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Foreign currency debt financing and firm profitability: Evidence from an emerging market

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ABSTRACT

This study examines how foreign currency debt financing influences the profitability of 684 publicly listed firms on the Vietnamese stock exchange over ten years, from 2011 to 2020. Data on foreign debt is manually extracted from annual reports. Panel data models are utilized for estimation, and the two-stage least squares method is applied to address potential endogeneity issues. The findings indicate that foreign currency debt is negatively correlated with firm profitability. These results remain robust across various firm profitability proxies and estimation methods. The study period is further divided into sub-time ranges based on the introduction of Circular 42/2018, which was enacted to limit the categories of firms eligible to obtain foreign currency debt. The findings show that foreign currency debt is negatively correlated with firm profitability only before the implementation of Circular 42/2018, while no significant correlation is observed in the period following its enactment. The study shows that increasing the use of foreign currency debt will reduce the profitability of the firm. This result suggests that financial managers need to pay attention to financing decisions, specifically considering reducing the level of foreign currency debt to ensure the efficiency of debt use.

Contribution/ Originality: By constructing a unique dataset on foreign currency loans, this study provides deeper insights into the link between foreign borrowing and firm profitability in an emerging market, a topic that has received limited attention in the existing literature.

1. INTRODUCTION

Foreign currency debt (FC debt) refers to business loans issued in foreign currencies, commonly secured through banking institutions. There are many reasons why a company may wish to obtain debt in a foreign currency. First, foreign debt serves as a hedging instrument against foreign exchange risk ((Allayannis, Brown, & Klapper, 2003; Keloharju & Niskanen, 2001). In addition, foreign currency borrowing may be less expensive than domestic currency borrowing. Vietnam's lending in foreign currencies has grown steadily in the past decade. This significant growth in foreign currency credit could be attributed to attractive lending interest rates compared to Vietnamese dong loans. According to the State Bank of Vietnam data in 2021 on lending interest rates, 7.7% to 9.5% per year is the average VND lending interest rate of commercial banks, depending on the term, while the average USD lending interest rate is around 3% to 6% per year. Additionally, speculative factors can make FC debt an attractive choice if financial managers perceive that the interest rate differential between the two currencies does not properly account for anticipated exchange rate fluctuations (Keloharju & Niskanen, 2001; Mefteh-Wali &

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Rigobert, 2018).

The rapid growth in foreign currency debt usage has attracted researchers around the world to study its impact on firm profitability. However, there is mixed evidence regarding this relationship. A few studies have shown that the decision to use foreign currency debt hurts the performance of the firm (Ghosh, 2008; Kim, Tesar, & Zhang, 2015). By issuing debt in a foreign currency, firms run the risk of experiencing a rise in their debt service costs as their domestic currency depreciates in comparison to the debt currency. Other studies demonstrate that this relationship is positive (see, for example, Mefteh-Wali and Rigobert (2018); Bougheas, Lim, Mateut, Mizen, and Yalcin (2018) and Allayannis et al. (2003)). Some research studies have found no definitive link between the utilization of foreign currency debt and firm profitability (Gabrijelcic, Herman, & Lenarcic, 2016).

In Vietnam, this issue remains largely unexplored, as studies on foreign currency debt are relatively scarce. Most previous studies in Vietnam focus on the influence of capital structure generally (including equity and debt) on firm performance (see Vo and Ellis (2017)). Some studies analyze the structure of equity and the performance of firms (Phung & Mishra, 2016). In the context where Vietnamese firms tend to mobilize loans in non-local currencies, conducting an empirical analysis of the impact of foreign-denominated debt utilization on firm financial performance is necessary.

This study reveals that the utilization of foreign currency (FC) debt has a negative impact on firm profitability. However, following the introduction of Circular 42/2018, which restricted firms from obtaining foreign currency debt, no evidence of such an effect is found. These findings remain robust across various firm profitability proxies and estimation techniques. This research offers valuable contributions to both academia and practice by expanding the literature with new empirical evidence from Vietnam, addressing a topic that has been largely overlooked. It has constructed a complete and unique data set on foreign currency and domestic loans by exploiting financial reports, thereby distinguishing between the effects of foreign and domestic debt on firm profitability. In practice, the study demonstrates that non-local currency debt is an important factor affecting listed firm profitability in Vietnam. Given that, it provides solutions for enhancing firm profitability using foreign currency debt.

2. LITERATURE REVIEW

As FC debt is a form of borrowing, theories of optimal capital structure—such as the static trade-off theory, Modigliani and Miller theory, the pecking order theory, and the risk management theory—can explain its impact on a firm's overall performance.

Modigliani and Miller (1958) elaborate that in a perfect capital market, debt utilization does not result in any supplementary advantages or expenses for the firm; in other words, capital structure has no impact on the company's value. However, the assumptions of a perfect market do not reflect the actual business environment. Consequently, Modigliani and Miller (1958) propose that capital structure impacts both the market value of the firm and its performance.

Miller and Modigliani (1963) argue that, from a business perspective, the benefits of tax shields from using debt can help increase firm value. Therefore, based on the static trade-off theory, by taking advantage of tax differentials, arbitrage opportunities, and lower interest rates in foreign currencies, companies can reduce their borrowing expenses. However, due to currency mismatches or liquidity mismatches, foreign currency borrowing may increase debt risk and distress expenses (Jensen, 1986; Kim & Stulz, 1988; Myers, 1977).

The theory of Myers and Majluf (1984) explains why firms with low profitability tend to incur more debt. Pecking order theory states that the tax shield benefit from borrowing is considered a class effect, debt ratios fluctuate due to internal cash flow asymmetries, and real investment opportunities are present. Consequently, debt utilization and firm performance exhibit a negative relationship (Fama & French, 2002; Shyam-Sunder & Myers, 1999; Simerly & Li, 2000).

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According to the findings of Graham and Rogers (2002) and Leland (1998), firms can control forex volatility or carry it at a lower cost by increasing their use of foreign currency debt. Foreign currency cash flows provide a natural exchange rate hedge, so firms with higher earnings before interest and taxes denominated in foreign currencies will use more foreign debt (Géczy, Minton, & Schrand, 1999; Petersen & Thiagarajan, 2000).

