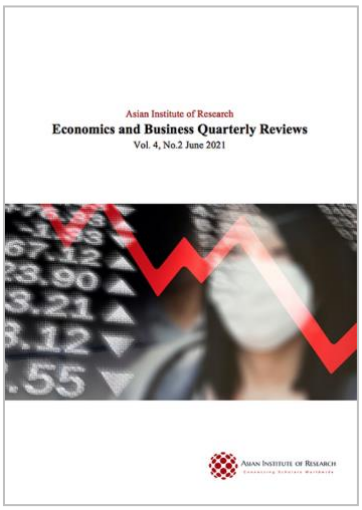

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Trade-Off Theory and Pecking Order Theory: Evidence from Real Estate Companies in Vietnam

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Abstract
This study was implemented with the goal of testing the validity of trade-off theory and pecking order theory in determining the capital structure in 50 listed real estate companies in Vietnam. The result of this study shows that the pecking order theory is the more approriate and should be applied for the listed real estate companies in Vietnam, and be the informative document for those firms to take into account the relevant theory to adjust their own capital structure, so that they can raise their own competitiveness and continue the development of the business

Keywords: Trade-Off Theory, Pecking Order Theory, Capital Structure

1. Introduction

Capital structure has always been one of the most sought-after and of top priority in regards to corporate finance, which has been in the center of various studies of scholars, experts, and corporate managers themselves. The capital structure is a combination of both long-term along with short-term financing, often including debentures, commercial papers, bonds, borrowings from banks, equity & additional capital through fund raising. In other words, capital structure is generally understood as a bundle of debt and equity that are mixed together in different ratios in order for the companies to accomplish corporate-level goals. (Wessels & Roberto, 1998). The capital structure is one of those financial tools that can be utilized to protect the effectiveness of corporate governance and ensure its ability to create value. The stochastic scenery of equity precariousness is endogenous and comes from the collision of revolutionization in the value of the firm's assets on the financial leverage. Whenever company made an announcement of issuing new stock, it often casts a negative signal to potential investors and hence the market value of the firm minimizes.

The capital structure is crucial in measuring the weighted cost of capital, which directly affect the business performance of the companies. The increasing amount of studies in regards to evaluating the efficiency of the trade-off theory versus the pecking order theory has produced mixed results.

Shyam-Sunder and Myers (1999) find more supportive evidence for the pecking order theory versus the trade-off theory. Hovakimian, Opler, and Titman (2001) examine the firms' debt-equity issuance (reduction) decision and find that deviations from the target capital structure plays a more pivotal role in the repurchase decision than in the issuance decision of securities. Among their observations, is that their results are in accordance with the pecking order model in the short-run and switch back to the target capital structure in the long-run. Byoun and Rhim (2002) find that both of the theories could explain considerable variations in the firms' total debt. Fama and French (2002) find evidence in favor and against both of the theories. Frank and Goyal (2003) find evidence that are unfavorable towards the pecking order theory, particularly for SMEs. Lemmon and Zender (2002) find no supporting evidence for the trade-off theory, yet the costs of financial distress were not able to justify the pecking order financing behavior that they reported. Korajczyk and Levy (2003) find that the temporary deviations from the target capital structure has a pivotal role in the firm's choice of which kind of security to issue or repurchase. In addition, their findings support the Hovakimian, Opler, and Titman's (2001) results that firms modify towards the target leverage more actively than suggested by Shyam-Sunder and Myers (1999). Hovakimian (2003) examines the role of the target leverage in security issues and repurchases, and finds that debt reduction is carried out to decrease the deviation from target capital structure whereas debt issue, equity issue, and equity repurchase are not driven by this motivation.

The global financial crisis had a significant impact, and mostly negative, on economies around the world, including the collapse of a myriad of banking systems, the credit shortage, the diminution in value of the stock market, and the systematic depreciation of currencies in many countries.

In Vietnam, the impact of monetary policy and capital market on the real estate sector is significant. This is because most real estate companies will benefit from cheaper source of debt financing when interest rates fall. Also, lower interest rate means that the interest burden on the real estate companies, which have usually been high, is significantly reduced. However, the situation reverses when interest rates are generally higher in the more mature phases of the business cycle. Interest rates soared while the stock market lost liquidity, causing difficulties in capital mobilization. At its worst, the financial crisis saw some companies fall into financial distress and go bankrupt. In fact, the root of the crisis stemmed from the inability of borrowers to pay off mortgages that caused the system of structured finance instruments to fail. For the real estate sector, as the sector is typically cyclical and requires heavy capital funding, capital structure management is essential in maximizing cash flows, minimizing the weighted average cost of capital, and improving profitability.

The remainder of this paper is structured as follows. Section 2 provides the literature review. Section 3 presents our data and methodology. Section 4 turns to reporting the empirical results. Finally, Section 5 concludes.

2. Literature Review

Trade-off Theory

The trade-off models have been dominant in the capital structure literature. The tax benefit bankruptcy cost trade-off models (Baxter (1967), DeAngelo and Masulis (1980), Kraus and Litzenberger (1973), Robichek and Myers (1966), Scott (1976)) predict that firms will make best efforts to maintain an optimal target leverage level by adjusting the capital structure to balance the benefits and the costs of debt in the long run.

