

Does a Good Investment Opportunity Reduce Cost of Equity Capital for Multinational Corporations?

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Abstract

This research mainly investigates that whether a good investment opportunity can reduce the cost of equity capital for multinational corporations. We use the sample of global corporations across over 21 countries from the period 2002 to 2014. The results indicates that the cost of equity capital may be increased for multinational corporations when geographic diversification strategy is adopted; however, the cost of equity will be decreased once the good investment opportunity arrives, that is, the corporations will have greater competitive advantages in the near future and then lower the cost of equity capital. The findings demonstrate that the benefits of good investment opportunity outweigh the losses of geographic diversification and then improve the cost of equity capital for multinational corporations.

Keywords: Investment Opportunity Set, Geographic Diversification, Cost of Equity Capital

JEL classification: G32

1. Introduction

1.1. Background and Motivations

Globalization has become a tendency especially for multinational companies; therefore, many enterprises expand new branches in foreign countries. Multinational companies not only enhance the working efficiency but transfer their knowledge across borders. Moreover, while some corporations that are suffering from operating difficulties in low profitability and few growth opportunities are tend to explore their business abroad or different regions (Stimpert and Duhaime, 1997). Kallapur and Trombley (1999) argue that investment opportunities, on average, lead to actual investment and therefore affect realized growth. Correspondingly, this paper focuses on the impact of geographic

diversification and good investment opportunity on the cost of equity capital for multinational companies.

Multinational companies involve in foreign investment which may lower their transaction costs and improve communication between local markets and foreign markets. The previous studies have also showed the evidence that multinational companies may improve home country's asset allocation efficiency, technical efficiency as well as technology transformation (Caves, 1974). Furthermore, many multinational companies are exploiting their suppliers' competitive advantages (e.g., R&D, manufacturing, and marketing skills) and the locational advantages (e.g., inexpensive labor cost, certain skills, mineral resources, government subsidy, and tax advantages) in various countries (Kotabe and Murray, 2004).

However, the previous research indicate that globally diversification has both value-enhancing and value-reducing effects. Some theoretical evidences illustrate that globally operating are benefit to the value of companies; while some argue that diversified management do harm firms' value. That is, geographic diversification has both positive and negative influences on firms' value and it can be defined as an expansion across global regions. Thus, a firm's level of geographic diversification is reflected by the number of different markets in which it operates and the importance to the firm (Hitt, Hoskisson, and Kim 1997).

Berger and Ojek (1995) argue that operating different lines of business within one firm include greater operating efficiency, less incentive to forego positive net present value projects, greater debt capacity, and lower taxes. Previous studies have discussed above, they can presume that geographic diversification has good impacts on corporations and may result in firm-value increasing as well as stockholder's value enhancing; therefore, shareholders' require rate of return will become lower and so does the cost of equity. On the other hand, the potential costs of diversification include the use of increased discretionary resources, undertaking value-decreasing investments, cross-subsidies that allow poor segments to drain resources from better-performing segments, and misalignment of incentives between central and divisional managers (Berger and Ofek, 1995). In addition, geographic diversification also brings agency problems; for instance, executives easily get attempted to diversify their firms because they can receive personal benefit (Jensen, 1986) together with consolidated their own authority (Shleifer and Vishny, 1989). As a result, managerial authority may possess more rights as well as obtaining indispensable position in corporations by controlling cross-country assets or obtaining cross-subsidization capital and these behaviors would raise shareholders' monitoring cost and the harm of shareholders' wealth. Moreover, exchange rate risk, political risk, and coordination costs also may take place while expanding branches worldwide (Fauver, Houston, and Naranjo, 2002). Correspondingly, diversification may undermine the value of the companies. The critiques on geographic diversification are still ambiguous.

1.2. The Purpose and Main Contribution of This Study

Kallapur and Trombley (1999) indicate investment opportunities will eventually be exploited and lead to realized growth. We wonder the realized growth would better corporation performance and lower the cost of equity capital. Myers (1977) presents market value of the firm can be broken down into the present value of assets and future growth opportunities which illustrate the implication of 'investment opportunities set (IOS)'. Accordingly, examining whether companies with 'good investment opportunities' will bring the sustainable growth in the near future that is the breakthrough of the difficulties.

For the sake of the disadvantages of geographic diversification, and exploring the good investment opportunities (Good IOS) enhance firm value as well as stockholders' wealth then inducing a lower cost of equity is the purpose and main contribution in this paper.

