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EFFECTS OF FINANCIAL DEVELOPMENT AND INSTITUTIONS ON FIRM IN MALAYSIA

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ABSTRACT

This study is motivated to examine if firm growth is dependent on access to external finance but subject to the macroeconomic environment. Using firm-level data from firms listed in Bursa Malaysia for the 2006-2014 period, the study applies dynamic panel system generalized method of moments (GMM) estimation (Blundell & Bond, 1998) to estimate how a country's embedded financial development and institutional quality impacts the linkage of firms' external financial dependence and growth opportunities to firm growth. A dynamic system GMM approach is employed to address the endogeneity and serial correlation concern. Firms that have greater growth opportunities actually grow faster with better financial development with embedded good institutions in the case of Malaysia. So findings concluded that firms experience higher growth through better allocation of finance since they have good potential to grow. This has shed important light on policymakers in formulating the design of many financial development policies across a wide set of countries aimed at fostering financial markets and the banking services sector to provide the vital sources of external financing needed by corporations in financing their investments. A well-functioning financial system is a necessary condition for promoting firm growth.

Keywords: Firm growth; financial development; institutions, external financial dependence, growth opportunities

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1. INTRODUCTION

Years have passed since the Financial Sector Blueprint was published in 2011, with the clear vision of creating a financial system capable of navigating Malaysia's transformation into a high-value-added, high-income economy. The goal, as implied by the Blueprint's title "Strengthening the Future," was to move the financial system toward higher levels of stability, efficiency, and competitiveness.

With the passage of the Central Bank of Malaysia Act in 2009, as well as the Financial Services and Islamic Financial Services Acts in 2013, Malaysia significantly strengthened its legal and regulatory foundations for a safer and stronger financial system. It has continued to update its prudential guidelines in accordance with international standards, which has contributed to its regional and global expansion of our financial institutions.

The continual efforts of financial institutions to improve risk management, governance, and a strong focus on compelling management all contribute to the financial system's strength. Shared efforts between the industry and the Bank had led to key assumptions about how to build a robust talent pipeline for the financial services sector, including a shift in major industries.

Simultaneously, the financial sector has continued to serve as a middleman in the financing of the economy, particularly small and medium-sized businesses. Financing by the banking system to companies and SMEs remained at RM533 billion at the end of July 2016, having grown at an average annual rate of 9.9% between 2011 and 2015. Banks continue to be the largest financiers of SMEs, and this relationship is expected to endure due to high approval rates of about 80%.

Inadequate access to financing by Malaysian firms, the possibility staying power of the business, survival and of course the potential for firm to growth is indefinitely jeopardized. External financing for firms is definitely not perfect substitute for internal financing, firms actually experience differences in access to capital markets. In addition, the continuous rising cost to access to external financing by Malaysian firms further reinforce the barrier to firm growth. A firm without access to external capital probably never meet the end ability in reaching optimal investment goal and obstructing firm's future growth[1].Yet, how far has Malaysian firms or enterprises grow and develop, rogressed in their transformation into a high-value, high-income economy? How will the financial sector in Malaysia continued to play its intermediary role in financing the firms, the engine of growth. In this study, we aim to investigate the effects of financial development[2] and institutions on firm growth in Malaysia by focusing on public listed firms in Bursa Malaysia for the period 2006 to 2014. This study applies the panel dynamic system GMM (Blundell & Bond, 1998) to examine the relationships between firm growth with the independent variables of macroeconomic factors, which are financial development, institutions and their interaction terms with firm's micro-level data such external financing dependence and growth opportunities, and followed by other control variables like firm size, firm age, leverage and profitability. This study

[1] See Rajan and Zingales (1998), Demirguc-Kunt and Maksimovic (1998), ans Levine (2004).

[2] See Law and Singh (2014) that includes institutions and financial development interaction terms and Law et. al (2013) that estimates the embedded quality financial development in presence of quality institutional using interaction terms and the threshold level of institutional quality necessary for financial development in promoting positive economic growth. Earlier works by Baltagi, Demetriades and Law (2009) and Demetriades and Law (2006) have also highlighted the role of institutional quality.

contributes significantly to the empirical studies for emerging markets. This provides managers and shareholders with better insight into determinants of firm growth dependence of external financing which are jointly influenced by macroeconomic conditions of financial development level and quality institutions

2. LITERATURE REVIEW

Basically, there are three extensive organizations of past studies which focused to examine the impacts of access to finance on growth of firms widely across the world economies. The first organization of past studies include of earlier empirical studies which mixed firm-level data along with broad indicators of financial development at macroeconomic level for a cross-section of countries to investigate the linkages between a better developed financial sector and firm growth. Such a one studies include La Porta et al. (1998), Beck et al. (2006), Beck et al. (2008), Demirgüç-Kunt and Maksimovic (1998), Demirgüç-Kunt et al. (2006), Rahaman (2011), Shen (2013), Fowowe (2017), and Knack and Xu (2017). The second organization of studies captures country-specific studies which also mixed firm-level data with macroeconomic scope of financial development indicators. Such a one studies include Butler and Cornaggia (2011), González et al. (2007), and Girma and Shortland (2008). These studies by and large ascertain that exceptional developed financial systems within a country harbour more rapid firm growth. The third organization of studies which utilized recent firm-level survey data, namely from the World Bank, providing firm responses from firms on various constraints in doing business as well as their accessibility to financial markets. This has given step up to new studies optimizing usage of rigorously firm-level data to investigate how finance access and other constraints alter firm performance. Such a one studies includes of Beck et al. (2006), Beck et al. (2008), Ayyagari et al. (2008), Dinh et al. (2012), Wang (2016), Jin et al. (2019) and among others.

