The Interplay of Foreign Direct Investment and Financial Development on Economic Growth: Evidence from Asian Countries

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Abstract:

Much of Asia's economic progress over the last twenty years has been put down to foreign direct investment (FDI) and financial development. What is less settled is whether the two work together or against each other when it comes to growth, and Asia, with its mix of very poor and very rich economies, is a good place to ask that question. We use panel data on 42 Asian countries for 2000 to 2021 from the World Bank's World Development Indicators and look at how FDI and financial development, separately and together, affect GDP growth per capita.

Financial development is measured in two ways, by liquid liabilities in one model and by domestic private credit in the other, and the Hausman test favours fixed effects in both cases. Neither FDI nor financial development helps growth by itself. The FDI coefficient is insignificant, and once time-fixed effects are added it turns negative, which suggests that foreign capital may displace domestic investment in countries that cannot absorb it well. Financial development on its own is negatively related to growth, as the "too much finance" literature would predict. The interaction of the two is a different story. It is positive and statistically significant, so FDI seems to pay off when the host country has a financial system able to put the money to productive use. In least developed countries, where institutions are weak and financial systems shallow, this complementary effect is much weaker.

Keywords: Foreign Direct Investment (FDI), Financial Development, Economic Growth, Asian Countries, Panel Data Analysis

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1.0 Introduction

Asia has gone through a major economic transition over the past two decades. Many Asian countries have seen rising incomes, expanding industries and closer economic ties with the rest of the world, and much of this progress has been attributed to two factors: foreign direct investment (FDI) and financial development. FDI is long-term cross-border investment by individuals, firms or multinational companies from one country into another. Besides transferring capital, FDI brings technology, managerial skills, innovation and employment opportunities, all of which can raise economic growth. Financial development, on the other hand, refers to the process by which a country's financial and banking system grows in size and becomes more effective at mobilizing savings and allocating them efficiently.

Both FDI and financial development can affect economic growth on their own, but their combined effect may be considerably larger. According to Endogenous Growth Theory, FDI contributes to growth by bringing modern technology, managerial know-how and industrial skills to the host country. Where the financial system is well developed, these gains can be larger, since credit is easier to get, funds go to better uses and information costs fall. This is why many authors treat financial development as something a country needs before FDI can pay off fully.

Our motivation is simple. FDI and financial development have both grown in importance around the world, and both are usually counted among the drivers of growth in developing and emerging economies. With capital moving across borders in larger amounts and financial systems becoming more complicated, economists and policymakers need to know how the two interact and whether that interaction helps growth.

We think Asia is a good place to study this. Some of the world's fastest-growing economies sit in the same region as least developed and developed countries, so the link between FDI, finance and growth can be compared across very different levels of development. Even so, there is not much clear evidence on whether financial development strengthens or weakens the growth effect of FDI in Asian countries, and even less for recent years.

This paper looks at the individual and combined effects of FDI and financial development on economic growth in 42 Asian countries from 2000 to 2021. We have four aims: (i) to estimate the direct effect of FDI on growth; (ii) to estimate the direct effect of financial development on growth, measured once by liquid liabilities and once by domestic private credit; (iii) to test whether FDI and financial

development interact in their effect on growth; and (iv) to see whether that interaction differs between least developed, developing and developed Asian countries.

The paper is organized as follows. Section 2 sets out the theory, and Section 3 reviews the literature and states the hypotheses. The data and methods are described in Section 4. Section 5 reports the results and Section 6 discusses them. Section 7 concludes and draws out policy implications, and Section 8 covers limitations and future research.

2.0 Theoretical Background

A number of theories link financial development, FDI and economic growth. The FDI side is explained mainly by growth theories. For the finance side, the finance-led growth theory and the financial repression theory are the usual starting points.

Endogenous Growth Theory (Romer, 1986; Lucas, 1988) sees FDI as a way for multinational corporations to pass on modern technology, management skills, production methods, organizational practices and knowledge of global markets to host countries. Domestic firms pick these up through spillovers. They become more competitive and more productive, workers gain skills, and innovation increases. On this view FDI supports long-run growth through both capital accumulation and productivity. Neoclassical growth theory is less optimistic: FDI can raise output in the short run but leaves the long-run growth rate unchanged. Dependency Theory (Prebisch, 1950; Frank, 1966) is more critical still. It argues that FDI can hold developing countries back, because foreign firms exploit the host economy, push out domestic investment and send their profits home.

For financial development, the finance-led growth theory (McKinnon, 1973; Shaw, 1973) treats a sound financial system as an engine of growth. It mobilizes savings, puts funds where they are most productive, encourages investment, lowers transaction costs and helps manage risk. Later work adds a caveat: beyond some point, more finance can hurt growth, depending on the structure of the economy (Arcand et al., 2015). The combined effect of financial development and FDI is covered by Absorptive Capacity Theory and Endogenous Growth Theory. The argument is that a host country gets more out of FDI when its financial system can channel funds well, support local businesses and help domestic firms take up new technology.

