

Chapter 2: Literature Review

Researchers in finance area have tried to understand the optimal capital structure of firms. Specially, they have spent substantial attempt beyond traditional debt-equity trade-off by studying on borrowing structure of firms. The reason for doing these researches is that debt maturity structure is one of the key characteristics of the right side of the balance sheet. The financial literature provides three main theories for choosing debt maturity policy which are agency (contracting) costs theory, signaling and liquidity risk theory and tax theory. In first part of this chapter, these basic theories are explained to show the structure of empirical tests and results interpretation and in the second part recent findings in the area are provided.

2.1 Agency (Contracting) Costs

It is well recognized that an important factor that influence the firm's financial structure policy is the existence of significant agency costs. Myers (1977) claims that part of a firm's market value is the result of future investment opportunities. He argues that a firm's future investment opportunities are like options and the value of these options depends on whether the firm exercises them in the best possible way. Myers' study shows that firms with risky debt outstanding in their capital structure which act in their stockholders' interest have an incentive to reject some valuable projects with positive net present value because the benefits from accepting these profitable projects are divided between equity

holders and bondholders and in some cases equity holders get less return. This problem is known as underinvestment problem (Myers, 1977).

He also argues that underinvestment problem can be alleviated by issuing short-term debt which matures before the investment option is exercised. Barnea et al. (1980) also suggests that underinvestment problem can be mitigated by issuing short-term debt. Moreover, both of them argue that issuing long-term debt with a call provision has the same effect as issuing short-term debt in eliminating this agency cost. Issuing callable debt reduces underinvestment problem by limiting the potential wealth transfer from stockholders to bondholders.

Stulz and Johnson (1985) suggest that issuing fixed claims with high priority (such as secured debt) can mitigate the underinvestment problem by limiting wealth transfer from stockholders to existing bondholders. Ho and Singer (1982) argue that short-term debt and long-term debt have the same priority in bankruptcy but short-term debt is paid first in the absence of bankruptcy. So issuing short-term debt can help to finance new investment projects with the same benefits as those from issuing secured debt by controlling the underinvestment problem.

The underinvestment problem would be eliminated if firm could refinance itself by minimum cost (Fama, 1978). For instance, think about a firm that requires investment in one year. This firm has the same motivation to invest whether it has one-year debt outstanding or ten-year debt that it repays after one year. If

information about the project causes the prices of its long-term debt to rise then based on recapitalization strategy it cannot repurchase its long-term debt at price that do not reflect the value of the project. So the benefits from project are again divided between equity holders and bondholders. Issuing short-term debt can help to solve this problem by fixing the price at which the firm repurchases its debt and allows stockholders to gain more of the benefits from its new investments.

Smith and Warner (1979) argue that restrictive covenants in debt benefit risky firms. Restrictive covenants alleviate underinvestment problem that occurs after the debt issuance. In the case of violation and when debt covenants can be written, the borrower is renegotiated rather than forcing into bankruptcy. This gives the lender flexibility and control. Berger and Udell (1998) argue that short-term debt must be used instead of formal covenants to control the small firms which do not have audited financial statements. The difference between short-term debt and restrictive covenants is that by short-maturity credits, a lender can force renegotiation frequently but renegotiation can only be activated by those covenants itemized in the loan agreement (Berger and Udell, 1998).

The Trust Indenture Act of 1939, limit the discretion that may be allocated to the trustee in a public debt issue. Based on that renegotiating covenant in public debt agreement is costly. Fama (1978) argues that private lenders, especially banks, have competitive advantage over public lenders. Banks can write debt contracts with restrictive covenants and use short-term loans to maximize their monitoring

activities effectively. By using short-term, the bank can increase its bargaining power and affects the investment policy of the firm by making the option exercise a condition for refunding. So firms that have investment opportunities and use bank financing have more short-term debt than those using public debt.

2.1.1 Growth Opportunities

The underinvestment increases with more growth options in the firm's investment opportunity set. When leverage is high, creditors benefit from investments. So shareholders will not earn a fair return and they have incentive to reject profitable investments. The higher the growth opportunities, the more critical the underinvestment problem is. Demirguc-Kunt and Maksimovic (1998) argue that firms that grow very quickly may be strictly constrained in terms of financing because their financing needs is higher than their internal resources. Binks and Ennew (1996) indicate that firms that grow very fast are restricted in accessing to credit and if they have risky debt in their capital structure, they have incentive to switch low-risk to high-risk assets. This is known as asset substitution issue.

