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ABSTRACT

This papers investigates the impacts of Covid-19 pandemic on the adjustment speed of selected UK firms towards their target leverage ratio. The focused question is how much the adjustment speed has been affected by the pandemic. The above question has a major role in the sustainability of firms since the capital structure's decisions critically influence other aspect of the business. The information pertains to the top 50 publicly traded companies on the London stock exchange. Due to the nature of their industry, financial enterprises were ignored. The sample spans the years 2015 to 2020, with a total of 250 observations. In essence, the thesis discovered that during pandemic years, the adjustment pace is slower (2019 and 2020). Furthermore, the firm's circumstances have a considerable impact on target leverage. With a high degree of confidence, the thesis reports considerable effects of GPM, OCF, firm expansion, and sales growth on the Leverage ratio. Under certain Fixed-effect model circumstances, firm size is shown to have statistically favorable effects on adjustment speed towards preferred capital structure. However, the theory found insufficient evidence to conclude that working capital has a significant impact on Leverage. Financial hardship does harm target leverage, and the impacts are most noticeable after adopting the 2-ways fixed-effect model in the last two years.

CHAPTER 1 INTRODUCTION

1.1 Background of the study

Financial scholars share a mutual consensus on the terms of convergence to the mean. In short, this term refers to corporates' tendency to adjust undesirable movement towards the historical average. This definition holds in the field of capital structure. Moreover, existing literature also suggests that each firm has a target leverage ratio that balances costs and benefits resulting from the debts. As such, managers tend to adjust the companies' leverage from any deviations. In reality, these variances might be the result of a variety of systematic or idiosyncratic shocks to the company. Empirical research of Flannery and Rangan (2006) demonstrates managers' urge to correct their leverage ratio from unwanted shocks. This behaviour, nonetheless, goes beyond the empirical scope of existing theories related to capital structure decision. As the shocks causing deviations from targeted ratio is mainly external, this papers investigates the impacts of Covid-19 pandemic on the adjustment speed of selected UK firms towards their target leverage ratio. The focused question is how much the adjustment speed has been affected by the pandemic. The above question has a major role in the sustainability of firms since the capital structure's decisions critically influence other aspect of the business.

The above question, however, depends on various factors. The first is the availability and cost of credit. Government supports in the business most impacted by COVID-19 resulted in much cheaper credit as well as more credit availability to enterprises. In this manner, firms those heavily suffered by the pandemic could opt to adjust their leverage ratio faster than those in the sectors least affected by the epidemic. Further, some sectors would have a higher motivation to adjust their capital structure; especially when the advantages of targeted leverage ratio could partially mitigate the impacts of pandemic. Still, the cost of capital is not necessarily be reduced following the adjustment if the risks of economic uncertainties is considered.

1.2 Research Objectives and Research Questions

The primary purpose of this paper is to know if the COVID-19 economic crisis has an effect on the rate of adjustment toward the target leverage ratio. The focused question is

how much the adjustment speed has been affected by the pandemic. To achieve this goal, the following questions must be fully answered:

1. What is optimal leverage of UK listed-firms, and what are the key determinants?
2. Does the pandemic affects the adjustment speed towards the optimal capital structure of UK publicly listed firms?

1.3 Thesis Structure

The paper's reminder is arranged as follows. The literature is reviewed in section 2, whereas data and sample are described in Section 3. The analytical results are presented in Section 4. Section 5 summarizes the findings and gives a conclusion.

