

Country-Specific Factors and Capital Structure of the Oil and Gas Industry: A Review

Hana Halini Hamzah^{1*}, Maran Marimuthu¹

¹Department of Management and Humanities,
University Teknologi PETRONAS, Persiaran UTP, 32610 Bandar Seri Iskandar, MALAYSIA

* Corresponding Author

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Abstract: Determinants of the capital structure still confusing among scholars. While numerous studies have been conducted, these are often limited to firm-specific factors such as profitability, asset tangibility, growth opportunities, liquidity, size, and non-debt tax shield. However, the literature clearly points out that there are important country-specific factors that determine capital structure decisions. Arguably, studies on determinants of capital structure focusing on country-specific factors for the oil and gas industry are still missing in the literature. As such, this study serves to review the determinants of capital structure with a specific focus on country-specific factors for the oil and gas industry. This study is to provide potential avenues for future researchers specifically in the oil and gas industry.

Keywords: Capital structure, country-specific factors

1. Introduction

The seminal paper by Modigliani and Miller [1] on the irrelevance theorem led to a huge number of studies on capital structure. Capital structure is the concern of how firms finance their investments using debt, equity, or a combination of both types of funding. The financing decisions have implications for the firm's value. However, to date, Myers [2] question regarding "how firms choose their capital structure" remains unanswered. The finding shows mixed results and is inconclusive. In fact, empirical studies have been flooded with various factors with different explanations.

Essentially, the studies on the determinants of capital structure primarily focused on firm-specific factors. In fact, it was found that firm-specific factors are the most significant factors in capital structure decisions [3]. The factors such as profitability, assets tangibility, growth opportunities, size, and liquidity are related to the specific characteristic of the firm itself [4] and within the firm's internal control. However, capital structure decisions are merely caused by the firm itself. Country-specific factors, which are a combination of macroeconomic and financial institutional factors, also have an effect on capital structure decisions. These factors are beyond the control of the firms. Rajan and Zingales [5], Booth, et al. [6] are among the earlier researchers who kick-off to analyze the impact of country-specific factors on capital structure. Later, similar research also has been conducted by De Jong, et al. [7], Badoer and James [8], Chow, et al. [9], Saif-Alyousfi Abdulazeez, et al. [10], Ramli, et al. [11]. However, the issue of the generalizability of these findings and their applicability to different industries may arise.

Numerous studies have emphasized the importance of capital structure studies should be carried out focusing on a specific industry. In fact, the body of knowledge begins to examine whether the effects of factors that have been identified in previous studies are similar or different for a particular industry, and no exception to the oil and gas industry. The oil and gas industry is one of the most important industries for most countries in the world. The industry contributes significant growth to the country's economy. Hence, have gained a lot of attention among scholars and policymakers. Table 1 shows the empirical studies on determinants of capital structure for the oil and gas industry. The number of studies has been increasing over time. While many empirical studies on the oil and gas industry have been devoted to assessing the impact of firm-specific factors on capital structure, the impact of country-specific factors is a

topic that has not yet been adequately explored. Therefore, the country-specific factors that influence capital structure decisions for the oil and gas industry remain unknown. On top of that, it is well known that the oil and gas industry has a higher debt level as compared with that of the non-oil and gas industry. Given the differences between the oil and gas industry with the non-oil and gas industry, therefore, it is important to examine the country-specific factors and capital structure decisions from the oil and gas industry perspective. Focusing on a specific industry such as the oil and gas industry helps to understand whether the industry follows the same theories and capital structure pattern.

The purpose of this paper is to present a conceptual understanding of the determinants of capital structure. While the focus is on the country-specific factors for the oil and gas industry. This study is structured as follows: Section 2 reviews the theories of capital structure. Section 3 discussed the country-specific factors, and section 4 presented the conclusion of the study.

2. Theories of Capital Structure

Deciding the capital structure between debt and equity is not an easy decision. Thus, the development of capital structure theories has shed some light on explaining how firms decide their capital structure. However, the introduction of the Modigliani-Miller (MM) theory in the year 1958 sparked an argument among researchers and caused several criticisms. This is because the authors argued that capital structure is irrelevant to firm value. However, this theory ignored the imperfection of the capital market. Nonetheless, this theory became the basis for the development of other theories. Since then, there have been various theories of capital structure that have been developed. Among them, three theories have emerged over the years. There are the Trade-off theory, Pecking Order theory, and Market Timing theory.

