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FINANCING DECISION AND LABOR COST: EVIDENCE FROM SOUTH ASIAN COUNTRIES

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This study investigates the effect of financial leverage on labor costs using a data sample of listed companies from Southeast Asian countries covering the period from 2009 to 2015. Using several techniques for robust results, the results show that financial leverage has a negative effect on labor costs. In addition, the study finds that the negative impact of financial leverage on labor cost tends to be less in state-owned, foreign-owned, and large companies.

Keywords: Financial Leverage, Labor Cost, Ownership Structure
JEL Classification: G30, G32, J01

1. INTRODUCTION

Although the interaction between the labor market and the capital market has been established in the literature for a long time, there is no homogenous point of view about the causal relationship between the two markets. Besides, studies on the impact of financing policy on the income of the labor force are still limited (Hovakimian and Li, 2011). Furthermore, previous theories and empirical studies recently focus more on executive managers as well as the relationship between the managers and financing decisions. Meanwhile, top managers are responsible for the income of most employees if the company falls into financial distress or bankruptcy situations. Consequently, the workforce's income in a company is expected to be affected by capital structure decisions. In addition, the results of previous studies are still unable to give a clear conclusion about this relationship. Berk et al. (2010), Maksimovic and Titman (1991), and Chemmanur et al. (2010) suggest a positive relationship between financial leverage and labor wage while the study of Hovalinmian and Li (2011) demonstrates that high levered companies tend to pay less.

In the context of globalization and integration, ASEAN (Association of South East Asian Nations) is founded in 1967 (originally five countries and now eleven countries) to improve social, economic and cultural activities among association members. Since

then, free labor mobility among member countries also increase. However, for Southeast Asian countries, to our knowledge, there is no in-depth study conducted to examine the impact of financial leverage on the income of the company's workforce. Therefore, a proper understanding and assessing of this relationship in Southeast Asian region can contribute to the enrichment of both theoretical and empirical evidence to finance literature, as well as practical implications for financial policymaking in the world, especially in these countries.

The paper aims at analyzing and assessing the relationship between financial leverage and labor cost in the South East Asian region in the period from 2009 to 2015. Specifically, this research attempts to answer the following questions: (i) How does a company's financial leverage affect the labor cost at companies in the countries of Southeast Asia? (ii) Is the impact of financial leverage on the labor cost the same when taking the corporate governance factor via ownership structure into account? (iii) Is the impact of financial leverage on the labor cost the same when taking other factors such as firm size or growth opportunity into account?

The main contribution of this paper is to enhance the limited previous literature. In detail, recent evidence shows that the company's stakeholders (customers, suppliers, laborers) or non-financial factors have significant impacts on the capital structure decisions of the company (Titman and Wessels, 1988). However, studies relating to the relationship between labors - one of the most important stakeholders - and capital structure decisions are still limited (Bae and Wang, 2011). Consequently, this research proposes to add up another empirical evidence to finance literature. Second, most of the research findings show a consensus that not only top managers but also employees have to suffer a loss if the company faces financial distress or bankruptcy. Jacobson et al. (1993) indicate that replaced employees have to bear significant personal expense. Therefore, employees' incomes are believed to be related to the capital structure decisions of the company, especially the usage of financial leverage. This research has a theoretical contribution via a more in-depth understanding of the impact of financing decisions on labor income. Third, psychological studies show that job assurance is one of the decisive factors of human happiness. Therefore, this research can help laborers be partly more active in wage negotiation, jobless risk assessment via understanding the relation between their income and the company's financing decisions. Finally, the research on the interaction between labor income and capital structure decision can help managers have a multi-dimension consideration when choosing capital structure (Lemmon et al., 2008).

The rest of this research is organized as follows. Section 2 gives a literature review; Section 3 details the methodology and empirical models; Section 4 shows the results with a discussion and Section 5 is the conclusion.

2. LITERATURE REVIEW

The relationship between labor cost and leverage can be explained through agency

cost theory and financial distress argument.

Cronqvist et al. (2009) show that the agency cost of equity can significantly influence labor income. In other words, the separation between owners and managers of enterprises not only plays an important role in determining managers' income but also affects workers' wages. It is possible that a CEO establishes a wage policy for an employee to bring the most benefits for themselves, although this policy is not the best way to maximize corporate value. For example, higher wages can help better the relationship between management and employees and help employees to be more loyal. By using the data of companies in Sweden in the period from 1995 to 2002, Cronqvist et al. (2009) find evidence indicating that managers tend to pay high wage for employees because they do not want to spend time and effort to negotiate wages and create a friendly relationship with the employees. However, this policy does not maximize firm value due to higher labor costs, thus the agency cost of equity, which represents the conflict interests between owners and managers, increases. Meanwhile, debt considered as a monitoring tool is effective to reduce agency cost of equity. Specifically, managers in a company with high debt consider carefully before employees' salary due to pressures of debt payments; thereby reducing agency costs. Thus, there is a negative relationship between leverage and workers' income.