CHAPTER 2 LITERATURE REVIEW

2.1 Trade-off theory

According to Kraus and Litzenberger (1973) managers defines capital structure based on the trade-off between the tax advantages and the bankruptcy cost of additional debts. As such, a profitable company is expected to maintain a higher interest tax shelters than the estimated cost of bankruptcy. More often, empirical researches lean on a negative relationship between profitability and leverage ratio. However, the evidence on the notion that he marginal tax benefit of debt must equal to the marginal bankruptcy cost is mixed. According to Cremers, Nair and Wei (2005), the former is bigger than the latter since direct bankruptcy costs are relatively low and the quantity of debt is below ideal. Other study finds that indirect bankruptcy expenses might amount to 25-30% of asset value, which is equivalent to debt tax advantages (Almedia, Campello and Weisbach, 2004; Chang, Chou and Huang, 2014a). Furthermore, if personal taxes is included in the basic model, the tax benefit of debt can be diminished (Bates, Kahle and Stulz, 2009). The reason for this is that tax rates on stock returns, such as dividends or capital gains, are frequently cut. Changes in debt should be determined by the difference between the current amount and the mean reversion

Mean reversion is frequently confirmed with evidence (Titman, Opler and Hovokiman, 2001; Fama and French, 2002). Scholars, however, hold different views about how fast corrections should be made. According to several articles, modifications are too sluggish (Fama and French, 2002). Others contend that major capital structure changes are expensive. If deviations from the objective are steadily reduced over time, firms may display target adjustment behaviour (Chang, Chou and Huang, 2014b).

2.2 Pecking order theory

The existence of Information asymmetries complicates managers' capital structure decision. Excellent quality business insiders may find it challenging to directly convince investors of their firm's actual quality, especially when it comes to future prosperity. Consequentially, investors will urge to seek indirect evidence related to firms' performance in their logic. And more often than not, information-revealing actions such

as dividend payment or equity issuance are likely to be included. This viewpoint is typically considered while deciding on a capital structure.

The empirical data is conflicting. Pecking order is supported by Shyam-Sunder and Myers (1999), Frank and Goyal(2003), and Halov and Heider (2011). Especially, Frank and Goyal (2003) found that the capital structure decision of large organizations could be mostly explained by the pecking order. Nonetheless, empirical evidence suggests that equity offering announcements result in large negative stock market reactions (Jensen, Solberg and Zorn, 1992; Uyar and Kuzey, 2014). On average, announcements of debt offerings elicit a modest market reaction. According to the concept, a greater degree of asymmetric knowledge diminishes the motivation to issue equity. The evidence is conflicting. This prediction is supported by Saddour (2006), Flannery and Rangan (2006), and Halov and Heider (2011). Difficulties in equity issuance of SMEs, according to Jensen and Meckling (1976), are very likely when the economy is in its uptrend. By contrast, evidence supporting the Pecking order theory is found mostly in large enterprise. Endorsed by a low level of information asymmetry and least severe adverse selection problem, large firms are often scrutinized by many stock analysts.

To prevent the adverse selection problem and value loss in the pecking order paradigm, excellent quality enterprises required to deploy internal funds. These companies were unable to indicate their excellence through capital structure (Ross, 1978). If there is a separate equilibrium, good firms tends to issue debt while bad firms lean on equity issuance. According to the empirical prediction, the debt-equity ratio and firm value (or profitability) are positively related (Guan, Mantrala and Bian, 2019). As previously noted, scholars share a mutual consensus on a negative relationship between leverage and profitability. In a similar vein, several research show that stock issuing corporations outperform their peers in absolute terms both before and after the IPO. According to Shah (1994), company risk decreased (increased) following leverage-increasing (decreasing) exchange offers. It has been established that stock issuing businesses outperform non-issuing enterprises in terms of long-run operating performance.

2.3 Market timing

This theory predict that enterprises are unlikely to issue equity during an economic downturn; but the number of equity issuance would be increased as the economy is

better. Empirical researches of Baker and Wurgler (2002), Song *et al.* (2018), and Faulkender *et al.*(2012) all find a favorable relationship between equity concerns and the business cycle.