The benefits include the tax shield whereas the costs include costs of financial distress. Under the agency theoretical models (Jensen and Meckling (1976), Myers (1977), Jensen (1986), Stulz (1990), Hart and Moore (1995)) firms use the benefits of reducing potential free cash flow problems and other potential conflicts, namely principal-agent conflict, to reduce costs that are tagged along with the lack of investment and asset substitution issues. These theories forecast that corporates maintain an optimum capital structure where the marginal benefit

of debt equals the marginal cost. The implication of these trade-off models is that firms have target leverage and they adjust their leverage towards the target over time. Trade-Off Theory indicates that corporates have motivations to increase debt so as to benefit from debt tax-shields. In other words, it can be deduced that a firm has an incentive to turn to debt as the generation of annual profits allows benefiting from the debt tax shields. By applying static trade off theory, Rajan & Zingales (1995) drew a conclusion that there is a positive correlation between Leverage, and profitability of a firm, and also, the level of tangible assets of the firms and the size of the firms are positively correlated with financial leverage.

Under static trade off theory, de Mesquita & Lara executed a research and deduced that the debt of the firm and Leverage was positively correlated in the short run while the results are contradictory in the long-run. Antonious, Guney, & Paudyal (2002) further strengthen the results of due Mesquita & Lara and concluded that firm size has a positive correlation with debt over total assets. The level of tangible fixed assets has stronger correlation with leverage especially in countries where borrowings are considerable.

Um (2001) theorized that having better profitability leads to a higher debt composition of the company and thus, a company will be able to harness to benefits of tax shield. As a result, it is safe to say that a firm's profitability is positively correlated with its financial leverage, according to static trade-off theory. Firms having more amounts of tangible assets will have a higher chance to provide more collateral for debts. If the business is in distress, the lenders will have claims on the company's asset but this also reduces the risk of default for the corporate. Therefore, firms having a large amount of tangible assets are less likely to default and will be able to borrow more debt. Hence, according to the static tradeoff theory it shows a positive relationship between financial Leverage and tangibility of assets (Rajan & Zingales, 1995).

Big firms are generally considered safe as the sheer size indicates that there are so many stakeholders that would try their best to keep the firm from going bankrupt and thus those big companies tend to hold more debt than small enterprises. Large size companies prefer debt financing because they have a higher debt capacity, which is the ability to provide collaterals for their borrowings (Bevan & Danbolt, 2002).

Developed from Modigliani and Miller theories (1958), the static trade-off theory was then formulated in the study of Kraus and Litzenberger (1973). According to Kraus and Litzenberger, any company will have to face the trade-off between the benefits and costs of increasing the level of debt.

Debt level at the other side increases the risk of bankruptcy or as we call it the bankruptcy costs because as the debt to equity ratio increases the debt holders will require higher interest rates but also the shareholders will pretend higher profits for their investments. (Brealey and Myers, 2003, p. 508-509). According to Brealey and Myers (2003) financial managers often think of the firm's debt/equity decision as a trade-off between interest tax shields and the costs of financial distress. "Companies with safe, tangible assets and plenty of taxable income to shield ought to have high target ratios. Unprofitable companies with risky, intangible assets ought to rely primarily on equity financing. If there were no costs of adjusting capital structure, then each firm should always be at its target debt ratio" (Brealey and Myers, 2003, p. 509).

The static trade off theory of optimal capital structure assumes that firms balance the marginal present values of interest tax shields against the costs of financial distress (Shyam, Sunder and Myers,1999). The optimal level is when the marginal value of the benefits associated with debt issues exactly offsets the increase in the present value of the costs associated with issuing more debt (Myers, 2001). The benefits of debt are the tax deductibility of interest payments which favors the use of debt but the positive effect can be complicated by the existence of personal taxes (Miller, 1977) and non-debt tax shields (De Angelo and Masulis, 1980). De Angelo and Masulis (1980) study proposed a theoretical optimum level of debt for a firm, where the present value of tax savings due to further borrowing is just offset by increases in the present value of costs of distress. Also this theory assumes there are no transaction costs to issuing or repurchasing securities (Dudley, 2007). This theory also suggests that higher profitable firms have higher target debt ratio, because they would ensure higher tax savings from debt (Niu, 2008, p. 134), lower probability of bankruptcy and higher over-investment and these require a higher target debt ratio.

Pecking Order Theory

The pecking order theory implies that enterprises should adopt a specific priority order for raising capital needed to fund their operations (Myers and Majluf, 1984). Thanks to the information asymmetries between the company management and potential investors, the company will prefer retained profits to debt, short-term debt over long-term debt and debt over new common stock issuance. Myers and Majluf (1984) argued that if the companies do not issue new security but only use its undistributed profits to support the investment and growth opportunities, the information asymmetric can be resolved. That implies that issuing equity becomes more expensive as asymmetric information insiders and outsiders increase. Companies whose information asymmetry levels are high should increase their debt to avoid selling undervalued securities. The capital structure negative circumstances such as new common stock issuance leads to a corporate's stock price go down. An announcement of increasing capital structure events is perceived by the investors on market as positive news because financial intermediaries including investment bank can play as the role of insiders to monitor the company's performance. Managers may have confidential information that is not published to the market. Insider investors have more information about the true performance of company earnings than a normal external investor. Insider investors tend to have a restriction on the use of equity in order to maintain control of the firm (Hutchinson, 1995). Moreover, the risk of the firm's return is unknown to investors. They are forced into depending on other distracting signals such as the firm's level of capital structure to determine the risk of their investment and firm's value may be undervalued by the market (Myers and Majluf, 1984).