In this study, the second group which are country-specific studies forms the main interest. It narrows attention exclusively on Malaysian firms which have set out to be typically less financially access than firms compared to firms of more developed countries located in other regions. The conduct of this study will therefore deepening our understanding how enhanced and better functioning financial systems will foster the growth of Malaysian firms.

3. RESEARCH METHODOLOGY

This study is motivated by Modigliani and Miller's (1958) financing constraints theory (FCT) and others like Rajan and Zingales (1998), Fisman and Love (2007), and Manganelli and Popov (2013) also sharing similar enthusiasm that firm growth are dependence on access to external finance but subject to macroeconomic environment. It extends further on empirical model first suggested by Rajan and Zingales (1998) and its complementary work by Fisman and Love (2007). The firm's external financing dependence and growth opportunities are testifying to firm growth in within the embedded finance development and institutional quality.

In order to examine whether firms that are naturally more external finance dependent will grow faster in countries with higher levels of financial development, the study interacts firm's financial dependence with a country characteristics i.e. financial development. In consensus, literatures

(Rajan & Zingales, 1998; Fisman & Love, 2007; Manganelli & Popov, 2013) strongly support firms that are dependent on external finance experiences relatively faster growth in countries that, a priori are more financially developed. Hence, the expected sign of this interaction term of financial dependence and finance development is positive. In addition, this study has augmented Rajan and Zingales (1998) approach to further include role of institutions to provide more insights from firm growth studeies. It is anticipated that firm of higher external finance dependence will benefit to grow more with better institutional quality. That means the interaction term between finance dependence – institutions are predicted to be positive. As Fisman and Love (2007) argue that financial development increases resource allocation to firms with good growth opportunities. Hence, this study interacts separately firm's growth opportunities with financial development and institutions, both interaction terms are expected to be positive. This would suggest that financial development or better institutions tend to ease growth constraint on firms which are more externally financially dependent.

3.1. Framework and Model Specification

Under the baseline model 1a estimating firm's external financing dependence, financial development, institutions and firm growth nexus without interaction term, the estimated β_1 , β_2, and β_3 are expected to have positive sign. Meanwhile, baseline model 1b estimating firm's growth opportunities, financial development, institutions and firm growth nexus without interaction term, θ_1 , θ_2, and θ_3 are also expected to be positive sign. The baseline model 1c is included to capture the relative role of external financing dependence and growth opportunities competing as focused by Fisman and Love (2007). Similarly, the coefficients sign of δ_1 , δ_2, and δ_3 are predicted to be positively influencing firm growth. The magnitude or size of these coefficients is predicted to be unique and individually different.

Baseline Model 1a:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \beta_1 EXTFIN_{f,t} + \beta_2 FD_{c,t} + \beta_3 INS_{c,t} + \beta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (1a)$$

Baseline Model 1b:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \theta_1 GO_{f,t} + \theta_2 FD_{c,t} + \theta_3 INS_{c,t} + \theta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (1b)$$

Baseline Model 1c:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \delta_1 EXTFIN_{f,t} + \delta_2 GO_{f,t} + \delta_3 FD_{c,t} + \delta_4 INS_{c,t} + \delta_5 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (1c)$$

where subscipts of f, t and c denote firm, time and country; μ_c is unobserved firm-specific effect; ε_{ct} is error term that is assumed to be normally distributed with mean 0 and variance σ^2; $GROWTH_{f,t}$ is firm annual growth, $GROWTH_{f,t-1}$ is lagged annual firm growth, $EXTFIN_{f,t}$ is firm's external financiag dependence, $GO_{f,t}$ is firm's growth opportunities, $FD_{c,t}$ is country's

financial development level, $INS_{c,t}$ is country's quality institutions and $CONTROL_{f,t}$ includes various control variables such as firm size; current ratio; financial leverage; financial slack and profitability.

The study continues to focus to examine how the country's level of quality financial development may have certain degree of influences on Malaysian's firm growth. As robustness checking, Model 2a, 2b and 2c are first introduced to estimate the relationships of firm growth with interaction terms between external finance, financial development and quality institutions (refers to Appendix A.1 Model 2 and its Specifications). Secondly, Model 3a, 3b and 3c are included to estimate the relationships of firm growth, firm's growth opportunities with interac, financial development, institutions and interaction terms between external finance, financial development and institutions (refers to Appendix A.2 Model 3 and its Specifications).

The extended Model 4a aims to estimate the relationships of firm growth, firm's external financing dependence, financial development, institutions and interaction terms between external finance, financial development and institutions. The estimated β_1 , β_2, β_3, β_4 , β_5, and β_6 are expected to have positive sign. These estimated indicators are expected to postively influencing firm growth. Meanwhile, the extended Model 4b estimating the relationship of firm growth, firm's growth opportunities, financial development, institutions and interaction terms between growth opportunities, financial development and institutions. So the estimated coefficient of θ_1 , θ_2, θ_3 θ_4 , θ_5, and θ_6 are also expected to be positive sign.

