19.89	(-20.92)***	10.23	29.40	(-21.23)***	16.32	38.10	(-21.66)***
Tangibility (%)	22.81	33.25	(-16.74)***	24.22	33.13	(-12.87)***	21.33	23.50	(-6.44)***

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Source: Own elaboration.

Regarding ownership structure, we find that firms with high growth opportunities are managed to a greater extent by their owners. On the other hand, firms with low growth opportunities are managed by a manager with partial ownership (partner) or an outsider. Differences in management proportions and company control are significant at 1%. This supports [Jensen \(1986\)](#), [Fleming et al. \(2005\)](#), and [Muñoz and Sepulveda \(2016\)](#) in the sense that firms with low growth opportunities are more likely to incur high agency costs when a greater degree of separation exists between ownership and corporate control.

Statistically significant differences were also observed regarding debt. We note that firms with low growth opportunities have a higher level of leverage and a more extensive relationship with external funders with respect to firms with higher growth opportunities. Therefore, consistent with [Jensen \(1986\)](#), companies tend to be monitored by financial institutions and/or external creditors as their investment projects are limited. Furthermore, firms tend to be financed mostly through short-term debts, although firms with high growth opportunities have lower debt maturity.

Managerial discretion variables indicate that firms with high growth opportunities have higher proportions of managers who were dismissed from their previous managerial jobs. This result shows the possibility of such firms to hire these outsiders using a costly approach to monitor and control their discretionary behavior. Meanwhile, the variable representing the number of previous non-operative businesses does not differ significantly between firms with high or low growth opportunities.

Results for the tangibility variable reveal that, on average, there is a higher level of this kind of assets in firms with low growth opportunities.

For the other control variables, such as size (using total assets as a proxy, measured in millions of pesos), we observed that companies with low growth opportunities are usually larger companies. Additionally, we find that there are a higher proportion of companies with low growth opportunities that belong to holdings. This difference is significant at 1%.

5.3. Tobit regression analysis

It was concluded in the previous section that growth opportunities affect Chilean companies' financing policies. Companies with low growth opportunities are characterized by having diluted ownership structures, higher agency costs, and being larger companies. These factors induce higher leverage, thus weighing on the financial decision of debt terms.

Regression results from specification (1), specifically marginal effects, are presented in [Tables 5](#) and 6 for companies with high and low growth opportunities, respectively. All model specifications control differences by economic sectors and time-year through dummy variables.

First, we analyzed firms with high growth opportunities, as described in [Table 5](#). If agency costs increase by 1%, debt maturity (long-term debt) is reduced between 2.98% to 6.11% according to the model specifications. Firms with higher agency costs reduce debt maturities, a result that is consistent with previous research ([Barclay and Smith, 1995](#); [Barclay and Smith, 1996](#); [Leland, 1998](#); [Lasfer, 1999](#); [Jiraporn and Tong, 2008](#); [Alcock et al, 2011](#)). In addition, larger companies lengthen debt maturities. When firm size increases by 1%, the long-term debt that quantifies the financing maturity increases between 1.39% and 1.79%.

A significant and positive relationship was found between debt maturity and debt level. When debt increases by \$1 respect to equity, debt maturity (long-term debt) increases between 1.09% and 1.31%. This support hypothesis H1 and proves that firms prefer longer debt maturities. Johnson (2003) argues that by including debt as a determinant of maturity, positive relationships found are synonymous with firm preference to mitigate liquidity risk or increase firm's credit quality. This evidence is supported through the results obtained by [Barclay and Smith \(1995, 1996\)](#) and [Stohs and Mauer \(1996\)](#). Therefore, for Chilean companies with high growth opportunities, costs associated with liquidity risk are greater than those generated from underinvestment problems.