Butter (1949) suggested that managements most of the time prefer internal source of financing due to the fact that external financing approaches often require detailed explanations for the development plans for the investors and persuation for them to believe in the effectiveness of the project. It is understandable that managers are not fond of this idea as a result. In addition, the issue of asymmetric information is also partially attributable to this argument (the problem of information asymmetry will be analyzed further in the next paragraph). Myers and Majluf (1984) argued that managers and owners of the company have much better understanding of the firm's business than the outside shareholders (investors). In the scenrio that the enterprise value is overestimated, additional issuance of common stock will be more beneficial to current shareholders over new shareholders. On the opposite, in the scenario that the corporate value is underestimated, issuance of debt instrument will protect the benefits of existing shareholders (Frank and Goyal, 2007). The market is well aware of this problem, and as a result, investors on the market will view the debt issuance of the company as a positive signal (the enterprise is being undervalued in relative to intrinsic value), and the common stock issuance casts negative signals (indicating that the company is overvalued). Therefore, the managers or owners of the company will prioritize debt over new common stock issuance.

Following the research regarding Modigliani and Miller's Propositions about the capital structure in 1958, Donaldson (1961) provided a perspective that in the selection of optimal capital structure, corporates always arrange the order of their sources of financing and they especially prioritize internal financing source. Pecking order theory suggests that corporates will choose their sources of financing in accordance with the following order:

1) Internal financing (using retained earnings from owner's equity)
2) External financing through debt instruments
3) External financing through the issuance of hybrid securities instrument (convertible bond for instance)
4) External financing through the issuance of new equity

In recent years, the problem regarding the capital structure has received adequate attention from many researchers in Vietnam. For instance, Dang Thi Quynh Anh and Quach Thi Hai Yen (2014) with the foundation of 180 non-financial company listed on the Ho Chi Minh Stock Exchange drew a conclusion that the debt to assets ratio had a positive relationship with the size of the of the company and its profitability while negatively correlated with taxes expenses. In another approach, Le Dat Chi (2013) used the target-adjusted model proposed by Shyam-Sunder and Myers (1999) to examine the process of adjustments towards target capital structure over time of a group of companies. Research results showed that the capital planning process of the companies did

not have a significant correlation with the static trade-off theory but it did have striking degree of correlation with pecking order theory.

The research study "Analyzing the factors affecting the capital structure of Vietnamese firms" of Le Ngoc Tram (2010) also contributed to the myriad of observations from other researchers. After closely examining the theories and combining with conducting the financial leverage regression models of 177 companies from 2005 to 2008, author Le Ngoc Tram deduced from the test results regarding the capital structure of Vietnamese corporates as follows:
+) The regression results demonstrates that the factors having impact on the capital structure of Vietnamese companies include: the financial leverage, liquidity, profitability ratios, the size of the corporate, state ownership, the level of tangible assets, corporate income taxes and product-specific factor.
+) There are two independent variables showing no correlation with the financial leverage ratio (probability value over 5% with 95% confidence interval) which are the growth rate of the corporate and operational risk.
+) The correlation results between the financial leverage ratio and others factors which othere the marginal taxes and product-specific factor appeared to be insignificant within the context of theories about capital structure.

Ngo Hoang Kim Ngan (2012) conducted a research named "Factors affecting the capital structure of listed real estate companies in Vietnam" on the database of 55 real estate companies listed on Ho Chi Minh Stock Exchange and Hanoi Stock Exchange from 2008 to 2011. Research results demonstrated that there were 5 determinants of capital structure which are return on total assets, level of tangible assets on total assets, liquidity, and the size of the company. Among these factors, the tangible assets is the most important factor affecting the changes in long-term debt and owner's equity over time. Corporate income taxes did not play a significant role for the managers to make decisions regarding capital structure. According to the author, in the context that the corporates in Vietnam are struggling to raise capital, the problem of finding capital source for companies should be prioritized over tax-shield benefits.

However, these researches as stated below were only based on company data in a short reviewed period (normally from 2 to 3 years) and they did not precisely reflect the variations over time of the dependent variable. As a result, the conclusions drawn from these studies were only seasonally appropriate. Moreover, different industries and sector will behave differently when it comes to capital structure. In addition, the previous studies only focused on the determinants of capital structure, which, in other words, is the attributed factors to the debt ratio of the companies. This means that the researches in Vietnam have not used existing theoretical framework regarding capital structure to conceptualize their results.

This research study focuses on real estates firms that are listed on the Ho Chi Minh Stock Exchange and Hanoi Stock Exchange in Vietnam besides expanding the observation time frame (10 years). A business cycle usually lasts for 6-7 years; however, the expansion phase of the economy has last for nearly a decade and it is necessary that the reviewed period is expanded beyond a generally believed length of a business cycle. Furthermore, firms that are inactive and lack specific items on their financial statements will be excluded to minimize the distortion of data. Most importantly, two particular theories, which are widely known and developed, are tested and used as the foundation for the theoretical framework, which should be more relevant, directional and purposedful when analyzing the capital structure.