The conflict between stockholders and bondholders is greater in the firms that have more growth options in their investment opportunity set. Myers (1977) argues that a firm can mitigate the underinvestment problem by three ways: by shortening the maturity of its debt, by including less debt in their capital structure and by including restrictive covenants in its indenture agreements. According to Myers, underinvestment can be eliminated by issuing debt that matures before

an investment opportunity can be exercised, thereby borrowers and lenders can renegotiate. Issuing short-term debt can also help to reduce agency cost of monitoring because firms are evaluated periodically in this way. So firms can achieve long-term financing by rolling over short-term debt. Titman (1992) argues that growth firms can benefit from borrowing for short-term if they have both greater likelihood of bankruptcy and an optimistic future outlook. There are some other articles that focus on managerial discretion and derive implications that are similar to those of Myers. For example, Stulz (1990) and Hart and Moore (1990) argue that debt prevents firms from making bad investments. They suggest that firms with few growth options should issue more long-term debt because long term debt is most effective at limiting managerial discretion and may prevent self-interested managers from financing unprofitable investment. Datta and Iskandar-Datta (2000) examine a sample of U.S. bond-IPOs from 1971 and 1994 and find a negative relation between debt maturity and future growth opportunities. The empirical prediction is that firms with more growth option in their investment opportunity sets employ a higher proportion of short-term debt in their capital structures.

2.1.2 Firm Size

As argued by Smith and Warner (1979) and Pettit and Singer (1985), the potential conflict of interest and agency problems between stockholders and bondholders may be particularly severe for small firms because their managers on average own larger proportion of the equity. This aligns the interest of the

managers with those of shareholders but makes these managers less risk averse. Another reason for agency conflicts is that smaller firms are prevented from accessing long-term debt markets because their future investment opportunities are large relative to collateralizable assets (Whited, 1992). It is suggested that these conflicts can be mitigated to some extent by issuing more short-term debt (Barnea et al., 1980) which implies that smaller firms with potentially more severe agency problems take resource to short-term debt to avoid these conflicts. Moreover, ownership/manager succession problems may be worse in small firms because they have only one or two owner-managers. So banks tend to lend long-term debt to large firms with multiple owner-managers. Larger firms are more transparent and thus creditors can obtain more accurate information on them at relatively low cost. They have also higher tangible assets relative to future investment opportunities and they face fewer constraint on obtaining external financing and accessing to long-term debt markets because of their low bankruptcy risk (Chittenden, Hall and Hutchison, 1996). Therefore, bondholders attempt to control the risk of lending to small firms by restricting the length of debt maturity.

Issuance cost for public issues have a large fixed component resulting in significance scale economies. Large firms take advantage of scale economies and tend to employ more long-term debt because of lower fixed (and overall) costs and easier access while smaller firms are less able to take advantage of these scale economies and they usually rely on private debt with shorter maturity

and lower transaction cost (Titman and Wessels, 1988). Barclay and Smith (1995) also argue that smaller firms prefer to borrow short-term debt such as bank loans rather than issuing long-term debt because of the lower fixed cost associated with this alternative financing. As short-term debt is suggested to reduce agency costs, a positive relation between firm size and debt maturity is to be expected.

2.1.3 Maturity Matching

A fall out of the agency conflict between the stockholders and bondholders is the underinvestment problem. Myers (1977) suggests that this problem can be alleviated to a certain extent by matching the maturity of assets and liabilities to ensure that debt repayments are scheduled to correspond with the decline in the value of assets in place. Myers' analysis thus provides a rationale for value-maximizing firms to match the effective maturities of their debts and assets. At the end of an asset's life, the firm faces a reinvestment decision. If a firm issues debt that matures at this time, it can reestablish the appropriate investment incentives when new investment is required. This implies that firms with more long-term assets will have more long-term debt in their capital structure. The firm's growth options which are considered as intangible assets also play an important role as well.

