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The Effect of Using Financial Derivatives on Firms' Capital Structure

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Abstract

Recently, financial derivatives have gained increased attention due to the claims accusing them of being a major cause of the latest financial crisis. In an attempt to analyze their role recent studies have been questioning the relationship between capital structure and the use of financial derivatives. It has been found that the relationship between capital structure and financial derivatives is endogenous and their role is more complex than was expected. This paper may contribute to the existing literature by considering some factors that may indirectly affect the use of financial derivatives such as cultural, institutional and behavioral differences.

Keywords: financial derivatives, capital structure, ownership

1. Introduction

The use of financial derivatives has been increased during the last decade. I believe that their importance is driven from several reasons. For one, rejecting Modigliani and Miller's (1958) market perfection hypothesis so as a result of imperfection and the presence of bankruptcy costs, conflicts between managers and shareholders and other market risks, there will be an increasing need to manage such risks. Recently, firms in developed countries are using derivatives as a primary method to hedge against risk. The second reason is the argument that risk management can increase the firm's value. The latest financial crisis around the world also can be considered as one reason of such growing importance.

2. Literature Review and Theoretical Background

Recent studies have been questioning the relationship between derivatives and other important financial factors such as leverage, debt maturity and dividend policy (Bartram, Brown, & Fehle, 2009) one recommendation for future studies of this paper was a deeper investigation of how derivatives usage can impact other corporate financing decisions (Graham & Rogers, 2002). Another paper questioned the relationship between derivatives and capital structure and whether derivatives can be used as a substitute of equity in a firm's capital structure (Bartram, Brown, & Fehle, 2009).

I think that the most relevant theory that may help explaining the capital structure decisions is the Agency theory by Jensen and Meckling (1976). This theory viewed debt as one way to minimized agency costs and as a monitoring mean. Agency cost may be explained by: when managers have different goals than the goals of the owner and as they pursue their goals the owner's stake might be affected which will lead to a conflict between the owner and managers. They called this conflict principle-agent conflict. Furthermore, when using debt financing there will be a possibility of both conflict between shareholders and lenders that can lead to an asset substitution problem. And a conflict between shareholders and managers as a result of excess free cash flow.

In spite of the Agency theory's remarkable findings, I believe that there are different dimensions and assumptions that should be included in the theoretical frame work in order to arrive at a comprehensive theory that might explain a financial strategy such as the decision of including financial derivatives in the firm's capital structure. Cultural differences, institutional developments and behavioral aspects are some interesting factors.

Firms use financial derivatives such as futures, forwards, options and swaps to protect themselves against unpredictable changes in exchange rates, commodity prices and interest rates to reduce their expected financial risk. In addition derivatives can be used to provide the internal funds needed for valuable investment opportunities and to reduce the costs associated with financial distress.

Previous literature linked derivatives to both agency and underinvestment problems stating that derivatives can be used to hedge against these problems. A recent paper provides some support for the previous argument stating that hedging against risk will reduce the possibility of an underinvestment problem and an agency conflict (Bartram et al., 2009). A correspondence finding based on a shareholder value-maximizing paradigm states that hedging can also reduce the underinvestment problem associated with costly external financing (Gay & Nam, 1998; Goldberg, Godwin, Kim, & Tritschler, 1998). In contrast, Another paper found mixed results regarding the relationship between hedging and the underinvestment problem (Nguyen & Faff, 2002). Such controversies stress the need for further investigation by including different dimensions into the underlying theoretical framework such as cultural differences, institutional development, industry type and behavioral aspects of managers.

Moreover, it is expected that there will be some differences in managing risks between managers and shareholders which will lead to a possibility of an agency conflict (Borokhovich, Brunarski, Crutchley, & Simkins, 2004). Using derivatives is one way to overcome such conflict since it has been proved that derivatives will reduce the possibility of an agency problem within firms (Bartram et al., 2009). Another paper argued that derivatives have an important role in helping to overcome the transfer of wealth from shareholders to bondholders and as a result reduce the probability of an agency problem (Jalilvand, 1999). Also derivatives can be utilized to reduce the information asymmetry and as a result reduce the agency problem (J. B. Lin, Pantzalis, & Park, 2009). In addition it has been found that derivatives facilitate firms' forecasting by improving the information environment and reducing the information asymmetry resulting in lower agency conflict (Mefteh, Boubaker, & Labégorre, 2012).

In contrast, a study on listed banks in Taiwan reached a conflicting finding stating that only weak evidence was found to support the positive association between financial derivatives and agency problem (Shiu, Moles, & Shin, 2010). Such confliction may be explained as I mentioned previously by cultural differences, institutional development discrepancies, industry type differences and firms' capital structure.