The impact of international debt on the financial performance of corporations in the literature, however, remains unclear. While some studies indicate a positive correlation between foreign currency (FC) debt and corporate performance, measured by return on assets (ROA), return on equity (ROE), and Tobin's Q ratio, contrary evidence exists for excess equity return, operating margin, and market-to-book ratio (see, for example, Bartram, Brown, and Fehle (2009); Clark and Judge (2009); Vivel Búa, Otero González, Fernández López, and Durán Santomil (2015) and Allayannis et al. (2003)). According to Harvey and Roper (1999), foreign exchange debt contributed to East Asian companies' poor performance during the 1997 Asian financial crisis. Similarly, Ghosh (2008) confirmed the negative impact of a company's external debt on its performance. This negative marginal effect of increasing leverage on a firm's profitability leads to a reduction in revenue. Kim et al. (2015) present a notable exception, finding that for large entities, external debt positively impacted revenue growth during crises. However, during sudden currency stagnation, firms with more FC debt tend to report a more significant decline in net worth. Mefteh-Wali and Rigobert (2018) found a positive association between firms using foreign debt and financial ratios (ROA and Tobin's Q) before the crisis and a negative impact afterward. Meanwhile, Gabrijelcic et al. (2016) illustrate the opposite result, showing that the foreign debt of large firms positively relates to the increase in sales during the crisis. Comparable findings have been found in other research on large, publicly traded companies (Bonomo, Martins, & Pinto, 2003; Forbes, 2002; Moussa, 2019). There is not a clear explanation for why foreign currency debt boosts revenue, but one theory is that large, publicly traded companies are frequently better equipped to protect themselves from exchange rate risk and have easier access to alternative funding in times of crisis.

When considering the influence of foreign financing on firm performance, liquidity may play an important role since more liquid firms typically borrow less in foreign currencies (Bougheas et al., 2018) and generally outperform their rivals (Gabrijelcic et al., 2016). Since a firm's aggregate domestic currency debt is negatively related to its residual equity return, it can be positively correlated with external debt because of the inverse correlation between the firm's non-local debt and residual equity (Allayannis et al., 2003). While the book-to-market ratio and operating profit margin are negatively correlated with total financial leverage, according to Allayannis et al. (2003), there is no proof that foreign borrowing has a substantially greater effect on a company's financial performance than domestic debt during a currency crisis.

Vietnamese studies related to corporate activities do not examine foreign currency debt as a separate factor but consider firm debt in terms of total value or maturity instead. Furthermore, such studies only examine the relationship between certain industries, thus limiting the interdependence between debt factors and firm factors. In light of the lack of comprehensive data on foreign currency loans and the absence of research specifically addressing foreign currency debt in Vietnam, this study aims to close this gap by gathering information on foreign currency debt from financial statements and analyzing its impact on firm profitability.

3. DATA AND METHODOLOGY

This study employs unbalanced panel data of all non-financial firms listed on the Ho Chi Minh and Hanoi Stock Exchanges from 2011 to 2020. We also excluded all financial firms from the sample since these firms often have significantly higher financial leverage (Fama & French, 2002), which may distort the objectivity of the research. The final sample includes 684 firms.

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In a research study on the impact of foreign currency (FC) debt on small corporate performance, Brown, Ongena, and Yeşin (2011) noted that one of the reasons for the limited studies on this topic is the restricted availability of firm-level data over an extended period. Additionally, firms' use of foreign debt is greatly influenced by government policy because governments can supply nearly unlimited domestic liquidity; however, they often face constraints when it comes to providing foreign currency liquidity (Hawkins & Turner, 2000). The data for this study covers a 10-year period, which is long enough to examine the impact of foreign exchange debt on firm profitability and includes the year 2019 when Circular 42/2018 was issued to limit firms from borrowing foreign currency. Separating the research period into two segments, before and after Circular 42, helps illustrate the impact of the policy on the use of foreign currency debt. Data from 2020 onwards is excluded to eliminate the effect of the COVID-19 pandemic on the results.

Data on foreign debt is manually collected from annual reports. Other accounting statistics, such as total assets, capital expenditure, dividends, and profitability ratios, are downloaded from the FiinPro platform provided by StoxPlus. The research model is developed following previous studies (see, for example, Allayannis et al. (2003) and Mefteh-Wali and Rigobert (2018)). Profitability measures are used as dependent variables, while debt types (FC debt and domestic debt) serve as independent variables to examine the impact of FC debt on profitability. Additionally, the model incorporates other independent variables to control for factors identified in previous studies as influencing profitability, including firm size, investment opportunities, liquidity, and dividend policy. The regression model is as follows:

$$PROB_{it} = \beta_0 + \beta_1 DOMESTICLEV_{it} + \beta_2 FOREIGNLEV_{it} + \beta_3 SIZE_{it} + \beta_4 CAPEXTA_{it} + \beta_5 QR_{it} + \beta_6 DIV\_REAL_{it} + \varepsilon_{it} \quad (1)$$

Where subscripts i represents firms individually ($i = 1, 2, \ldots 684$), and t denotes time ($t = 2011, 2012, \ldots 2020$); $\beta_1, \beta_2, \ldots$ are the estimated parameters; ε is the idiosyncratic error terms.