The immunization hypothesis suggests that firms match the maturity of their liabilities to the maturity of their assets. Hart and Moore (1995) confirm the

existence of such immunization strategy by showing that slower asset depreciation means longer debt maturity. In a survey of 392 US firms, Graham and Harvey (2001) find that maturity matching between liabilities and assets is important in choosing whether to issue short or long-term debt. Barnea, Haugen and Senbet (1980) argue that shortening debt maturity to match the asset maturity can help to reduce the agency costs of under-investment and risk-shifting because short-term debt is less sensitive to shifts in the risk and decreases the agency costs by imposing more frequent monitoring by investors. Studies by Guedes and Opler (1996), Heyman, Deloof and Ooghe (2008), Ortiz-Molina and Pena (2008) are also consistent with the agency cost explanation of debt maturity. For example, Demircug-Kunt and Maksimovic (1999) show that firms employ short-term debt to finance current assets.

Morris (1976) argues that firms try to match the maturity of assets and liabilities to reduce the risk of cash insufficiency to cover interest payments and capital outlays. Also, Stohs and Mauer (1996) argue that when debt maturity is shorter than asset maturity, assets may not have yielded sufficient cash and enough profit to repay the debt when they fall due. Debt with the maturity longer than the maturity of the assets is also risky because firm will have debt obligations to meet while cash flows from assets stop. Consequently, firms try to match the maturities of assets and debt. The maturity of assets in larger firms is likely to be different from that of smaller firms because larger (manufacturing) firms involve more fixed assets than smaller (non-manufacturing) firms. However, the maturity

matching principle is relevant for small firms. Graham and Harvey (2001) conducted a survey in which 392 CFOs were asked about how firms choose between short-term debt and long-term debt and they found that matching maturity between assets and liabilities was the most popular answer. The empirical implication is therefore that debt maturity is positively related to asset maturity.

In summary agency (contracting) costs theory is represented by three factors – growth opportunity, firm size and maturity matching – in this study.

2.2 Signaling and Liquidity Risk

Signaling models of debt maturity are based on the view that rational investors use the firm's debt maturity structure to infer private information held by insiders. Based on this theory, firm's quality, liquidity, and leverage have influence on debt maturity decision of managers and managers want to reduce the bankruptcy risk.

2.2.1 Firm's Quality

Under the condition of asymmetric information firms attempt to reveal their qualities by signaling. The signals could be in different forms such as dividends (Bhattacharya, 1979; Miller and Rock, 1985), leverage (Poitevin, 1989) or short-term debt (Diamond, 1991; Flannery, 1986). Based on Flannery's theory (1986), maturity structure of debt can be used to signal information regarding the quality of the firm when insiders are better informed than outside investors. Flannery

(1986) derives a separating equilibrium with positive transaction costs in which high quality firms with considerable information asymmetry choose more of short-term debt while low-quality firms choose long-term debt primarily because of three reasons. First, in the presence of positive transaction costs, low-quality firms cannot afford to roll over short-term debt and would borrow on long-term basis. Second, with asymmetric information, insiders of high quality firms will consider the market's required default risk premium to be excessive and disproportionate to the actual probability of default, which is most unreasonable on long-term and it causes high-quality firms to avoid employing them. Third, short-term debt would allow high quality firms to renegotiate debt contracts as incremental information about projects reach the investors. Therefore, high quality firms may choose to signal their quality by issuing short-term debt.

Kale and Noe (1990) suggest that Flannery's separating equilibrium is possible even without the transaction costs in choosing debt maturity. They argue that high quality firms issue short-term debt and low-quality firms issue long-term debt if the changes in firm value are positively correlated. Stohs and Mauer (1996) also support Flannery's theory and find that debt maturity structure is inversely related to firm's quality. Titman (1992) extends Flannery's separating equilibrium by including financial distress costs and interest rate uncertainty. He argues that to achieve the optimal financing structure, high quality firms may borrow short-term debt and swap the floating-rate obligation for the fixed-rate obligation.

Mitchell (1991) argues that firms with high asymmetric information and high-quality projects choose to issue short-term debt. Flannery (1986) argues that because pricing of long-term debt is more sensitive to firm value, it can potentially be more mispriced than short-term debt. If the bond market cannot distinguish between high-quality and low-quality firms, high-quality firms tend to issue the less undervalued short-term debt while low-quality firms are likely to issue more overvalued long-term debt. Rational investors understand these incentives when valuing risky corporate debt. Data and Iskandar-Datta (2000) confirm Flannery's theory and empirically find a negative relation between firm's quality and the maturity of debt IPOs. So in equilibrium, high-quality firms will issue more short-term debt while low-quality firms will issue more long-term debt. Based on these findings, a negative relationship between firm quality and debt maturity is expected.