This study shares similar intuition with Manganelli and Popov (2013) which aims to examine how macroeconomics indicators interact with firm-level indicators in influencing firm growth and we extend further to capture how presence of better institutions raises the quality and level of financial development which positively has effects on firm growth. In short, if firm's external financing dependence or growth opportunities has positve effects on firm growth, it is subject to the level of financial development which is condition to quality institutions.

Extended Model (4a) of firm growth with external financing dependence interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \beta_1 EXTFIN_{f,t} + \beta_2 FD_{c,t} + \beta_3 INS_{c,t} + \beta_4 (EXTFIN_{f,t} * FD_{c,t}) + \beta_5 (FD_{c,t} * INS_{c,t}) + \beta_6 (EXTFIN_{f,t} * FD_{c,t} * INS_{c,t}) + \beta_7 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (4a)$$

Extended Model (4b) of firm growth with growth opportunities interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \theta_1 GO_{f,t} + \theta_2 FD_{c,t} + \theta_3 INS_{c,t} + \theta_4 (GO_{f,t} * FD_{c,t}) + \theta_5 (FD_{c,t} * INS_{c,t}) + \theta_6 (GO_{f,t} * FD_{c,t} * INS_{c,t}) + \theta_7 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (4b)$$

where subscipts of f, t and c denote firm, time and country; μ_c is unobserved firm-specific effect; ε_{ct} is error term that is assumed to be normally distributed with mean 0 and variance σ^2;

$GROWTH_{f,t}$ is firm annual growth, $GROWTH_{f,t-1}$ is lagged annual firm growth, $EXTFIN_{f,t}$ is firm's external financiag dependence, $GO_{f,t}$ is firm's growth opportunities, $FD_{c,t}$ is country's financial development level, $INS_{c,t}$ is country's quality institutions, $EXTFIN_{f,t} * FD_{c,t}$ is the interaction term between firm's external financing and country's financial development, $FD_{c,t} * INS_{c,t}$ is the interaction term of country's level of financial development and country's institutions, $EXTFIN_{f,t} * FD_{c,t} * INS_{c,t}$ is the interacttion term of embedded quality financial development level and $CONTROL_{f,t}$ includes various control variables such as firm size; current ratio; financial leverage; financial slack and profitability.

Finally, this study takes account of interaction term done diffferently and correctly using Brambor et al. (2006) approach. More detailed explanations on interaction terms used are available upon request.

a. Data and Sample Selection

All together 602 firms in the sample of the study are drawn from the Bloomberg database. These firms included for the period 2006 to 2014[3] are listed in Bursa Malaysia.
Annual financial data are utilized.

Table 1: Variables and data sources

Data and Variable	Description	Source
Firm growth ($GROWTH_f$)	Sales of growth of the firm which is proportional to its investment growth	Bloomberg database
External Finance ($EXTFIN_f$)	Capital expenditures minus cash flow from operations divided by capital expenditures to capture the amount of desired investment cannot be financed through internal cash flows generated within the same firm.	Bloomberg database
Growth Opportunities (GO_f)	Capital expenditures divided by sales (Roll et al.,2009).	Bloomberg database
Financial Development (FD)	Domestic Credit	WDI, World Bank.
Human Capital (HC)	Average years of secondary schooling.	Bloomberg database
Real GDP per capita ($RGDP$)	Annual data on real GDP per capita converted to USD based on 2005 constant prices.	Bloomberg database
Institutions (INS)	Average of WGI six indicators of voice and accountability, political stability and lack of violence, government effectiveness, regulatory quality, rule of law, and control of corruption into a single broader index.	Worldwide Governance Indicators (WGI)

[3] Annual data employed in the study ended in 2014 partly due to the consideration of Fed has ended its quantitative easing in October 2014, and followed by raised of interest rate in December 2015, for the first time since June 2006. These events created huge outflows of capital from emerging markets including Malaysia. Another consideration to end the study period in 2014 was the implementation of Goods and Services Tax (GST) effective in 1 April 2015 also posed uncertainties on the local market and information.

Table 1: (Continued)

Data and Variable	Description	Source
Firm Leverage *(Lev$_f$)*	Current Ratios (Current Asset/ Current Liabilities) measures the liquidity of the firm's asset structure; Financial Leverage (Long-Term Debt/Total Assets) measures the usage of debt financing by the firm; and Financial Slack ([Tangible Assets/Total Liabilities] – 1).	Bloomberg database
Firm Size *(SIZE$_f$)*	Firm's total assets or sales revenues.	Bloomberg database
Profitability (*PROFIT$_f$*)	Return on Assets (ROA) – net income divided by the book value of assets.	Bloomberg database

3.3. Method of Estimation

This study will use panel data since it gives more informative data, more variability, less collinearity among the variables, more degree of freedom and more efficiency. It is also a better estimation method to study the duration of economic states and the dynamics of change over time (Baltagi, 2001). However, the institutions variable is likely to be endogenous, possible because of feedback from financial development to institutions or because of common effects of ommited variables on both financial development and sound institutions. Therefore, this study employed system GMM (Arellano & Bover, 1995) estimations aimed to deal with endogeneity. System GMM is more superior and preferred method in this study because the technique estimates the regressions in levels together with the regressions in differences. Arellano and Bover (1995), however, noted that if the initial condition, x_{i1}, satisfies the stationarity restriction $E(x_{i2}\mu_i) = 0$, then Δx_{it} will be correlated with μ_i if and only if Δx_{i2} is correlated with μ_i. The resulting assumption is that although there is a correlation between the level of right-hand side variables, x_{i1}, unobservable individual-specific effect, μ_i. This additional assumption gives rise to the level equation estimator, which exploits more moment conditions.