We test these theoretical views on Asian data and add to the limited evidence on how financial development, FDI and growth are related in the region.

3.0 Literature Review and Hypothesis Development

3.1 Literature

A good deal of research has looked at how financial development, FDI and economic growth are linked, much of it on developing and emerging economies. The results are far from settled. Depending on the countries and years studied, the effects come out positive, negative or insignificant.

Many studies have examined the direct relationship between FDI and growth, some for a single country and others for groups of countries. Among single-country studies, Koojaroenprasit (2012) examined South Korea over 1980 to 2009 and found that FDI had a significant positive effect on economic growth, and Shahbaz and Rahman (2010) reported similar findings for Pakistan. In contrast, Asheghian (2011), using the Beach-MacKinnon approach and Canadian time-series data for 1976 to 2008, found no relationship between FDI and economic growth.

Among multi-country studies, Borensztein et al. (1998) used data on 69 developing countries and concluded that FDI raises growth, but only when the host country has enough human capital to absorb advanced technologies. Blomstrom et al. (1992) also found that FDI has a favourable effect on growth, particularly in higher-income developing countries.

In contrast, Herzer and Klasen (2008), in their paper "In search of FDI-led growth in developing countries: The way forward", examined 28 developing countries and found that FDI had no statistically significant long-run effect on growth. They also found no consistent relationship between the growth effect of FDI and domestic factors such as per capita income, educational attainment, trade openness or financial market development.

Studies on the direct relationship between financial development and growth also report different results. Levine et al. (2000) found that financial development has a significant positive effect on growth, using private credit, commercial bank assets and liquid liabilities as proxies. Cecchetti and Kharroubi (2012) challenged the view that financial growth is always beneficial. Using private credit to GDP as the measure of financial development, they found an inverted U-shaped relationship in which a larger financial sector reduces growth beyond a certain point. Gizaw et al. (2024) found that financial development has a positive but insignificant effect on growth in 28 emerging African and Asian countries. According to Rajan and Zingales (1998), financial development mainly helps industries that rely heavily on external finance, so its effect differs from sector to sector. Ductor and Grechyna

(2015) studied 101 developed and developing countries and found the relationship to be non-linear, while Hassan et al. (2011) found a positive link in developing countries. So the evidence on finance and growth is still inconclusive.

More recent studies look at FDI and financial development together, in samples of both developing and developed countries. Alfaro et al. (2004) used data on 71 countries and found that FDI does not promote growth by itself; its effect depends mostly on how developed local financial markets are. Where those markets are weak and inefficient, countries struggle to capture the long-term benefits of FDI.

Campos and Kinoshita (2002) reached a similar conclusion for 25 transition economies, where FDI did more for growth in countries with better established domestic markets and financial institutions. Acquah and Ibrahim (2020) studied 45 African countries and found that the relationship runs both ways. Growth raises the demand for a deeper financial sector, and stronger banks and financial institutions draw in more foreign investment, which then adds to growth. For 44 Asian and Oceanian countries over 1996 to 2005, Chee and Nair (2010) showed that FDI contributes to growth and that a strong local financial sector makes the effect larger. Their results imply that a country cannot benefit fully from foreign investment unless its financial system is sound.

Hermes and Lensink (2003), in "Foreign Direct Investment, Financial Development and Economic Growth", used a sample of 67 developing countries, many of them in Latin America and Asia, and found that an efficient financial system raises growth by allowing countries to take advantage of FDI.

Other studies find little support for this complementarily. Durham (2004) found no statistically significant growth effect from the interaction between FDI and banking-sector development, and Carkovic and Levine (2005) concluded that the growth effect of FDI does not depend significantly on financial sector development. These mixed results leave the question open.

On gross capital formation, Solow (1956) showed that long-run growth is driven largely by investment, which raises the capital stock and productive capacity. Levine and Renelt (1992) found investment to be one of the few robust determinants of growth. Because gross capital formation captures investment in infrastructure, machinery and equipment, it is widely treated as a key determinant of economic growth.

Trade openness gives firms access to larger markets, lets countries specialize and helps knowledge move across borders, and most empirical work finds that it raises

growth. Sachs and Warner (1995) found that open economies reach higher incomes and grow faster over the long run. Panagariya (2003) came to the same view, arguing that trade liberalization raises employment, productivity and efficiency.

The usual finding for government consumption is negative. In a study of 98 countries over 1960 to 1985, Barro (1991) found that higher government consumption lowers growth, because heavy public consumption reduces private investment and makes the economy less efficient. Fatás and Mihov (2001) and Alesina et al. (2002) report results in the same direction.

Growth studies often use secondary school enrollment to measure human capital, and the relationship is usually positive. Barro (1991) found that human capital supports growth, and Hanushek and Kimko (2000) came to much the same conclusion.

Population affects growth through the size of the labour force, consumer demand and the resources available for production. Both growth theory and empirical work (Solow, 1956; Barro, 1991; Barro and Sala-i-Martin, 2004) generally find that when population grows faster, per capita income grows more slowly.