2.2.2 Liquidity

Budina, Garresten and de Jorg (2000) argue that liquidity risk and liquidity constraints are important issues for firms with large amount of debt. Stohs and Mauer (1996) suggest that controlling for leverage is important in finding the relationship between liquidity risk and debt maturity structure because borrower's rating affects the effectiveness of monitoring. They argue that firms with low level of leverage can borrow on short-term basis because they have low liquidity risk while firms with large amount of debt have to issue long-term debt to minimize

the risk of refinancing. Liquidity risk is the risk that a debtor has to liquidate the firm because creditors do not want to refinance (Diamond, 1991).

Myers and Rajan (1998) argue that excessive liquidity reduces the ability of managers to commit credibly to an investment action. So, high liquidity ratio may reduce the fund raising capacity of firms. Non-depreciating assets such as land can be used as collateralizable assets and therefore they can increase the maturity of debt structure while liquid assets which are non-depreciating such as inventories do not support long-term debt. When firms issue long-term bonds, their condition may change over time and also the management may shift to riskier projects before bonds mature. As a result, lenders are exposed to the risk. To control for such risks, lenders may impose restrictions on long-term borrowing and hence the firms with higher liquidity will be able to raise long-term debt. According to the above arguments the empirical prediction is that in case of high leverage liquidity risk (inverse measure to current ratio) has negative impact on debt maturity.

2.2.3 Leverage

The relation between leverage and debt maturity is ambiguous. Morris (1992) suggests that firms with higher debt in their capital structure tend to issue longer-term debt in order to delay their exposure to bankruptcy risk. Leland and Toft (1996) show a positive relationship between financial leverage and debt maturity. They argue that firms opting for higher leverage also choose longer maturity. On

the other hand, Dennis et al. (2000) argue that the relationship between the two should be negative because the agency costs of underinvestment can be alleviated by reducing leverage as well as by shortening debt maturity. Therefore the nature of relation between leverage and debt maturity is expected to be positive.

In summary signaling and liquidity risk theory is represented by three factors – firm's quality, liquidity, and leverage – in this study.

2.3 Taxes

Another factor which has been considered to be important in determining the maturity structure of firms' debt is tax. Brick and Ravid (1985) analyze tax implications of debt maturity choice and argue that the expected value of the firm's tax shields depends on maturity structure of its debt whenever the term structure of interest rates is not flat and with the existence of agency costs and default risks because the firm can default on its promised debt payments. They assume that the probability of default increases with time, and the value of the firm's interest tax shield are reduced upon default.

Brick and Ravid (1985) argue that if the term structure of interest rate or yield curve slopes upward, long-term debt is optimal since the savings from tax shield value of long-term debt are accelerated by increasing the proportion of debt payment. So, firms prefer long-term debt that raises the firm value because in early years the present value of interest expense from issuing long-term debt is

higher compared to the cost of rolling forward short-term debt. However, the interest expense is lower in later years. On the other hand, if the term structure of interest rate is decreasing, it is better to issue short-term debt at present. Thus the tax hypothesis implies that firms issue long-term debt when the term structure has a positive slope because issuing long-term debt reduces a firm's expected tax liability and enhance firm value and issuing short-term debt is optimal when the yield curve slopes downward. Brick and Ravid's model assumes that a firm choose leverage before choosing its maturity.

Apart from Brick and Ravid's (1985) work which first examines capital structure and then examines debt maturity, Lewis (1990) examines capital structure and debt maturity simultaneously. He finds that taxation has no effect on debt maturity decisions and debt maturity structure is irrelevant, assuming that taxation is the only market imperfection and there is no difference in the tax expenses calculated by short-term and long-term debt. Ozkan (2002) supports Lewis' (1990) argument and finds no evidence between debt maturity and total tax paid divided by total taxable income. Similar outcomes are observed in Smith and Stulz (1985). They use a stand-alone yield curve variable into their econometric model and receive either insignificant or wrongly signed coefficients. So it is concluded that the benefits of the tax shield depend on the term structure of interest rates.