According to Rajan and Zingales (1995), managers' decision on equity issuance are largely attributed to the current share price of the company. There is conflicting data about whether or not investors overpay for stocks. Some academics claim that during new issues, investors are overly hopeful, analysts' estimates are overly optimistic, and management falsify results before coming public. Some research supports the efficient market model of market timing (Flannery and Rangan, 2006). According to some study, market timing predicts that managers based their capital structure's decision based on firm's expected success rather than the current stock performance(Chang, Chou and Huang, 2014b). If the growth prospects are unrelated to price history, then overvalued firms will perform averagely before to issuance, whereas undervalued companies will perform above-average while waiting for the price to rise before issuing shares. As a result, positive anomalous returns will often emerge before equity concerns.

CHAPTER 3 DATA AND METHODOLOGY

3.1 Research methodology

3.1.1 Variables definition

According to Bates et al. (2009), firms in different size holds different debt ratios. Because large firms have wider access to the capital market compared to small firms, they tend to hold less cash (Saddour, 2006). The larger the company, the higher borrowing capacity since the collateral assets are superfluous. Moreover, banks are also willing to lend those firms with preferable rates due to guaranteed safety. Firm size (measured by logarithm of the book value of total assets), hence, is controlled due to its capacity to borrow.

Regarding the cash flows variables, the author used definition of Le et al.(2018) In particular, he defines cash flow (CF) as the ratio of operating cash flows divided by total assets. Through the use of CF, the study was able to fit the changes of leverage towards the direct source of cash. Opler et al. (1999) presented a very similar proxy of cash flow (CF), computed as earnings after interest, dividends, and taxes but before depreciation, divided by net assets. Nonetheless, the fact that UK companies are keen on a cash dividend policy. Thus, the operating cash flow was chosen because it is one of the most practical ways to describe the actual main source of cash flows.

According to Fazzari et al.(1988), net-working capital was praised as one of the closest substitutes for cash and other pool of resources. As a result, most of the existing literature agrees on a negative relationship between net working capital and leverages. Although the exact coefficient varies across timelines and samples, the definition of net-working capital is straight forwards. In particular, the author defines Net working capital (NWC) as of current assets minus current liabilities.

In order to control for financial leverage, the author refined the universal formula of book leverage, which equals long-term plus short-term debts divided by total assets. Nonetheless, it should be noted that cash and financial leverage are interrelated (Xu *et al.*, 2016). Firms with greater borrowing capacity often rely on external capital rather than internal resources. Still, this notion depends largely on other intuitions such as the firm's age and the economic conditions. Ferreira & Vilela (2011), for instance, documented that mature firms seek external finance for short-term financial decisions because they have various access to the capital market. Young firms, on the other hand, are keen on long-

term debt. Another strand of research, leading by Duong et al.(2017), refers to the interrelation between cash and leverage level as an extension of the market timing theory. Specifically, firms would like to hold more cash when the interest rate is low and vice versa. Thus, it is relevant to include financial leverage as one of the control variables, regardless of disputes around its actual influences on firm leverages.

3.1.2 Research model

The first stage of research is to estimate the capital structure level. In this manner, this study adopts the research model specified by Tsuruta (2019):

$$LEV_{i,t} = \alpha + \beta_1 Sales\ growth_{i,t} + \beta_2 GMP_{i,t} + \beta_3 OCF_{i,t} + \beta_4 Firm\ size_{i,t} + \beta_5 NWC_{i,t} + \beta_6 Distress\ dummy_{i,t}$$

Where $\varepsilon_{i,t}$ is the error term of firm i in year t

The research design is more or less identical to the one proposed by Tsuruta (2019). This procedure contains two stages which are: (i) estimating the optimal leverage; and (ii) measuring the adjustment speed of leverage ratio towards the optimal level during the pandemic.