3.2 Hypothesis Development

Building on the literature above, this study re-examines the unresolved relationships among financial development, FDI and economic growth in 42 Asian countries over 2000 to 2021. The following hypotheses are tested.

Hypothesis-1:

FDI is widely seen as a driver of growth. It supports capital accumulation, technology transfer, managerial skills and productivity, and Endogenous Growth Theory holds that these knowledge and technology spillovers promote long-run growth. Higher FDI is therefore expected to raise growth, although Dependency Theory predicts the opposite. The direction of the effect is thus an empirical question.

Null Hypothesis: "*There is no significant impact of Foreign Direct Investment (FDI) on economic growth in Asian countries.*"

Alternate Hypothesis: "*There is a significant impact of Foreign Direct Investment (FDI) on economic growth in Asian countries.*"

Hypothesis-2:

The finance-growth hypothesis holds that a well-functioning financial system raises growth by making financial institutions and markets more effective. Excessive or

inefficient financial development, however, can harm the economy through misallocation of resources and financial instability. The relationship can therefore be either positive or negative.

Null Hypothesis: "*There is no significant impact of Financial Development on economic growth in Asian countries.*"

Alternate Hypothesis: "*There is a significant impact of Financial Development on economic growth in Asian countries.*"

Hypothesis-3:

FDI and financial development may also affect growth through their interaction. According to Absorptive Capacity Theory, countries with more developed financial markets and institutions get more out of FDI. We therefore expect the interaction term to be positive and significant.

Null Hypothesis: "*FDI and Financial Development do not have a significant combined impact on economic growth in Asian countries.*"

Alternate Hypothesis: "*FDI and Financial Development have a significant combined impact on economic growth in Asian countries.*"

Hypothesis-4:

The combined effect of FDI and financial development is expected to differ across countries at different stages of development, because countries with deeper financial systems and stronger institutions should be better able to convert FDI into growth. In this study, stage of development is measured by country group (least developed countries, developing countries and developed countries), following the classification described in Section 4.3. The hypothesis is tested with two interaction terms, LDC×FDI×FD and DC×FDI×FD, which show how the combined effect in least developed and developing countries differs from that in developed countries, the reference group.

Null Hypothesis: "*The combined effect of FDI and Financial Development on economic growth does not differ significantly across least developed, developing and developed Asian countries.*"

Alternate Hypothesis: "*The combined effect of FDI and Financial Development on economic growth differs significantly across least developed, developing and developed Asian countries.*"

4.0 Methodology

4.1 Research Questions

The study examines the individual and combined effects of FDI and financial development on economic growth in Asian countries, and whether the combined effect is the same for countries at different stages of development. It addresses four research questions, which correspond to Hypotheses 1 to 4:

RQ1: Does FDI have a significant effect on economic growth in Asian countries?

RQ2: Does financial development, measured by liquid liabilities and by domestic private credit, have a significant effect on economic growth in Asian countries?

RQ3: Does the interaction between FDI and financial development have a significant effect on economic growth?

RQ4: Does the combined effect of FDI and financial development differ across least developed, developing and developed Asian countries?

4.2 Study Period and Sources of Data

The study uses annual panel data for 42 Asian countries over the 22 years from 2000 to 2021. All variables are secondary data taken from the World Development Indicators (WDI) of the World Bank. The sample ends in 2021 because, when the data were compiled, it was the latest year for which the WDI had reasonably complete coverage of the key variables for most countries in the sample. Coverage for later years was still incomplete for several countries, especially for broad money, domestic credit to the private sector and gross secondary enrollment, which already has the fewest observations in the dataset (687; Table 5.1). Extending the period would therefore have produced a smaller and less balanced panel. The period still covers the main global shocks of the last two decades, including the 2008-09 global financial crisis and the COVID-19 pandemic in 2020.

4.3 Sample and Country Classification

The sample consists of 42 Asian countries. For Hypothesis 4, countries are grouped by stage of development rather than by a continuous income measure. Following the country classifications of UN Trade and Development (UNCTAD) and the World Bank's classification of economies by income level, each country is assigned to one of three groups: least developed countries (7), developing countries (29) and

developed countries (6). Two dummy variables are constructed from this grouping. LDC equals 1 for a least developed country and 0 otherwise, and DC equals 1 for a developing country and 0 otherwise, so developed countries form the reference group. Each dummy is multiplied by the FDI-financial development interaction term (Table 4.1). The coefficients on LDC×FDI×FD and DC×FDI×FD therefore show how the combined effect in least developed and developing countries differs from the effect in developed countries.

4.4 Measurement of Variables

Table 4.1 describes each variable used in the study. The variables are grouped into the dependent variable, independent variables, interaction variables and control variables.