According to the trade-off theory, a company trades off between the benefit of debt from tax shield and the cost of debt from financial distress to decide the optimal capital structure. However, studies of Titman (1984) and Berk et al. (2010) show that the capital structure decision should consider between employees' risk aversion and the benefit of debt. From this, one of their main implications is that an optimal employment contract depends on the debt level. When a firm faces financial distress, employees could be cut a temporary wage to ensure full debt payment. If the financial situation of this firm later improves, employees' wages return. However, if the firm goes bankrupt, employees are terminated and face substantial costs such as time for searching works, a lower wage after returning, or a decrease in expenditure. The human cost then is one of the indirect bankruptcy costs. Therefore, these authors predict that given that all else equal, a firm with a higher debt level has higher labor costs. In detail, a company with high debt has a high probability of bankruptcy, so this company has to pay high salary for workers. Conversely, for a company with low leverage, the probability of financial distress is low, thus employees can accept low salaries.

Empirically, several studies are conducted to investigate in-depth relation between capital structure and labor cost. However, there has not been a homogenous point of view about this relation. While studies of Hanka (1998) and Hovakimian and Li (2011) show that debt ratio has an effect on employee replacement and high leverage companies often pay less than low leverage ones, opposite results are reported by Chemmanu et al. (2010) and Agrawal and Matsa (2010).

Specifically, Hovakimian and Li (2011) show convincing evidence that there is a causal relation between capital structure and labor cost. Using a big data sample with more than one million observations in China, the authors conclude that high debt

companies pay lower wages. Especially, this negative impact is stronger and highly significant for state-owned, big size, low profitability and low growth opportunity companies. These findings are explained by the following arguments. Firstly, according to the agency theory which is developed by Jensen and Meckling (1976), conservative managers tend to pay higher to employees because of their interests (i.e. to minimize compensation negotiation effort or to improve their social relationships with employees for power expansion purposes) (Cronqvist et al., 2009). Meanwhile, debt can be used as an effective controlling tool to reduce agency cost, which leads to a negative relation between leverage ratio and labor wages. Secondly, from the perspective of financial constraint and borrowings from employees, high debt companies often have to face high financial distress costs as well as the bankruptcy risk. Consequently, the companies can be forced to implicitly borrow from their employees by paying lower wage in present with a negotiated higher wage in the future when the debt ratio is reduced (Michelacci and Quadrini, 2009). Also, from underinvestment point of view Myers (1977) argues that high leverage companies are likely to give up valuable investments as risk increases. Meanwhile, labor income has a positive relation with the value of investment projects, implying a negative relationship between financial leverage and labor income.

Consistent with this view, Ofek (1993) shows that high debt ratio companies have to cut more jobs and salaries. The authors argue that to avoid loss from bankruptcy as well as to protect the interests of shareholders, top managers are strongly motivated to make decisions such as layoffs or salary cuts. Similarly, Gilson et al. (1993) find that nearly one-third of managers are fired when businesses go bankrupt, while those who are retained to work suffer a pay cut of about 35%. However, newly-employed staff is paid 36% higher than that of the recent laid-off employees. This is one of the determinants of indirect bankruptcy costs. Financially constrained companies can "borrow" from employees by paying lower wages today for higher wages in the future.

In contrast, Berk et al. (2010), earlier Titman (1984) and Maksimovic and Titman (1991) report that the company's leverage and labor wages should have a positive relation. Accordingly, Maksimovic and Titman (1991) argue that the employees are reluctant to work for high leverage companies because company's financial difficulties can affect their job security, as a result, they require higher wages. Chemmanur et al. (2010) also conclude that the leverage has a significantly positive impact on cash, equity, and total cash paid to the chief executive officer (CEO). Additionally, leverage also has a positive and significant impact on average labor wages. In the model to formalize arguments of Titman (1984), Berk et al. (2010) assume that employees are risk-averse, especially job risk. They also assume the competitive capital and labor market. Therefore, if the company faces the financial crisis, the employees have to accept a pay cut to ensure full debt payment. Because if the company is forced to go bankrupt, employees then lose their jobs. So, employees have to suffer significant costs in case the company is under financial distress and/or bankruptcy situation. Therefore, higher leverage implies a higher probability of bankruptcy and a higher job risk. Consequently, high leverage companies have to pay a higher salary to compensate for

the potential bankruptcy costs.