Capital structure theory and exchange rate hedging theory propose that a firm's choice to borrow in foreign exchange is influenced by the currency composition of its revenues, the anticipated distress costs in the event of loan default, and the level of financial transparency in its operations (Brown et al., 2011). Therefore, we consider foreign exchange debt in relation to total assets. The collateral requirements for firms borrowing in domestic or foreign currencies do not appear to differ, while foreign exchange loans have significantly longer maturities. In addition, firms often choose longer-term debt to limit refinancing risk (Hawkins & Turner, 2000). Therefore, in this study, long-term debt value is chosen instead of total debt value, and the dependent variable is calculated as the ratio of foreign currency debt in long-term to total assets, denoted as FOREIGNLEV. Firm leverage is divided into foreign currency debt ratio (FOREIGNLEV) and domestic debt ratio (DOMESTICLEV) to analyze the role of foreign currency debt as an exchange rate hedging tool. DOMESTICLEV is denoted as the ratio of long-term debt in local currency to total assets. In addition, two dummy variables, i.e., FXDEBT_INY and FXDEBT_ATY, are employed. FXDEBT_INY takes the value of 1 if the firm reports foreign currency debt in the fiscal year and zero otherwise, whereas FXDEBT_ATY takes on a value of 1 if the firm reports foreign currency debt at the end of the fiscal year and zero otherwise.

Firm profitability variables include return on assets (ROA), return on equity (ROE), and return on invested capital (ROIC). The return on assets (ROA) tells investors how effectively a business turns investment sums into net income, with higher ROA values reflecting greater efficiency in generating profits with minimal capital. ROA equals total assets divided by earnings before interest and taxes (EBIT). ROA has been used since 1919 when DuPont used it as a key metric of their ratio triangle system. Since ROE considers decisions about the company's finances in addition to operating and investment choices, it provides a comprehensive assessment of firm profitability (Liesz & Maranville, 2008). ROE is defined as the ratio of net income divided by equity. ROIC measures the return on income after taxes divided by invested capital. ROIC not only helps in analyzing net income for equity investors but also for lenders in the form of interest payments (Damodaran, 2007).

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The model includes four control variables that are considered to have significant impacts on firm profitability, including firm size, investment opportunities, liquidity, and dividend payment. Firm size (SIZE) equals the natural logarithm of total assets. Its effect on firm performance is inconclusive (Peltzman, 1977) as large firms are more diversified, possess more human and financial resources, and can take advantage of economies of scale that would enhance their performance. Conversely, they are also more prone to agency conflicts. Due to reduced information asymmetry, they are also more likely to take on debt, particularly FC debt. Research on the relationship between firm size and performance remains mixed as Allayannis and Weston (2001) found that larger firms tend to underperform, whereas Jin and Jorion (2006) reported the opposite.

A firm's investment opportunity is determined by its market value along with the present value of expected future investment prospects (Myers, 1977). The ratio of capital expenditure to total assets, CAPEXTA, is used to represent investment opportunities. The cost of capital expenditure equals the difference between cash inflows and outflows for purchasing fixed assets as well as other long-term assets. When firms can allocate part of their profits for fixed asset investment activities, they have the opportunity to maintain their operations and competitive position; therefore, profitability also increases.

Firms that are not cash-constrained can effectively cover their expenses, which suggests a positive correlation between performance and liquidity. However, excessive free cash flow may lead to investments with negative present values (Jensen, 1986). We use the quick ratio (QR) as a measure of liquidity, which equals the sum of cash and marketable securities divided by short-term debt.

Dividend payments can be considered a firm's access to financial markets. Firms with constrained internal resources and restricted access to financial markets tend to accept only projects with the highest net present value and ignore other potential projects. While Jin and Jorion (2006) found a negative correlation between dividend yields and firm performance, Allayannis and Weston (2001) demonstrated a positive relationship. Dividends are also considered a positive indicator of corporate governance (Bhattacharya, 1979). The real dividend yield (denoted as DIV_REAL) is used as a proxy for dividend payments.

Definitions of variables in the model are presented in Table 1.

Table 1. Definition of variables.

Variables	Definition
Panel A: Foreign currency debt variables	
FOREIGNLEV	The ratio of FC long-term debt to total assets
DOMESTICLEV	The ratio of local currency long-term debt to total assets
Panel B: Firm profitability variables	
ROA	Earnings before interest and taxes divided by total assets
ROE	Net income divided by equity
ROIC	Net income after taxes divided by investment capital
Panel C: Control variables	
SIZE	The natural logarithm of total assets
CAPEXTA	The ratio of capital expenditure to total assets. The cost of capital expenditure (CAPEX) equals to the difference between cash inflows and outflows to purchase fixed assets as well as other long-term assets.
QR	The total cash and marketable securities divided by short-term liabilities
DIV_REAL	The actual dividend payment

As mentioned above, the policies and regulations provided by the State Bank of Vietnam could significantly influence the performance of any firm obtaining foreign currency debt. To examine whether government policy alters the relationship between foreign currency debt and the profitability of non-financial firms, following Mefteh-Wali and Rigobert (2018), we created dummy variables indicating foreign currency debt before and after the implementation of Circular 42/2018. Dummy variables for domestic debt are constructed in the same manner. For the period before the application of Circular 42/2018, debt variables equal the loan value multiplied by 1 if the

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observation year is between 2011 and 2018; otherwise, the loan value will be multiplied by zero, denoted as DOMESTICLEVPRE and FOREIGNLEVPRE. Regarding the period under the effect of Circular 42/2018, the debt value will be calculated by the value of debt multiplied by 1 if the observation year is between 2019 and 2020; otherwise, it will be multiplied by 0, denoted as DOMESTICLEVPOST and FOREIGNLEVPOST. The control variables for model (2) are similar to those in model (1).

$$PROB_{it} = \beta_0 + \beta_1 DOMESTICLEV\_PRE_{it} + \beta_2 DOMESTICLEV\_POST_{it} + \beta_3 FOREIGNLEV\_PRE_{it} + \beta_4 FOREIGNLEV\_POST_{it} + \beta_4 SIZE_{it} + \beta_6 CAPEXTA_{it} + \beta_7 QR_{it} + \beta_8 DIV\_REAL_{it} + \varepsilon_{it} \quad (2)$$

Pooled ordinary least squares (POLS) regression is first employed to estimate the above models. Fixed effects models are employed to account for omitted variables that reflect differences between firms that are constant over time, while random effects models are used to control for omitted variables that are time-varying but the same for all firms. The Hausman (1978) test is then conducted to choose the most well-fitted estimation model. Following previous studies, the effect of foreign exchange debt on corporate performance may be driven by the endogeneity between these two factors. To account for endogeneity, we use an instrumental approach employing two-stage least squares (2SLS) regression, as seen in Bartram et al. (2009); Fauver and Naranjo (2010) and Allayannis, Lel, and Miller (2012).