The remainder of this study is organized as follows. Section 2 discusses the previous research and hypotheses development. Section 3 presents research methods including the data analysis, the empirical models. Section 4 analyze the empirical results. Section 5 summarizes and concludes this paper.

2. The Related Literatures and Hypotheses Development

Even if the previous literatures have no solid evidence on geographic diversification (Berger and Ofek, 1995), some researchers recently argue that corporations with diversifying their activities across boarders will result in negative effects (Pan et al., 2010; Li and Qian, 2005; Qian et al., 2008). Furthermore, the previous research usually are based on regional resources in developed countries such as US (Markides and Ittner, 1994) and emerging countries like Africa (Aguilar, 1995) instead of the worldwide data. Also a majority of preceding evidences illustrate the impacts between geographic diversification and companies' performance instead of cost of equity.

Shareholders may raise up their required rate of return while companies face difficulties in geographic diversification and thus destroy the value of firms. Chen et al. (2011) indicate that the companies with the opportunities of greater growth can reduce the cost of excessive investment, and raise their equity value. Accordingly, this point of view motivates us that whether good investment opportunities would benefit the value of firms.

Some research present that corporations with an abundant IOS will use lower debt/equity ratios because equity financing controls the potential underinvestment problem associated with risky debt (Smith and Watts, 1992) and the others predict stronger associations between compensation and performance for firms with greater investment opportunities (Baber et al., 1996). As investment opportunities are typically unobservable, a common practice is to rely on proxy variables (Adam and Goyal, 2008). We establish the proxies that are widely used in the literature because the relationships between investment opportunity and cost of equity capital are not found in the previous research.

Since we have analyzed the impact of geographic diversification on cost of equity capital from the previous research, we obtain the inconsistent evidences. Furthermore, the previous literature (Chen et al., 2011; Smith and Watts, 1992; Baber et al., 1996) also present that a good investment opportunity may benefit on the value of firms. In addition, Qian et al. (2010) argue that internationalization costs depend on between regions or within regions. Correspondingly, the main research question in this paper we are trying to answer is that whether geographically diversified companies encounter good investment opportunities and implement them can benefit their cost of equity capital.

According to the previous literature discussed above, the hypotheses are developed as follows:

H1: Corporations with geographic diversification may result in an increase on cost of equity capital.

H2: Corporations adopt a good investment opportunity that may reduce its cost of equity capital.

H3: The impact of good investment opportunity and geographic diversification may lower the cost of equity capital.

3. Sample, Variable Definitions, and Methodology

3.1. Data Source and Sample Selection

The data are mainly collected from Datastream and Institutional Brokers Estimate System (I/B/E/S). Datastream are composed of full major benchmark indexes worldwide which contains detailed business descriptions and geographic segment sales of business across 50 countries. Furthermore, sales data can also be divided into business segments and geographic regions which provide the specific selling information for the products. I/B/E/S offer analysts predicting data which are used to calculate implied cost of equity capital. The invest opportunity data are gathered from Worldscope that includes interim financial accounts information, PE ratio, and book-to-market ratio on equity.

Our sample consists of worldwide corporations and the sample period covering from 2002 to 2014. We merge all the available data from the Geographic Segment files, costs of equity capital, Investment opportunity set, and control variables. Finally we do the data mining and the regression analysis for our hypotheses testing.

3.2. Empirical Models

Three regression models are established responding to the three hypotheses. Sales-Based Herfindahl Index (HHI) is a proxy of measuring the degree of geographic diversification and Model 1 examines the impact of geographic diversification to cost of equity capital.

Next, based on the previous literature, the majority of research discuss the influence of IOS on the companies' policies rather than firm performance or cost of equity capital (Baber et al., 1996). Therefore, Model 2 is established testing the relationships between good investment opportunity and cost of equity capital.