Kim et al. (1995) develop a multi-period model with uncertain interest rates and demonstrate that a long-term maturity strategy maximizes investor's tax-timing

option value that implies higher value of the firm, where the choice is between repurchasing and reissuing the debt. They show that debt maturity is positively related to interest rate and the slope of the term structure. Kane et al. (1985) use an option valuation model to look for the optimal debt maturity in a multi-period environment. By the trade-off between tax shield advantages and costs of bankruptcy and issuance floatation costs they find that debt maturity is directly related to the issuance floatation cost and is negatively associated with tax advantage of debt (i.e. effective tax rate) and the volatility of firm value because the firm wants to ensure that the remaining tax benefits of debt is not less than amortized floatation costs. Schools and Wolfson (1992) argue that not all firms can afford to issue expensive long-term debt, although the transaction costs of rolling-over short-term debt are higher. Firms with high marginal tax rates can use the ongoing tax benefits of cheap long-term debt. So the positive relation is expected between effective tax rate and debt maturity structure.

2.4 A Review of Empirical Tests of Debt Maturity

A number of studies focused on debt maturity by using a few determinants separately. Titman and Wessels (1985) show that small firms tend to use more short-term debt than larger firms. Mitchell (1993) finds that firms with high-quality projects may choose short-term debt. He also reports that firms with many opportunities tend to issue short-term debt and debt maturity is inversely related to a firm's business risks. Kim et al. (1995) argue that the volatility of interest rates increases debt maturity. Sarkar (1999) finds a negative relationship

between the optimal debt maturity and earnings volatility. Erol (2004) suggest that temporary and stationary shocks to costs and demands affect Turkish firms' debt maturity decisions. Employing a sample of top 50 Indian business groups, Bandyopadhyay and Kumar Das (2005) find a positive relationship between issuance of short-term debt securities and product market sales.

Since the late 1990s, more direct tests of debt maturity have been done, which consider various determinants simultaneously. Barclay and Smith (1995) performed a test on sample of American firms and find that firms with more growth options in their investment opportunity sets issue more short-term debt. So, large firms tend to be financed by long-term debt because they have few growth options. They argue that firms with potentially large information asymmetries such as high-growth firms issue more short-term debt, but there is little support for firms using debt maturity to signal their quality. They also find that tax hypothesis is not significant in explaining the debt maturity choice.

Stohs and Mauer (1996) conclude that growth opportunities are insignificantly related to debt maturity. They argue that large firms tend to issue long-term debt and firms match the maturity of their assets to the maturity of their liabilities. Based on their findings, firms with high debt in their capital structure have more long-term debt in their debt structure and high quality firms issue more short-term debt. They also find a negative relationship between earnings, effective tax rate and debt maturity structure. Guedes and Opler (1996) find that debt maturity is positively related to firm's size, asset duration and corporate tax rate and has a

negative relation with growth opportunities and earnings volatility. Demirguc-Kunt and Maksimovic (1999) analyze the choice of debt maturity structure in 30 countries and find many similarities in the determinants of debt maturity choice across developed and developing countries.

Ozkan (2002) tests several leading theoretical models of debt maturity structure on a sample of 321 non-financial UK firms. The evidence supports the prediction that debt maturity is positively related to the size of the firms. The results reveal that firms match the maturity structure of their debt to the maturity structure of their assets. There is also considerable support for the hypotheses that agency-related costs and volatility of firm value exert a negative impact on debt maturity. Ozkan's (2002) findings provide no evidence that tax affects debt maturity. Finally, he does not find any support for signaling hypothesis that firms use their debt maturity structure to signal information to the market. Based on Ozkan's (2002) empirical study, the determinants of debt maturity choice of UK firms are similar to those that affect the debt maturity structure of U.S. firms.

Antoniou et al. (2006) examine the determinants of the debt maturity structure of French, German and British firms and provide a comparative picture of three major European markets. These countries represent three different legal and financial traditions. A new set of variables such as term structure of interest rates, stock returns and equity premium are included in the study to capture the effects of equity market conditions on corporate debt maturity structure and to incorporate a bridge between equity and debt markets. They find that firms in all

three countries adjust their debt maturity structure toward their target level. Regarding the tax theory, they find that the term structure of interest rates affects the debt maturity structure of firms in all three countries. The effective tax rate has a significant and positive influence on the length of debt maturity in Germany and the volatility in the rate of interest affects the debt maturity choice of UK firms. Tax clientele argument is supported in Germany that high marginal tax rates encourage firms to borrow for longer-term.

