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Does Managerial Ability Affect Debt Maturity?

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Abstract

The maturity structure of debt is an essential feature of debt structure that has attracted considerable attention. Due to lower transaction costs and lower liquidity risk, firms use short-term debt. Therefore, the purpose of this study is to examine the relationship between managerial ability and debt maturity. Multivariate linear regression was used to test the research hypothesis. The statistical population consisted of 115 companies listed on the Tehran Stock Exchange during 2012-2021 (1150 firms- year observations). The model of Demerjian et al. [1] was used to measure managerial ability. The results of the research showed that there is a positive and significant relationship between managers' ability and debt maturity (short-term). In other words, the higher the managerial ability, the more short-term debt is used. This is because the cost of using this type of debt is lower.

Keywords: Managerial ability, Debt maturity, Debt structure, Short-term debt, Long-term debt.

1 | Introduction

Managers develop skills and acquire certain aspects of managerial ability throughout their careers by exploiting potential opportunities to develop the strategy and operational effectiveness of the firm, both of which play a crucial role in the firm's investment and financing decisions. The role of managerial ability has recently received increasing attention. Demerjian et al. [1], [2] show that managers' ability is an essential aspect of managers' efficiency in converting resources into returns. Further studies provide evidence that high-ability managers have important characteristics, such as the ability to achieve superior firm performance [3], [4], make more accurate earnings forecasts [5], [6], obtain more favorable credit ratings [7], and access more firm investment opportunities [8] than their lower-ability counterparts. However, little attention has been paid to the role of managerial ability in corporate debt maturity despite the fact that managers have discretion in debt maturity decisions.

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Debt maturity structure is an essential feature of debt structure that has attracted considerable attention. Firms use short-term debt because of lower transaction costs [9] and less liquidity risk [10], but face more renegotiations when the debt comes up for renewal [11], [12] and are exposed to refinancing and liquidity risk [11], [13]. Custódio et al. [14] show that the use of short-term debt has increased significantly over the past three decades and that firms with a higher degree of information asymmetry are responsible for this trend, underscoring the importance of shorter debt maturities in reducing information asymmetry between insiders and investors [15], [16].

On the basis of these reasons, it can be said that high-ability managers are associated with a short-term maturity structure. First, high-ability managers may use short-term debt to demonstrate their ability to outsiders. Recent studies provide evidence that, given the information asymmetry between managers and shareholders, high-ability managers are motivated to share their expertise and provide information that benefits shareholders; therefore, the market can efficiently evaluate their managerial ability. In support of this view, Baik et al. [5] show that high-ability managers provide more information to the market than low-ability managers. Baik et al. [17] show that high-ability managers use smoothing as a signaling channel to reduce information asymmetry between managers and investors. Doukas and Zhang [18] find that high-ability managers use earnings smoothing as a signaling channel prior to M&A announcements to communicate their superior ability to investors through more predictable earnings and cash flows. In this context, Demerjian et al. [19] show that high-ability managers are tempted to avoid behaviors that could damage their reputation. These findings suggest that high-ability managers, who possess superior information and a detailed understanding of the firm's economic prospects, are encouraged to make decisions that benefit shareholders and send a credible signal to the market, allowing them to leverage their superior expertise. Transferring it to investors reduces the extent of information asymmetry between managers and investors and enhances their reputation.

Second, short-term debt is a credit signal. It is well documented that short-term debt can reduce agency costs due to information asymmetry because its value is less sensitive to the private information of the borrower [16], [20]. Compared to short-term debt, the pricing of long-term debt is more sensitive to information asymmetry and, therefore, involves higher information costs. Moreover, information asymmetry can be reduced by signaling to others with superior information [21]. Since short-term debt requires constant renegotiation and rollover, the issuance of shorter-term debt can be perceived by the market as a reliable and positive signal of the firm's credit risk and liquidity [22]; therefore, short-term debt is one of the signaling tools through which managers are encouraged to secure investors and enhance the firm's reputation. Hence, the present research seeks to investigate the relationship between managers' ability and debt maturity structure.