Each theory emphasizes a different aspect. Trade-off theory emphasizes the costs and benefits of debt (Myers, 1984). This theory argued that the optimal capital structure can be achieved when the benefit of debt is equal to the costs of debt. Therefore, this theory describes that firms will seek a debt level that balances the benefits and costs of debt. While the Pecking Order theory emphasizes the cost of adverse selection, which results from information asymmetry between insiders and outsiders (Myers & Majluf, 1984). Therefore, this theory has preferred order source of funds. The order starts with retained earnings, followed by debt and equity as the last resort. These two theories were identified as the most dominant theories in explaining the capital structure and were repeatedly identified in the literature. On the other hand, Market Timing theory emphasizes market conditions (Baker & Wurgler, 2002). Despite the large number of theories that have been developed, none of the theories are adequately able to explain capital structure decisions independently. In line with the extended studies, all the country-specific factors are representative of each of the three core theories namely the Pecking Order theory, Trade-off theory, and Market Timing theory. Hence, this paper adopts these three theories as our theoretical guides.

3. Country-Specific Factors

The macroeconomic environment and financial institutions are distinctive around the world regardless of developed or developing countries and can be captured through country-specific factors. These factors are those factors related to the country's characteristics in which a firm operates. It is, therefore, one of the surrounding factors that may have influenced or hindered the capital structure decisions of firms. Jaworski and Czerwonka [4], De Jong, et al. [7] found that country-specific factors have an impact on capital structure both directly and indirectly. Badoer and James [8] contented that market conditions are especially important for long-term debt financing. Chow, et al. [9] found that firms in the Asia Pacific Region (Malaysia, Thailand, Philippines, Indonesia, Australia, Singapore, and Japan) tend to reduce debt levels when there is uncertainty in the macroeconomic environment. Nevertheless, Tulcanaza Prieto and Lee [12], Bilgin [3] reported that country-specific factors are not significant for capital structure decisions.

3.1 Growth Domestic Product (GDP)

Growth domestic product (GDP) is one of the important country-specific factors. It represents the country's economic condition. An increasing GDP symbolizes strong economic growth, hence will increase the profit of a firm [13, 14]. Therefore, according to the Pecking Order theory perspective, profitable firms will prefer internal over external financing, hence posit GDP negatively impacts debt. This implies that during GDP growth firms will less depend on debt and finance their investment with retained earnings. The negative impact of GDP was consistent with the finding of Julkid and Lau [15], Shahzad, et al. [16]. While based on the Trade-off theory perspective, a firm with high profit will issue debt to get the benefits debt tax shield. Therefore, the Trade-off theory posits that GDP positively impacts debt level. It is supported by Bilal, et al. [17], De Jong, et al. [7] who found GDP growth positively impacts debt level. They have explained that firms tend to expand their business when the economy is in a growing phase, therefore issuing debt to support the need for financing. Nevertheless, some of the empirical evidence [10] show that GDP doesn't influence leverage decisions. GDP can be measured by the GDP growth rate [10].

Table 1 - Empirical studies on determinants of capital structure for oil and gas industry

Year	Authors	Country	Prof	Tang	Liq	Growth	Size	Age	NDTS	Risk	Tax	Oil	Div	Own	Dac	Cap	Sol
2022	Baidoo [18]	Ghana	√	√	√		√					√					
2021	Ahmed and Sabah [19]	Gulf Council Countries (GCC)	√	√		√	√										
2021	Filimonova, et al. [20]	Russia	√			√	√			√			√	√	√	√	
2021	Zaheer, et al. [21]	Pakistan	√	√		√	√		√								
2020	Adepoju [22]	Nigeria	√	√	√		√		√								
2019	Chalu, et al. [23]	Tanzania	√	√		√	√				√						
2017	Tahir, et al. [24]	Pakistan	√		√	√	√			√			√	√			
2016	Dhingra and Dev [25]	India	√														
2016	Doku, et al. [26]	Ghana	√	√		√	√			√							
2015	Oke and Obalade [27]	Nigeria	√	√			√	√									
2014	Zhang, et al. [28]	China	√	√	√	√	√		√		√			√			√
2013	Saleem, et al. [29]	Pakistan	√	√		√	√										
2012	Sabir and Malik [30]	Pakistan	√	√	√		√										

Note: Profitability (Prof), asset tangibility (Tang), liquidity (Liq), growth opportunities (Growth), firm size (Size), firm age (Age), non-debt tax shield (NDTS), earnings volatility (risk), corporate tax (Tax), crude oil price (oil), dividend payout (Div), Ownership structure (own), Diversification of activities (Dac), Investment attractiveness (Cap), solvency (sol).