Agrawal and Matsa (2010) find a positive relationship between unemployment risk and financing decisions. The paper also estimates that the average unemployment risk premium accounts for 57 basis points of companies that are rated BBB. These results support the argument that companies choose a conservative financing policy as a way to minimize the probability of financial distress as well as unemployment risk. Hence, the board of management can negotiate with employees for lower payment or lower unemployment compensation. Similarly, Akyol and Verwijmeren (2013) also investigate the relationship between company financial leverage and labor wages by using samples of American and Dutch companies. The authors find a positive relationship with the sample of American companies in the period of 1983-2010, for which a 1% increase in financial leverage increases average labor wages by 3%. The results from the Dutch company sample indicates that Dutch bankrupt companies have to pay a lower cost to employees than American companies do. This result provides an incisive/comprehensive insight because the Netherlands has a better social security system. The study also finds a significantly positive relation between company leverage and labor wages in Dutch non-listed companies, which supports the argument that higher wages are to compensate for higher unemployment risks.

3. RESEARCH METHODOLOGY

3.1. Data

We use a sample of non-financial companies listed on some Southeast Asian stock exchanges in the period from 2009-2015, resulting in a panel data for our analysis. Firms in the financial sector including banks, financial institutions, and insurance companies are removed from the sample because their financial statements are significantly different from others (Basil and Khaled, 2011).

Raw data are collected from DataStream. Next, the data are processed by eliminating observations with missing the number of employees (Full-Time Employees) or total annual labor cost per year (Labor and Related Expense). As a result, from over 20,000 initial observations covering most Asian countries, the number of observations decrease to 3569 with only five countries that have available data. After collecting raw data, all variables including dependent, independent and user control variables representing the capital structure and labor cost are calculated.

3.2. Empirical Model and Measurement of Variables

Our model is constructed based on the models developed by Hovakimian and Li (2011) and Akyol and Verwijmeren (2013) as follows:

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta X_{it} + \varepsilon_{i,t}. \quad (1)$$

where *i* denotes a firm; *t* denotes a year; X_{it} is the vector of control variables and $\varepsilon_{i,t}$ is the error term.

3.2.1. Dependent Variable

$Labor\_cost_{it}$ (AWE) is the average labor cost of a company i at the time t, which is measured by labor and related expense divided by full-time employees (Akyol and Verwijmeren, 2013; Chemmanu et al., 2010). The data of labor and related expenses and full-time employees are driven from the DataStream source.

3.2.2. Independent Variable

$Leverage\_ratio_{i,t}$ (LEV) is financial leverage which can be measured in different ways, including long-term debt to total assets, short-term debt to total assets, and total debts to total assets (Dang et al., 2019; Vo, 2017; Vo, 2019; Vo & Ellis, 2017). In addition, each debt ratio can be determined using the book value and/or market value. Therefore, this research uses the ratios of long-term debt, short-term debt, and total debts to book value and market value of total assets to measure the capital structure. Specifically, the ratios of total debt to book value of total assets are employed primarily, and the other ratios are used in the robustness test.

3.2.3. Control Variables

This research relies on previous studies (Akyol and Verwijmeren, 2013) to choose control variables. Generally, they include labor productivity and firm-specific characteristics.

Employee productivity (AEP)

Mincer (1974) develops the earnings function in which labor wage depends on the education and experience of workers. He argues that these factors influence worker's productivity, then affect firm wage decisions. This research uses *Employee productivity* as a proxy of workers' productivity, which can indirectly represent labor education and experience. This variable is measured by total revenue divided by the number of employees.

Firm characteristics

Besides labor productivity, several recent studies show that firm characteristics strongly affect labor income. For instance, larger firms tend to pay higher wages than smaller ones because employees in larger firms are generally more skilled (Brown and Medoff, 1989). Employees in companies with high growth can accept lower wages because they expect to have a higher salary in the future (Akyol and Verwijmeren, 2013). Therefore, this research controls several firm factors such as *size, growth, profitability, risk, cash flow, and firm age*. *Firm size (SIZE)* is measured by the natural logarithm of

total assets. *Market to book ratio (MTB)* is the ratio of the market value of equity to book value of equity and represents the growth of a company. *Profitability (PRO)* is the profitability of a company and measured by the ratio of earnings before interest and taxes to total sales. *Tangibility (TAN)* is the ratio of fixed assets to total assets. *Earning volatility (EAV)* represents the risk of a firm and is calculated by the standard deviation of the ratio of income before interest and taxes to total assets in the previous three years. *Cash flow (CF)* is the ratio of earnings after taxes plus annual depreciation to total assets. *Firm age (AGE)* is measured by the current year minus founded year. *Marginal productivity of capital (MPK)* is measured by revenue divided fixed assets and is expected to have a positive impact on employee income. *Capital-Labor ratio (CAL)* is the ratio of capital to labor, measured by fixed assets divided by the number of employees.