4. RESULTS AND DISCUSSION

Table 2 summarizes the number of observations, mean, standard deviation, minimum value, maximum value, and median of all variables. The return on total assets (ROA) has an average of 6.14%, indicating that the ability to effectively use assets to generate profits is not high. Its standard deviation is 7.76%, showing that the difference in ROA between companies in different industries is quite large. The average return on equity (ROE) ratio of 11.87% and its standard deviation of 19.39% are significant. This indicates that the gap between the ability to generate profit on equity among firms is quite large. Similar to ROE and ROA, the return on invested capital (ROIC) has a low mean of 10.33% with a standard deviation of 13.81%, showing that the efficiency of investment capital is still low, with a large difference among non-financial listed firms. It can be seen that FOREIGNLEV has a larger average value than DOMESTICLEV. This is because when borrowing in foreign currency, firms receive more incentives compared to local currency, such as lower interest rates or exchange rate fluctuations.

This table demonstrates the distribution of variables by reporting the mean, standard deviation (SD), minimum (Min.), maximum (Max), median, and the number of observations (N). See Table 1 for variable definitions.

Table 2. Descriptive Statistics.

Variables	N	Mean	SD	Min.	Max.	Median
ROA	6414	0.0614	0.0776	-0.6246	0.8122	0.4665
ROE	6414	0.1188	0.1939	-7.5034	2.9309	0.1051
ROIC	6414	0.1033	0.1382	-2.6379	5.6173	0.0858
FOREIGNLEV	6079	0.0093	0.0459	0.0000	0.6509	0.0000
DOMESTICLEV	6079	0.0588	0.1106	0.0000	0.9994	0.0045
SIZE	6455	11.8534	0.8895	8.9987	28.6865	11.7463
CAPEXTA	6455	0.0408	0.0753	-0.7687	0.8410	0.0175
QR	6414	1.7003	9.1899	0.0000	609.9462	0.8787
DIV_REAL	6414	0.0364	0.0495	0.0000	1.2912	0.0247

Table 3 demonstrates the correlation matrix among variables. ROE and ROIC are the two variables with the highest correlation coefficient values. Foreign currency-denominated debt is negatively correlated with three profitability variables: ROA, ROE, and ROIC, with coefficients of -0.0316, -0.0173, and -0.0249, respectively. Local currency-denominated debt also has a negative correlation with these variables. However, the quick ratio, fixed asset cost divided by total assets, and real dividend payout ratio have a positive correlation with profitability

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variables. Firm size shows inconsistency, as ROA and ROIC are negatively correlated with coefficients of -0.0348 and -0.03, respectively, but there is a positive correlation with ROE at 0.0426.

This table presents the Pearson pairwise correlation matrix. Statistical significance at the 10%, 5%, and 1% levels is indicated by superscripts *, **, and ***, respectively. See Table 1 for variable definitions.

Table 3. Correlation matrix.

Variables	ROA	ROE	ROIC	DOMESTIC LEV	FOREIGN LEV	CAPEXTA	SIZE	QR	DIV_ REAL
ROA	1.0000								
ROE	0.5188***	1.0000							
ROIC	0.5253***	0.7215***	1.0000						
DOMESTIC LEV	-0.1429***	-0.0699*	-0.0791***	1.0000					
FOREIGN LEV	-0.0316***	-0.0173***	-0.0249***	0.0196***	1.0000				
CAPEXTA	0.1198***	0.1153***	0.1243***	0.2383***	0.0434***	1.0000			
SIZE	-0.0348***	0.0426***	-0.03***	0.1888***	0.1427***	0.0541***	1.0000		
QR	0.0413***	0.0034***	-0.0076***	-0.0419***	-0.0375***	-0.0128***	-0.0282***	1.0000	
DIV_REAL	0.3145***	0.2385***	0.2656***	-0.0919	-0.0117***	0.0308***	-0.1085***	-0.0172**	1.0000

Note: Statistical significance at 1%, and 5% levels are indicated by superscripts **, ***, respectively.

Table 4 illustrates the results of comparing the average values of profitability variables ROE, ROA, and ROIC with two groups of firms, i.e., those that have FC financing in the fiscal year and those that do not. The findings indicate that when firms use foreign debt in the financial year, the three dependent variables, ROA, ROE, and ROIC, have larger values than when firms do not use foreign exchange debt. This leads to the prediction that long-term FC debt can positively affect firm profitability. Similarly, when the dummy variable indicating that firms borrow in foreign currency during the fiscal year, denoted as FXDEBT_INY, is replaced with the dummy variable indicating that firms borrow in foreign debt at the end of the financial year, denoted as FXDEBT_ATY, the results remain constant. All three measures of profitability have higher values when firms use FC debt.

This table shows the results of comparing the average values of profitability between two groups of firms, i.e., those that have FC financing in the fiscal year and those that do not. See Table 1 for variable definitions.

Table 4. Mean comparison of firm profitability variables.

Variables	Borrowing foreign currency debt in financial year	Not borrowing foreign currency debt in financial year	t- statistic
ROE	0.1317	0.1096	-5.5874
ROA	0.0611	0.0534	-3.6896
ROIC	0.1036	0.0950	-2.8967

Table 5 shows the estimation of Ordinary Least Squares (OLS) regressions on the impact of foreign currency (FC) debt on firm profitability. In columns 1 and 2, regressions of Return on Assets (ROA) and Return on Equity (ROE) are performed. The results indicate that the independent variables FOREIGNLEV and DOMESTICLEV are significant at the 1% level and have negative effects on the dependent variables ROE and ROA. This result is consistent with Mefteh-Wali and Rigobert (2018) and Kim et al. (2015), which is explained by the excessive use of foreign debt and local debt that leads to firms having to bear a large part of the interest expense.