The next step is to measure the adjustment speed of LEV towards the optimal level as predicted by regression results from the previous stage. The impacts of financial hardship on the adjustment speed of LEV is investigated following the partial adjustment model proposed by Flannery and Rangan (2006).

$$LEV_{i,t} - LEV_{i,t-1} = \lambda\left(LEV^*_{i,t} - LEV_{i,t-1}\right) + \delta_{i,t}$$

Where $LEV^*_{i,t}$ is the target value of LEV derived from regression results. In a perfect world, firms would adjust deviation from the desirable level of LEV immediately. However, under the severe impacts of the pandemic, the adjustment speed might be delayed due to rising costs. In each year, the proportion of λ indicates the difference between the actual and target levels of LEV. If λ is near to one, firms quickly alter their level of LEV. The faster the adjustment speed, the higher the λ and vice versa.

3.2 Data

We used annual data from the Investing.com database for company balance sheets, income statements, and cash flow statements in our research. Our sample spans the years 2015-2020. The panel data set includes all publicly traded enterprises in the United

Kingdom (250 firm-year observations). The sample excludes financial and regulated enterprises. All firm-lever variables are winsorized at the 1% level on both tails of their distributions to remove outliers.

CHAPTER 4 Analytical results, findings, and discussion

This chapter presents the research results and discuss significant findings drawing from the figures. Also, the possible validity of these findings are also mentioned.

4.1 Descriptive analysis

The following table presents the descriptive statistics of investigated variables.

Table 4-1: Descriptive statistics

Statistic	LEVERAGE	GPM	OCF	Firms size	Firm growth	Sale growth	NWC
Nbr. of observations	250	250	250	250	250	250	250
Minimum	-0.018	-0.706	-0.119	13.695	-0.816	-1.433	0.049
Maximum	7.278	1.235	0.760	19.862	1.674	2.471	9.303
Range	7.296	1.941	0.879	6.167	2.491	3.904	9.254
1st Quartile	0.407	0.653	0.067	15.999	-0.015	-0.052	0.519
Median	0.618	0.754	0.112	16.624	0.087	0.088	1.113
3rd Quartile	1.026	0.843	0.200	17.392	0.223	0.236	1.979
Mean	0.859	0.730	0.156	16.715	0.120	0.100	1.379
Variance (n-1)	0.759	0.031	0.019	1.002	0.051	0.175	1.237
Standard deviation (n-1)	0.871	0.177	0.137	1.001	0.225	0.419	1.112
Skewness (Pearson)	3.586	-2.475	1.630	0.436	1.641	1.015	2.271
Mean absolute deviation	0.535	0.123	0.101	0.806	0.156	0.261	0.837

According to Table 4-1, a typical firm maintains a LEVERAGE of 0.859 on average, ranging from slightly negative at -0.018 to a very high value of 7.278. A negative value of LEVERAGE implies that the company is highly dependent on the current liabilities so that it outweighs the total value of the current assets. However, this case is very unusual in practice. Indeed, the current dataset contains only one negative value of LEVERAGE, which belongs to HNG. This company has serious financial issues resulting from the imbalance in capital structure, which answers for the large short-term debt accumulated in the balance sheet. At the other extreme, some firms choose to maintain a very high value of working capital of as much as 7.278 times higher than the total sales. This circumstance might arise if firms choose to relax the credit policy to encourage sales. However, a substantial drop in sales revenue causing the inventory to accumulate also results in the usual figure of LEVERAGE. More often than not, firms maintain a stable

LEVERAGE of around 0.859 on average. However, given the fact that the distribution of this variable skews leftward, a more trustworthy figure would be 0.618-the median.

Regarding the Gross margin, the COGS of a normal firm occupies 0.730 of the total sales on average. There are four negative GPMs in the dataset suggesting that there are firms selling goods or services below the cost to acquire them. Not surprisingly, these firms are JVC, HVN, and FLC, both are operating in the airline industry, which is perhaps the most impacted victim of the pandemic. In the same vein, the operating cash flows of these firms concur well with the GPM, thereby making JVC, HVN, and FLC are the only three firms that generate negative cash flows from operations. By contrast, the firm generates an OCF of 0.156 on average or 0.112 using the median value. Total assets and firm's revenue grow at an annual rate of 12% and 10% respectively; however, the variation of sales growth is much higher than that of assets growth (0.261 compared to 0.156). Regarding the leverage ratio, a typical firm would maintain the amount of long-term debt is 1.379 times its equity or equivalent to 42% of the total assets, a fairly safe level.