To test the effect of ownership structure on the relationship between financial leverage and labor cost, these below models are used:

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta_2 leverage\_ratio_{i,t} * DSO + \beta X_{it} + \varepsilon_{i,t}, \quad (2)$$

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta_2 leverage\_ratio_{i,t} * DFO + \beta X_{it} + \varepsilon_{i,t}, \quad (3)$$

where *DSO* is a dummy variable which takes the value of 1 if the percentage of state ownership is greater than 50% and 0 otherwise; *DFO* is also a dummy variable which takes the value of 1 if the percentage of foreign ownership is greater than the mean of foreign ownership and 0 otherwise.

To test the effect of firm growth, firm size on the relationship between financial leverage and labor cost, these following models are used:

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta_2 leverage\_ratio_{i,t} * DGO + \beta X_{it} + \varepsilon_{i,t}, \quad (4)$$

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta_2 leverage\_ratio_{i,t} * DSIZE + \beta X_{it} + \varepsilon_{i,t}, \quad (5)$$

$$\ln(labor\_cost)_{it} = \alpha + \beta_1 leverage\_ratio_{i,t} + \beta_2 leverage\_ratio_{i,t} * DFC + \beta X_{it} + \varepsilon_{i,t}, \quad (6)$$

where *DGO* is a dummy variable which takes the value of 1 if firm growth is greater than the mean of the sample growth and 0 otherwise; *DSIZE* is a dummy variable which takes the value of 1 if firm size is than the mean of size and 0 otherwise; *DFC* is a dummy variable which takes the value of 1 if a firm has a financial constraint and 0 otherwise. The financial constraint can be identified by some popular ways based on

cash flow, dividend payout or Z-score.

4. RESULTS

4.1. Descriptive Statistics

Table 1 describes the summary statistics of the main variables in this research. Looking at the data, we can see that the average labor cost in non-financial companies in six Southeast Asian countries is about $12265 per year. The average debt ratio is 42.2% and ranges from 0% to 99%. This debt ratio is lower than the average debt ratio of Chinese companies (56.9%) reported by Hovakimian and Li (2011), but higher than the average debt ratio of American companies (29.2%) based on the research of Agrawal and Matsa (2010). In addition, the VIF test is less than 10, which means that multicollinearity is not a serious problem in this study.

Table 1. Descriptive Statistics

Variables	Observation	Mean	Std Dev	Min	Max
AWP	3466	12265	82870	0.958	4458000
lnAWP	3466	8.097	1.721	-0.042	15.310
LEV	3236	0.422	0.242	0.001	0.997
SIZE	3469	19.246	2.000	12.740	26.683
MTB	3236	6.239	220.534	-78.594	12540
AEP	3459	11.799	1.295	5.689	19.282
PRO	3469	0.071	0.145	-3.527	2.620
TAN	3463	0.364	0.248	0.001	0.970
EAV	3456	1.099	11.287	0.000	254.686
MPK	3460	18.876	388.573	0.000	20199
CAL	3458	10.852	1.678	3.738	18.216
CF	3467	0.101	0.111	-0.149	0.864
AGE	3438	29.334	15.136	1.000	103
VIF	1.600				

4.2. Regression Results

4.2.1. The Effect 0f Financial Leverage on Labor Cost

Columns 1, 2, 3 and 4 in Table 2 respectively show the regression results of the impact of financial leverage (*LEV*) on labor cost (ln*AWP*) using OLS, RE, FE, and GMM methods.

As shown in this table, all coefficients of debt ratios are significantly negative at the 1% significant level. This means that financial leverage has a negative impact on labor cost. Specifically, an increase of 1% in debt ratio leads to a decrease of approximately 1.527% in labor cost, holding all other variables constant. This result is consistent with the research of Hovakimian and Li (2010), Michelacci and Quadrini (2005) or Acharya et al. (2008). The rationale for explaining this finding is the argument of agency costs and financial constraints. Specifically, debt is considered as a monitoring tool to reduce agency cost of equity. Therefore, managers of a company with a high debt ratio tend to hesitate to raise labor costs. This result can also be explained that companies with high debt ratios often face high financial distress or bankruptcy risk. As a result, these companies tend to cut employees' incomes to minimize the possibility of default as well as maintain operating cash flow. Furthermore, Myers (1977) argues that firms with high debt ratios likely have to overlook valuable investment opportunities because of increased risk. Whereas, workers' income has a positive relationship with the value of the projects, thus, leading to a negative relationship between financial leverage and wages.

The study also finds that in all regressions, firm size, employee productivity, the ratio of capital to employees are positively correlated with labor cost and significant at the 1% level. This is in line with the research of Ali, Akyol and Verwijmeren (2013) and proves that a large company tends to pay its workers more than the small one does. The reason for this outcome can be that large-scale companies are often big, well-established and reputable companies, so they have the ability to increase labor costs to attract talented people. Labor productivity is also an important factor in determining high or low income. In companies where workers are highly productive, they usually receive a higher labor income. The results of the study also show that business risk is negatively correlated with labor costs at the 1% significant level in most regressions. This finding is consistent with previous studies and can be explained that an increase in business risk leads to an increase in the possibility of financial distress, thereby declining in labor income.