3. Data and methodology

3.1. Data

The research study concentrates on the database of 50 real estate companies listed on the two stock exchanges in Vietnam which are Ho Chi Minh Stock Exchange (HSX) and Hanoi Stock Exchange (HNX) (according to the industry classification in March 2020) during the 2009-2018 period. Currently, there are 66 listed real estate companies on the market (among several hundreds of companies operating in the industry). Listed companies have to satisfy the requirements of State Securities Commission of Vietnam (SSC) and they are a good indicator of the industry due to several reasons.

First of all, listed companies tend to be stronger financially and have more transparency in their information disclosure. As a result, the capital decisions of the company is widely aware by external investors and it is easier to access to the companies' data to conduct analysis. Secondly, as they are generally stronger in regards of financial health, listed companies should be the leading indicator of the industry. In other words, market expectations and impact on those companies should be more apparent compared to unlisted firms.

Among the total of 66 companies listed on HSX and HNX, 16 firms are excluded from the sample size as they pose various problems to the accuracy of the regression analysis. Some companies are currently inactive which means that they do not face liquidation but have not been generating revenue for several years. Also, some companies do not have adequate data for the regression analysis since they did not comply with the disclosure regulations of State Securities Commission of Vietnam or they have just been listed recently. Those firms should not be included in the sample size as they would distort the analysis and the ending results may not truly reflects the realistic situation of the market.

The final sample size consists of 333 observations with 50 companies are selected (it should be noted that many companies were not established until after 2008).

The data source is gathered through public information from the audited financial statements and annual reports. Further analysis was conducted to calculate necessary items for the regression models. Real estate is a very unique sector and some characteristics of this sector are reflected on the data, which will be clarified clearly in the next sections.

3.2. Methodology

In order to closely examine the factors affecting the capital structure of a company, the analysis is conducted with the regression of the dependent variable being the debt to assets ratio with independent variables representing the determinants.

The capital structure of a company, represented by the financial leverage, is the debt to total assets ratio. The debt to total asets ratio is measured based on the market value or book value of current liabilities and long-term debt.

The regression model has the general formula as below:

$$Y = \alpha + \Sigma\beta_i * X_i + \varepsilon_i \qquad (1)$$

In which, Y is the dependent variable, α is the constraint constant, β_i is the corresponding beta coefficient of the independent variable X_i.

Table 1: The dependent and independent variables

Dependent variable (Y)	
The level of financial leverage (D/TA)	The ratio between total debt and total assets
Independent variable (X_i)	
Profitability (ROA)	The ratio between after-tax earnings and total assets
Size of the business (LnTA)	The natural logarite of total assets
Growth opportunities (TAGr, SaleGr)	The growth rate of total net revenue and total assets
Level of tangible assets (FA/TA)	The ratio between tangible fixed assets and total assets
Liquidity (LIQ)	The ratio between current assets and current liabilities
Business risk (RISK)	Changes in earning before interest and taxes (EBIT) over the years

Source: Summary from different studies

Profitability

Additionally, according to the Trade-Off approach, growth opportunities have no value in the case of firm bankruptcy, and so bankruptcy costs associated with recourse to debt are greater in firms with high growth opportunities. For these reasons, according to Trade-Off Theory, the relationship between growth opportunities and debt is negative. Also according to static trade-off theory, the low profitability means that return on equity is also lackluster. In addition, the financial leverage levels in these companies with low profitability actually increase the probability of default and interest expense – which are factors affecting the profitability on equity. Consequently, it is extremely difficult for those companies to issue more equity so they must rely on borrowings to raise capital to fund their projects. Moreover, firms with high profitability are normally favourable towards financial leverage to utilize tax shield benefits from interest expense deductibility. Indeed, past studies have found that the most profitable firms have capacity for a higher level of debt, taking advantage of debt tax shields (Mackie-Mason 1990; Fama, French 2002). Highly profitable firms are likely more able to comply with their debt obligations and make payments, which reduce the probability of the company going bankrupt. DeAngelo and Masulis (1980) argued with the lack of non-debt tax shields, more profitable firms can take advantage of their greater profitability by increasing debt, and consequently increasing debt tax shields. Therefore, the static trade-off theory predicts the positive correlation between debt ratio and firms' profitability.

In contrast, the pecking order theory predicts the negative correlation between these two variables, as profitability increases, the ability to finance projects with internal resources also rises. According to the Pecking Order Theory, firms may be financially constrained due to the information asymmetry between managers/owners and investors, and so firms develop a hierarchy in choosing sources of finance. In the first place, firms use internal financing (retained profits); if it is necessary to turn to external financing, firms use debt with little or no risk, which usually translates to short-term debt; and in the last place, firms will select external equity. Therefore, highly profitable firms have a low debt ratio. The more profitable is the firm, the greater is its capacity to accumulate retained profits, and so there is less need to turn to external financing..To support this hypothesis, the conclusion of Baskin (1989) is an evidence proving the negative relationship between financial leverage and profitability of the company.