At a significance level of 1%, a direct relationship was found between debt maturity and asset tangibility. We note that if long-term assets increase by 1%, long-term debt increases between 6.20% and 7.16%. These results corroborate previous studies ([Stohs and Mauer, 1996](#); [Graham and Harvey, 2001](#); [Scherr and Hulburt, 2001](#); [Ozkan, 2000, 2002](#); [Heyman et al, 2008](#)). Chilean companies with high growth opportunities match the maturity for assets and debts to mitigate short-term insolvency risks associated with potential agency problems.

External monitoring is not a relevant variable for the debt term decision of companies with high growth opportunities.

An inverse and significant relationship is observed between debt maturity and firms belonging to business holdings. If the firm belongs to a business holding, debt maturity (long-term debt) is reduced between 1.37% and 2.38%. Chilean firms establish a financial hierarchy based on internal capital market to business holdings, with lower funding costs and less restrictive contracts when compared to foreign markets. Our results support findings by [Azofra et al. \(2004\)](#) and suggest that firm financial deficits are financed by internal loans to business holdings. If the firm needs additional resources, it will issue debt with lower financing costs and short-term maturities. This result implicitly mitigates the potential effect of underinvestment, suggesting compliance with the pecking order theory ([Myers, 1977](#); [Myers and Majluf, 1984](#)).

It can be seen that firms with high growth opportunities, managed by their owners, have shorter debt maturities (debt maturity is reduced between 1.16% and 1.56% in this type of ownership structure) when compared to those managed by a partner, in which case the debt term increases significantly (between 1.11% and 1.77% in this type of ownership structure). This result contends that ownership concentration reduces debt maturity, confirming international results contributed by [Ozkan \(2000\)](#), [Jiraporn and Tong \(2008\)](#), [Alcock et al. \(2011\)](#), [Azofra et al. \(2004\)](#), and [Saona and Vallelado \(2005\)](#)

for the Chilean market. Additionally, it also demonstrates the effects of managerial entrenchment on debt maturity ([Datta et al., 2005](#); [Benmelech, 2006](#); [Harford et al., 2008](#); [Tanaka, 2015](#)).

Table 5. Tobit regression, debt maturity in firms with high growth opportunities.

Variable	Models					
	(1)	(2)	(3)	(4)	(5)	(6)
Owner/manager	-0.0116 (-2.47)**			-0.0156 (-2.31)**		
Business associate manager		0.0111 (2.71)***			0.0177 (2.35)**	
Outsider Manager			-0.0036 (-0.74)			-0.0027 (-0.71)
Previous dismissal	0.0140 (3.06)***	0.0147 (2.93)***	0.0161 (3.45)***			
Non-operating business				0.0129 (3.19)***	0.0099 (3.63)***	0.0079 (2.91)***
Operating expenses to sales	-0.0316 (-3.65)***	-0.0611 (-3.91)***	-0.0298 (-4.17)***	-0.0562 (-4.15)***	-0.0519 (-4.01)***	-0.0549 (-3.84)***
Size	0.0139 (17.35)***	0.0151 (20.48)***	0.0147 (21.03)***	0.0161 (8.34)***	0.0177 (9.73)***	0.0179 (11.37)***
Monitoring of external funders	-0.0001 (-0.20)	-0.0001 (-0.29)	-0.0001 (-0.45)	-0.0001 (-0.29)	-0.0002 (-0.62)	-0.0001 (-0.44)
Debt to equity	0.0117 (19.22)***	0.0118 (17.35)***	0.0131 (17.44)***	0.0109 (9.01)***	0.0124 (8.52)***	0.0110 (9.11)***
Holding	-0.0164 (-3.44)***	-0.0137 (-3.26)***	-0.0155 (-3.52)***	-0.0229 (-3.13)***	-0.0220 (-2.93)***	-0.0238 (-3.53)***
Tangibility	0.0716 (14.84)***	0.0711 (14.77)***	0.0703 (14.82)***	0.0642 (7.03)***	0.0651 (7.34)***	0.0620 (6.86)***
Test 1	(11.74)***	(18.14)***	(7.98)***	(13.02)***	(15.29)***	(16.95)***
Observations (firms)	6917	6917	6917	6917	6917	6917
Dummy sector	Yes	Yes	Yes	Yes	Yes	Yes
Dummy year	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.34	0.39	0.37	0.44	0.46	0.43

Estimated by maximum likelihood and use of robust variances. Marginal effects. Z-statistics in brackets.