2 | Research Background and Hypothesis Development

Managers develop their skills and reputations as they make business decisions. Through a combination of innate ability and experiential learning throughout their careers, managers acquire a critical resource for value creation. The study of managerial ability has received increasing academic attention in the literature, and several studies provide evidence that it affects firm behavior and performance.

It is well documented in the extant literature that managerial ability is associated with abnormal returns [23], earnings quality [2], earnings management [19], acquisition quality [13], goodwill impairment [24], tax avoidance [25], credit risk [7], investment opportunities [8], and strategic entry into new markets [26]. In addition, high-ability managers are able to forecast future earnings more accurately and implement their chosen strategies more effectively than low-ability managers [1], [5], [27].

Several studies provide evidence that high-ability managers are motivated to provide information that benefits shareholders, thereby communicating their ability to the market and enhancing their reputational capital. Compared to low-ability managers, high-ability managers are more likely to use their discretion to disclose

private information to demonstrate their ability [5], [17]. Baik et al. [17] show that high-ability managers use smoothing as a signaling channel to reduce information asymmetry between managers and investors. Similarly, Doukas and Zhang [18] find that high-ability managers use earnings smoothing as a signaling tool prior to M&A announcements to communicate their superior ability to investors through more predictable earnings and cash flows. Demarjian et al. [19] show that high-ability managers tend to avoid reputation-damaging behaviors because building a superior and valuable reputation requires a lifetime of effort.

Debt financing is an essential source of financing, and the choice of debt maturity is usually the responsibility of the company's top managers. In general, short-term debt financing is relatively more accessible and cheaper than long-term debt financing because it allows creditors to reuse assets. A common view in the literature is that short-term debt can reduce the agency costs of debt due to information asymmetries and suboptimal investment problems associated with debt financing [20], [28].

Short-term debt is particularly well suited as a control to discipline management and prevent managerial risk through monitoring and signaling leverage. Not only does short-term debt provide better protection to creditors than long-term debt, making it more difficult for firms to defraud creditors, but it also reduces the risk of deterioration in creditor performance [11], [12], [29].

Two theories are well documented in the debt maturity literature: agency theory and signaling theory. The prevalence of agency theory focuses on the misalignment of managerial and shareholder interests [15], such as overinvestment to obtain the privileges associated with large empires. Short-term debt is a mechanism for disciplining managers that reduces agency conflicts between managers and shareholders by forcing managers to pay frequently maturing debt and exposing managers to greater credit market scrutiny [30].

In other words, firms use short-term debt to minimize the agency costs of debt (between managers and shareholders), such as reducing asset substitution problems [31] and underinvestment problems [32] by increasing the frequency of renegotiation. Several studies show that managerial skill reduces agency problems through accounting conservatism [33] and the creation of a corporate social culture [18]. According to the agency theory perspective, high-ability managers use their exceptional skills and expertise to report conservative accounting based on efficient contracts and participate in the creation of the firm's social culture, which benefits the firm's value and reduces agency conflicts. From this perspective, agency problems are less likely to occur in firms with high-ability managers, and a negative relationship between managerial ability and short-term debt is predicted.

Signaling theory was developed to address the information asymmetry that exists between managers and shareholders. In cases where shareholders do not have sufficient information about the firm's performance, managers can exploit this information asymmetry and take actions that benefit shareholders at the expense of shareholders, leading to the problem of moral hazard. In the case of information asymmetry between the firm and investors, the use of short-term debt may reveal private information to foreign investors, as higher-quality firms issue shorter-term debt to demonstrate their higher quality. In comparison, lower-quality firms issue longer-term debt to avoid increasing the cost of issuing short-term debt [22]. Studies focusing on the informational role of short-term debt show that short-term debt can act as an adequate quality signal. For example, a study by Flannery [22] is one of the first to propose the information asymmetry hypothesis, which suggests that managers have private information and issue short-term debt to signal the high quality of the firm to the market. Sorge et al. [34] and Gopalan et al. [13] recently published studies that describe the supporting evidence that short-term debt is used as a quality signal.