4.2.2. Robustness Check

For checking the stability of the result, the study first replaces the leverage variable calculated by market value with financial leverage calculated by book value. The regression results presented in Columns 1 to 4 in Table 3 show the same sign of the coefficients of financial leverage in all OLS, RE, FE and GMM models. To be specific, the coefficients of debt ratio is negative and significant at the 1% or 5% level, in line with previous outcomes of this study.

The research then controls country - and year - specific fixed effects by using dummy variables. Results are presented in Columns 5 to 8 in Table 3. Overall, most results are consistent with the original regressions. In detail, the coefficient of leverage variable is still negative and statistically significant with 1% and 5%, implying once again evidence on the negative effects of financial leverage on labor cost.

Table 2. The Effect of Financial Leverage (LEV) on Labor Cost (lnAWP)

	(1)	(2)	(3)	(4)
	OLS	(10)	FE	GMM
LEV	-0.366***	-0.598***	-0.521***	-1.157**
	(-3.094)	(-5.171)	(-2.695)	(-2.148)
SIZE	0.104***	0.031	0.070	0.430***
	(6.909)	(1.381)	(1.552)	(3.506)
AEP	0.268***	0.442***	0.667***	0.002
	(8.923)	(13.608)	(14.966)	(0.012)
MTB	0.000	0.000	0.000	0.001
	(0.720)	(0.577)	(0.593)	(0.664)
PRO	-0.808***	-0.424***	-0.350**	-1.611
	(-4.117)	(-3.096)	(-2.480)	(-1.478)
TAN	-1.798***	-1.889***	-2.027***	-1.452
	(-12.085)	(-10.928)	(-8.086)	(-1.475)
EAV	-0.003	-0.006***	-0.006***	0.007
	(-1.552)	(-3.806)	(-3.604)	(0.950)
MPK	0.001***	0.000*	0.000	0.000
	(4.575)	(1.932)	(1.193)	(0.235)
CALA	0.413***	0.387***	0.386***	0.479***
	(15.114)	(12.699)	(9.011)	(2.781)
CF	1.644***	0.450*	-0.058	0.793
	(6.382)	(1.921)	(-0.205)	(0.786)
AGE	-0.002	-0.005*	0.002	0.002
	(-1.268)	(-1.866)	(1.536)	(0.102)
L.lnAWP				0.018
				(0.576)
_cons	-0.837***	-0.898**	-4.480***	-4.795*
	(-2.959)	(-2.191)	(-5.281)	(-1.916)
R-square	0.348	0.342	0.324	
Obervations	3182	3182	3182	2042
F test (or Wald test)	153.969	1216.330	76.106	
Pvalue	0.000	0.000	0.000	0.000
AR(1)				0.025
AR(2)				0.309
Hansen test				0.283

Table 3. The Effect of Financial Leverage (LEV) on Labor Cost (lnAWP): Robustness Test

	(1) OLS	(2) RE	(3) FE	(4) GMM	(5) OLS	(6) GMM	(7) OLS	(8) GMM
LEV	-0.621***	-0.763***	-0.521***	-1.157**	-0.614***	-1.190**	-0.605***	-1.168*
	(-4.236)	(-5.122)	(-2.695)	(-2.148)	(-4.660)	(-2.073)	(-4.137)	(-1.901)
SIZE	0.107***	0.034	0.070	0.430***	0.080***	0.199*	0.105***	0.157
	(7.081)	(1.533)	(1.552)	(3.506)	(5.914)	(1.707)	(6.980)	(0.739)
AEP	0.267***	0.437***	0.667***	0.002	0.301***	0.175	0.278***	0.318
	(8.992)	(13.453)	(14.966)	(0.012)	(11.227)	(0.939)	(9.307)	(0.964)
MTB	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001
	(0.620)	(0.449)	(0.593)	(0.664)	(0.327)	(0.512)	(0.564)	(0.462)
PRO	-0.788***	-0.338**	-0.350**	-1.611	-0.772***	-1.145	-0.759***	-1.740
	(-4.183)	(-2.531)	(-2.480)	(-1.478)	(-4.575)	(-0.768)	(-4.033)	(-1.108)
TAN	-1.753***	-1.850***	-2.027***	-1.452	-1.466***	-0.929	-1.695***	-2.526
	(-11.747)	(-10.680)	(-8.086)	(-1.475)	(-10.917)	(-0.608)	(-11.346)	(-1.505)
EAV	-0.003	-0.006***	-0.006***	0.007	0.007***	0.047	-0.003	0.004
	(-1.617)	(-3.851)	(-3.604)	(0.950)	(3.418)	(1.340)	(-1.608)	(0.211)
MPK	0.001***	0.000**	0.000	0.000	0.001***	0.000	0.001***	0.001
	(4.679)	(2.205)	(1.193)	(0.235)	(4.301)	(0.031)	(4.792)	(0.316)
CALA	0.418***	0.395***	0.386***	0.479***	0.378***	0.417**	0.408***	0.532**
	(15.418)	(12.959)	(9.011)	(2.781)	(15.507)	(2.153)	(14.998)	(2.477)
CF	1.532***	0.457*	-0.058	0.793	1.148***	1.366	1.506***	-0.190
	(5.895)	(1.948)	(-0.205)	(0.786)	(4.928)	(1.306)	(5.802)	(-0.155)
AGE	-0.002	-0.006*	0.002	0.002	0.004**	-0.030	-0.003	0.010
	(-1.399)	(-1.922)	(1.108)	(0.102)	(2.326)	(-1.524)	(-1.593)	(0.230)
L.lnAWP				0.018		-0.023		-0.005
				(0.576)		(-0.595)		(-0.122)
_cons	-0.955***	-1.080***	-4.480***	-4.795*	-2.552***	-0.256	-1.185***	-3.207
	(-3.372)	(-2.643)	(-5.281)	(-1.916)	(-9.592)	(-0.092)	(-4.048)	(-0.904)
R-square	0.349	0.346	0.324		0.4812		0.3541	
Observations	3182	3182	3182	2042	3182	2042	3182	2042
F test (or Wald test)	155.132	1216.810	76.106		154.378		115.710	
P value	0.000	0.000	0.000	0.000	0.000		0.000	
Fixed Year	No	No	No	No	Yes	Yes	No	No
Fixed Country	No	No	No	No	No	No	Yes	Yes
AR(1)				0.025		0.076		0.073
AR(2)				0.309		0.429		0.197
Hansen test				0.283		0.675		0.916