When large interest expenses occur over a long time, firms may not be able to meet their payment obligations, which leads to heavy losses or even bankruptcy. In contrast to the two variables, FOREIGNLEV and DOMESTICLEV, all control variables are statistically significant at the 1% significance level and positively impact the dependent variables. Large firms can take advantage of economies of scale, advanced technology, and human resources. At the same time, firms with easy access to low-cost capital sources also have higher profitability. This outcome follows the research conducted by Gabrijelcic et al. (2016).

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Furthermore, businesses with a high QR have more liquidity and do not need to borrow money to fund their investment and production activities, which lowers the risk of default and loss (Bougheas et al., 2018). Similar to the other two variables, the higher the capital expenditure and dividend payment, the more profitable firms will be because the high dividend payout ratio will attract many investors. Firms will also have more capital to finance business and investment activities, and at the same time, with large capital expenditure, firms can allocate a portion of their profit for investment in fixed assets to maintain operations and their competitive position; therefore, their profitability also increases.

This table shows the results of ordinary least squares (OLS) regressions following Equation 1. See Table 1 for variable definitions. The t-statistics reported in parentheses are robust to heteroskedasticity.

Table 5. Results of OLS regressions on the impact of foreign currency debt on firm profitability.

Variables	ROE	ROA	ROIC
DOMESTICLEV	-0.129*** (-9.23)	-0.0994*** (-12.55)	-0.115*** (-10.00)
FOREIGNLEV	-0.149*** (-4.13)	-0.0666*** (-3.27)	-0.0933*** (-3.16)
CAPEXTA	0.363*** (15.68)	0.171*** (13.06)	0.277*** (14.61)
SIZE	0.0264*** (11.19)	0.00744*** (5.58)	0.00473* (2.45)
QR	0.0033*** (4.19)	0.0053*** (12.06)	0.000985 (1.53)
DIV_REAL	1.056*** (30.53)	0.542*** (27.69)	0.833*** (29.38)
CONSTANT	-0.239*** (-8.51)	-0.0536*** (-3.37)	0.0128 (0.55)
Observations	6036	6036	6036
Prob > F	0.0000	0.0000	0.0000
Adjusted R^2	0.1826	0.1733	0.1685

Note: Statistical significance at 10%, 5%, and 1% levels are indicated by superscripts *, **, ***, respectively.

In column 3, the regression is re-run using ROIC as the dependent variable to measure firm profitability. Using ROE and ROA as dependent variables yields results that are quite similar to the earlier results. Two variables, FOREIGNLEV and DOMESTICLEV, still have statistical significance at the 1% level, and this result still leads to the conclusion that when firms use a lot of foreign currency debt and domestic currency debt, their profitability will decrease significantly. However, with four control variables, the results are slightly different. Besides the three variables, CAPEXTA, SIZE, and DIV_REAL, which have statistical significance at the 1%, 10%, and 1% levels, respectively, and positively impact firm profitability, the QR variable is statistically insignificant in this model.

With all three dependent variables measuring firm profitability, the two independent variables FOREIGNLEV and DOMESTICLEV maintain statistical significance at the highest level (1%) with negative coefficients. The fixed effects (FE) and the random effects (RE) models are then estimated, and the results are presented in Table 6. After that, the Hausman (1978) test is performed, and the results show that all prob>chi2 values are less than $\alpha = 0.05$. Consequently, the FE model is deemed the most appropriate. Its findings align with the OLS regression findings. The two independent variables are still statistically significant and negatively affect the profitability variables. This demonstrates that financing with foreign currency debt has a detrimental effect on business profitability.

This table demonstrates the results of fixed effects (FE) and random effects (RE) regressions following Equation 1. See Table 1 for variable definitions. The Hausman (1978) test is then conducted to choose the most

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well-fitted estimation. The t-statistics reported in parentheses are robust to heteroskedasticity.

Table 6. Results of fixed effects regressions and random effects regressions on the impact of foreign currency debt on firm profitability.

Variables	ROE		ROA		ROIC	
	RE	FE	RE	FE	RE	FE
DOMESTICLEV	-0.129*** (-9.23)	-0.132*** (-9.43)	-0.0994*** (-12.55)	-0.0999*** (-12.62)	-0.115*** (-10.00)	-0.117*** (-10.23)
FOREIGNLEV	-0.149*** (-4.13)	-0.167*** (-4.63)	-0.0666** (-3.27)	-0.0715*** (-3.50)	-0.0933*** (-3.16)	-0.114*** (-3.86)
CAPEXTA	0.363*** (15.68)	0.350*** (12.01)	0.171*** (13.06)	0.166*** (12.65)	0.277*** (14.61)	0.268*** (14.15)
SIZE	0.0264*** (11.19)	0.0286*** (12.01)	0.00744*** (5.58)	0.00801*** (5.93)	0.00473* (2.45)	0.00716*** (3.67)
QR	0.0033*** (4.19)	0.00339*** (4.32)	0.00537*** (12.06)	0.00540*** (12.11)	0.000985 (1.53)	0.00123 (1.91)
DIV_REAL	1.056*** (30.53)	1.033*** (29.84)	0.542*** (27.69)	0.534*** (27.18)	0.833*** (29.38)	0.818*** (28.84)
CONSTANT	-0.239*** (-8.51)	-0.264*** (-9.30)	-0.0536*** (-3.37)	-0.0599*** (-3.72)	0.0128 (0.55)	-0.0150 (-0.65)
Observations	6036	6036	6036	6036	6036	6036
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Adjusted R^2	0.1826	0.1832	0.1733	0.1741	0.1685	0.1690
Prob > chi^2 (Hausman)	0.0001		0.0373		0.0000	

Note: Statistical significance at 10%, 5%, and 1% levels are indicated by superscripts *, **, ***, respectively.

For robustness testing, our new independent variables are created based on the issuance of Circular 42/2018 including FOREIGNLEVPRE, FOREIGNLEVPOST, DOMESTICLEVPRE, and DOMESTICLEVPOST. OLS regression is then conducted with these new variables and the results are shown in Table 7.