Table 4.1 Measurement of Variables

Variable Type	Variable Name	Definition
Dependent Variable	GDP Growth	GDP growth per capita (annual %). -Here the variable serves as a proxy of economic growth.
Independent Variable	Foreign Direct Investment	FDI inflows (% of GDP). -FDI is the investment by foreign individuals, firms and companies.
	Liquid Liabilities (Financial Development)	Liquid Liabilities (Broad Money-M3) % of GDP. -Broad money is the money available in the economy. This variable reflects the size and depth of a country's financial system. And here it is used as a proxy of financial development.
	Private Credit (Financial Development)	Domestic Credit provided by the FIs and Banks, % of GDP. -This variable indicates the financial resources that are provided to the private sectors by the financial institutions and banks. And here it is used as a proxy of financial development.

Interaction Variable	Foreign Direct Investment* Liquid Liabilities	Product of FDI and Liquid Liabilities. To test the significance of the nexus.
	Foreign Direct Investment* Private Credit	Product of FDI and Private Credit. Alternative way to test the significance of the nexus.
	Least Developed Country* Foreign Direct Investment* Liquid Liabilities	Product of LDC, FDI and Liquid Liabilities. Interaction term restricted to LDC only.
	Developing Country*Foreign Direct Investment*Liquid Liabilities	Product of DC, FDI and Liquid Liabilities. Interaction term restricted to DC only.
	Least Developed Country* Foreign Direct Investment* Private Credit	Product of LDC, FDI and Private Credit. Interaction term restricted to LDC only.
	Developing Country* Foreign Direct Investment* Private Credit	Product of DC, FDI and Private Credit. Interaction term restricted to DC only.
Control Variable	Gross Capital Formation	Gross Capital Formation % of GDP. Proxy of Domestic Investment. -This variable reflects investment in tangible assets like machines and infrastructure and equipment
	Government Consumption	Government Final Consumption Expenditure % of GDP. -This variable reflects the Government spending for public services.
	Trade	Trade % of GDP. -This variable incorporates the sum of export and import.
	Secondary Enrollment	Gross Secondary Enrollment ratio (%). -This variable serves as a proxy of human capital.
	Population Growth	Annual Population Growth (%).

Source: Authors' Compilation

4.5 Analytical Techniques

The analysis uses descriptive statistics, a correlation matrix, a multicollinearity test (variance inflation factor), a heteroscedasticity test, the Hausman test, and panel regressions estimated with random effects, fixed effects and two-way (country and time) fixed effects.

4.6 Model for the Research

Two proxies are used for financial development, so two models are estimated.

Model 1 uses liquid liabilities as the proxy for financial development:

$$GDPGrowth = \beta_0 + \beta_1 FDI + \beta_2 LiqLiab + \beta_3 (FDI*LiqLiab) + \beta_4 (LDC*FDI*LiqLiab) + \beta_5 (DC*FDI*LiqLiab) + \beta_6 GroCap + \beta_7 GovCon + \beta_8 Trade + \beta_9 SeconEn + \beta_{10} PopGro + \varepsilon_{it}$$

Model 2 uses domestic private credit provided by financial institutions and banks as the proxy for financial development:

$$GDPGrowth = \beta_0 + \beta_1 FDI + \beta_2 PrivCre + \beta_3 (FDI*PrivCre) + \beta_4 (LDC*FDI*PrivCre) + \beta_5 (DC*FDI*PrivCre) + \beta_6 GroCap + \beta_7 GovCon + \beta_8 Trade + \beta_9 SeconEn + \beta_{10} PopGro + \varepsilon_{it}$$

Here, FDI = foreign direct investment; LiqLiab = liquid liabilities; PrivCre = private credit; LDC = least developed country dummy; DC = developing country dummy; GroCap = gross capital formation; GovCon = government consumption; Trade = trade openness; SeconEn = secondary enrollment; PopGro = population growth; and εit = error term. FDI*LiqLiab and FDI*PrivCre are the interaction terms between FDI and financial development, and LDC*FDI*LiqLiab, DC*FDI*LiqLiab, LDC*FDI*PrivCre and DC*FDI*PrivCre are the corresponding interaction terms for least developed and developing countries.

5.0 Results and Findings

5.1 Summary Statistics

Table 5.1 reports the number of observations, mean, standard deviation, minimum and maximum of each variable. These statistics give a first view of the central tendency, dispersion and range of the data before the regression analysis.

Table 5.1 Descriptive Statistics

Variable	Obs	Mean (%)	Std. Dev (%)	Min (%)	Max (%)
GDP Growth	920	2.9319	6.4839	-38.5382	77.0895
Foreign Direct Investment	915	3.7527	5.8420	-37.1726	55.0728
Liquid Liabilities	870	69.2570	50.2647	7.03616	287.8542
Private Credit	872	54.1535	41.6168	1.2660	193.9563
Gross Capital Formation	849	28.1217	9.5505	1.4292	70.3349
Government Consumption	859	16.1405	13.0688	2.3601	147.735
Trade	859	91.5882	57.7643	19.5596	437.3267
Secondary Enrollment	687	79.2536	21.1025	13.9595	124.3306
Population Growth	924	1.8624	2.1755	-11.3566	21.7003

Source: Authors' Calculation

GDP growth per capita, the dependent variable, has a mean of 2.93% and a standard deviation of 6.48, which shows wide variation in growth across countries and over time. The three main independent variables, FDI, liquid liabilities and private credit, also show moderate to high dispersion, with means of 3.75%, 69.26% and 54.15% of GDP respectively.