Table 4-2: Correlation matrix

Variables	LEVERAGE	GPM	OCF	Firms size	Firm growth	Sale growth	NWC
LEVERAGE	1	-0.542	-0.381	-0.049	0.177	-0.237	0.060
GPM	-0.542	1	-0.119	0.141	-0.140	0.045	0.168
OCF	-0.381	-0.119	1	-0.103	0.093	0.097	-0.293
Firms size	-0.049	0.141	-0.103	1	0.038	-0.034	0.345
Firm growth	0.177	-0.140	0.093	0.038	1	0.422	0.114
Sale growth	-0.237	0.045	0.097	-0.034	0.422	1	0.086
Leverage	0.060	0.168	-0.293	0.345	0.114	0.086	1

Table 4-2 summarizes the correlation coefficient between variables. At the first glance, LEVERAGE is negatively correlated to GPM, OCF, Firms size, and sales growth. On the other hand, it appears that LEVERAGE, firm growth and leverage are positively correlated. Among others, GPM and OCF seem to have stronger connection to LEVERAGE.

Table 4-3: Multicolinearity statistics:

Statistic	LEVERAGE	GPM	OCF	Firms size	Firm growth	Sale growth	NWC
R^2	0.578	0.440	0.366	0.137	0.307	0.307	0.220
Tolerance	0.422	0.560	0.634	0.863	0.693	0.693	0.780

VIF	2.371	1.785	1.578	1.159	1.442	1.443	1.282

Before further tests are carried out, it is essential to first check the multicollinearity among variables. The Variance Inflation Factor ratio is within the acceptable range of less than 3. As a result, further regression analysis can be performed without the concern of multicollinearity.

4.2 Regression analysis

The following table presents the estimated impacts of firm-specific variables on the LEVERAGE. Apart from traditional pooled regression, the thesis implies additional techniques to assure the robustness of the model. In practice, OLS regression requires strict assumptions that are hardly satisfied in practice. If one of these assumptions is violated, there could be bias in the estimated coefficients as well as standard error. Referring to heteroskedasticity, the residuals of regression are normally distributed. Nonetheless, there is not always the case. For example, the empirical analysis of Moreira (2014) and Lemeshko and Rejnuš (2015) found robust evidence that the variance of financial variables clusters around special events. Similarly, due to the impacts of the pandemic, it is expected that the variance of investigated variables might exhibit the same pattern as it is normally found during sensitive events. For this reason, panel data regression will be performed with a focus on cluster options in both years and firms' dimensions. Furthermore, to account for the possible heterogeneity problem existing between groups, the GMM test was applied. Because financial indicators have a high tendency to be affected by the previous year's performance, the possibility of autocorrelation among regression residuals is high. Again, this might distort the accuracy of the test. The following table presents the results of applied regression techniques.

Table 4-4: Regression results

Model	**RE**	**POOLED**	**1-way FE**	**2-way FE**	**GMM**
Dependent Var			**Leverage**		
Ind. Var					
GPM	-2.673***	-2.229***	-1.753***	-1.771***	-2.436**
OCF	-2.777***	-2.777***	-2.419**	-2.809***	-6.352**
Firmsize	-0.045	-0.021	0.233**	0.382***	-0.045

Model	RE	POOLED	1-way FE	2-way FE	GMM
Firmgrowth	1.006***	0.935***	0.861***	0.781***	1.244***
Salegrowth	-0.582***	-0.592***	-0.638***	-0.618***	-0.561***
NWC	0.028	0.051	0.1*	0.063	-0.049
Disstress	0.044	0.029	-0.042*		-0.033
L.Leverage					0.46*
2016b.Year				0	
2017.Year				0.013	
2018.Year				-0.085	
2019.Year				-0.246**	
2020.Year				-0.169**	
Constant	3.877	3.138	-1.541	-3.822	4.344
Year Cluster	No	No	No	Yes	Yes
Firm Cluster	No	No	Yes	Yes	Yes
R2	0.579	0.569	0.466	0.489	N/A
P-value	0.000	0.000	0.00	0.00	0.00