Recently, it has been found that the use of derivatives is associated with capital structure (Marsden & Prevost, 2005). Moreover, it has been argued that firms may use futures as an alternative of holding extra equity as a way of managing risk. Futures are considered due to the high costs of holding extra equity (such as compensation for tax and agency cost) caused by market imperfection. It has been found that insurance futures can be considered as a credible source of capital following an industry shock (Harrington et al., 1995). However, they are not used as much as expected due to some accounting and regulatory barriers (D'Acry and France, 1993) as cited in (Harrington et al., 1995). A correspondent finding states that the use of derivatives can adjust capital structure (Goldberg et al., 1998). Another study found that using derivatives will improve the quality of analysts' forecasting since it already reduced the information asymmetry problem (Mefteh et al., 2012) as a result I expect that managers who use derivate will have wider indicators to make better capital decisions.

Moreover, when considering firms' capital structure the possibility of financial distress and the bankruptcy costs will be higher for firms which have higher levels of debt so such firms are expected to use derivatives to hedge against these risks (Bartram et al., 2009; Jalilvand, 1999; J. B. Lin et al., 2009; Nguyen & Faff, 2002). On the other hand firms might use financial derivatives as a commitment mechanism to get access for external financing (Campello, Lin, Ma, & Zou, 2011). Moreover, it has been found that firms with higher growth levels suffer from lower accessibility to external market financing so they use currency derivatives to overcome this problem and have more access to external financing (Géczy, Minton, & Schrand, 1997). A study conducted in Canada found that managers hold less cash as a way to manage their balance sheet in order to get access to external financing market (Paligorova & Staskow, 2014).

3. Findings

From the previous findings I can say that it is obvious that capital structure and hedging suffer from an endogenous problem (Borokhovich et al., 2004). This means that the derivatives' role in capital decisions is more complex than it was considered (Bartram et al., 2009).

When analyzing the derivatives and their effect on the cost of capital I have found multiple observations in the current literature. It has been found that derivatives lower the capital expenditure (Bartram et al., 2009). Moreover, when firms use derivatives to manage their risk the need for covenants to restrict their investment will be less as a result firms will pay lower cost for their private loans, so hedging will have an effect on the firm's financing costs (Campello et al., 2011). Another observation was that one of the managers' incentives to use derivatives was to reduce the cost of debt financing (Barton, 2001). I can conclude that the use of derivatives in a well-developed market will be positively associated with a lower capital structure costs.

In an attempt to analyze the relationship between the use of financial derivatives and capital structure I have been examining the characteristics of firms which used derivatives I have noticed that firms with higher growth rate used higher debt levels in their capital structure and as a result used more derivatives to manage their risk (Bartram et al., 2009; Gay & Nam, 1998). However, A study conducted in New Zealand didn't support the previous finding stating that firms with high growth opportunities will not use derivatives to manage their risk (Marsden & Prevost, 2005) such contradicting results may be attributed to differences in corporate governance rules and regulations among countries.

On the other hand it has been found derivatives are used among all sectors and the use will be higher during financial crisis (Paligorova & Staskow, 2014).

Generally there are multiple factors that I believe might affect the capital structure decisions and as a result will affect the decision of using derivatives. Taking factors on the country level I believe that cultural differences, institutional development and corporate governance are the most important determinates of capital structure decisions that weren't considered in previous financial theories' theoretical frame works.

I believe that firms operating in different cultures will have different capital structures due to their different ownership structures. For example, corporations in U.S and U.K have dispersed ownership while in emerging markets firms are concentrated and controlled by single large shareholder (la porta et al., 1999; Classens et al., 2000) as cited in (Bunkanwanicha, Gupta, & Rokhim, 2008) and family firms are the predominant type corporations. These differences in ownership structures will lead to differences in the capital structure decisions and the way that managers manage risks as a result the use of derivatives will be different. Managers of firms operating in individualistic countries are expected to have lower divergence in their control-ownership wedge and the owners will have lower control rights so the capital structure is expected to have lower debt levels. As a result the use of derivatives as a mean to manage risk should be will be lower due to the lower risks associated with the lower debt levels in the capital structure. My argument is contradicting with the previous findings in the literature since it has been proved that managers of firms in individualistic countries such as the U.S and Canada (Hofstede, 1984) are highly dependent on derivatives as an effective way to manage risk. This contradiction can be explained by the fact that the relationship between capital structure and the use of derivatives is endogenous. So the possible explanation is that the high level of dependence on derivatives to manage risk in such cultures is caused by the fact that derivatives are used as a commitment to have higher access for external financing.