This table presents the results of ordinary least squares (OLS) regressions following Equation 2. See Table 1 for variable definitions. The t-statistics reported in parentheses are robust to heteroskedasticity.

Table 7. The impact of foreign currency debt on firm profitability before and after Circular 42/2018 issuance.

Variables	ROA		ROE		ROIC	
	OLS	FE	OLS	FE	OLS	FE
Domestic levpre	-0.117*** (-12.61)	-0.126*** (-13.29)	-0.149*** (-9.08)	-0.174*** (-10.39)	-0.136*** (-10.07)	-0.152*** (-11.09)
Domestic levpost	-0.130*** (-6.79)	-0.0921*** (-4.37)	-0.228*** (-6.75)	-0.132*** (-3.56)	-0.163*** (-5.89)	-0.106*** (-3.48)
Foreign levpre	-0.106*** (-4.35)	-0.119*** (-4.83)	-0.200*** (-4.62)	-0.236*** (-5.44)	-0.115*** (-3.26)	-0.151*** (-4.25)
Foreign levpost	-0.206 (-0.85)	-0.0526 (-0.22)	-0.825 (-1.93)	-0.432 (-1.00)	-0.900 (-2.57)	-0.682 (-1.93)
Capexta	0.175*** (13.27)	0.174*** (13.16)	0.374*** (16.10)	0.363*** (15.63)	0.286*** (15.00)	0.278*** (14.61)
Size	0.179*** (13.57)	0.00898*** (6.57)	0.0284*** (11.87)	0.0302*** (12.56)	0.00615** (3.14)	0.00848*** (4.30)
Qr	0.00527*** (11.84)	0.00532*** (11.94)	0.00311*** (3.96)	0.00325*** (4.14)	0.000846 (1.31)	0.00111 (1.73)
Div_real	0.539*** (27.53)	0.529*** (26.96)	1.049*** (30.34)	1.024*** (29.63)	0.828*** (29.21)	0.811*** (28.64)
Constant	-0.0641*** (-3.98)	-0.0704*** (-4.33)	-0.261*** (-9.17)	-0.282*** (-9.84)	-0.00260 (-0.11)	-0.0294 (-1.25)
Observations	6036	6036	6036	6036	6036	6036
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Adjusted R^2	0.1764	0.1763	0.1858	0.1845	0.1710	0.1705

Note: Statistical significance at 5%, and 1% levels are indicated by superscripts **, ***, respectively.

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With model (2) using ROA and ROE as the dependent variables, both domestic debt variables are significant at the 1% level with negative coefficients. FOREIGNLEVPRE shows a strong negative impact on firm profitability at the 1% level, while FOREIGNLEVPOST shows no meaningful effect. This may be because when firms borrow in foreign currency, they can enjoy a lower interest rate. However, if they do not have a strict financial policy, borrowing in foreign currency can create losses since the borrowing costs are out of control. Moreover, after Circular 42 was issued, firms were restricted from using foreign currency debt, leading to an increased use of local currency debt instead.

When borrowing in local currency, firms can actively eliminate risks from exchange rates of foreign currency and, as a result, increase profitability. Apart from that, four control variables exhibit a strong positive impact on firm profitability at the 1% level.

We also adopt ROIC as one of the dependent variables. The results indicate that three variables, DOMESTIC_LEV_PRE, DOMESTIC_LEV_POST, and FOREIGN_LEV_PRE, are negatively significant at a 1% level, while FOREIGN_LEV_POST is not statistically significant. Three control variables, SIZE, CAPEX_TA, and DIV_REAL, are positively significant at the 1%, 5%, and 1% levels, respectively. However, the QR variable is again not statistically significant.

The impact of the four independent variables is the same when using all three dependent variables. Borrowing in domestic currency, whether before or after the issuance of Circular 42, still negatively affects firm profitability. In contrast, the use of foreign currency (FC) debt negatively affects firm profitability only before the issuance of Circular 42; thereafter, it no longer exhibits a clear effect. As mentioned in previous studies on foreign currency debt and firm performance, this relationship could be influenced by the endogeneity among variables. For example, foreign currency debt affects firm operations as firm borrowings are tied to available cash flow as well as business solvency.

In contrast, corporate activities also have significant impacts on foreign borrowings. When firms decide to enter new foreign markets, the demand for foreign currency debt will increase since firms adopt foreign loans as an effective tool to hedge against exchange rate fluctuations. To control this potential endogeneity among variables, we use a two-stage least squares (2SLS) regression following Bartram et al. (2009); Fauver and Naranjo (2010) and Allayannis et al. (2012).

To re-estimate the model, an OLS regression of foreign currency debt (FOREIGNLEV) on all control as well as chosen instrumental variables (the proportion of firms categorized by industry using FC debt, the ratio of foreign borrowing to total assets categorized by industry, and the export activity of the firm) is first performed. In the second stage, the predictors of foreign debt from the first-stage regression will be used as explanatory variables. Dummy variables describing debt before and after the issuance of Circular 42/2018 (PRE/POST) will be applied in the second stage to test the correlation of foreign borrowings on corporate profitability within the context of government policies.

Table 8 presents the regression results of the second stage. These results are in line with our previous findings. Domestic debt again shows a negative effect in both the periods before and after the issuance of Circular 42/2018.

After controlling for the endogenous relationship with firm profitability, the negative impact of foreign currency debt (before Circular 42/2018 was issued) on profitability remains robust compared to the initial results estimated using the OLS and fixed effects model.

This table presents the re-estimates of Equation 2 with two-stage least squares (2SLS) regressions. See Table 1 for variable definitions. The t-statistics reported in parentheses are robust to heteroskedasticity.

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Table 8. Results of two-stage least squares (2SLS) regressions on the impact of foreign currency debt on firm profitability.