At the first glance, all of the models are highly significant at a 1% confidence level, thereby affirming the accurate specification of the research design. Most significantly, random effect regression has the highest explanatory power. In particular, this model is expected to explain as much as 57.9% of LEVERAGE variance, followed by Pooled regression (56.9%), 2-ways FE (46.6%), and 1-ways FE (48.9%).

According to Table 4-4, all regression model affirms that LEVERAGE of a particular company is negatively affected by GPM, OCF, and Sales growth at a very high confidence level. On the contradiction, Firm growth significantly and positively influences LEVERAGE. Whereas the impacts of firm size, leverage ratio, and distress dummy vary in accordant to different regression techniques.

Sales growth, as expected, is reported by all regression techniques to have negative impacts on LEVERAGE. It thus affirms hypothesis 1. Again, the test reveals a slightly higher value of coefficient resulted from fixed-effects compare to other techniques. The

leverage ratio is found to have insignificant impacts on LEVERAGE. The only exception is 1-way FE regression; still, the significance level is only 10%. Therefore, it should be interpreted under considerable caution.

More specifically, the Random Effects, Pooled, and GMM regression suggest that an additional increase in GPM would decrease LEVERAGE by -2.673,-2.229, and -2.436 respectively. 1-ways FE and 2-ways FE with cluster effects provide a much lower result of around -1.75. All of these figures are significant at a 1% level, thereby strongly reject hypothesis 2.

Regarding the OCF variable, the results demonstrate a negative impact of operating cash flows on the LEVERAGE of firms. Noticeably, while the Random Effects, Pooled, and Fixed-effects tests show a very similar coefficient of around -2.5, the GMM model results in a very high OCF of -6.352. All of these figures are highly significant at 1% and 5% confidence levels. Since all of the techniques point to a negative correlation between LEVERAGE and OCF, hypothesis 2 is rejected accordingly.

Regression results of the Random Effects, Pooled, and GMM regression suggests no significant impacts of firm size on the dependent variable. Nonetheless, 1-ways fixed effects and 2-ways fixed effects with clustered standard errors option result in opposite evidence. In particular, firm size positively impacts LEVERAGE at a 1% confidence level. Although there is a huge gap between the two models in terms of coefficient (1-ways FE suggests a coefficient of 0.233, whereas 2-ways FE estimates a coefficient of 0.382). Still, the positive sign of this variable affirms hypothesis 3. Similarly, all model suggests that firm growth significantly influences LEVERAGE at a 1% confidence level. There are differences among coefficients; still, the two fixed-effect regressions report a distinctively lower coefficient than other techniques (0.861 and 0.768). It is perhaps because the fixed-effects model has accounted for the clustered standard errors between firms and years dimension. Since all model results in positive coefficients, hypothesis 4b is accepted.

According to the 1-way FE model, the distress dummy is indeed negatively impacted LEVERAGE. This aggregate influence is a reduction of 0.042 in LEVERAGE; still, this figure is just slightly significant at 10%. However, when we account for year fixed effects, the last two years (2019 and 2020, which are the most impacted years) are found to have significant impacts on LEVERAGE. In particular, the LEVERAGE of a typical firm

experiences a reduction of -0.246 on average in 2019 and -0.169 in 2020; both are significant at a 5% confidence level. In general, this result affirms hypothesis 5a.

4.3 Adjustment models

This section is to estimate the adjustment speed of LEVERAGE toward its optimal level. The predicted LEVERAGE was calculated from the 2-ways FE model as this is the most significant model. Again, to affirm the robustness of the test, four regression techniques are applied.