Blundell and Bond (1998) showed that the moment conditions, defined for the first-differenced equation could be combined with the moment conditions defined for the level equation to estimate a system GMM. The consistency of the GMM estimator depends on the validity of the instruments and also the assumption that the differenced error terms do not exhibit second order serial correlation. In order to test the consistency of the GMM estimators two tests proposed by Arellano and Bond (1991) are used. The first is a Sargan test of over-identifying restrictions, which tests the overall validity of the instruments. The second test examines the assumption of no second-order serial correlation. Failure to reject the null hypotheses of both tests gives support to the estimation procedure. In short, in system GMM, variables in levels are instrumented with lags of their own differences, and differences variables are instrumented with lags in levels. This study uses Stata software to estimate the models. System GMM can be run using the xtdpdsys program (a built-in command of Stata) or xtabond2 written by Roodman (2009).

4. FINDINGS AND DISCUSSIONS

4.1. Main Findings

Reporting on descriptive statistics and correlation test of the variables used in the study are not included here but available upon requests. Table 2, 3, 4 and 5 report the results of estimating the determinants of firm growth for Malaysia. The findings of Model 1 (1a, 1b and 1c) are our baseline model where firm growth estimated as dependent variable in linear model without presence of interaction term between external financing with financial development or instituions and growth opportunities with financial development or institutions respectively. Throughout the estimations, the lagged dependent variable is statistically significant, which implies that the dynamic GMM is an appropriate estimator and the emprical results are reliable. Hence, the statistical inference related to the hypothesis of interest can be performed.

Generally, the results from Model 1 fail to support the existence of direct relationship of external finance to firm growth. The external finance is also not found to be important determinant for firm growth when alternative growth opportunities included in determining firm growth. At this point, the results are not alongside with many findings such as Rajan and Zingales (1998), Laeven et al. (2002), Inklaar and Koetter (2008) and Shen (2013). In contrast, the estimations interestingly lend supports to growth opportunities in facilitating firm growth. When growth opportunities is in considered, result is positive and significantly facilates firm growth. The outcomes are quite robust since both external finance and growth opportunites are estimated simultanuesly. Only firm's growth opportunities turn out to be positive and significantly influencing firm growth throughout our estimations. Estimated external finance looses its significance throughout our estimations but firms' growth opportunities remain positively significant. As noted by Fisman and Love (2007), the insignificance of external dependence when growth opportunities measure is included mainly because external dependence may be picking up on correlated growth patterns accross countries due to common shocks after they control the shocks using U.S. growth as proxy. This study using firm level data supports and confirms with Fisman and Love (2007) and Manganelli and Popov (2013) who are skeptical of an underlying 'technological' dependence in promoting firm growth. In fact, growth opportunities outperform external dependence in promoting growth within firms in this study.

Table 2: Firm growth, external finance, growth opportunities, financial development and institutions

Dependent variable: firm growth.	Baseline model (Without interaction term)		
	Model 1a	**Model 1b**	**Model 1c**
Independent variables:			
Constant	3.468	4.1431*	4.766**
	(-1.61)	(2.04)	(2.21)
Firm Growth $_{it-1}$	0.2474***	0.2444***	0.2279***
	(10.51)	(10.34)	(10.00)
External Finance	0.0758	-	0.0173
	(-0.35)		(-0.09)
Growth Opportunities	-	0.0152***	0.0151***
		(2.68)	(2.64)

Table 2: (Continued)

Dependent variable: firm growth.	Baseline model (Without interaction term)		
	Model 1a	**Model 1b**	**Model 1c**
Independent variables:			
Financial Development	1.423	1.452	1.468
	(1.09)	(1.32)	(1.38)
Institutions	-0.0594	-0.1091	-0.1607
	(-0.44)	(-0.82)	(-1.07)
Firm Size	0.5592***	0.5616***	0.5126***
	(9.26)	(9.37)	(6.98)
Current Ratio	0.0788**	0.899***	0.0899***
	(2.47)	(2.78)	(2.81)
Financial Leverage	-4.1751***	-4.680***	-4.4898***
	(-2.62)	(-2.89)	(-2.66)
Financial Slack	-0.6009***	-0.6203***	-0.6679***
	(-5.60)	(-5.69)	(-5.99)
Profitability	1.2102***	1.2804***	1.2293***
	(3.81)	(3.82)	(3.83)
Hansen test over identifying restrictions	45.239	46.061**	45.573**
	(0.036)	(0.031)	(0.034)
Arellano-bond test for AR(1)	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)
Arellano-bond test for AR(2)	-1.057	-0.992	-1.129
	(0.291)	(0.321)	(0.259)
Sample	4688	4688	4688
Number of Firms (N)	602	602	602
Number of Years (T)	9	9	9