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Source: Own elaboration.

The variable numbers of non-operating businesses and previous dismissal, measuring past managerial discretion, have positive and significant effects on debt maturity. The fact that the manager was dismissed from his previous managerial work increases the debt maturity (long-term debt) between 1.40% and 1.61%, while for each business that stopped operating because of his managerial management in other companies, debt maturity increases between 0.79% and 1.29% in its current company. This support hypothesis H2. These unprecedented results show that in firms with high growth opportunities, internal monitoring mechanisms, or self-imposed restrictions by administrators, dominate past managerial discretions, increasing debt terms. At the moment of current debt issue, this evidence supports the hypothesis that these managers prefer the liquidity of the firms.

We include the effect of agency costs in Test 1, which measures the null hypothesis $H_0: \beta_2 + \beta_6 + \beta_3 > 0$. This hypothesis compares the preference for liquidity in the debt decision and discretionary management in relation to effects of agency costs on debt maturity. As observed, this test is rejected at 1% for all specifications. Firms with high growth opportunities have a greater tendency to reduce debt maturity. Such actions constitute a greater preference for mitigating overinvestment problems in relation to liquidity risk. Thus, the hypothesis H_3 cannot be sustained.

Secondly, we analyze [Table 6](#), which provides results for companies with low growth opportunities.

Results show that debt, firm size, and asset tangibility positively and significantly affect debt maturity. However, the factors of agency costs and companies belonging to holdings significantly reduce debt terms. These results are similar to those shown for firms with high growth opportunities. Now, the positive effect of debt on debt maturity supports the hypothesis H_1 . Regardless of growth opportunities level, firms extend the debt-term as a way to mitigate liquidity risk.

Another similar and transverse result for growth opportunities is ownership structure. Ownership concentration significantly reduces debt terms, while dilution extends them. However, the manager being an outsider has no impact on debt maturity.

External monitoring has a negative and significant relationship with debt maturity. External funders who monitor companies with low growth opportunities tend to mitigate risk on debts issued by inducing shorter-term debts. Such an action corroborates approaches by [Billett et al. \(2007\)](#), [Jiraporn and Tong \(2008\)](#), and [Alcock et al. \(2011\)](#), as reducing debt maturity has a mitigating effect similar to the effect that restrictive debt contract covenants have on debt agency costs.

Table 6. Tobit regression, debt maturity in firms with low growth opportunities.

Variable	Models					
	(1)	(2)	(3)	(4)	(5)	(6)
Owner/manager	-0.0182			-0.0203		
		(-5.77)***			(-3.75)***	
Business associate manager		0.0606			0.0193	
		(3.91)***			(4.12)***	
Outsider Manager			-0.0005			-0.0015
				(-0.09)		(-0.23)
Previous dismissal	-0.0071	-0.0190	-0.0087			
		(-0.88)	(-1.16)	(-1.02)		
Non-operating business				-0.0014	-0.0019	-0.0017
				(-0.84)	(-0.92)	(-1.03)
Operating expenses to sales	-0.0538	-0.1035	-0.0521	-0.0361	-0.0366	-0.0349
	(-8.83)***	(-8.95)***	(-8.49)***	(-3.46)***	(-3.63)***	(-3.29)***
Size	0.0120	0.0014	0.0133	0.0138	0.0147	0.0157
	(21.98)***	(26.45)***	(26.28)***	(9.74)***	(8.26)***	(12.44)***
Monitoring of external funders	-0.0039	-0.0025	-0.0036	-0.0186	-0.0131	-0.0149
	(-2.33)**	(-2.95)***	(-2.46)**	(-3.32)***	(-2.91)***	(-2.84)***
Debt to equity	0.0119	0.0121	0.0120	0.0119	0.0139	0.0123
	(23.49)***	(23.71)***	(23.58)***	(11.78)***	(10.92)***	(11.78)***