Size of the company

The size of the corporate is also contradictorily predicted by two theories. Warner (1977) argued that there is advantage for size in case of default (economies of scale in bankruptcy), which means that the bigger the business, the lower the probability of default and the cost of borrowings reduces. Indeed, larger companiess tend to have greater diversification of activities that indicates less chance of bankruptcy (Warner 1977; Ang et al. 1982; Titman, Wessels 1988). In addition, large firms with less volatile profits are more likely to take advantage of the debt tax shields, thus increasing the potential benefits of debt (Smith, Stulz 1985). Therefore, according to the trade-off approach, large corporates tend to increase their level of debt as a result of the lesser chance of bankruptcy, and also as a way to increase the debt tax shields. Hence, according to the view of trade-off theory, the size of the company has a negative correlation with debt ratio.

On the opposite, the pecking order theory implies that the size of the company represents the level of information asymmetry between the market and the company itself: the bigger the company, the lower the level of information asymmetry, thus informationally sensitive securities should be easier to be issued, especially common stock (Kester, 1986).

Pecking Order Theory predicts that greater size allows a firm to accumulate retained earnings, and so less debt is necessary. Therefore, Pecking Order Theory predicts a negative relationship between size and debt (López-Gracia, Sogorb-Mira 2008). Ezeoha (2008) identify a negative relationship between firm size and debt, which is according to the assumptions of the Pecking Order Theory, therefore small firms should use less debt due to the costs of external financing stemming from asymmetric information problems. However, as argued by Myers (1984), greater firm size mitigates the issues of information asymmetry between managers/owners and debtholders, enabling firms to acquire more debt on relatively more favourable terms. A positive relationship

between size and debt may be expected in the Pecking Order approach that is verified in various studies (Marsh 1982; Wald 1999; Psillaki, Daskalakis 2009). On the other hand, information asymmetric makes it more difficult for small firms to have access to external financing sources, so the internal funds should be the priority when financing resources are required. In brief, the negative correlation between the size of the corporate and the debt ratio is predicted by pecking order theory but also, the positive effect could also considered supportive for the pecking order theory. Hence, the effect is either positive or negative with the denial of hypothesis is that there is no correlation.

Growth opportunities

Kim (1978) stated that borrowings, although creating benefits through tax shield, increases the probability of default for the company, which may contribute to a reduction of growth opportunities in the future. As a result, companies may have reluctancies in deciding whether to borrow, in order not to witness their future growth diminished. Myers (1984) argued that as bankruptcy and agency costs are greater for firms with high expectations of growth opportunities, companies can be reluctant to increase their borrowings balance in order not to increase their probability of bankruptcy. As a result, firms with high growth opportunities may not use debt as the first financing source. Therefore, in the trade-off theory approach, a negative relationship is expected between debt and growth opportunities. According to the trade-off theory, enterprises with greater growth opportunities have a lower level of debt, given that greater investment opportunities increase the possibility of agency problems between managers/owners and creditors, because the former have a reasonable motivation to "under-invest" (Myers 1977; Smith, Warner 1979). Additionally, trade-off theory also implies that growth opportunities have no value in the event of firm default, and so bankruptcy costs associated with claims to debt are greater in firms with high growth opportunities. For these problems, as presented by trade-off theory, the relationship between growth opportunities and debt is negative. In another perspective, Myers (1977) believed that growth opportunities might cause ethical risks, by which owners might take advantage of debtholders' money to take on unncessary risks, with the purpose of harvest gains on the expense of debtholders. Debtholders also recognized this problem as they either decrease their lending amounts or require a higher return. Either way results in the lower debt ratio and the negative correlation between debt ratio and growth opportunities.

In accordance with the Pecking Order Theory, enterprises with high growth opportunities must adopt significant investment and development projects, which cast greater demand for funds. When internal financing is depleted, companies prefer debt rather than external equity for funding growth opportunities, which are associated with a greater risk than do investment in assets currently existed (Baskin 1989; Shyam-Sunder, Myers 1999; Viviani 2008; Ramalho, Silva 2009). These authors argued that companies with good growth opportunities increase debt when internal funds are not enough to meet requirements. As a result, higher growth opportunities means that the tendency of using debts increases as well. Even more historical researches have confirmed the positive relationship between debt ratio and growth opportunity of the corporate (Michaelas and co., 1999; Bevan and Danbolt, 2002; Eriotis, 2007).

Tangible fixed assets

Corporates that have high amounts of tangible fixed assets have low probability of bankruptcy and their debts are also better secure with collateral assets. Therefore, the cost of debt is minimized, leading to the greater degree of financial leverage. Tangible assets can be used as collateral in the case of firm bankruptcy, protecting the creditors' rights. Apart from solving problems of bankruptcy costs associated with the use of debt, the tangible assets may also be used to mitigate agency problems (Degryse and co., 2010). Michaelas and co. (1999) stated that companies, with valuable tangible assets that can be used as guarantees, have less strict access to external sources of finance, and they are more likely to have higher levels of debt than firms with low levels of tangible assets.

Considering that a higher level of tangible assets increases the possibility of offering collaterals, mitigating problems of information asymmetry between managers/ owners and debtholders (Berger and Udell, 1998; Michaelas and co., 1999; Sogorb-Mira, 2005), a positive relationship is expected between asset tangibility and

debt. Therefore, the pecking order theory hypothesizes that the high level of tangibility in a firm will decrease the cost of borrowings. In conclusion, both of the above theories expect the positive correlation between the tangibility of assets and the debt ratio of a corporate.