Recall that high-ability managers tend to hold the market with their superior ability to differentiate themselves from less able managers. According to signaling theory, there is expected to be a positive relationship between managerial ability and short-term debt. On the other hand, short-term debt has several disadvantages. Since short-term debt is more likely to be rolled over than long-term debt, firms with more short-term debt will have to turn to the capital market when they need to repay their debt, which means that these firms will be

exposed to a higher degree of liquidity risk. In other words, shortening the debt maturity structure exposes firms to higher levels of displacement risk [35]. He and Xiong [36] document that rollover risk can be a source of credit risk because short-term debt exacerbates the conflict between shareholders and debt holders, which in turn means that shareholders bear refinancing risk. Similarly, Wang et al. [37] find that exposure to displacement risk increases a firm's expected probability of default.

There is reason to believe that managerial ability and debt maturity choice are related. Several studies show that high-ability managers have superior business knowledge [27] and superior skills that enable them to anticipate changes in the underlying economics of their firm, estimate accruals [2], and forecast earnings [5]. These studies show that compared to low-ability managers, high-ability managers are likely to possess more private information and communicate helpful information to the market. Moreover, high-ability managers lose more in terms of compensation [38] and reputation [39] when future unexpected shocks lead to poor firm performance.

In sum, the logic of the conjecture is similar to that of Baik et al. [17] and Demerjian et al. [19] that more information that is beneficial to shareholders is communicated to the market by high-ability managers, allowing them to reduce information asymmetry, which in turn improves their managerial reputation. Despite the information asymmetry between managers and investors, short-term debt can reduce the agency costs of debt arising from information asymmetry and suboptimal investment problems associated with debt financing [20]. Similarly, short-term debt can serve as a valuable signal of high-quality borrowing [11]. Based on these views, high-ability managers are motivated to use short-term debt to reduce information asymmetry and inform the market of their superior ability to differentiate themselves from lower-ability managers. By enhancing reputation through signaling, high-ability managers are more likely to change the firm's debt maturity structure by increasing the use of short-term debt. This leads to the research hypothesis:

H1: managerial ability has a positive relationship with firms' use of short-term debt.

3 | Research Method

The current research is applied research in terms of its purpose. This type of research can be used by the stock exchange organization, financial analysts, stock brokers, and financial managers of companies. Also, from the point of view of inference method, this research is descriptive-correlation type. In terms of the type of research design, it is a type of post-event research.

3.1 | Statistical Population

The statistical sample of this research includes the selected companies accepted in the Tehran Stock Exchange, which have the following conditions in the period of 2012 to 2021 (10 years):

- *The selected companies must be admitted to the Tehran Stock Exchange before 2012.*
- *Companies in terms of increasing the comparability of their financial period ending in March.*
- *The companies have not changed their activities or financial year during the studied years.*
- *The company's type of activity is production, so financial institutions, investment, and banks are not included in the sample.*

In this way, the number of companies that had the aforementioned characteristics and can be used as a statistical sample is 115 companies, so the number of observations is 1150 companies.

3.2 | Research Model and Variables

The following model has been used to test the research hypothesis:

$$\text{DebtMaturityit} = \beta 0 + \beta 1\text{MABILITYit} + \beta j\text{CONTROLSit} + \varepsilon it \quad \textbf{(1)}$$

Independent variable:

Managerial Ability (MABILITY): Using the model of Demarjian et al [1], the measurement of managerial capability is carried out in two steps. In this model, in the first stage, the managers' ability is calculated by using the measurement of the company's efficiency and then entering it into the multivariable linear regression as an independent variable and controlling for the inherent characteristics of the company. The Data Envelopment Analysis (DEA) model is used to measure the company's efficiency. The DEA model is a type of statistical model used to measure system performance using input and output data.