Notes: Figures in ( ) are standard errors. Asterisks ***, ** and * indicate significance level of 1%, 5% and 10% respectively. Firm Growth is proxy by firm's own revenue. External finance is firm's capital expenditures minus cash flow from operations divided by capital expenditures to capture the amount of desired investment cannot be financed through internal cash flows generated within the same firm. Growth opportunities using capital expenditures divided by ROA. Control variables: (1) Firm size proxy by firm's total assets; (2) Current ratio measures the liquidity of the firm's asset structure; (3) Financial leverage (Long-Term Debt/Total Assets) measures the usage of debt financing by the firm, (4) Financial slack which denotes (Tangible Assets/Total Liabilities)-1; and (5) Profitability is proxy by ROA.

Control variables in this study, namely, firm size proxy by firm's total assets remain strongly positively significant at 1% significant level. Firms 'current ratio that measures the liquidity of the firm's asset structure and firms' financial leverage (Long-Term Debt/Total Assets) that measures the usage of debt financing by the firm are negatively significance. In addition, financial slack which denotes (Tangible Assets/Total Liabilities)-1; and Profitability is proxy by ROA also are significant and positively promotes firm growth too.

4.2. Robustness Findings

For robustness tests, study also examine if the presence of countries' financial developmet and good instituions do have positive impact on firm growth. Model 2 (2a, 2b and 2c) are linear models with interaction terms which captured the effect of external financing and firm's growth opportunties under the influence of financial development and Model 3 (3a, 3b and 3c) are linear

models with interaction terms which captured the effect of external financing and firm's growth opportunties under the influence of institutions. Meanwhile, Model 4 (4a and 4b) are estimations in the spirit of institutional role in mediating influences on financial development through firms' external financing dependence and firm's growth opportunities that impacts on firm growth.

Financial development is important in facilitating firm growth are found to be significant when firms exhibit strong growth opportunities but not amongst firms with highly dependence on external finanancing. The coefficient value (mean) of external finance-financial development interacting terms, 0.0235 (in Model 2b) and 0.0377 (in Model 2c) are found to be statistically significant at 5 percent significant value. Findings pointed towards the embedded role of finance development in predicting growth and future growth for dynamic firms with strong growth opportunities.

From Table 4, estimated external finance under Model 3a and 3c remain statiscally insignificant. The coefficients of growth opportunities in Model 3b, 3c, 4a and 4b are positive and significant in enhancing firm growth. The coeficients of financial development estimated in all models indicated negative sign but insignificant. Other studies such as Rajan and Zingales (1998), Fisman and Love (2007) and Manganelli and Popov (2013), however, pointed to significance role of financial development. Evidence of institutions presence however do not revealed further its important role in any models.

Further analysis under Model 4a and 4b revealed a number of interesting outcomes. To gauge more information for firm growth estimation, Model 4a set to include additional variable such as financial development in the market. The important role of financial development is more obvious and it exerts ripple effects to external finance and also sound institutions in facilating firm growth. In earlier results, it consistenly show the insignificant of the two variables, external finance and institutions. Interestingly, the coefficient of financial development is negative and significant, meanwhile the coefficient sign of institutions is positive and significant. The interaction term between external finance condition on finance development shows negative in sign and external finance condition on institutions reveals to be negative coefficient too.

As can be seen, only within the interacting term of financial development and institutions, estimates show positive linkage of financial development towards firm growth condition to good institutions. The coefficient value (1.073) of the marginal effect of financial development and institutions condition to external financing is positively significant at 5% significant level. Hence, firm growth dependence of external financing is jointly determined with interaction of financial development along with presence of good institutions as well. Presence of either financial development or institutions alone is insufficient to promote firm growth positively through external financing.

However, estimations for growth opportunities in facilitating firm growth yield negative sign for its marginal effect and is statistically significant on firm growth. The negative sign of the coefficient interacting of growth opportunities condition to finance developemnt as well as institutions is quite surprising. The inverse relationship of this estimated interaction term of growth opportunities-finance development-institutions possibly due growing size of financial sector is too large and unnecessarily facilitating firm growth. According to Managanelli and Popov (2013), financial development has a non-monotonic effect on growth in the Rajan and Zingales (1998) and Fisman and Love (2007) sample. Financially dependent industries and industries facing good

growth opportunities grow disproportionately more slowly when financial development grow beyond a threshold.