Liquidity

The pecking order theory predicts the negative correlation between the liquidity of a company and the financial leverage. The reason for this is that in those firms with sufficient level of liquidity, cash and other liquid assets act as the primary source of cash and funding for operations instead of borrowings (De Jong and co., 2008). The more cash the company holds, the less dependence they have on the external financing sources. Whereas the pecking order theory expects a negative correlation between those two variables, the trade-off theory does not have any specific predictions on the direction of interaction between them and hence, the effects of trade-off theory are rather inconclusive.

Business risk

According to Trade-Off Theory, the concentration level of the market also plays an important role in the analysis. With the market being diversified, the competition is expected to rise between firms. As a result, they are susceptible to higher business risk, and greater probability of default. As a result, these companies tend to keep their debt at lower levels so that they can handle the situation. In other words, firms with a high level of business risk have a greater risk of bankruptcy, and so they should reduce their debt and vice versa. According to Bradley and co. (1984), corporates with volatile operational profits are highly likely to go bankrupt, and thus may face bigger difficulties in borrowing more capital. Also, the business risk factor is considereda representative of the expected cost of financial distress (Pim Oolderink, 2013). Greater business risk aggravates the expected cost of financial distress and therefore, as mentioned by static trade-off theory, reduce the incentive for debt using of the company. Comprehensively, while the pecking order theory is inconclusive about the correlation between business risk and financial leverage, the trade-off theory predicts a negative interation.

4. Empirical results

4.1. Summary statistics

Table 2 provides the descriptive statistics of all variables in this paper.

Table 2: Descriptive statistics

Variable	Mean	Maximum value	Minimum value	Median	Standard deviation	Probability
D/TA	0.453	0.948	0.009	0.469	0.191	0,0000
ROA	0.034	0.453	-0.853	0.029	0.071	0,0000
LnTA	28.411	33.294	23.665	28.241	1.306	0,0091
TAGr	1.342	359.896	-0.595	0.097	19.872	0,0000
SaleGr	-0.935	316.056	-0.935	0.169	18.881	0,0000
FA/TA	0.037	0.320	0.0001	0.019	0.049	0,0000
LIQ	3.381	109.094	0.170	2.001	7.584	0,0000
RISK	1.806	248.387	-15.060	0.103	15.321	0,0000

Source: Data processing results from STATA software

The debt to total assets ratio of the listed companies in the real estate sector is considerably high (mean value equals 0.453 and median equals 0.469), indicating that debt is the preferable financing source for constructing capital structure for these firms. Indeed, the overall market summary section has pointed out that, listed real estate companies in Vietnam are very fond of using high financial leverage to fund their projects. As discussed

in previous chapters, the financial leverage could bring substantial benefits to the managers and owners, but there are also significant risks associated with, particularly in the period of construction and real estate market stagger currently. On the other hand, the average return on total assets of these companies is relatively low, sitting at about 3.4% with the minimum value being -85.3%. The huge difference between the interval of this index implies that listed real estate companies in Vietnam lack profitability and efficiency in their operations given current market outlook.

The tangible fixed assets to total assets of the sample is quite low, only about 3.7%. This low level of tangibility of the real estate companies does not mean that they have little collateral for their borrowing contracts. This is because tangible fixed assets in real estate companies' balance sheet mainly consist of equipments or other working tools. Real estate assets are reported in inventory balance as available for sale real estate products and real estate under construction. These inventories may act as collateral as well as tangible fixed assets. As a result, the curren assets to current liabilities are extremely high (3.381 on average and median value is 2.001). As explained above, current assets include inventories, which mainly consist of real estate products available for sale or under construction. The exceptional value of inventories implies that the inventory balance takes a large proportion of the total assets. In other words, this means the real estate companies are currently accumulating a large amount of real estate projects which are fragmented and deemed unfeasible. As a result, real estate companies would be exposed to substantial risks as these products lack liquidity and the interest expense from the short-term borrowings associated with these products constantly put pressure on the companies' operation. The high value of current assets to current liabilities (mean value of 3.381) precisely reflect the characteristics of this unique sector.

Interestingly, sales growth and total assets growth have a great interval between maximum values and minimum values due to the fact that the business of real estate companies revolves around illiquid products and largely depends on business cycles. As a result, companies whose business is only realtor have their revenues and assets fluctuating over time.

Table 3: The correlation between variables

	D/TA	ROA	LnTA	TAGr	SaleGr	FA/TA	LIQ	RISK
D/TA	1,000							
ROA	-0.041	1,000						
LnTA	0.287	0.074	1,000					
TAGr	-0.028	-0.016	-0.030	1,000				
SaleGr	-0.103	0.005	-0.095	0.196	1,000			
FA/TA	-0.132	-0.167	-0.007	0.055	0.009	1,000		
LIQ	-0.286	0.002	-0.150	-0.018	0.090	-0.048	1,000	
RISK	-0.003	0.047	-0.101	0.138	0.056	-0.048	0.012	1,000

Source: Data processing results from STATA software

Table 3 presents the correlation matrix of the variables involved in the regression analysis. It should be noted that the correlation between each pair of independent variables in the model is reasonably low and insignificant – the most value that is material is the correlation between total asset growth and sales growth (TAGr variable and SaleGr variable respectively) which is 0.196. Therefore, it is safe to conclude that auto-correlation does not have any significant impact in the regression model.