DEA measures the relative efficiency of units that have similar inputs and outputs. The efficiency or inefficiency of each decision unit depends on its performance in transforming inputs into outputs compared to other units in a given area. This method creates an efficiency frontier for companies between zero and 1. Enterprises with an efficiency score of 1 are highly efficient, and enterprises with an efficiency score of less than 1 are below the efficiency frontier. They must reach the frontier by reducing costs or increasing revenues.

$$\text{Max}_{\theta} = \frac{\text{Sales}}{v_1\text{COGS} + v_2\text{SG\&A} + v_3\text{NetPPE} + v_4\text{Opslease} + v_5\text{R\&D} + v_6\text{Goodwill} + v_7\text{Intan}}. \quad \textbf{(2)}$$

Sales = Sales of the company.

COGS = The company's cost of goods sold.

SG&A = Selling, general and administrative expenses.

NetPPE = Net balance of property, plant, and equipment at the beginning of the year.

Opsleas = Operating lease cost of the company.

R&D = Company research and development cost.

Goodwill = Goodwill purchased by the company at the beginning of the year.

Intan = Net intangible assets at the beginning of the year.

Max θ = Firm efficiency.

In the second stage, the efficiency of companies is affected by two factors: specific firm characteristics and manager's ability (the model below) shows this relationship. After removing company-specific characteristics, the remaining value represents the manager's abilities.

$$\text{FirmEfficiecyit} = \alpha + \beta 1\text{LN(TotalAssets)it} + \beta 2\text{MarketShareit} + \beta 3\text{FreeCashFlowIndicatoit} + \beta 4\text{In(Age)it} + \beta 5\text{ForeignCurrencyIndicatorit} + \varepsilon it \quad \textbf{(3)}$$

FirmEfficiecy: The efficiency of the firm obtained from *Model (3)* DEA.

LN (TotalAssets): Is the logarithm of the sum of assets that can be extracted from the financial statements.

MarketShare: The market share of each company, which is obtained by dividing the sales amount by the total sales of the industry at the end of the financial year.

(Age): The age of the company, which is equal to the natural logarithm of the number of years the company has been on the stock market.

Foreign Currency Indicator: Represents the foreign currency; this dichotomous variable is measured in such a way that if the target company exports, the number will be 1, and otherwise, it will be zero.

FreeCashFlow: a dummy variable that is considered equal to one if the operating free cash flow is positive and zero if it is negative. Free cash flows are calculated according to *Model (4)*.

$$FCFit = Pit - TAXPit - CIPit - DPPit. \quad (4)$$

FCF: Free cash flows; P: operating profit before depreciation; TAXP: tax paid; CIP: interest cost payable; DPP: Dividends paid.

Dependent variable:

Debt maturity; this ratio is obtained by dividing total short-term debt by total debt.

Control variables: [40], [41].

Firm size (Size): The natural logarithm of the book value of total assets.

Company size to the power of 2 (Size2).

Financial Leverage (LEV): The ratio of total liabilities to total assets.

Profitability: Ratio of operating profit to total assets (ROA).

Cash Holding (Cash): From dividing the total cash and short-term investment by total assets.

Fixed assets ratio (PPE): Divided by total property, plant, and equipment by total assets.

Sales, General, and Administrate ratio (SGA): Divided by total selling, general, and administrative expenses by total assets.

4 | Research Finding

4.1 | Descriptive Statistics

Table 1 shows the descriptive statistics of research variables.

Table 1. Descriptive statistics of research variables.

Variable	Symbol	Mean	Median	Max	Min	S.D
Managers ability	MA	0.013	0.008	0.295	-0.079	0.028
Debt Maturity	Debt Maturity	0.29	0.32	0.59	0.18	0.19
Size of the firm	Size	13.845	13.615	19.009	10.031	1.524
Size of the firm^2	Size2	191.68	185.36	361.34	100.62	2.32
Financial Leverage	LEV	0.6612	0.6701	1.5411	0.0780	0.0585
Profitability	ROA	0.114	0.121	0.401	-0.34	0.181
Cash holding	Cash	0.07	0.037	0.407	0.05	0.089
Sales, General, and Administrate ratio	SGA	0.071	0.052	0.421	0.102	0.151
Property, Plant, and Equipment	PPE	0.356	0.451	0.614	0.301	0.045

Based on the results of *Table 1*, it can be said that, on average, 29% of companies' debts are current. 66% of assets are from liabilities. 11% of companies had positive performance. Cash accounts for 7% of the company's assets. Also, 35% of the company's assets are fixed assets.