Variable	Models					
	(1)	(2)	(3)	(4)	(5)	(6)
Holding	-0.0090 (-3.22) ^{***}	-0.0059 (-2.09) ^{**}	-0.0088 (-2.99) ^{***}	-0.0124 (-2.84) ^{***}	-0.0106 (-2.33) ^{**}	-0.0162 (-3.85) ^{***}
Tangibility	0.0807 (21.88) ^{***}	0.0803 (21.93) ^{***}	0.0799 (22.12) ^{***}	0.0723 (9.78) ^{***}	0.0893 (8.95) ^{***}	0.0717 (9.35) ^{***}
Test 1	(21.92) ^{***}	(15.51) ^{***}	(17.38) ^{***}	(17.99) ^{***}	(16.46) ^{***}	(19.27) ^{***}
Observations (firms)	7802	7802	7802	7802	7802	7802
Dummy sector	Yes	Yes	Yes	Yes	Yes	Yes
Dummy year	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.31	0.33	0.34	0.35	0.36	0.33

Estimated by maximum likelihood and use of robust variances. Marginal effects. Z-statistics in brackets. Superscripts ^{***}, ^{**}, ^{*} indicate statistical significance at 1%, 5%, and 10%, respectively. Source: Own elaboration.

Managerial discretion variables, previous dismissal, and the number of non-operating businesses have no statistically significant effects on debt maturity. This result does not support hypothesis H2. Regarding this, at a significance level of 1%, Test 1 is rejected. This result, similar to what has been previously observed for firms with high growth opportunities, indicates that the net effect of the debt decision and agency costs promotes debt term reduction. This result does not support hypothesis H3.

6. Conclusions

Debt maturity in Chilean companies is an area with many points of view to be studied, mainly because of its relevance in corporate decisions. There is a vast amount of international literature that analyzes debt maturity determinants. However, there are very few studies in Chile on this topic, and none have characterized the impact of managerial discretion on these decisions.

Despite the difficulty of measuring managerial discretion, our research provides unprecedented evidence for the Chilean market about the role of this factor on debt maturity, conditioning its effects according to firm growth opportunities.

Results suggest that the effect of managerial discretion on debt terms depends on whether or not companies have growth opportunities. When firms have high growth opportunities, managerial discretion promotes longer debt maturities. This reveals two essential aspects about managerial behavior. On one hand, it shows the mechanisms of internal monitoring or self-imposed restrictions by managers to promote improvement of past discretionary behavior, directly affecting debt maturity. On the other hand, this managerial decision demonstrates a preference to mitigate the liquidity risk in relation to shortening debt terms to mitigate the overinvestment problem.

No statistically significant results of managerial discretion on debt maturity are observed for firms with low growth opportunities.

Another important result is related to the effects of monitoring by external funders. In firms with high growth opportunities, monitoring by external funders has no significant effect on debt maturity, and when opportunities are low, such monitoring has a negative effect. These results suggest that external funders exchange their monitoring role for internal company mechanisms or self-imposed restrictions by managers when firms have high growth opportunities. Thus, external funders mitigate

risks related to company funds by inducing shorter debt maturities. Such an effect is similar to the role of restrictive clauses in debt contracts ([Billett et al., 2007](#)).

Our research also provides evidence supporting previous studies, regardless of firm growth opportunity levels. This evidence is related to the impact of agency costs, whether the company belongs to business holdings, firm size, debts, and asset tangibility.

Agency costs and pertinence to business holdings have a negative effect on debt maturity. In the first case, firms with higher agency costs shorten debt maturity as a way to mitigate overinvestment problems. In the second case, firms belonging to business holdings develop internal markets where they obtain financing under shorter terms and at a lower cost. This action mitigates underinvestment effects and supports compliance with hierarchical funding. These findings corroborate the results of [Azofra et al. \(2004\)](#) and [Saona and Vallelado \(2005\)](#).