4.2. Empirical results

Table 4: Regression results

Dependent variable: D/TA			
Independent variable	Ordinary Least Squares (OLS) Model		
	Beta coefficient	Standard Deviation	P-value
ROA	-0.2254	0.1360	0.048
LnTA	0.0368	0.0077	0.000
TAGr	-0.0001	0.0005	0.840
SaleGr	-0.0005	0.0005	0.300
FA/TA	-0.5912	0.1987	0.003
LIQ	-0.0095	0.0020	0.000
RISK	0.0003	0.0006	0.615
Intercept	-0.5380	0.2191	0.015
Observations	324		
Probability (F-statistics)	0.000		

Source: Data processing results from STATA software

In this analysis, the ordinary least squares (OLS) method is chosen.

According to Chen (2003), in case there is no data regarding research and development and advertising expense available, two variables could be selected to measure the growth opportunities of a company is the growth rate of total assets (TAGr) and the growth rate of net revenue (SaleGr). However, the growth rate of net revenue is not as representative in reflecting growth opportunities of a company as the growth rate of total assets, due to the fact that net sales is the indicator of current business performance and it is not significant as an indicator for future growth opportunities. In many cases, even though the net revenue has impressive growth rates in the past and at the present, future income could decrease because of the saturation of the market and the slowdown phase of the production cycle. In contrast, the firm might only decide to increase their assets when the business opportunity in the future is visible to them and they might as well harness those opportunities. However, in fact, regression analysis results show that both of the two variables are not statistically significant due to two reasons. First of all, the beta coefficient of all two variables are too small to be material, being -0.0001 and -0.0005 for TAGr and SaleGr respectively. This indicates that the growth opportunities of the real estate enterprises might not be reflected by the growth rate of total assets and net revenue. Secondly, those two variables have their probability value under 0.05 (at 95% confidence interval) and thus have no statistical significance.

The regression coefficient of the ROA variable carries negative sign (-0.225) demonstrates that the use of borrowings in firms decrease as the profitability increases. The reason for this result is that higher levels of profitability allows corporates to mobilize capital much easier thanks to abundant internal financing resources, which is the undistributed earnings, and hence, not much extra debt is required for the funding. This result is inconsistent with trade-off theory but consistent with the prediction of the pecking order theory about the relationship between profitability and financial leverage ratio.

Similarly, the liquidity of the real estate companies in the sample size (represented by LIQ variable) also has the negative correlation with the debt to assets ratio (the regression coefficient equals to -0.01 at 99% confidence level). The direction of interaction between this variable and debt ratio is consistent with the pecking order theory.

On the other hand, the regression coefficient of RISK variable is 0.0003 which is the opposite prediction for the expectation of the trade-off theory that was the negative correlation between the financial leverage and the business risk of a company. However, the positive regression coefficient is also not supportive of the pecking order theory as this theory's prediction on the interaction between two variable is inconclusion. Moreover, the

probability value of the RISK variable is equal to 0.615, indicating that this regression coefficient is statistically insignificant.

Another point worth mention from the result of the regression model is that the regression coefficient of FA/TA variable has negative value (which is -0.519) at 99% confidence interval, demonstrating that the tangible fixed assets to total assets ratio has the negative relationship with the debt to total assets ratio. This regression result contradicts the expectations of both trade-off theory and pecking order theory.

The last variable to consider is the LnTA variable which has the regression coefficient of 0.037 at 99% confidence level. This positive sign of the correlation coefficient implies that it is consistent with the prediction of the static trade-off theory regarding the positive relationship between the size of the company (illustrated by the natural logarite of the total assets) and the debt to total assets ratio. Nevertheless, it is also consistent with the expectation of the pecking order theory. This is because, as pointed out in the previous sections, the pecking order theory predicts that there is either a negative or positive relationship between the size of the company and the debt ratio due to two reasons. Firstly, greater firm size mitigates the issues of information asymmetry between managers/owners and debtholders, enabling firms to acquire more debt on relatively more favourable terms. This leads to the positive correlation between two variables. However, greater size allows a firm to accumulate retained earnings, and so less debt is necessary, leading to the negative direction. Given the fact that the average ROA of the companies in the sample size is quite low and the actual tendency of preferring debt issuance over equity issuance of the real estate companies in Vietnam, the more appropriate interpretation for pecking order theory should be the positive relationship between size of the companies and the debt ratio. As a result, the regression coefficient of 0.037 is also consistent with pecking order theory.

Overall, the regression analysis findings can be summed up by the table below:

Table 5: Research study final results

Factors	**Direction of interaction**	**Statistical significance**	**Corresponding theory**
Profitability	Negative	Yes	Pecking Order Theory
Size	Positive	Yes	Pecking Order Theory and Trade-off Theory
Growth opportunities	Negative	No	Inconclusive
Tangible fixed assets	Negative	Yes	None
Liquidity	Negative	Yes	Pecking Order Theory
Business risk	Positive	No	Inconclusive

In conclusion, it is observable that among the seven variables that is used in the regression model, there are three variables that can be explained by the pecking order theory (ROA, LIQ, and LnTA). Meanwhile, there is only one variable which is LnTA that could be explained by the trade-off theory. Thereby, it is safe to conclude that, the capital structure of listed real estate companies in Vietnam is more suitable for the pecking order theory instead of the trade-off theory.