Consequently, we examine the interaction effect between geographic diversification and good investment opportunity on the cost of equity capital in Model 3. The empirical regression models are as follows:

$$\begin{aligned}
 r_{AVG} &= \alpha_0 + \beta_1 GEO + \beta_2 BETA + \beta_3 SIZE + \beta_4 LEV + \beta_5 BTM + \beta_6 INV + \beta_7 FOREIGN \\
 \text{(Model 1)} &+ \beta_8 LOSS + \beta_9 SALEGRW + \beta_i YEAR_dummy_i + \beta_j INDUSTRY_dummy_j + \varepsilon \\
 r_{AVG} &= \alpha_0 + \beta_1 goodIOS_dummy + \beta_2 BETA + \beta_3 SIZE + \beta_4 LEV + \beta_5 BTM + \beta_6 INV \\
 \text{(Model 2)} &+ \beta_7 FOREIGN + \beta_8 LOSS + \beta_9 SALEGRW + \beta_i YEAR_dummy_i + \beta_j INDUSTRY_dummy_j + \varepsilon \\
 r_{AVG} &= \alpha_0 + \beta_1 GEO + \beta_2 goodIOS_dummy + \beta_3 GEO * goodIOS_dummy + \beta_4 BETA + \beta_5 SIZE \\
 \text{(Model 3)} &+ \beta_6 LEV + \beta_7 BTM + \beta_8 INV + \beta_9 FOREIGN + \beta_{10} LOSS + \beta_{11} SALEGRW + \beta_i YEAR_dummy_i \\
 &+ \beta_j INDUSTRY_dummy_j + \varepsilon
 \end{aligned}$$

Where, r_{AVG} is the arithmetic average of ex-ante cost of equity capital from the five models we mentioned before (Claus and Thomas, 2001; Easton, 2004; Ohlson and Juettner-Nauroth, 2005; Gordon and Gordon, 1997; the Price Earnings Growth (PEG) ratio). GEO is the proxy of geographic diversification and is measured by the Sales-Based Herfindahl Index (HHI), and the range of HHI is from zero to one. Good IOS refers to good investment opportunities would lead to firm's future growth. Moreover, Good IOS is judged by the four proxies (MBE Ratio, EP Ratio, R&D/A, CAPX/A) and should be above each median of all the four ratios on each fiscal year respectively. Therefore, the dummy variable is used, good IOS_dummy, to determine whether the company has real growing potential and divide IOS into two groups. One is 'Good IOS group' (good IOS_dummy=1) which presents the company meets the criteria that the values calculated by the four ratios above the median of each ratio, and the other is, 'other IOS group' (good IOS_dummy=0), which stands for the remaining firms. The interaction term, $GEO \times good\ IOS_dummy$, represents the relation between geographic diversification and good investment opportunities and is calculated by Herfindahl Index (HHI) multiplied by good IOS_dummy. Furthermore, the control variables are composed of the firm size, beta, leverage, inventory, book to market ratio, sales growth rate, foreign operations and corporate loss. In order to eliminate the bias in our sample based on the previous empirical research (Chen et al., 2011), we also control the year effect and industry effect since our sample covers different industrial companies all over the world through our sample period.

4. Empirical Results

We consolidate the empirical results of three models in Table 1. Model 1 indicates that the coefficient of geographic diversification (GEO) is positively associated with the implied cost of equity capital at the 1% significant level, which completely support our Hypothesis 1. This empirical evidence suggests that firms with geographic diversification may increase the cost of equity capital, which is in accordance with the previous empirical findings (Li and Qian, 2005; Yeh et al., 2010; Gilson et al., 1997).

Model 2 reports that a good investment opportunity (Good IOS) is proven to have a negative relationship with the implied cost of equity capital at the 1% significant level, which also supports our Hypothesis 2. The interpretation of Model 2 is that firms with a good investment opportunity can lower the cost of equity capital which is also consistent with the previous studies (Myers, 1977; Chen et al., 2011).

Model 3 is the main research gap we are trying to fill in this paper; therefore, we use the interaction term of geographic diversification and good investment opportunity ("GEO*Good IOS") to investigate whether multinational corporations with good investment opportunities can overcome the shortage in the process of geographic diversification and reduce the cost of equity capital. The result of Model 3 reveals that a negative correlation between the interaction term ("GEO*Good IOS") and the implied cost of equity capital at the 5% significant level which also supports our Hypothesis 3.

Table 1 also provides the relationship between each control variable and the implied cost of equity capital respectively. The estimated coefficients of the control variables in the three models display at 1% significant level which represents the control variables are well-established. Furthermore, the results of Table 1 indicate that firm size (SIZE), firm beta (BETA), leverage ratio (LEV), the level of inventory as a percentage of total assets (INV%), book to market ratio (BTM), foreign operation (FOREIGN), firm financial performance (LOSS) and the sales growth rate (SALEGRW) have a positive and significant relation with the cost of equity capital.