Table 4. The Impact of Ownership Structure on the Relationship between Financial Leverage and Labor Cost

	Foreign Ownership				State Ownership			
	(1) OLS	(2) RE	(3) FE	(4) GMM	(5) OLS	(6) RE	(7) FE	(8) GMM
LEV	-1.162***	-1.379***	-1.271***	-2.630***	-1.106***	-1.752***	-1.839***	-5.206***
	(-7.155)	(-9.379)	(-7.169)	(-2.769)	(-4.712)	(-6.210)	(-4.416)	(-2.661)
LEV*DFO	0.985***	0.990***	0.980***	1.479*				
	(7.092)	(8.449)	(7.311)	(1.677)				
LEV*DSO					0.749***	1.213***	1.421***	4.150**
					(3.648)	(4.483)	(3.381)	(2.110)
SIZE	0.083***	0.007	0.032	0.169	0.113***	0.041*	0.080*	0.347***
	(5.492)	(0.300)	(0.706)	(1.457)	(7.421)	(1.829)	(1.775)	(2.992)
AEP	0.270***	0.437***	0.652***	0.184	0.275***	0.447***	0.663***	0.140
	(9.044)	(13.589)	(14.826)	(0.954)	(9.154)	(13.775)	(14.956)	(0.673)
MTB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.619)	(0.523)	(0.646)	(0.220)	(0.715)	(0.567)	(0.666)	(0.648)
PRO	-0.822***	-0.387***	-0.374***	-1.610	-0.816***	-0.423***	-0.422***	-1.732
	(-4.220)	(-2.863)	(-2.617)	(-1.085)	(-4.163)	(-3.100)	(-2.930)	(-1.399)
TAN	-1.790***	-1.873***	-2.031***	-1.700	-1.800***	-1.869***	-1.985***	-2.126**
	(-12.125)	(-10.940)	(-8.208)	(-1.469)	(-12.120)	(-10.840)	(-7.941)	(-2.007)
EAV	-0.003	-0.006***	-0.006***	0.013	-0.003	-0.006***	-0.006***	0.028
	(-1.358)	(-3.564)	(-3.350)	(1.088)	(-1.561)	(-3.811)	(-3.556)	(1.036)
MPK	0.000***	0.000*	0.000	-0.000	0.000***	0.000*	0.000	0.000
	(4.426)	(1.893)	(0.990)	(-0.266)	(4.558)	(1.953)	(1.025)	(0.554)
CALA	0.404***	0.379***	0.374***	0.502***	0.410***	0.384***	0.381***	0.454**
	(14.902)	(12.552)	(8.840)	(2.692)	(15.030)	(12.619)	(8.924)	(2.277)
CF	1.563***	0.408*	-0.123	0.114	1.610***	0.431*	-0.114	-0.589
	(6.108)	(1.759)	(-0.440)	(0.126)	(6.258)	(1.843)	(-0.403)	(-0.591)
AGE	-0.002	-0.005*	-0.002	-0.029	-0.002	-0.005*	-0.002	-0.006
	(-1.308)	(-1.878)	(-1.088)	(-1.567)	(-1.039)	(-1.689)	(-1.286)	(-0.322)
L.lnAWP				-0.012				0.013
				(-0.261)				(0.341)
Cons	-0.371	-0.316	-3.344***	-0.434	-1.045***	-1.111***	-4.468***	-3.553
	(-1.286)	(-0.765)	(-3.937)	(-0.190)	(-3.629)	(-2.701)	(-5.292)	(-1.426)
R-square	0.358	0.350	0.330		0.3510	0.346	0.327	
Observation	3182	3182	3182	2042	3182	3182	3182	2042
F test	147.524		76.403		142.795		71.224	
P value	0.000		0.000		0.000		0.000	
Wald test		1313.100				1243.800		
P value		0.000				0.000		
AR(1)				0.069				0.022
AR(2)				0.181				0.676
Hansen test				0.842				0.500