5. Conclusion

The results obtained indicate a negative relationship between profitability and debt, which suggest that the real estate companies prefer internal financing rather than external financing. As the most profitable firms are more able to retain profits over time, they become less dependent on debt. Real estate companies dependence on internal financing is also corroborated by the negative and statistically significant relationship between liquidity and debt, as the pecking order theory predicts the negative correlation between the liquidity of a company and the financial leverage. The reason for this is that in those firms with sufficient level of liquidity, cash and other liquid assets act as the primary source of cash and funding for operations instead of borrowings (De Jong and co., 2008). The more cash the company holds, the less dependence they have on the external financing sources.

The negative relationships between profitability and debt, and between liquidity and debt, indicate that the listed real estate companies in Vietnam are having their capital structure movements that are consistent Pecking Order Theory, showing the importance of internal financing for real estate companies, particularly for the smaller ones. The positive relationship between size and debt can also be interpreted, according to the assumptions of Pecking Order Theory, since greater firm's size can lead to fewer problems of information asymmetry, and lower costs of deb for real estate firms, allowing easier access to debt and on more favourable terms for those firms. Therefore, greater company's size contributes to listed real estate companies to obtain debt on more favourable terms.

The fact that tangible fixed assets do not influence debt suggests that real estate companies depend on short-term debt, for which debtholders do not require tangible assets as collateral for the loans. So it appears that size and liquidity are two relevant variables for real estate companies in acquiring more debt, with tangible assets losing significance as potential collateral. The statistically insignificant relationships between growth opportunities (total assets growth rate and net sales growth rate) and debt ratio, and between business risk and debt ration, all indicate that listed real estate companies do not put significant emphasis on the growth opportunities and risk in their capital structure decisions, separating themselves from the assumptions of the Trade-Off Theory.

The empirical results ont the market, however, imply that listed real estate firms in Vietnam adjust, relatively quickly, their actual debt ratio towards the optimal debt ratio. This result suggests that the costs of financial distress are generally greater than the costs that listed real estate firms bear, when adjusting their actual debt ratio towards the optimal debt ratio. With this point, listed real estate companies in Vietnam seem to adopt a financing behaviour in accordance with the expectations of trade-off theory.

In general, the results suggest that Pecking Order and Trade-Off Theories are not mutu- ally exclusive in explaining the capital structure decisions of listed real estate firms in Vietnam. The results obtained allow us to conclude that the capital structure decisions of listed real estate companies can be explained in the context of the assumptions of pecking order theories, more than trade-off theory. On the one hand, SMEs make considerable adjustment of their actual debt towards the optimal level of debt, and size contributes to increased recourse to debt. These results corroborate the assumptions of trade-off theory. On the other hand, more profitable, older SMEs turn less to debt, with increased recourse to debt as a function of their size. Moreover, higher liquidity indicates that listed companies hold more cash or liquid assets in their hand so that they do not have motivations for using external financing sources These results are consistent with the forecasts of pecking order theory.

Therefore, even though the trade-off theory is popularly and primarily mentioned in various studies and academic works relating to finance (Le Dat Chi, 2013), the pecking order theory should be the theory that play the main role in explaning the capital structure decision of the listed companies operating in the real estate industry of Vietnam. If we consider the situation of the market in Vietnam for the last few years, it is not difficult to come up with reasons that justify for this behavior of the companies.

First of all, in the condition of high commercial bank interest rates for the period of 2016 and 2018, the priority of the corporates is the use of internal funds. Furthermore, since early 2019, the Governments have tightened regulations regarding the issuance requirements for corporate bonds, leading to the struggles that many real estate projects had to face in raising capital. Moreover, some structural changes in borrowing approaches have also transformed the capital mobilization strategies of the companies in the sector. Finally, in the context that the Vietnamese stock market is primitive and unstable, the common stock issuance is considered expensive and costly given the fact that the real estate companies in the country is barely generating cash flows. Hence, real estate firms often seek cheaper financing sources from commercial banks when external funds are needed. Last but not least, the common issue of information asymmetry on the market stems from the fact that real estate companies do not want to publish too much internal information to the marker (which is a requirement for new equity issuance). As a result, corporates could not maintain their optimal capital structure at which the value of the enterprise is maximized as described in the trade-off theory in previous chapters.

Considering that Vietnamese market is a relatively disadvantageous market in the context of the the regional areas, where real estate companies are especially important for increased employment and economic growth, we

suggest that policy-makers should give effective support through favourable terms to these companies in obtaining debt. In that way, when internal financing is insufficient, young and small companies could turn to external financing on advantageous terms, allowing these firms to finance efficiently their activities.

Based on the above conclusions, the macro management policies for corporates of the management entities in the upcoming periods should concentrate more on mitigating the problem of information asymmetry on the market by increasing the monitoring activities, supervisory activities and required regular information publishing activities for the listed real estate companies. In addition, the investors should also be educated to increase their capabilities so that they can have a better understanding of the market as well as the companies in their portfolios. Furthermore, the interest rates should be kept at low range and stable, thus small and medium-sized enterprises can reduce their operating costs and easily adjust their capital structure to increase the enterprise value in the future.

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