Table 1: The Empirical Results of Three Regression Models

Variables	Models		
	r_{AVG} (Average ex-ante cost of equity capital)		
	(1)	(2)	(3)
GEO	0.00492*** (4.23)		0.00639*** (5.27)
Good IOS		-0.00860*** (-9.48)	-0.00585*** (-3.15)
GEO*Good IOS			-0.00616** (-2.05)
BETA	0.00194*** (3.48)	0.00192*** (3.39)	0.00193*** (3.48)
SIZE	0.0000932*** (6.03)	0.0000890*** (5.76)	0.0000877*** (5.72)
LEV	0.0000426*** (8.56)	0.0000391*** (7.78)	0.0000399*** (7.96)
BTM	0.0141*** (11.64)	0.0128*** (10.49)	0.0130*** (10.61)
INV %	0.0143*** (8.11)	0.0150*** (8.56)	0.0151*** (8.62)
FOREIGN	0.00613*** (6.56)	0.00739*** (8.24)	0.00624*** (6.70)
LOSS	0.0310*** (17.89)	0.0310*** (17.92)	0.0307*** (17.78)
SALEGRW	0.0152*** (7.66)	0.0145*** (7.33)	0.0150*** (7.55)
Year effects	Included	Included	Included
Industry effects	Included	Included	Included
Observations	11,176	11,176	11,176
adj. R²	0.143	0.146	0.148

Table 1 demonstrates the results of three empirical models. Model 1 indicates that geographic diversification strategy may increase the cost of equity capital for multinational companies; however, good investment opportunities will bring a lower cost of equity capital as presented in Model 2. Correspondingly, Model 3 has answered the main research question in this paper that cost of equity capital may be increased in the process of geographic diversification; nevertheless, once the benefits from good investment opportunities outweigh the losses from geographic diversification, then a lower cost of equity capital will benefit multinational corporations. r_{AVG} is the average cost of equity capital calculated using the five models which includes Claus and Thomas (2001), Ohlson and Juettner-Nauroth (2005), Easton (2004), Gordon and Gordon (1997), and the Price Earnings Growth (PEG) ratio. Good IOS is defined as the good investment opportunity of a firm and selected by the four IOS proxies - Market-to-Book Equity (MBE) Ratio, Earnings to Price (EP) Ratio, R&D to Total Assets (R&D/A) Ratio, and Capital expenditures to Asset (CAPX/A) Ratio. Good IOS is the indicator variable equal to 1 if the company has a good investment opportunity, and 0 otherwise. GEO*Good IOS represents the interaction term of geographic diversification and good

investment opportunity. In addition, we have done the robust test to eliminate the collinearity problem. ***, ** and * represent significance at the 1%, 5% and 10% levels, respectively, and we also control the industry effect and year effect.

5. Summary and Conclusions

We first investigate whether geographic diversification exhibits a positive relationship with the cost of equity capital due to exchange rate risks, political risks, coordinate policy costs and agency costs arising from conflicts between managers and shareholders (Yeh et al., 2010; Shleifer and Vishny, 1989). As a result, the empirical result indicates that the cost of equity capital will be higher for the firms with geographic diversification.

The previous research (Myers, 1977; Chen et al., 2011; Kallapur and Trombley, 1999) which suggest that investment opportunities, on average, lead to actual investment and affect realized growth within three-to-five-year period and accompanying a lower cost of equity capital. Accordingly, we examine whether a good investment opportunity can lower the cost of equity capital. The finding is consistent with the previous research that mentioned above.

Last, the major concern of this paper is the interaction between geographic diversification and good investment opportunity on cost of equity capital. The finding demonstrates that the cost of equity capital may be increased for multinational corporations in the process of geographic diversification; however, once good investment opportunities arrive then multinational corporations will benefit from a lower cost of equity capital.

From our findings and the review of previous literature, the contributions we make in this paper are that multinational corporations can evaluate the future investment opportunity by exploiting the four ratios (MBE Ratio, EP Ratio, R&D/A, and CAPX/A) which is one of the most important contributions in this paper based on our numerous empirical tests and planning the investment strategy before they meet the good investment opportunity. In addition, the cost of equity capital will be lower for multinational corporations with good investment opportunities.

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