4.2.3. The Impact of Ownership Structure on the Relationship between Financial Leverage and Labor Cost

The research is expanded by examining whether the impact of financial leverage on labor costs is the same for companies with different ownership structures. Specifically, dummy variables are used to represent state ownership and foreign ownership. *DSO* is a dummy variable that takes the value of 1 if the percentage of state ownership is greater than 50% and 0 otherwise. *DFO* is also a dummy variable that takes the value of 1 if the percentage of foreign ownership is greater than the mean of foreign ownership and 0 otherwise. The results are presented in Table 4. Columns 1 to 4 show the results of the effect of foreign ownership, while Columns 5 to 8 show the results of the effect of state ownership using different methods include OLS, RE, FE, and GMM.

The outcomes indicate that the coefficient of the *LEV*DFO* variable is positive and statistically significant in all regressions. Therefore, it can be concluded that foreign ownership reduces the negative impact of financial leverage on employees' income. In other words, when financial leverage increases, labor cost is less affected in foreign-owned companies. The reason for this can be that foreign-owned companies are often well-known, and receive capital from foreign investors, so even if the leverage increases, the probability of financial distress does not increase as much as other companies do. Therefore, they do not need to reduce labor costs as much as non-foreign owned companies to avoid financial constraints.

Similar results are found in the variable representing state ownership. The coefficient of *LEV * DSO* variable is positive and statistically significant at 1% and 5% in OLS, RE, FE and GMM methods. That is, for state-owned enterprises, when the financial leverage increases, the labor income is not reduced as much as others. This can be explained by the fact that state-owned enterprises can have a guarantee from the government or can access low-cost debt. As a result, the probability of bankruptcy is lower and the reduction in labor cost can be lower.

One point that needs to be emphasized is that the coefficient of *LEV* variable is still negative and statistically significant at 1% in all columns from 1 to 8, proving the consistency of previous findings. Furthermore, the *F-test* and *Wald test* give p-value less than 10%; *Hansen-test* index is greater than 0.1; *AR* (1) is less than 0.1 while *AR* (2) has a value greater than 0.1. Therefore, it is concluded that the conditions of the regressions' rationality are satisfied.

4.2.4. The Impact of Firm Size, Growth Rate on the Relationship between Financial Leverage and Labor Cost

The research continues to investigate the influence of firm characteristics such as size (large and small) or growth rate (high and low) on the linkage between financial leverage and labor cost. Once again, dummy variables are employed. To be specific, the dummy variable *DSIZE* is 1 if the company size is larger than the average of the total sample and its value is 0 if not. The dummy variable (*DGRO*) has the value of 1 if the

company's growth rate is greater than the average growth rate of the whole sample (the growth rate is calculated by the logarithm of revenue) and its value is 0 vice versa.

Table 5. The Impact of Firm Size, Growth Rate on the Relationship between Financial Leverage and Labor Cost