On the other hand a firm that operates in a collective culture with a concentrated ownership structure, their capital structure is expected to have higher levels of debt because of the wider divergence of the control-ownership wedge represented in excess control rights (Liu & Tian, 2012). Owners will try to take capital structure decisions that maintain their higher ownership and control levels (C. Lin, Ma, Malatesta, & Xuan, 2013). So managers will avoid issuing equity to avoid dilution in addition they are expected to avoid private loans to avoid external monitoring and will depend more on public debt. As a result, firms in such cultures will have higher debt levels in their capital structure and they will need to manage the risk associated with higher levels of debt. So firms operating in such cultures are expected to use derivatives to manage their risk. But this is not the case because derivative market in such cultures is not well developed and it's kind of new. I believe that this is a convincing explanation of such low reliance on the use of derivatives to hedge against risk in such cultures.

Considering institutional development and corporate governance rules and regulations as country level factors that might affect capital structure decisions I expect that the outcomes will be similar to those of cultural differences. In well-developed countries there will be higher protection for both creditors and shareholders, and there will be multiple alternatives for managers to choose among for their capital structure decisions. Due to the high protection I expect that cost of debt will be lower as a result managers could use higher debt levels in their capital structures, so there will be higher need to manage the risk associated with higher levels of debt and one way to do so is using derivatives.

On the other hand for firms operating in under-developed institutional countries with weak legal protection I expect that the risk will be higher as a result there will be higher need for using derivatives to manage such risk. Again, this is not the case the results of a study conducted on listed banks in Taiwan showed that banks didn't use derivatives with their higher levels of debt in the capital structure in addition their findings didn't support the agency and managerial motives to use derivatives and they attributed their findings to cultural and institutional differences (Shiu et al., 2010) their findings supports my argument since Taiwan is considered as a collective culture (Hofstede, 1984)

As I mentioned before derivatives market in emerging countries is still new and it has lower liquidity than well-developed countries. There is a study that supports this fact concluding that firms which are operating in

middle-income countries are in fact dealing with derivatives market that is characterized with lower liquidity, such firms dealing with the previous market conditions are less likely to hedge against risk (Bartram et al., 2009).

When analyzing the factors that may affect the capital structure decisions on the corporate level. Firm's size, growth, industry type, cost of capital are all factors I believe have significant effect on the capital structure decision and as a result has an effect on managing risks and the possible use of derivatives.

I think that the larger the size of the firm the higher the need for external financing and the higher the need for derivatives. This argument was supported by several studies (Goldberg et al., 1998; Marsden & Prevost, 2005; Nguyen & Faff, 2002; Shiu et al., 2010). Similarly, firms with higher growth levels will have higher need for external financing in their capital structure decisions as a result there will be higher need for derivatives (Bartram et al., 2009; Géczy et al., 1997; Goldberg et al., 1998). Moreover, I believe that the industry leverage will affect the firms' leverage. So I expect that firms operating in industries with higher levels of leverage their capital decisions will include higher levels of debt as well (Li, Yue, & Zhao, 2009) as a result there will be higher need for using derivatives. Finally, I believe that the lower the cost of debt the higher the dependence on leverage in firms' capital structure assuming that managers are rational and are acting to increase stakeholders' wealth. If that is the case, there will be higher need for the use of financial derivatives to hedge against risks.

Finally, for the management level factors I believe that the most important behavioral aspect that might affect the firm's capital structure decision is its manager's risk averseness level. The higher risk averseness of a manager the lower his dependence on debt in his capital structure and the lower his need for derivatives. It is worth noting that it is possible to observe different capital structure decisions from different managers in the same situation. Moreover, it is even possible to observe different decisions from the same manager in different situations. As a result, when taking the behavioral aspect of capital structure decisions it will be harder to anticipate the expected decision that a manager would take and it will be harder to expect his level and method of hedging. To support my argument it has been found that the board of directors can influence the decision to use interest rate derivatives and that the decision varies with the composition of the board (Borokhovich et al., 2004).

To sum up, obviously there is a relationship between capital structure and the use of financial derivatives. This relationship may be represented as substitution relationship, meaning that some types of financial derivatives can be used as a substitute of some components of the firm's capital structure. Moreover, the level and type of derivatives that could be used with different capital structures is endogenous. Also there are multiple factors that might affect the use of financial derivatives that weren't included in the previous theories and should be considered when taking a decision regarding the use of financial derivatives such as cultural and institutional differences.

4. Conclusion

The decision of including financial derivatives in a firm's capital structure can be viewed based on three levels: country, corporate and managerial level.

Cultural differences, institutional developments and corporate governance are the most important factors within the country level. Moreover, Firm's size, growth rate, industry type and the cost of capital are the most important factors within the corporate level. Finally, managers' risk averseness can be viewed as an effective influence on the decision using financial derivatives in the capital structure. As a result, in some cases financial derivatives can be used as a substitute to some components of the capital structure.

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