Signaling and liquidity risk theory also receive some support. Antoniou et al. (2006) find that leverage has positive and significant effect on debt maturity in all three countries. The firm level volatility which reflects the importance of risk has a significant impact on French and British firms. They also find that liquidity has a significant effect on debt maturity structure of firms in all three countries which show the need to avoid costly and lengthy bankruptcy process. There is no support for the relationship between firm quality and debt maturity in all three countries.

The contracting cost theory and its factors are fully supported for the UK firms but they have no significant effect in France and Germany. Base on their findings, equity market conditions have an important role in debt maturity structure decisions of UK firms while German and French firms do not consider equity market conditions when deciding their debt maturity structure. They find that the impact of equity market conditions on corporate debt maturity depends on the country. Finally, Antoniou (2006) propose that debt maturity is related to the firm-

specific, country-specific and macroeconomic factors such as financial, legal and corporate governance traditions of the country in which the firms operate.

Heyman et al. (2008) examine the determinants of the debt maturity choice for a sample of small, privately held Belgian firms. Based on their findings, growth options have no impact on the choice of debt maturity, which suggest that underinvestment problem is resolved by lowering leverage and by bank monitoring, not by reducing debt maturity. They find that firms tend to match the maturity of debt with the maturity of their assets. Credit risk is also an important determinant of debt maturity choice of Belgian firms. Small and privately held Belgian firms with higher credit risk borrow more on the short term. They also find that larger firms tend to have shorter debt maturity than smaller firms. Finally, this study generally confirm the role of asymmetric information and agency costs of debt as major determinants of the financial structure of privately held Belgian firms.

Cai et al. (2008) examine the validity of debt maturity theories in an emerging market, China. They test the main theories of debt maturity on a sample of 259 Chinese firms in 12 industries. Their study finds that size of the firm; asset maturity and liquidity all have significant and positive effects in extending the maturity of debt employed by Chinese companies, consistent with the predictions of maturity theories. However, proxies for a firm's quality and effective tax rate apparently report mixed or unexpected results because China has control over industrial firms and banks. They find opposite results such that good quality firms

may choose long-term debt. This is probably because the dominant financing source for firms in China is through banks. Finding the positive relation between collateralized assets, growth opportunity and maturity; they find that the overinvestment problem tends to be more relevant than underinvestment inefficiencies in China. Cai et al. (2008) test the effects of term structure of interest rates, the volatility of interest rates and stock market return index, and market equity premium on loan maturity to find out whether managers in China consider market conditions before deciding the maturity of loans. They find that lower volatility in interest rates and in stock markets lengthens debt maturity. They also find that higher market equity premium and higher spread in term structure lead to shorter maturity debt. The results show that Chinese corporate sectors and economy is yet to be market oriented. Finally, they test the relationship between corporate ownership structure and debt maturity decisions of Chinese firms and they find that companies with more-concentrated equity ownership and more individual shareholders tend to opt for shorter-maturity debt.

Stephan et al. (2010) investigate the determinants of debt maturity choice in Ukraine's emerging market. They find sufficient evidence to support debt maturity hypotheses such as agency costs, maturity matching, signaling and liquidity. They believe that in Ukraine's turbulent environment with changing macro-economic conditions and capital market restrictions, financial behavior of firms can be observed that is not observable in more developed economies with less financial constraints and this changing environment provides a better

understanding of the hypothesized causes of corporate debt maturity choice. They show that firm's quality and its access to long-term capital markets significantly affect the debt maturity choices of the firm. Stephan et al. (2010) partition their sample into financially constrained and unconstrained firms and they find strong evidence that constrained and unconstrained companies react differently on liquidity risk and pursue different debt maturity strategies. They show that unconstrained companies mitigate the agency conflicts by shortening the structure of their liabilities while the firms with cash constraints are more vulnerable to liquidity risk. The results provide support for significant effect of tax rate on liability structure for small firms that have restricted access to bond markets. In general, firms with restricted access to external financing are more sensitive to earnings volatility and tax charges when choosing debt maturity structure while unconstrained firms exhibit a higher sensitivity to underinvestment and asset substitution issues and also tend to follow maturity matching. They suggest that to avoid the strong effect of specific characteristics of emerging financial markets on firm's debt maturity structure there is a need to facilitate this phase of financial market development toward more stability.