	Firm Size				Firm Growth Rate			
	OLS	RE	FE	GMM	OLS	RE	FE	GMM
LEV	-0.565***	-0.725***	-0.650***	-2.574***	-0.292**	-0.491***	-0.451***	-1.846**
	(-4.303)	(-5.600)	(-3.903)	(-2.882)	(-2.208)	(-3.780)	(-2.705)	(-2.024)
LEV*DSIZE	0.496***	0.307**	0.281*	1.530*				
	(3.464)	(2.178)	(1.829)	(1.778)				
LEV*DGRO					-0.168	-0.234*	-0.137	-0.448
					(-1.243)	(-1.787)	(-0.859)	(0.510)
SIZE	0.064***	0.005	0.059	0.115	0.116***	0.048**	0.084*	0.207*
	(3.364)	(0.199)	(1.276)	(0.830)	(6.477)	(1.982)	(1.833)	(1.790)
AEP	0.276***	0.446***	0.668***	0.126	0.279***	0.455***	0.672***	0.069
	(9.185)	(13.708)	(15.032)	(0.581)	(8.910)	(13.681)	(14.959)	(0.341)
MTB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.719)	(0.599)	(0.713)	(0.437)	(0.711)	(0.565)	(0.679)	(0.363)
PRO	-0.795***	-0.444***	-0.457***	-1.718	-0.819***	-0.414***	-0.422***	-2.022
	(-4.056)	(-3.237)	(-3.151)	(-1.104)	(-4.170)	(-3.022)	(-2.910)	(-1.285)
TAN	-1.773***	-1.888***	-2.009***	-2.313**	-1.766***	-1.850***	-1.994***	-2.083*
	(-11.924)	(-10.926)	(-8.026)	(-1.991)	(-11.707)	(-10.618)	(-7.950)	(-1.835)
EAV	-0.003	-0.006***	-0.006***	0.007	-0.003	-0.006***	-0.006***	0.011
	(-1.602)	(-3.846)	(-3.576)	(0.569)	(-1.543)	(-3.775)	(-3.543)	(0.958)
MPK	0.000***	0.000*	0.000	-0.000	0.000***	0.000**	0.000	0.000
	(4.326)	(1.819)	(0.901)	(-0.136)	(4.557)	(1.961)	(0.999)	(0.002)
CAL	0.401***	0.383***	0.379***	0.567***	0.404***	0.378***	0.377***	0.598***
	(14.592)	(12.551)	(8.845)	(2.974)	(14.323)	(12.214)	(8.776)	(3.551)
CF1	1.583***	0.439*	-0.080	-0.673	1.675***	0.470**	-0.086	-0.353
	(6.140)	(1.875)	(-0.284)	(-0.518)	(6.473)	(2.002)	(-0.305)	(-0.350)
AGE	-0.002	-0.005*	-0.002	-0.033	-0.002	-0.005*	-0.002	-0.025
	(-1.320)	(-1.878)	(-1.426)	(-1.345)	(-1.177)	(-1.772)	(-1.256)	(-1.111)
L.lnAWP				-0.022				0.016
				(-0.574)				(0.433)
_cons	-0.045	-0.404	-4.095***	1.240	-1.119***	-1.295***	-4.612***	-0.928
	(-0.125)	(-0.863)	(-4.696)	(0.407)	(-3.086)	(-2.778)	(-5.302)	(-0.345)
R-square		0.343	0.324			0.343	0.323	
Observation	3182	3182	3182	2042	3182	3182	3182	2042
F test	142.627		70.142		141.291		69.906	
P value	0.000		0.000		0.000		0.000	
Wald test		1222.490				1220.600		
P value		0.000				0.000		
AR(1)				0.051				0.031
AR(2)				0.202				0.221
Hansen test				0.950				0.683

Regression results of all OLS, RE, FE, and GMM methods are reported in Table 5. From this table, the negative effect of financial leverage on labor costs can be lower in large companies than in small peers. Specifically, the coefficients of *LEV*DSIZE* variable are positive and statistically significant at 5 or 10% in all regressions. This result is consistent with the research of Hovakiman and Li (2010) and can be explained by the fact that large companies often have a high reputation and assets, so the probability of financial distress is lower. Therefore, the possibility of a salary reduction is less than small companies. In contrast, the coefficients of the *LEV*DGRO* variable are negative but not statistically significant in OLS, FE, and GMM regressions. This implies that there is no obvious evidence on the impact of growth rate on the relation between financial leverage and labor cost.

5. CONCLUSION

The research is motivated by the limitations of empirical evidence related to the impact of financial leverage on labor costs. Although different approaches such as OLS, RE, FE, and GMM are used, all regression results are identical. The results show that financial leverage has a negative effect on employee income. That is, in a company, when the debt ratio increases, the income of workers tends to decrease. This finding is consistent with the research of Hovakimian and Li (2010) or Michelacci and Quadrini (2005). This result can be clarified by the theory of agency costs as well as the argument of financial constraints. Specifically, debt is regarded as a monitoring tool to reduce the agency cost of equity. Therefore, managers of a company with a high debt ratio will hesitate to raise salaries for employees due to the pressures of debt payments. Thus, there is a negative relationship between leverage and workers' income. Furthermore, companies with increased debt ratios often have high financial constraints. As a result, the company tends to cut employees' incomes to minimize the possibility of financial distress, as well as maintain operating cash flow. In addition, Myers (1977) argues that firms with high debt ratios are likely to give up valuable investment opportunities because of increased risk. Meanwhile, labor income has a positive relation with the value of investment projects, implying a negative relationship between financial leverage and labor income.

The study also finds that the negative impact of financial leverage on labor cost tends to be less in state-owned, foreign-owned, and large companies. The reason for this is because foreign-owned companies are usually well-known companies and have funds from foreign investors, while state-owned companies could receive a guarantee from the government or low-cost debt. Therefore, in these companies, even if the financial leverage increases, the probability of financial distress can be low, thereby the reduction of labor income is low.

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