Among the control variables, trade has the largest absolute dispersion, with a mean of about 91.6% of GDP and a standard deviation of about 57.8. Taken together, the data show considerable variation both across countries and over time.

5.2 Correlation Analysis

Table 5.2 reports the pairwise correlation coefficients. Liquid liabilities and private credit are highly correlated (0.841), which is expected because both measure financial development, so they are used in separate models. GDP growth is positively correlated with FDI, government consumption, gross capital formation and trade, and negatively correlated with liquid liabilities, private credit, secondary enrollment and population growth. Apart from the two financial development proxies, the correlations among the explanatory variables are low to moderate (the highest is 0.514, between FDI and trade), so multicollinearity is unlikely to be a serious problem.

Table 5.2 Correlation Analysis

	GDPGro	**FDI**	**LiqLiab**	**PriCre**	**GroCap**	**GovCon**	**Trade**	**SeconEn**	**PopGr**
GDPGro	1.000								
FDI	0.181*	1.000							
LiqLiab	-0.126*	0.042	1.000						
PriCre	-0.132*	0.046	0.841*	1.000					
GroCap	0.192*	0.177*	0.052	0.091*	1.000				
GovCon	0.031	-0.103*	-0.029	-0.080*	0.100*	1.000			
Trade	0.042	0.514	0.109*	0.225*	-0.018	0.049	1.000		
SeconEn	-0.128*	0.151*	0.137*	0.382*	0.099*	0.027	0.200*	1.000	
PopGro	-0.324*	-0.038	-0.082*	-0.121*	-0.044	0.069*	0.116*	-0.023	1.000

Source: Authors' Calculation

5.3 Multicollinearity Test

Multicollinearity arises when the independent variables in a regression are highly correlated with each other. It is checked with the variance inflation factor (VIF), computed in Stata.

Table 5.3 reports the VIF values for Model 1, which uses liquid liabilities as the proxy for financial development.

Table 5.3 Variance Inflation Factor (Model-1)

Variable	VIF	1/VIF
FDI*Liquid	7.35	0.136100
FDI	4.05	0.246848
DC*FDI*Liq	3.66	0.273240
LiquidLiab	2.38	0.420524
TradeOpenn	1.69	0.590489
LDC*FDI*Liq	1.25	0.799113
SecondEnroll	1.23	0.813288
Government	1.10	0.911469
GrossCapital	1.09	0.914743
PopulationGro	1.05	0.950059
Mean VIF	2.49	

Source: Authors' Calculation

Table 5.4 reports the VIF values for Model 2, which uses domestic private credit as the proxy for financial development.

Table 5.4 Variance Inflation Factor (Model-2)

Variable	VIF	1/VIF
FDI	5.07	0.197343
FDI*Private	4.87	0.205246
PrivateCre	2.20	0.454105
DC*FDI*Priv	2.15	0.465153
TradeOpenn	1.84	0.543772
SecondEnroll	1.32	0.758488
LDC*FDI*Priv	1.28	0.783330
Government	1.13	0.887191
GrossCapital	1.10	0.909594
PopulationGro	1.07	0.933566
Mean VIF	2.20	

Source: Authors' Calculation

A VIF above 10 is usually taken as a sign of serious multicollinearity. In both models all VIF values are below 10 (the largest is 7.35, for FDI*LiqLiab in Model 1) and the mean VIFs are 2.49 and 2.20, so multicollinearity is not a concern.

5.4 Heteroscedasticity Test

The Breusch-Pagan/Cook-Weisberg test is used to check whether the error variance is constant across observations.

Table 5.5 Heteroscedasticity Test (Model-1)

	Coef.
Chi2(1)	0.01
Prob > chi2	0.9396

Source: Authors' Calculation

For Model 1 (liquid liabilities), the p-value is 0.9396 (Table 5.5), so the null hypothesis of constant variance cannot be rejected at the 5% level and there is no evidence of heteroscedasticity.

Table 5.6 Heteroscedasticity Test (Model-2)

	Coef.
Chi2(1)	0.08
Prob > chi2	0.7716

Source: Authors' Calculation

For Model 2 (domestic private credit), the p-value is 0.7716 (Table 5.6), which likewise gives no evidence of heteroscedasticity at the 5% level.

5.5 Hausman Test

The Hausman test is used to choose between fixed effects and random effects estimation. Under the null hypothesis the random effects estimator is consistent and efficient; if the null is rejected, the fixed effects model is preferred.

For both models the p-value is below 0.05 (0.0003 for Model 1 and 0.0018 for Model 2; Tables 5.7 and 5.8), so the null hypothesis is rejected and fixed effects regression is used for both models.