Table 3: Firm growth, external finance, growth opportunities and financial development

Dependent variable: firm growth.	**Model 2a**	**Model 2b**	**Model 2c**
Independent variables:			
Constant	3.468	4.1431*	4.766**
	(-1.61)	(2.04)	(2.21)
Firm Growth $_{it-1}$	0.2474***	0.2444***	0.2279***
	(10.51)	(10.34)	(10.00)
External Finance	0.0758	-	0.0173
	(-0.35)		(-0.09)
Growth Opportunities	-	0.0152***	0.0151***
		(2.68)	(2.64)
Financial Development	1.2167	1.2188	1.2195
	(1.32)	(1.35)	(1.38)
Institutions	-0.0594	-0.1091	-0.1607
	(-0.44)	(-0.82)	(-1.07)
External Finance*Financial Development	0.0034	-	0.0027
	(2.16)		(2.09)
Growth Opportunities*Financial Development	-	0.0078	0.0069
		(1.89)	(1.78)
External Finance * Growth Opportunities	-	-	0.000345
			(1.45)
Firm Size	0.5592***	0.5616***	0.5126***
	(9.26)	(9.37)	(6.98)
Current Ratio	0.0788**	0.899***	0.0899***
	(2.47)	(2.78)	(2.81)
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	(0.00)	(0.00)	(0.00)
Arellano-bond test for AR(2)	-1.057	-0.992	-1.129
	(0.291)	(0.321)	(0.259)
Sample	4688	4688	4688
Number of Firms (N)	602	602	602
Number of Years (T)	9	9	9
Marginal effect: $\frac{\partial Firm\ growth}{\partial External\ finance}$			
Mean	0.4338	-	0.4822
	(1.35)		(1.39)

Table 3: (Continued)

Dependent variable: firm growth.	Model 2a	Model 2b	Model 2c
Independent variables:			
Maximum	0.4443	-	0.4954
	(1.36)		(1.42)
Minimum	0.4335	-	0.4769
	(1.34)		(1.33)
Marginal Effect: $\frac{\partial Firm\ growth}{\partial Growth\ opportunities}$			
Mean	-	0.0235**	0.0377**
		(2.14)	(2.36)
Maximum	-	0.0248*	0.0388*
		(2.24)	(2.48)
Minimum	-	0.0229**	0.0364**
		(2.11)	(2.21)

Notes: Figures in ( ) are standard errors. Asterisks ***, ** and * indicate significance level of 1%, 5% and 10% respectively. Firm Growth is proxy by firm's own revenue. External finance is firm's capital expenditures minus cash flow from operations divided by capital expenditures to capture the amount of desired investment cannot be financed through internal cash flows generated within the same firm. Growth opportunities using capital expenditures divided by ROA. Control variables: (1) Firm size proxy by firm's total assets; (2) Current ratio measures the liquidity of the firm's asset structure; (3) Financial leverage (Long-Term Debt/Total Assets) measures the usage of debt financing by the firm, (4) Financial slack which denotes (Tangible Assets/Total Liabilities)-1; and (5) Profitability is proxy by ROA.

Table 4: Firm growth, external finance, growth opportunities and institutions

Dependent variable: firm growth.	Model 3a	Model 3b	Model 3c
Independent variables:			
Constant	6.0944***	3.96	5.614**
	(2.94)	-1.9	(2.57)
Firm Growth $_{it-1}$	0.1961***	0.1878***	0.1858)***
	(10.46)	(9.62)	(9.80)
External Finance	-0.3205	-	-0.3839
	(-1.37)		(-1.70)
Growth Opportunities	-	0.0135*	0.0145**
		(2.43)	(2.57)
Financial Development	0.1167	0.1156	0.1667
	(1.26)	(1.28)	(1.29)
Institutions	-0.118	-0.0968	-0.1069
	(-0.81)	(-0.64)	(-0.70)
External Finance*Institutions	-0.000002***	-	-0.000002***
	(-3.31)		(-3.04)
Growth Opportunities*Institutions	-	-0.0008	-0.0006
		(-1.23)	(-0.87)
External Finance * Growth Opportunities	-	-	0.000013
			(0.76)
Firm Size	0.5523***	0.5199***	0.5406***
	(7.77)	(7.12)	(7.57)
Current Ratio	0.0979***	0.0669**	0.0937***
	(3.13)	(2.11)	(2.91)
Financial Leverage	-4.9786***	-3.5543**	-4.6984***

Table 4: (Continued)

Dependent variable: firm growth.	**Model 3a**	**Model 3b**	**Model 3c**
Independent variables:			
	(-3.09)	(-2.10)	(-2.85)
Financial Slack	-0.6598***	-0.5591***	-0.6228***
	(-6.14)	(-5.14)	(-5.72)
Profitability	1.0744***	1.0928***	1.2867***
	(3.00)	(3.43)	(3.35)
Hansen test over identifying restrictions	46.4945**	47.150**	49.650**
	(0.036)	(0.041)	(0.018)
Arellano-bond test for AR(1)	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)
Arellano-bond test for AR(2)	-1.413	-1.407	-1.3497
	(0.157)	(0.159)	(0.180)
Sample	4688	4688	4688
Number of Firms (N)	602	602	602
Number of Years (T)	9	9	9
Marginal effect: $\frac{\partial Firm\ growth}{\partial External\ finance}$			
Mean	-0.3206	-	-0.38387
	(-1.37)		(-1.69)
Maximum	-0.3206	-	-0.38382
	(-1.37)		(-1.69)
Minimum	-0.3206	-	-0.38392
	(-1.37)		(-1.69)
Marginal Effect: $\frac{\partial Firm\ growth}{\partial Growth\ opportunities}$			
Mean	-	0.0120**	0.01349**
		(2.05)	(2.24)
Maximum	-	0.0120**	0.01347**
		(2.06)	(2.23)
Minimum	-	0.0119**	0.01350**
		(2.04)	(2.25)

Notes: Figures in ( ) are standard errors. Asterisks ***, ** and * indicate significance level of 1%, 5% and 10% respectively. Firm Growth is proxy by firm's own revenue. External finance is firm's capital expenditures minus cash flow from operations divided by capital expenditures to capture the amount of desired investment cannot be financed through internal cash flows generated within the same firm. Growth opportunities using capital expenditures divided by ROA. Control variables: (1) Firm size proxy by firm's total assets; (2) Current ratio measures the liquidity of the firm's asset structure; (3) Financial leverage (Long-Term Debt/Total Assets) measures the usage of debt financing by the firm, (4) Financial slack which denotes (Tangible Assets/Total Liabilities)-1; and (5) Profitability is proxy by ROA.