Variables	ROA	ROE	ROIC
Domesticlev_pre	-0.157*** (-4.24)	-0.0908*** (-4.66)	-0.106*** (-4.20)
Domesticlev_post	-0.563*** (-3.98)	-0.384*** (-5.14)	-0.435*** (-4.50)
Foreignlev_pre	-14.01*** (-4.23)	-8.201*** (-4.70)	-9.450*** (-4.18)
Foreignlev_post	-0.186 (1.68)	-0.103 (-1.77)	-0.0420 (-0.56)
Other controls	Yes	Yes	Yes
No. of observations	5543	5543	5543
Prob > F	0.0000	0.0000	0.0000
Adjusted R^2	0.2232	0.1167	0.1702

Note: Statistical significance at 1% levels are indicated by superscripts ***, respectively.

The findings of this study indicate that foreign currency debt adversely affects firm profitability. This result is consistent with the predictions of the pecking order theory and risk management theory, as well as findings from previous studies (see, for example, Mefteh-Wali and Rigobert (2018); Kim et al. (2015) and Harvey and Roper (1999)). The negative impact of foreign currency debt can be explained by the fact that more profitable firms rely less on external financing. The risk management theory also suggests that using foreign currency debt may not enhance firm value if it simultaneously raises currency exchange risks, requiring firms to hedge with derivatives. In terms of economic significance, increasing foreign currency debt use by one unit reduces profitability by approximately 0.1 unit on average. However, when dividing the research period into before and after Circular 42, foreign currency debt only had a negative effect before Circular 42 was promulgated, and after its promulgation, it had no effect.

This aligns with the findings of Mefteh-Wali and Rigobert (2018) as well as the risk management theory. If firms do not have a strict financial policy, borrowing in foreign currency can create losses because of the large borrowing costs. However, following the issuance of Circular 42, firms faced greater restrictions on the use of foreign currency debt, leading to a shift toward increased reliance on local currency debt. According to the risk management theory, when increasing the use of domestic currency debt, firms can reduce foreign exchange rate risks if the benefits from hedging this risk are greater than the benefits of foreign borrowing. Therefore, the impact of using foreign currency debt after the issuance of Circular 42 is not evidenced. In addition, from the results, it is found that firm size, liquidity, dividend payout ratio, and investment opportunities all positively impact firm profitability. This finding aligns with the findings of previous research on firm performance (Jensen, 1986; Jin & Jorion, 2006; Myers, 1977).

5. CONCLUSION

This study investigates the impact of foreign currency (FC) debt financing on firm profitability using a ten-year sample of Vietnamese-listed companies. The results indicate that the increased use of foreign debt harms their profitability, all else being equal. This suggests that financial managers should pay close attention to financing decisions, specifically reducing FC debt to ensure the efficient utilization of debt to increase profits. By taking advantage of tax spreads, arbitrage opportunities, and lower interest rates, foreign currency debt enables firms to reduce their borrowing expenses. However, it also has the potential to increase the risk of borrowing and the expenses associated with financial distress. Therefore, firms must take appropriate and timely precautions to minimize risks when borrowing in foreign currencies, particularly when the exchange rate is anticipated to fluctuate significantly.

In addition, the State Bank of Vietnam's policy for the future is to continue selecting foreign currency

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borrowers while still extending foreign currency debt. Therefore, the State Bank continues to emphasize a long-term orientation, gradually changing the relationship of borrowing and lending foreign currency to the relationship of buying and selling foreign currency, thus reducing the foreign currency credit to total credit ratio and aiming to stop lending in foreign currency to eliminate dollarization in the economy. Due to this restriction on foreign currency loans, importers serving domestic demand will be required to borrow in VND at higher capital costs than USD. Therefore, when switching to VND loans with higher capital costs, firms with foreign currency earnings can sell forward foreign currency in exchange for VND to reduce their borrowing costs. Accordingly, firms must devise loan policies that accommodate the current economic conditions and adhere to state regulations.

Though significant results are obtained, this study still has some limitations that need to be addressed. While collecting data, the financial statements of certain companies for a certain number of years could not be found, thus resulting in the omission of some data in the dataset. Additionally, due to the manual data collection process and limitations in time and resources, this study focuses exclusively on analyzing the impact of foreign currency (FC) debt on firm profitability. Foreign debt can affect a variety of other firm factors. Furthermore, FC debt can be classified based on its maturity into short-term and long-term debt or categorized by debt type, such as bank loans versus corporate bonds. Future research would benefit from exploring foreign currency debt in these manners.

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REFERENCES

Allayannis, G., Brown, G. W., & Klapper, L. F. (2003). Capital structure and financial risk: Evidence from foreign debt use in East Asia. *The Journal of Finance*, *58*(6), 2667-2710. https://doi.org/10.1046/j.1540-6261.2003.00619.x

Allayannis, G., Lel, U., & Miller, D. P. (2012). The use of foreign currency derivatives, corporate governance, and firm value around the world. *Journal of International Economics*, *87*(1), 65-79. https://doi.org/10.1016/j.jinteco.2011.12.003

Allayannis, G., & Weston, J. P. (2001). The use of foreign currency derivatives and firm market value. *The Review of Financial Studies*, *14*(1), 243-276. https://doi.org/10.1093/rfs/14.1.243

Bartram, S. M., Brown, G. W., & Fehle, F. R. (2009). International evidence on financial derivatives usage. *Financial Management*, *38*(1), 185-206. https://doi.org/10.1111/j.1755-053X.2009.01033.x

Bhattacharya, S. (1979). Imperfect information, dividend policy, and" the bird in the hand" fallacy. *The Bell Journal of Economics*, *10*(1), 259-270. https://doi.org/10.2307/3003330

Bonomo, M., Martins, B., & Pinto, R. (2003). Debt composition and exchange rate balance sheet effect in Brazil: A firm level analysis. *Emerging Markets Review*, *4*(4), 368-396. https://doi.org/10.1016/S1566-0141(03)00061-X

Bougheas, S., Lim, H., Mateut, S., Mizen, P., & Yalcin, C. (2018). Foreign currency borrowing, exports and firm performance: Evidence from a currency crisis. *The European Journal of Finance*, *24*(17), 1649-1671. https://doi.org/10.1080/1351847X.2017.1421246

Brown, M., Ongena, S., & Yeşin, P. (2011). Foreign currency borrowing by small firms in the transition economies. *Journal of Financial Intermediation*, *20*(3), 285-302. https://doi.org/10.1016/j.jfi.2010.12.001

Clark, E., & Judge, A. (2009). Foreign currency derivatives versus foreign currency debt and the hedging premium. *European Financial Management*, *15*(3), 606-642. https://doi.org/10.1111/j.1468-036X.2007.00431.x

© 2025 AESS Publications. All Rights Reserved.