Table 4-5: Adjustment speed towards optimal LEVERAGE

Regression technique	**RE**	**1-way FE**	**2-way FE**	**GMM**
Model	**1**	**2**	**3**	**4**
Dep. Var	**LEVERAGE-L.LEVERAGE**			
Ind. Var				
Constant	0.019	0.016	0.24	-0.04
GMM-L.LEVERAGE	0.511***	0.812***	0.805***	0.788***
L.GMM-L2.LEVERAGE				0.06
2017			0.073	
2018			-0.016	
2019			-0.139**	
2020			-0.042*	
Year FE	No	No	Yes	No
Company FE	No	Yes	Yes	No
R2	0.425	0.699	0.709	N/A
P-value	0.000	0.000	0.000	N/A

At the first glance, all of the models are highly significant at a 1% confidence level. Nonetheless, the explanatory power of the 2-ways Fixed-effect model is so far the largest with R2=.709. According to Table 4-5, the value λ-the adjustment speed is highly significant in all models. Especially, the random-effect model reports the lowest value of λ which equals 0.511, followed by 0.788 as reported by the GMM model. The GMM regression accounts for the lag effect in the panel data, however, the impact of the lag

variable is insignificant. The 1-way Fixed-effect model reports the highest value of λ of 0.812. To a lesser extent, the 2-way Fixed-effect regression results in a λ of 0.805. More importantly, the adjustment speed turns negative in 2019 and 2020, implying that the pandemic damages the ability to adjust the LEVERAGE to its optimal level. In particular, the adjustment speed decreases by -0.139 in 2019, however, the damage was mitigated in 2020 with a lower coefficient of -0.042. In general, both hypothesis H6a and H6b is affirmed.

4.4 Discussion

In general, the thesis report significant impacts of GPM, OCF, firm's growth, sales growth on the LEVERAGE at a very high confidence level. The firm's size, on special condition of Fixed-effect models, is found to have statistically positive impacts on LEVERAGE. The thesis, however, found not enough evidence to conclude on a meaningful influence of leverage on LEVERAGE. Financial distress indeed negatively affects LEVERAGE, and the effects are most pronounced during the last two years following the 2-way fixed-effect model.

These findings are consistent with the previous results of Hill, Kelly, and Highfield (2010) as the thesis documents a negative influence of GPM and sales growth on LEVERAGE. This negative association implies that firms might adjust their capital structure toward changes in sales. Empirical evidence in this field of research shares a mutual consensus on the negative association of this variable with capital decision (Al-Najjar and Belghitar, 2011; Evci and Şak, 2018). The answer for this relationship is ambiguous. According to Hill, Kelly, and Highfield (2010), when a firm experiences phenomenal revenue growth, it tends to enlarge the inventory account at a faster pace than the trade credit granted. As a result, the networking capital might be narrowed, resulting in opposite movements of sales and leverage ratio.

The impacts of operating cash flows on LEVERAGE are negative, which significantly differ from previous results reported in Love, Preve, and Sarria-Allende (2007) and Hill, Kelly, and Highfield (2010). However, this finding is hardly distinguishable from empirical studies of Baños-Caballero, García-Teruel and Martínez-Solano (2013) and Tsuruta (2019). Normally, positive cash flows endow firms with a greater ability to maintain a desirable LEVERAGE. A negative association, however, implies that UK firms are

maintaining an inefficient level of LEVERAGE. As such, regardless of redundant resources from the operating cash flows, the LEVERAGE tends to decline.