Table 5: Firm growth, external finance, growth opportunities, financial development and institutions

Dependent variable: firm growth.	**Model 4a**	**Model 4b**
Independent variables:		
Constant	1.6343	7.2124***
	-0.59	(2.84)
Firm Growth $_{it-1}$	0.1797***	0.1453***
	(10.44)	(8.19)
External Finance	1.0738**	-
	(2.47)	
Growth Opportunities	-	0.013**
		(2.11)
Financial Development	-0.0763*	0.2118**
	(-1.91)	(2.25)
Institutions	0.4444***	0.4570**
	(3.28)	(3.54)
External Finance*Financial Development	-0.000024***	-
	(-2.80)	
External Finance*Institutions	-0.000037***	-
	(-3.85)	
Financial Development*Institutions	0.00023***	-
	(4.04)	
External Finance*Financial	0.0000007***	-
Development*Institutions	(3.95)	
Growth Opportunities*Financial Development	-	0.0314***
		(3.09)
Growth Opportunities*Institutions	-	-0.00076
		(-0.987)
Financial Development*Institutions	-	0.00065***
		(-2.35)
Growth Opportunities*Financial Development	-	-0.319***
*Institutions		(-3.14)
Firm Size	0.5734***	0.5448***
	(7.35)	(6.50)
Current Ratio	0.0982***	0.1373***
	(2.62)	(3.40)
Financial Leverage	-5.5523***	-6.6110***
	(-2.79)	(-2.95)
Financial Slack	-0.6826***	-0.6938***
	(-5.33)	(-5.05)
Profitability	0.7582**	0.6813*
	(2.11)	(2.35)
Hansen test over identifying restrictions	33.645*	26.841*
	(0.07)	(0.06)
Arellano-bond test for AR(1)	-3.855***	0.00***
	(0.0001)	(0.00)
Arellano-bond test for AR(2)	-0.754	-0.990
	(0.450)	(0.300)
Sample	4688	4688
Number of Firms (N)	602	602
Number of Years (T)	9	9

Table 5: (Continued)

Dependent variable: firm growth.	**Model 4a**	**Model 4b**
Independent variables:		
Marginal effect: $\frac{\partial Firm\ growth}{\partial External\ finance}$		
Mean	1.073678** (2.47)	-
Maximum	1.073681** (2.48)	-
Minimum	1.073675** (2.46)	-
Marginal Effect: $\frac{\partial Firm\ growth}{\partial Growth\ opportunities}$		
Mean	-	0.10472** (2.87)
Maximum	-	0.11019** (2.89)
Minimum	-	0.09898** (2.86)

Notes: Figures in ( ) are standard errors. Asterisks ***, ** and * indicate significance level of 1%, 5% and 10% respectively. Firm Growth is proxy by firm's own revenue. External finance is firm's capital expenditures minus cash flow from operations divided by capital expenditures to capture the amount of desired investment cannot be financed through internal cash flows generated within the same firm. Growth opportunities using capital expenditures divided by ROA. Control variables: (1) Firm size proxy by firm's total assets; (2) Current ratio measures the liquidity of the firm's asset structure; (3) Financial leverage (Long-Term Debt/Total Assets) measures the usage of debt financing by the firm, (4) Financial slack which denotes (Tangible Assets/Total Liabilities)-1; and (5) Profitability is proxy by ROA.

5. CONCLUSIONS

In conclusions, firms experience higher growth through better allocation of finance since they have good potential to grow. This has shed important light on policymakers in formulating the design of many financial development policies across a wide set of countries aimed at fostering financial markets and the banking services sector to provide the vital sources of external financing needed by corporations in financing their investments. A well-functioning financial system is a necessary condition for promoting firm growth. This study offers new insights into understanding the behaviour and performance of Malaysian firms, and this would assist in developing new and innovative development policies for promoting private enterprises growth and long-term sustainable business growth in Malaysia

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APPENDIX

A.1 Model 2 Equations and Specifications

The extended Model 2a aims to estimate the relationships of firm growth, firm's external financing dependence, financial development and interaction terms between external finance and financial development.The estimated β_1 , β_2 and β_3 are expected to have positive sign. These estimated indicators are expected to postively influencing firm growth. Meanwhile, the extended Model 2b estimating the relationships of firm growth, firm's growth opportunities, financial development and interaction terms between firm's growth opportunities and financial development. So the estimated coefficient of θ_1 , θ_2 and θ_3 are also expected to be positive sign. Lastly, the extended Model 2c measures simultaneously the relationships of firm growth, external financing, firm's growth opportunities, financial development and interaction terms between firm's growth opportunities and financial development. So the estimated coefficient of δ_1 , δ_2, δ_3 δ_4 , δ_5, δ_6 and $\delta_7$are also expected to be positive sign.