4.2 | Hypothesis Test Results

The research hypothesis was tested using linear regression. Its results are shown in *Table 2*. Based on the results of *Table 2*, the value of the F statistic is equal to 47.02, and since its significance level is 0.000, it can be said that the research model is a good fit. The results of the test at a significance level of 5% showed that there is a positive and significant relationship between the ability of managers and the maturity of short-term debt. In other words, the research hypothesis is accepted.

Table 2. Research hypothesis test results based on fixed effects.

Symbol	β	S.d	t	Sig.
MA	0.4412	0.1964	2.2464	0.0001
Size	0.8151	0.3541	2.3018	0.0000
Size2	0.1176	0.1702	0.6909	0.2641
LEV	0.6241	0.2333	2.6750	0.0000
ROA	0.7011	0.3078	2.2777	0.0000
Cash	0.3611	0.5101	0.7079	0.8721
SGA	0.6399	0.9677	0.6612	0.6461
PPE	1.2641	0.5656	2.2349	0.0000
C	1.1188	0.4791	2.3352	0.0000
R^2	0.4011	F		47.02
R^2 Adj.	0.3840	Durbin-Watson		1.96

5 | Conclusion

A company's financing decisions are largely at the discretion of its management. Custódio et al. [14] argue that the use of short-term debt has increased over the last three decades. Signaling theory suggests that short-term debt reduces information asymmetry and serves as a positive signal of managerial ability to the market. In contrast, agency theory predicts that the negative relationship between managerial ability and short-term debt is due to agency problems in firms. It is less pronounced at high rates. Based on the results, it can be said that higher managerial ability is associated with higher short-term debt ratios, which is consistent with the theory of managerial signaling and reputation enhancement.

The present study shows that high managerial ability can have a positive relationship with firms' use of short-term debt. This means that high-ability managers tend to represent the market with their superior ability to differentiate themselves from low-ability managers, which in turn leads to a positive relationship between managerial ability and short-term debt. This evidence shows that short-term debt plays a more critical role in reducing information asymmetry in the presence of high-ability managers. According to the signaling theory, short-term debt plays a role as a reliable tool in disseminating private information to outsiders. The results of the present study are consistent with the findings of Khoo & Cheung [42]. On the one hand, it is based on the view that short-term debt can serve as a helpful signal of high-quality borrowing [11]. Therefore, high-ability managers are motivated to use short-term debt to reduce information asymmetry and maintain the market with their superior ability to differentiate themselves from other less-ability managers.

According to the concept of signaling theory, high-ability managers are more likely to change the maturity structure of the firm's debt by increasing the use of short-term debt as a signal of good quality, which allows them to enhance their reputation. On the other hand, Shang [43] suggests two reasons why high-ability managers use more short-term debt. First, the superior operational efficiency of high-ability managers allows them to channel growth options into value-enhancing projects. Second, high-ability managers are likely to face less liquidity risk from short-term debt. Therefore, high-ability managers are encouraged to change the maturity structure of their debt to use short-term debt.

It can be suggested to the users of this research, in particular the board of directors and large or small shareholders, to pay attention to the ability of managers in this industry when hiring them. This is because managers with higher ability can increase the reduction of information asymmetry, and this causes capital market participants to enter this market with more confidence. Researchers are suggested to investigate the moderating effect of financial restrictions in this regard in their future research. It is also recommended that the moderating effect of financial flexibility and growth opportunities be investigated.

Conflict of interest

In preparing this study, the authors have no conflicts of interest.

Data Availability

The data that support the findings of this study are available upon reasonable request from the author.

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