The regression result reveals a positive association between a firm's growth and LEVERAGE, whereas the impacts of the firm's size are only significant after the clustered effects between groups are controlled. In this manner, these findings share a lot in common with empirical evidence of Kim, Mauer, and Sherman (1998) and Mahmood et al. (2019). Accordingly, the firm's size is indeed a meaningful factor in mitigating the issue of asymmetric information. Nonetheless, these effects are prominent in a very limited number of industries. More surprisingly, the positive association between firm growth and working capital suggests that the magnitude of working capital is equally important to that of fixed assets. When a firm wishes to expand its size, considerable attention is paid to working capital accounts. The finding concurs well with the empirical evidence of Thanh (2019) and Doan (2020) when they investigate the practice of working capital management in the UK context. More importantly, Le, Vo, and Vo (2021) document that banks and suppliers prefer high-growth firms to large firms when providing access to their resources.

The thesis also found negative impacts of financial distress on the adjustment speed towards LEVERAGE of UK firms. These values correlate favourably well with Baños-Caballero, García-Teruel and Martínez-Solano (2013) and further lend strong supports to recent evidence of Tsuruta (2019). However, the thesis found a much higher value of lambda with respect to those reported by Preve and Sarria-Allende (2010). Apart from this slight discordant, the result confirms the negative impacts of the pandemic on the adjustment speed of LEVERAGE. A possible explanation for this difference is, perhaps, the difference in the causes of financial distresses. Previous literature focuses on investigating the impacts of the Global Crisis on working capital management. Although the economy experiences the same symptoms, the main victim of that event is large corporations and GFC affects them financially. By contrast, in the latest pandemic, the daily operation of firms is the most impacted, leading to a huge shortage of liquidity. As a result, the impact of the pandemic on working capital is more severe than the GFC, which therefore causes the difference in the adjustment speed of UK firms towards optimal LEVERAGE.

CHAPTER 5 Conclusion

In this thesis, the author focuses on estimating the optimal leverage ratio and adjustment speed of firms under the thorough impacts of the Covid-19 pandemic. In essence, the thesis found that the adjustment speed tends to be lower during the years of pandemic (2019 and 2020). In addition, the firm's specific factors do have significant impacts on the working capital management of Vietnamese firms. More specifically, the thesis reports strong influences of GPM, OCF, firm expansion, and sales growth on the Leverage ratio with a high degree of confidence. Firm size is demonstrated to have statistically beneficial effects on LEV under specific conditions of Fixed-effect models. The theory, however, found insufficient data to infer that leverage has a substantial impact on LEV. Financial difficulty does have a detrimental impact on LEV, and the effects are most evident in the latter two years after using the 2-ways fixed-effect model.

The negative association between sales growth and capital structure level implies that firms might adjust their capital structure decision toward changes in sales. Nonetheless, this connection has an endogeneity issue. Given the increasing uncertainty as a result of the epidemic, it is probable that UK companies are deliberately constraining their credit policies, resulting in a negative association between sales and capital structure. Additionally, the total assets and the growth rate of firms positively impact capital structure. It appears that contradict international evidence, UK firms pay considerable attention towards leverage ratio as there is a positive association between firm's growth and LEV. By contrast, the impact of a firm's size is not as significant as the author expected, thereby implying that the asymmetric information problem is independent of that variable.

The thesis also discovered that financial difficulty has a detrimental influence on the speed with which UK companies shift to an appropriate capital structure. Although these results correlate well with Baos-Caballero, Garca-Teruel, and Martnez-Solano (2013), the impacts of the Covid-19 pandemic on the adjustment speeds exceed that of previous financial hardship, which is the GFC for example. One probable reason for this disparity is a variation in the causes of financial difficulty. During the Global Crisis, large companies are the main victims of the catastrophe, and the GFC has a mainly financial impact on them. In contrast, the latest epidemic has had the greatest impact on daily operations of

the business, resulting in a severe lack of liquid assets. As a result, the pandemic's impact on capital structure is greater than that of the GFC.

The research also contains some limitation in terms of sampling method. Given the fact that the firms are more likely adjust the working capital level quarterly, or at least semi-annually when the accounting reports are prepared, the findings would be more relevant if the author can access to quarterly data. Future studies should develop in directions that can fulfil these remaining problems.

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