Debt levels, firm size, and asset tangibility are variables that positively and significantly affect debt maturity. In the case of debt, our results support the conclusions of [Barclay and Smith \(1995\)](#), [Stohs and Mauer \(1996\)](#), and [Johnson \(2003\)](#) that firms are financed with longer debt terms to avoid insolvency. Additionally, asset tangibility effects confirm that companies match assets and liabilities for the same reason.

From the point of view of corporate decisions, our research has marked implications. Firstly, firms decide debt maturity by accounting for the difficulties imposed by overinvestment, underinvestment, and liquidity risks. Close to 82% of the sample correspond jointly to medium, small, and micro enterprises which, because of their size, are financed under shorter debt terms. For these companies, decisions appear to be dominated by preferences of avoiding liquidity risk. However, the agency costs would force companies to reduce debt-term to control potential problems on investment policy (overinvestment/underinvestment). This result is transversal to growth opportunities.

Secondly, growth opportunities determine the effects of managerial discretion on debt maturities. Firms with high growth opportunities and internal monitoring discipline managers, while in firms with low opportunities, monitoring is performed by external funders in shorter terms.

Finally, we suggest extending empirical literature on Chilean markets through two future investigations. First, it would be interesting to further analyze the relationship between managerial discretion and corporate decisions as well as how these factors affect company performance. Secondly, analyzing the effects of liquidity risk on corporate decisions is another niche that may concentrate an interest for future research.

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References

- Alcock, J., Finn, F., B and Keng, K. (2011). Debt covenants, agency costs and debt maturity. working paper, The University of Queensland, Brisbane, 4072, Australia.
- Ang, I.S., Cole, R.A. and Lin J.W. (2000). Agency costs and ownership structure. *Journal of Finance*, Vol. 55(1), pp. 81-106.
- Azofra, V.P., Saona, P.H., and Vallelado, E.G. (2004). Estructura de propiedad y oportunidades de crecimiento como determinantes del endeudamiento de las empresas chilenas. *Revista Abante*, Vol. 7, pp. 105-145.
- Barclay, M.J. and Smith, C.W. (1995). The maturity structure of corporate debt. *The Journal of Finance*, Vol. 50(2), pp. 609-631.
- Barclay, M.J. and Smith, C.W. (1996). On financial architecture: Leverage, maturity, and priority. *Journal of Applied Corporate Finance*, Vol. 8(4), pp. 4-17.
- Benmelech, E. (2006). Managerial entrenchment and debt maturity: Theory and evidence. working paper, Harvard University.
- Berger, P.G., Ofek, E. and Yermack, D.L. (1997). Managerial entrenchment and capital structure decisions. *Journal of Finance*, Vol. 52(4), pp. 1411-1438.
- Berger, A., Espinosa-Vega, M., Frame, S. and Miller, N. (2005). Debt maturity, risk, and asymmetric information. *Journal of Finance*, Vol. 60(6), pp. 2895-2923.
- Berle, A. and Means, G. (1932). *The modern corporation and private property*. New York: The MacMillan Company.
- Billet, M.T., King, T.D. and Mauer D.C. (2007). Growth opportunities and the choice of leverage, debt maturity and covenants. *The Journal of Finance*, Vol. 62(2), pp. 696-730.
- Castañeda, F. and Contreras, F. (2016). The Determinants of Corporate Debt Maturity Structure: The case of Chile. *El Trimestre Económico*, forthcoming.
- Collins, M., Blackwell, D. and Sinkey, J. (1995). The relationship between corporate compensation policies and investment opportunities: Empirical evidence for large bank holding companies. *Financial Management*, Vol. 24(3), pp. 40-53.
- Cuñat, V. (1999). Determinantes del plazo de endeudamiento de las empresas españolas. *Investigaciones Económicas*, Vol. 23(3), pp.351-392.
- Danbolt, J., Hirst, I. and Jones, E. (2011). The growth companies puzzle: can growth opportunities measures predict firm growth?. *The European Journal of Finance*, Vol. 17(1), pp.1-25.
- Datta, S., Iskandar-Datta, M. and Raman, K. (2005). Managerial stock ownership and the maturity structure of corporate debt., *The Journal of Finance*, Vol. 60(5), pp. 2300-2350.
- DeAngelo, H., DeAngelo, L. and Wruck, K.H. (2002). Asset liquidity, debt covenants and managerial discretion in financial distress: The collapse of L.A. Gear. *Journal of Financial Economics*, Vol. 64(1), pp.3-34.
- Diamond, D. (1991). Debt maturity structure and liquidity risk. *The Quarterly Journal of Economics*, Vol. 106(3), pp. 709-737.
- Flannery, M. (1986). Asymmetric information and risky debt maturity choice. *Journal of Finance*, Vol. 41(1), pp. 19-37.