Extended Model (2a) of firm growth with external financing dependence interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \beta_1 EXTFIN_{f,t} + \beta_2 FD_{c,t} + \beta_3\left(EXTFIN_{f,t} * FD_{c,t}\right) + \beta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (2a)$$

Extended Model (2b) of firm growth with growth opportunities interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \theta_1 GO_{f,t} + \theta_2 FD_{c,t} + \theta_3\left(GO_{f,t} * FD_{c,t}\right) + \theta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (2b)$$

Extended Model (2c) of firm growth with both external financing dependence and firm's growth opportunities interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \delta_1 EXTFIN_{f,t} + \delta_2 FD_{c,t} + \delta_3\left(EXTFIN_{f,t} * FD_{c,t}\right) + \delta_4 GO_{f,t} + \delta_5 FD_{c,t} + \delta_6\left(GO_{f,t} * FD_{c,t}\right) + \delta_7\left(EXTFIN_{f,t} * GO_{c,t}\right) + \delta_8 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (2c)$$

where subscipts of f, t and c denote firm, time and country; μ_c is unobserved firm-specific effect; ε_{ct} is error term that is assumed to be normally distributed with mean 0 and variance σ^2; $GROWTH_{f,t}$ is firm annual growth, $GROWTH_{f,t-1}$ is lagged annual firm growth, $EXTFIN_{f,t}$ is firm's external financiag dependence, $GO_{f,t}$ is firm's growth opportunities, $INS_{c,t}$ is country's quality institutions, $EXTFIN_{f,t} * FD_{c,t}$ is the interaction term between firm's external financing and country's financial development, $GO_{i,t} * FD_{c,t}$ is the interaction term of country's level of financial development and $CONTROL_{f,t}$ includes various control variables such as firm size; current ratio; financial leverage; financial slack and profitability. More detailed explanations on interaction terms used are available upon request.

A.2 Model 3 Equations and Specifications

The extended Model 3a aims to estimate the relationships of firm growth, firm's external financing dependence, financial development and interaction terms between external finance and financial development.The estimated β_1 , β_2 and β_3 are expected to have positive sign. These estimated indicators are expected to postively influencing firm growth. Meanwhile, the extended Model 3b estimating the relationships of firm growth, firm's growth opportunities, financial development and interaction terms between firm's growth opportunities and financial development. So the estimated coefficient of θ_1 , θ_2, θ_3 θ_4 , θ_5, and θ_6 are also expected to be positive sign. Lastly, the extended Model 2c measures simultaneously the relationships of firm growth, external financing, firm's growth opportunities, institutions and interaction terms between firm's growth opportunities and institutions. So the estimated coefficient of δ_1 , δ_2, δ_3 δ_4 , δ_5, δ_6 and $\delta_7$are also expected to be positive sign.

Extended Model (3a) of firm growth with external financing dependence interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \beta_1 EXTFIN_{f,t} + \beta_2 INS_{c,t} + \beta_3\left(EXTFIN_{f,t} * INS_{c,t}\right) + \beta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (3a)$$

Extended Model (3b) of firm growth with growth opportunities interaction terms:

$$GROWTH_{f,t} = \alpha_f + \gamma GROWTH_{f,t-1} + \theta_1 GO_{f,t} + \theta_2 INS_{c,t} + \theta_3\left(GO_{f,t} * INS_{c,t}\right) + \theta_4 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \quad (3b)$$

Extended Model (3c) of firm growth with both external financing dependence and firm's growth opportunities interaction terms:

$$\begin{aligned} GROWTH_{f,t} = \alpha_f &+ \gamma GROWTH_{f,t-1} + \delta_1 EXTFIN_{f,t} + \delta_2 INS_{c,t} + \delta_3\left(EXTFIN_{f,t} * INS_{c,t}\right) \\ &+ \delta_4 GO_{f,t} + \delta_5 INS_{c,t} \\ &+ \delta_6\left(GO_{f,t} * INS_{c,t}\right) + \delta_7\left(EXTFIN_{f,t} * GO_{c,t}\right) + \delta_8 CONTROL_{f,t} + \varepsilon_{ct} + \mu_c \end{aligned} \quad (3b)$$

where subscipts of f, t and c denote firm, time and country; μ_c is unobserved firm-specific effect; ε_{ct} is error term that is assumed to be normally distributed with mean 0 and variance σ^2; $GROWTH_{f,t}$ is firm annual growth, $GROWTH_{f,t-1}$ is lagged annual firm growth, $EXTFIN_{f,t}$ is firm's external financiag dependence, $GO_{f,t}$ is firm's growth opportunities, $INS_{c,t}$ is country's quality institutions, $EXTFIN_{f,t} * INS_{c,t}$ is the interaction term between firm's external financing and country's institutions, $CONTROL_{f,t}$ includes various control variables such as firm size; current ratio; financial leverage; financial slack and profitability. More detailed explanations on interaction terms used are available upon request.