Table 5.7 Hausman Test (Model-1)

	Coef.
Chi2 (10)	32.46
Prob > chi2	0.0003

Source: Authors' Calculation

Table 5.8 Hausman Test (Model-2)

	Coef.
Chi2 (10)	28.03
Prob > chi2	0.0018

Source: Authors' Calculation

5.6 Regression Analysis

5.6.1 Model-1

Based on the Hausman test, Model 1 is estimated with fixed effects. This approach controls for unobserved country characteristics that do not change over time, such as institutional quality, geography and culture, which may affect growth.

Table 5.9 reports the fixed effects results for Model 1, where liquid liabilities proxy financial development. The R-squared is 0.1778, meaning that the explanatory variables account for about 17.8% of the variation in GDP growth per capita. The F-test (Prob > F = 0.000) shows that the explanatory variables are jointly significant.

Table 5.9 Results of Fixed Effects Regression (Model-1)

Value	Coef.	Std. Err	t-value	p-value	[95% Conf. Interval]	
FDI	-.0416	.1120	-0.37	0.710	-.2617	.1783
LiqLiab	-.0567	.0137	-4.14	0.000	-.0837	-.0298
FDI*LiqLiab	.0066	.0032	2.05	0.041	.0002	.0129
LDC*FDI*LiqLiab	-.0112	.0037	-2.97	0.003	-.0187	-.0038
DC*FDI*LiqLiab	-.0049	.0031	-1.58	0.115	-.0111	.0012
GrossCap	.0872	.0366	2.38	0.018	.0152	.1592
GovernCon	-.1813	.0457	-3.96	0.000	-.2711	-.0914
Trade	.0672	.0130	5.17	0.000	.0416	.0927
SecondEnroll	.0009	.0229	0.04	0.969	-.0440	.0458
Popgrowth	-.7678	.1096	-7.00	0.000	-.9832	-.5523
Constant	2.397	2.242	1.07	0.285	-2.006	6.801
R-square			0.1778			
F-test			12.03			
Prob>F			0.0000			

Source: Authors' Calculation

FDI has a negative but insignificant coefficient (p = 0.710). In other words, we find no direct effect of FDI on growth in Asian countries over 2000 to 2021, and the random effects estimate tells the same story. This fits with earlier work showing that FDI does not lift growth automatically. Capital inflows by themselves are not enough, and where the complementary conditions in the host country are weak, the potential gains can be lost.

Liquid liabilities have a negative and significant coefficient under both fixed and random effects, meaning that countries with a higher liquid liabilities ratio tend to grow more slowly. This matches the "too much finance" effect described by Arcand

et al. (2015). If credit is misallocated, the financial sector is inefficient, loans go to unproductive activities or institutions are weak, the financial system does little to support growth.

In the fixed effects model the interaction between FDI and liquid liabilities is positive and significant (p = 0.041). A more developed financial system, then, raises the growth payoff from FDI. What matters is not only how much foreign capital comes in but whether the domestic financial system can move it into productive uses. The random effects estimate does not confirm this. The interaction for least developed countries (LDC*FDI*LiqLiab) is negative and significant (p = 0.003), which means the combined effect is weaker there than in developed countries. Many least developed countries lack strong institutions, skilled workers and efficient financial systems, and this limits what they gain from FDI. For developing countries the term is also negative but not significant (p = 0.115), so there is no clear evidence that developing countries differ from developed countries.

Among the control variables, gross capital formation and trade have positive and significant effects on growth, reflecting their contribution to productive investment, employment and output. Government consumption is negative and significant, consistent with the view that consumption spending contributes little to long-run productivity. Population growth has a negative and significant effect, as faster population growth puts pressure on available resources and productive capacity. Secondary enrollment, the proxy for human capital, has a positive but insignificant coefficient (0.0009, p = 0.969). A likely reason is limited data: secondary enrollment has the fewest observations of any variable (687; Table 5.1), which reduces the precision of the estimate.

5.6.2 Model-2

Model 2 is also estimated with fixed effects, based on the Hausman test. The R-squared is 0.1804, so the explanatory variables account for about 18.0% of the variation in GDP growth per capita, and the F-test (Prob > F = 0.000) shows that they are jointly significant (Table 5.10).

Table 5.10 Results of Fixed Effects Regression (Model-2)

Value	Coef.	Std. Err	t-value	p-value	[95% Conf. Interval]	
FDI	-.1331	.1216	-1.09	0.274	-.3721	.1058
PrivCre	-.0763	.0145	-5.23	0.000	-.1050	-.0477
FDI*PrivCre	.0082	.0038	2.13	0.033	.0006	.0158
LDC*FDI*PrivCre	-.0069	.0043	-1.58	0.114	-.0155	.0016
DC*FDI*PrivCre	-.0050	.0038	-1.30	0.193	-.0126	.0025
GrossCap	.0836	.0365	2.29	0.023	.0117	.1554
GovernCon	-.1689	.0463	-3.64	0.000	-.2600	-.0779
Trade	.0677	.0129	5.22	0.000	.0422	.0932
SecondEnroll	.0331	.0249	1.33	0.185	-.0158	.0821
Popgrowth	-.8190	.1104	-7.41	0.000	-1.036	-.6019
Constant	-.0031	2.248	-0.00	0.999	-4.419	4.413
R-square			0.1804			
F-test			12.26			
Prob>F			0.0000			