3.2 Inflation

Inflation is one of the main indicators of a country’s stability. It represents the uncertainties in the economic environment. During this time, firms are unlikely able to survive with the use of retained earnings only [31]. Therefore, firms will seek external financing to finance their investment activities. However, an increase in the inflation rate will directly increase the cost of debt and equity [13]. Nevertheless, based on the Trade-off theory, debt is tax deductible, hence the cost of debt is cheaper than equity. Therefore, debt is preferable relative to equity. Consequently, predicting inflation positively impacts the debt level. On top of that, the Market timing theory also predicts inflation has a positive impact on debt levels. Frank and Goyal [32] argued that managers will prefer to issue debt when inflation is high because the tax deduction will be higher when inflation is high. The result is consistent with the finding of Saif-Alyousfi Abdulazeez, et al. [10], Ramli, et al. [11]. Nevertheless, Alufar Bokpin [33] reported that inflation has an insignificant impact on capital structure. Inflation can be measured by the consumer price index (CPI) [10, 11].

3.3 Interest Rate

Interest rate is a cost to the firms. It is expected that firms will be more interested in employing debt when the cost is low. Hence, it represents the ability of firms to employ more debt. In line with the Trade-off theory, interest rate positively impacts debt [34]. The positive impact of interest rates on debt level is consistent with the finding of Saif-Alyousfi Abdulazeez, et al. [10], Khémiri and Noubbigh [35]. Nevertheless, the Market Timing theory predicts interest rates negatively impact debt. The negative impact is due to the manager trying to avoid using debt at high-interest rates [34, 36]. Interest rates can be measured using the nominal interest rate of commercial banks [10, 11].

3.4 Stock Market Development

A well-developed stock market becomes an alternative to the firms' source of financing [37]. According to Julkid and Lau [15], a well-developed stock market presents healthy financial development. This will increase creditors’ confidence and directly lead to easier access to capital financing [38]. In addition, a well-developed stock market reduces the demand for debt as it promotes the use of equity over debt [39]. De Jong, et al. [7] argued that due to the high supply of funding, the cost of equity is lower. Therefore, based on the Market Timing theory perspective, a well-developed stock market will attract firms to issue equity over debt. Hence, stock market development posits a negative impact on debt level. The negative finding of stock market development are consistent with the finding of Julkid and Lau [15], Shahzad, et al. [16]. Nevertheless, Ramli, et al. [11], Alufar Bokpin [33] found that stock market development is insignificant toward capital structure decisions. Suggesting stock market development is not an important criterion in capital structure decisions. Stock market development can be measured using the ratio of stock market capitalization to GDP.

3.5 Summary Prediction

Table 2 shows the summary prediction by Trade-off theory, Pecking Order theory, and Market Timing theory. Table 2 also shows that these theories have contradicted predictions on the impact.

Table 2 - Summary prediction by Trade-off theory, Pecking Order theory, and Market Timing theory.

Country-specific factors	Trade-off theory	Pecking Order theory	Market Timing theory
GDP	Positive	Negative	-
Inflation rate	Positive	-	Positive
Interest rate	Positive	-	Negative
Stock market development	Positive	-	Negative

4. Conclusion

Empirical studies have clearly shown that country-specific factors have a significant impact on capital structure decisions. In fact, it is important as just as the firm-specific factors. However, past studies tend to focus on firm-specific factors and ignored country-specific factors, with no exception to the studies that focus on the oil and gas industry. As discussed, country-specific variables such as inflation, GDP, interest rate, and stock market development should also be studied in detail to provide a more transparent view on capital structure for the oil and gas industry. In fact, a comprehensive study should be conducted by incorporating firm-specific and country-specific factors to get a better insight into the determinants of capital structure for the oil and gas industry.

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