- Fleming, G., Heaney, R. and McCosker, R. (2005). Agency costs and ownership structure in Australia. *Pacific-Basin Finance Journal*, Vol. 13(1), pp. 29-52.
- Finkelstein, S. and Boyd, B. (1998). How Much Does the CEO Matter? The Role of Managerial Discretion in the Setting of CEO Compensation. *The Academy of Management Journal*, Vol. 41(2), pp. 179-199.
- Gaver, J., and Gaver, K. (1995). Compensation policy and the investment opportunity set. *Financial Management*, Vol. 24(1), pp. 19-32.
- Graham, J. and Harvey, C. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, Vol. 60(2), pp. 187-243.
- Guedes, J. and Opler, T. (1996). The determinants of the maturity of corporate debt issue. *Journal of Finance*, Vol. 51(5), pp.1809-1833.
- Hambrick, D. and Abrahamson, D. (1995). Assessing Managerial Discretion across Industries: A Multimethod Approach. *The Academy of Management Journal*, Vol. 38(5), pp. 1427-1441.
- Harford, J., Li, K. and Zhao, X. (2008). Corporate boards and the leverage and debt maturity choices. *International Journal of Corporate Governance*, Vol. 1(1), pp. 3-27.
- Hart, O.D. and Moore, J. (1995). Debt seniority: An analysis of the role of hard claims on constraining management. *American Economic Review*, Vol. 85(3), pp.567-585.
- Harvey, C., Lins, K. and Roper, A. (2003). The effect of capital structure when expected agency costs are extreme. Working paper, Duke University, June.
- Heyman, D., Deloof, M. and Ooghe, H. (2008). The financial structure of private held belgian firms. *Small Business Economics*, Vol. 30(3), pp.301-313.
- Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, Vol. 76(2), pp. 323-329.
- Jensen, M.C. and Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and capital structure. *Journal of Financial Economics*, Vol. 3(4), pp. 305-360.
- Jiraporn, P. and Tong, S. (2008). Debt maturity structure, agency costs and firm value. Working paper, Pennsylvania State University.
- Johnson, S. A. (1997). An empirical analysis of the determinants of corporate debt ownership structure. *The Journal of Financial and Quantitative Analysis*, Vol. 32(1), pp. 47-69.
- Johnson, S.A. (2003). Debt maturity and effects of growth opportunities and liquidity risk on leverage. *Review of Financial Studies*, Vol. 16(1), pp. 209-236.
- Joeveer, K. (2013). Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies. *Journal of Comparative Economics*, Vol. 41, pp. 294-308.
- Kim, W. and Sorensen, E. (1986). Evidence on the impact of the agency costs of debt on corporate debt policy. *The Journal of Financial and Quantitative Analysis*, Vol. 21(2), pp. 131-144.
- Kirch, G. and Soares, P. (2012). Determinants of corporate debt maturity in South America: Do institutional quality and financial development matter. *Journal of Corporate Finance*, Vol. 18, pp. 980-993.
- Kokoreva, M. and Ulugova, A. (2013). Economic and social development: Book of proceedings of the 2nd International Scientific Conference, chapter "Agency costs and capital structure choice in emerging markets", Paris, France, pp. 384-396.
- Lasfer, M. (1999). Debt structure, agency costs and firm's size: An empirical investigation. working paper, City University Business School, London
- Leland, H. (1998). Agency costs, risk management and capital structure. *Journal of Finance*, Vol. 53(4), pp.1213-1243.
- Leland, H. and Pyle, D. (1977). Informational asymmetries, financial structure and financial intermediation. *Journal of Finance*, Vol. 32(2), pp. 371-387.
- Mateus, C. and Terra, P. (2013). Leverage and the maturity structure of debt in emerging markets. *Journal of Mathematical Finance*, Vol. 3, pp. 46-59.