Source: Authors' Calculation

Model 2 uses domestic private credit as the proxy for financial development. Its results are broadly consistent with those of Model 1 under both fixed and random effects. The main difference is the interaction term for least developed countries (LDC*FDI*PrivCre), which is negative but not significant (p = 0.114). Private credit, the interaction between FDI and private credit, government consumption, gross capital formation, trade and population growth are all significant. A one percentage point increase in private credit (% of GDP) is associated with a 0.076 percentage point decrease in GDP growth per capita. One percentage point increases in gross capital formation and trade (% of GDP) are associated with increases in GDP growth per capita of 0.084 and 0.068 percentage points respectively. In contrast, one percentage point increases in government consumption (% of GDP) and population growth lower GDP growth per capita by 0.169 and 0.819 percentage points respectively. Secondary enrollment again has a positive but insignificant coefficient (0.0331, p = 0.185).

5.7 Time Fixed Effects Regression

Country fixed effects control for time-invariant country characteristics, and adding year fixed effects also controls for shocks that affect all countries in a given year. With both country and year effects, the R-squared rises to 33.70% for Model 1 and 32.78% for Model 2. The higher explanatory power suggests that common shocks, such as global financial crises, commodity price swings and the pandemic, are important drivers of growth. The F-tests for the two models are reported in Table 5.11.

Table 5.11 F-test Results of Time Fixed Effects Regression

	Model-1	Model-2
F (31, 535)	8.77	8.43
Prob > F	0.000	0.000

Source: Authors' Calculation

In both models the direct effect of FDI becomes negative and statistically significant. This suggests that higher FDI inflows can reduce growth, for example through crowding out of domestic investment, market concentration or a shortage of skilled local labour. Liquid liabilities lose their significance once year effects are added, but private credit stays significantly negative. Overall, these results are close to the country fixed effects estimates.

Even after controlling for year effects, the interaction between FDI and financial development stays positive and significant in both models. This again suggests that how much FDI helps growth depends on how developed the financial system is. In both models the interaction for least developed countries turns negative, possibly because of poor credit management, badly planned financial spending and weak regulation. The control variables keep the same signs and significance.

The year effects pick up global shocks that hit every country at once, and the pattern is much the same in both models. The 2004 coefficient is positive and significant, in line with the global boom of those years. The 2009 coefficient is negative and significant in both models, which reflects the global financial crisis. The 2020 coefficient is negative and significant too, as the COVID-19 pandemic cut GDP growth per capita by about 7.6 percentage points in Model 1 and 6.6 percentage points in Model 2.

6.0 Discussion and Analysis

Along with capital, FDI can bring advanced technology, managerial expertise and production techniques that help domestic businesses. It can also crowd out domestic investment, and when that happens growth suffers. Countries with limited absorptive capacity, in financial development, human capital or technology, gain less from FDI in any case. Dependency Theory (Prebisch, 1950; Frank, 1966) goes further, arguing that FDI can make economic conditions worse where institutions, governance and financial systems are weak. With effects pulling in both directions, the net relationship may well turn out insignificant. That is what our fixed effects estimates show: in both models the direct effect of FDI is insignificant, so FDI by itself does not raise growth in Asian countries. Carkovic and Levine (2005) report a similar negative but insignificant result, finding no significant independent effect of the exogenous component of FDI on growth. The benefit of FDI seems to be conditional. It tends to raise growth where countries already have enough skilled human capital, sound regulation and well-functioning financial systems, which is in line with Borensztein et al. (1998). Alfaro et al. (2004) also found the direct contribution of FDI to growth to be ambiguous in their sample of 71 countries. Once time fixed effects are added, though, both of our models show FDI reducing growth. We read this as a sign of crowding out of domestic investment, weak human capital, poor institutional quality and technological backwardness.

Financial development describes how well a country's financial system mobilizes savings, allocates capital, provides credit, manages risk and supports economic activity. With both of our proxies, liquid liabilities and domestic private credit, financial development by itself does not raise growth; it actually lowers it. Arcand et al. (2015) and Law and Singh (2014) report similar findings. For Asian countries there are a few likely reasons. Financial deepening past a certain level brings diminishing returns. Credit that goes to household consumption adds little to long-run output. And fast credit growth without proper supervision can lead to inflationary pressure, financial imbalances and crises.