Damodaran, A. (2007). *Return on capital (ROC), return on invested capital (ROIC) and return on equity (ROE): Measurement and implications. New York University Stern School of Business Working Paper.* Retrieved from http://ssrn.com/abstract=1105499

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies, 15*(1), 1-33. https://doi.org/10.1093/rfs/15.1.1

Fauver, L., & Naranjo, A. (2010). Derivative usage and firm value: The influence of agency costs and monitoring problems. *Journal of Corporate Finance, 16*(5), 719-735. https://doi.org/10.1016/j.jcorpfin.2010.09.001

Forbes, K. J. (2002). How do large depreciations affect firm performance? *IMF Staff Papers, 49*(Suppl 1), 214-238. https://doi.org/10.2307/3872477

Gabrijelcic, M., Herman, U., & Lenarcic, A. (2016). *Firm performance and (Foreign) debt financing before and during the crisis: Evidence from firm-level data.* Retrieved from https://ssrn.com/abstract=3068798

Géczy, C., Minton, B. A., & Schrand, C. M. (1999). *Choices among alternative risk management strategies: Evidence from the natural gas industry.* Retrieved from https://ssrn.com/abstract=191890

Ghosh, S. (2008). Leverage, foreign borrowing and corporate performance: Firm-level evidence for India. *Applied Economics Letters, 15*(8), 607-616. https://doi.org/10.1080/13504850600722047

Graham, J. R., & Rogers, D. A. (2002). Do firms hedge in response to tax incentives? *The Journal of Finance, 57*(2), 815-839. https://doi.org/10.1111/1540-6261.00443

Harvey, C., & Roper, A. (1999). The Asian bet. In A. Harwood, R. E. Litan & M. Pomerleano (Eds.), The crisis in emerging financial markets. In (pp. 29-115). Washington, D.C: Brookings Institution Press.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica, 46*(6), 1251–1271. https://doi.org/10.2307/1913827

Hawkins, J., & Turner, P. (2000). Managing foreign debt and liquidity risks in emerging economies: An overview. *BIS Policy Papers, 8*, 3-60.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review, 76*(2), 323-329.

Jin, Y., & Jorion, P. (2006). Firm value and hedging: Evidence from US oil and gas producers. *The Journal of Finance, 61*(2), 893-919. https://doi.org/10.1111/j.1540-6261.2006.00858.x

Keloharju, M., & Niskanen, M. (2001). Why do firms raise foreign currency denominated debt? Evidence from Finland. *European Financial Management, 7*(4), 481-496. https://doi.org/10.1111/1468-036X.00167

Kim, Y. C., & Stulz, R. (1988). The Eurobond market and corporate financial policy: A test of the clientele hypothesis. *Journal of Financial Economics, 22*(2), 189-205. https://doi.org/10.1016/0304-405X(88)90068-2

Kim, Y. J., Tesar, L. L., & Zhang, J. (2015). The impact of foreign liabilities on small firms: Firm-level evidence from the Korean crisis. *Journal of International Economics, 97*(2), 209-230. https://doi.org/10.1016/j.jinteco.2015.05.006

Leland, H. E. (1998). Agency costs, risk management, and capital structure. *The Journal of Finance, 53*(4), 1213-1243. https://doi.org/10.1111/0022-1082.00051

Liesz, T. J., & Maranville, S. J. (2008). Ratio analysis featuring the Dupont method: An overlooked topic in the finance module of small business management and entrepreneurship courses. *Small Business Institute Journal, 1*(1), 17-34.

Mefteh-Wali, S., & Rigobert, M.-J. (2018). The dual nature of foreign currency debt and its impact on firm performance: Evidence from French non-financial firms. *Management International, 23*(1), 68-77.

Miller, M. H., & Modigliani, F. (1963). Dividend policy and market valuation: A reply. *The Journal of Business, 36*(1), 116-119. http://www.jstor.org/stable/2350461

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review, 48*(3), 261-297.

Moussa, F. B. (2019). The influence of internal corporate governance on bank credit risk: An empirical analysis for Tunisia. *Global Business Review, 20*(3), 640-667.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*(2), 147-175.

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Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221. https://doi.org/10.1016/0304-405x(84)90023-0

Peltzman, S. (1977). The gains and losses from industrial concentration. *The Journal of Law and Economics, 20*(2), 229-263. https://doi.org/10.1086/466902

Petersen, M. A., & Thiagarajan, S. R. (2000). Risk measurement and hedging: With and without derivatives. *Financial Management, 29*(4), 5-29.

Phung, D. N., & Mishra, A. V. (2016). Ownership structure and firm performance: Evidence from Vietnamese listed firms. *Australian Economic Papers, 55*(1), 63-98. https://doi.org/10.1111/1467-8454.12056

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics, 51*(2), 219-244. https://doi.org/10.1016/S0304-405X(98)00051-8

Simerly, R. L., & Li, M. (2000). Environmental dynamism, capital structure and performance: A theoretical integration and an empirical test. *Strategic Management Journal, 21*(1), 31-49.

Vivel Búa, M., Otero González, L., Fernández López, S., & Durán Santomil, P. (2015). Is value creation consistent with currency hedging? *The European Journal of Finance, 21*(10-11), 912-945. https://doi.org/10.1080/1351847X.2013.773262

Vo, X. V., & Ellis, C. (2017). An empirical investigation of capital structure and firm value in Vietnam. *Finance Research Letters, 22*, 90-94. https://doi.org/10.1016/j.frl.2016.10.014

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