- Mohd, T., Bukit, R. and Mohd, Z. (2012). The moderating effect of ownership structure in the relationship between free cash flow and asset utilization. *Asian Academy of Management Journal of Accounting and Finance*, Vol. 8(1), pp. 69-89.
- Mokhova, N. and Zineckera, M. (2014). Macroeconomic factors and corporate capital structure. *Procedia - Social and Behavioral Sciences*, Vol. 110, pp. 530-540.
- Muñoz, J. and Sepúlveda, S. (2016). Monitoring mechanisms v/s managerial discretion: What prevails over agency costs in Chilean firms?. Working paper No. 3, University of Concepcion.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, Vol. 5(2), pp. 147-175.
- Myers, S. and Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, Vol. 13(2), pp.187-221.
- Ozkan, A. (2000). An empirical analysis of corporate debt maturity structure. *European Financial Management*, Vol. 6(2), pp. 197-212.
- Ozkan, A. (2002). The determinants of corporate debt maturity: evidence from UK firms. *Applied Financial Economics*, Vol. 12(1), pp. 19-24.
- Rajan, R. and Winton, A. (1995). Covenants and collateral as incentives to monitor. *Journal of Finance*, Vol. 50(4), pp.1113-1146.
- Rakesh, H. M. and Lakshmi, P. (2013). Capital structure on agency costs: Evidence from Indian public companies. *Journal of Business and Management*, Vol. 15(1), pp. 50-53.
- Ross, S.A. (1977). The determination of financial structure: the incentive-signalling approach. *The Bell Journal of Economics*, Vol. 8(1), pp. 23-40.
- Saona, P. y Vallelado, E. (2005). Ownership structure and growth opportunities as determinants of bank debt: Evidence from Chilean companies. *Management Research: Journal of the Iberoamerican Academy of Management*, Vol. 3(2), pp.121-136.
- Saona, P. y Vallelado, E. (2014). "Is bank-debt maturity contingent on the financial system?. *Academia Revista Latinoamericana de Administración*, Vol. 27(2), pp.183-208
- Scherr, F. and Hulburt, H. (2001). The debt maturity structure of small firms. *Financial Management*, Vol. 30(1), pp. 85-111.
- Smith, C., and Watts, R. (1992). The investment opportunity set and corporate financing, dividend and compensation policies. *Journal of Financial Economics*, Vol. 32, pp. 263-292.
- Soares, P. (2009). Are leverage and debt maturity complements or substitutes? Evidence from Latin America. *Revista de Administración*, Vol. 10(6), pp. 4-24.
- Soares, P. (2011). Determinants of corporate debt maturity in Latin America. *European Business Review*, Vol. 23(1), pp. 45-70.
- Stohs, M. H and Mauer, D. C. (1996). The determinants of corporate debt maturity structure. *Journal of Business*, Vol. 69(3), pp. 279-312.
- Stulz, R. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, Vol. 26(1), pp. 3-27.
- Stulz, R. (2000). Does financial structure matter for economic growth? A corporate finance perspective. Ohio State University Working Paper.
- Tanaka, T. (2015). Managerial discretion and the maturity structure of corporate public debt: Evidence from Japan. Working paper, Ritsumeikan University.