The combined effect of FDI and financial development is best understood as a complementary interaction. Endogenous Growth Theory (Romer, 1986; Lucas, 1988) holds that FDI benefits the host country when it has sufficient absorptive capacity. Financing for domestic firms that work with foreign investors, investment in the technology needed to adopt foreign know-how, and the resources that let domestic firms compete with foreign ones all depend on a developed financial system. A developed financial system therefore increases the benefits of FDI and, in turn, growth. Our results from both models support this view, as the interaction between FDI and financial development is positive and significant. This agrees with Alfaro et al. (2004) and Hermes and Lensink (2003), and with Beck et al. (2000), who

found that a strong financial system allocates capital more efficiently. For least developed countries, however, the combined effect is significantly weaker in Model 1, reflecting weak and inefficient financial systems, limited technological adaptation and poor allocation of capital. In Model 2 the difference for least developed countries is not significant.

The control variables behave as expected from the empirical literature. Gross capital formation (domestic investment) and trade both raise growth. Domestic investment in productive sectors increases output and employment, and trade allows countries to exploit comparative advantage. Government consumption, which covers day-to-day spending on defence, public administration, public sector wages and public services, yields few long-term benefits and lowers growth; when public spending is oriented toward consumption rather than investment, it tends to weigh on the economy. Population growth reduces growth by putting pressure on domestic resources, employment, the environment and productive capacity. Secondary enrollment has a positive but insignificant coefficient in both models (Tables 5.9 and 5.10). This differs from studies that find a significant positive effect of human capital (Barro, 1991; Hanushek and Kimko, 2000), probably because of the large number of missing observations for this variable. Table 6.1 summarizes the results of the hypothesis tests.

Table 6.1 Summary Table

<table>
<tr><th rowspan="2">Hypothesis</th><th rowspan="2">Details</th><th colspan="3">Results</th></tr>
<tr><th colspan="2">P-value</th><th>Decision</th></tr>
<tr><td>1.</td><td>There is no significant impact of Foreign Direct Investment (FDI) on economic growth in Asian countries.</td><td colspan="2">Model-1: P-value= .710
Model-2: P-value= .274</td><td>Fail to reject</td></tr>
<tr><td>2.</td><td>There is no significant impact of Financial Development on economic growth in Asian countries.</td><td colspan="2">Model-1: P-value= .000
Model-2: P-value= .000</td><td>Reject</td></tr>
<tr><td>3.</td><td>There is no significant combined impact of FDI and Financial Development on economic growth in Asian countries.</td><td colspan="2">Model-1: P-value= .041
Model-2: P-value= .033</td><td>Reject</td></tr>
<tr><td rowspan="4">4.</td><td rowspan="4">The combined effect of FDI and Financial Development on economic growth does not differ across least developed, developing and developed Asian countries. (Partially rejected: significant difference for least developed countries in Model 1 only.)</td><td rowspan="2">Model-1</td><td>P-value=.003 (LDC)</td><td>Reject</td></tr>
<tr><td>P-value=.115 (DC)</td><td>Fail to reject</td></tr>
<tr><td rowspan="2">Model-2</td><td>P-value=.114 (LDC)</td><td>Fail to reject</td></tr>
<tr><td>P-value=.193 (DC)</td><td>Fail to reject</td></tr>
</table>

Source: Authors' Compilation

7.0 Conclusion

This paper examines the individual and combined effects of FDI and financial development on economic growth in 42 Asian countries over 2000 to 2021, controlling for government consumption, gross capital formation, trade, secondary enrollment and population growth. FDI on its own has no significant effect on growth and becomes negative once common time shocks are controlled for. Financial development on its own is associated with lower growth. The interaction between FDI and financial development, however, is positive and significant in both models. FDI raises growth more in economies with deeper and more effective financial systems, because such systems help absorb, distribute and productively use foreign capital and technology. In least developed countries this combined effect is weaker (significantly so in Model 1), which points to their less efficient financial systems. The capacity of financial intermediaries is therefore an important condition for FDI to contribute to long-run growth.

These findings have several implications for policy. First, bringing in FDI is only half the job. Tax holidays and other incentives for foreign investors should come with steps to strengthen the domestic financial system, so that foreign capital reaches local firms and ends up in productive investment.

Second, because financial development alone is linked to lower growth, policy should aim at better finance, not simply more of it. Regulators should improve how credit is allocated, supervised and managed for risk, and should discourage credit growth that mostly funds consumption or unproductive activities.

Third, least developed countries need to build basic financial and institutional capacity, such as sound banking regulation, access to credit for domestic firms and a skilled workforce, before large FDI inflows can deliver growth. For these countries, financial sector reform should go hand in hand with investment promotion.

Finally, the positive effects of domestic investment and trade and the negative effect of government consumption suggest that governments should shift public spending from consumption toward investment and keep trade policy open.

8.0 Future Scope for Research

This study has some limitations. The sample ends in 2021, the latest year with reasonably complete WDI data for the variables used, and it includes the COVID-19 shock and several geopolitical events that may influence the results. Future research could extend the sample as more recent data become available, to study post-

pandemic dynamics and the longer-term effects of pandemic-related disruptions on financial systems. Secondary enrollment data were missing for many country-years, so future work could also use alternative measures of human capital. Comparative studies of other regions, such as Latin America and Africa, would give a broader view of the FDI-financial development nexus.

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