Majumdar (2010) examines the determinants of debt maturity structure decisions using a sample of Indian companies. Their study suggests that leverage and collateralizable assets have an important role in determining the debt maturity choice. Firm quality and size also have the predicted effect on debt maturity. There is no support for the impact of asset maturity and effective tax rate on debt

maturity because of illiquid and underdeveloped debt market in India. Finally, they find a positive but statistically insignificant relationship between growth opportunities of the firm and debt maturity in case of Indian firms.

The summary of the main theories of debt maturity structure, their proxies, and related literatures is provided in table 2.1.

Table 2.1
Literature Review

Theory	Proxy	Literature
Agency (Contracting) Cost	Growth Opportunities	Myers (1977)
		Fama (1978, 1985)
		Barnea et al. (1980)
		Hart and Moore (1990)
		Stulz (1990)
		Titman (1992)
		Barclay and Smith (1995)
		Binks and Ennew (1996)
		Guedes and Opler (1996)
		Stohs and Mauer (1996)
		Demirguc-Kunt and Maksimovic (1998)
		Datta and Iskandar-Datta (2000)
		Antoniou et al. (2006)
		Heyman et al. (2008)
		Cai et al. (2008)
	Majumdar (2010)	
	Stephan et al. (2010)	
	Firm Size	Smith and Warner (1979)
		Barnea et al. (1980)
		Ho and Singer (1982)
		Pettit and Singer (1985)
		Titman and Wessels (1988)
		Whited (1992)
		Barclay and Smith (1995)
		Chittenden, Hall and Hutchison (1996)
		Guedes and Opler (1996)
Stohs and Mauer (1996)		
Burger and Udell (1998)		
Ozkan (2002)		
Antoniou et al. (2006)		
Heyman et al. (2008)		
Cai et al. (2008)		
Majumdar (2010)		
Stephan et al. (2010)		

Table 2.1 continued
Literature Review

Theory	Proxy	Literature
Agency (Contracting) Cost	Maturity Matching	Myers (1977)
		Barnea et al. (1980)
		Demirguc-Kunt and Maksimovic (1998)
		Hart and Moore (1990)
		Guedes and Opler (1996)
		Stohs and Mauer (1996)
		Graham and Harvey (2001)
		Ozkan (2002)
		Antoniou et al. (2006)
		Heyman et al. (2008)
		Cai et al. (2008)
		Ortiz-Molina and Pena (2008)
		Majumdar (2010)
		Stephan et al. (2010)
Signaling and Liquidity Risk	Firm's Quality	Flannery (1986)
		Kale and Noe (1990)
		Diamond (1991)
		Mitchell (1991)
		Titman (1992)
		Barclay and Smith (1995)
		Stohs and Mauer (1996)
		Datta and Iskandar-Datta (2000)
		Ozkan (2002)
		Antoniou et al. (2006)
		Cai et al. (2008)
		Majumdar (2010)
		Stephan et al. (2010)
		Liquidity
	Stohs and Mauer (1996)	
	Myers and Rajan (1998)	
	Budina et al. (2000)	
	Antoniou et al. (2006)	
	Cai et al. (2008)	
	Stephan et al. (2010)	

Table 2.1 continued
Literature Review

Theory	Proxy	Literature
<i>Signaling and Liquidity Risk</i>	<i>Leverage</i>	Morris (1992)
		Leland and Toft (1996)
		Stohs and Mauer (1996)
		Dennis et al. (2000)
		Antoniou et al. (2006)
		Majumdar (2010)
<i>Taxes</i>	<i>Effective Tax Rate</i>	Brick and Ravid (1985)
		Kane et al. (1985)
		Smith and Stulz (1985)
		Lewis (1990)
		Schools and Wolfson (1992)
		Barclay and Smith (1995)
		Kim et al. (1995)
		Guedes and Opler (1996)
		Stohs and Mauer (1996)
		Ozkan (2002)
		Antoniou et al. (2006)
		Cai et al. (2008)
		Majumdar (2010)
Stephan et al. (2010)		