

How Financial Development Caused Economic Growth in the APEC: Financial Integration with FDI OR Privatisation without FDI¹

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Abstract

Politicians fashionably argue in favour of financial development to promote economic growth following the seminal study of King and Levine (1993a, 1993b). Financial development, however, could come through alternative channels that are sometimes not compatible in small open economies. A relatively popular channel promotes privatisation of domestic financial intermediaries but with restrictions on foreign ownership. The other competing channel works through foreign direct investment (FDI) requiring foreign ownership of national assets. Until the last decade of globalisation, from sixties through early nineties, in many APEC countries and especially in the East Asia, privatisation of national banks went hand in hand with a regime of financial repressions. Under that regime governments kept the domestic interest rate above the world rate by imposing barriers against FDI. Recent trend in globalisation creates a political tension between those who welcome and the others who oppose FDI. This paper evaluates the relative contribution of those two alternative channels of financial development to economic growth. The model of analysis builds on King and Levine (1993b) but restricts its attention to small open economies of the APEC. Contrary to the previous findings, privatisation of domestic financial sector alone turns out to have a negative impact on the growth of efficiency measured by the growth of total factor productivity. This discrepancy could possibly be rationalised by a special characteristic of the APEC sample where a negative effect on efficiency came from the regimes of financial repression that blocked FDI. Financial integration led by FDI does bring the prospect of lower economic growth due to increased business fluctuations especially for the small open economies. Nevertheless, it is surprising to find that a significant improvement in efficiency and growth came to the APEC nations through the international channel with the flow of FDI. Consequently, barriers to globalisation out of a purely the nationalist concerns may be ill fated even for small open economies.

Key Words: FDI, Financial Integration, Privatisation, APEC, Efficiency, Growth Regression, Financial Development Indicators.

JEL Classification: C20, C82, F23, F36, F43, O16, O38

1. Introduction

Foreign Direct Investment (FDI) often takes the form of a one-way flow of capital and technology from a group of rich countries to the developing world. Conflicts of interests that stem from that unidirectional flow give rise to politically charged debates. The APEC experience, on the other hand, is an interesting case of distinction.

The eighteen members of the APEC account for more than fifty percent of the world's output. The USA and Japan, the two main sources of FDI in the world and China, one of the world's largest recipients of the FDI, are also members of a single entity, the APEC. FDI flows both ways among most of the other fifteen members, which are small open economies. Urata (2003) reports that the multidirectional flow of FDI has been an integrating force in the APEC promoting efficiency among its members. It brings financial resources for fixed investment that facilitates technology diffusion. It also offers alternative sources of finance to indigenous entrepreneurs who are otherwise constrained by the volume of capital that the domestic financial intermediaries can mobilise within their respective countries.

The emergence of the APEC coincides with a change in the global political atmosphere that has favoured structural changes also in the domestic financial institutions of the member countries. Those changes have been mostly complementary to a regional financial integration and hence suitable for attracting FDI. However, Urata (2003) notes that those changes have not been uniform and significant impediments to FDI exist even within the APEC. In a study about FDI in the South-East Asia, Ritchie (2002) reports that despite trade and financial liberalisations the countries have only limited success in leveraging foreign technology to foster economic growth.

The origin of such opposition to FDI can be traced to international politics. The strong national bias in some of the big sources of FDI induced by the influential members of the APEC such as the US and Japan generate cynicism among the opponents of FDI. They argue that the philosophy of liberalisation misses the important issue of national interests. For example, Bora and Graham (1997) note that "some individuals feel a sense of national loss when foreigners

acquire existing domestic companies.” Others raise concerns for undue increase in macroeconomic volatility in small open economies from a global financial integration. In a study conducted by the IMF, Prasad, et al, (2003) warn us about such possibility.

The FDI, however, supplies relatively less volatile and potentially plentiful source of capital. Noorbakhsh, Paloni and Youssef (2001) note that FDI serves to balance loan and equity capital in private investment without the heavy drag of debt service. This serves a nation especially well following a debt crisis.

Nevertheless, cynicism against political manipulations by the big players and concerns for macroeconomic fluctuations, adverse effects of changes in domestic institution on political stability, negative impacts on indigenous culture and environment have contributed to large fluctuations in FDI in the APEC. In particular, the FDI inflows to the developing East Asian members of the APEC show (see Table 1 below) a sharp increase from about \$70 billion in 1995 to more than \$90 billion in 1997, a sharp decrease in 1998 to \$82 billion, followed by a resurgence in the next two years but a sharp decline again in 2001.

Table 1: FDI Inflows into the APEC Economies in the East Asia (USD in billions)

	1995	1996	1997	1998	1999	2000	2001
FDI inflows	70.16	83.18	90.61	82.07	93.35	127.51	89.97

Source: UNCTAD, World Investment Report 1996-2002.

FDI brings into a country a significant volume of financial resources that is complementary to the managerial and technical knowledge from abroad. This complementarity between foreign technology and foreign capital plays a significant role in injecting growth spur in the recipient country. Nevertheless some of the highest barriers to FDI in some East Asian countries have been in the areas of financial services. Hardin and Holmes (1997) construct an index of barrier measured in equivalent units of advalorem taxes and report that barriers to

financial services could be as high as 95% in the Phillipines and 88% in Korea and Thailand. A similar index of barrier to FDI used by Petri (1997) implies that barriers in the area of services that include financial services, in particular, are about three times higher than manufacturing and three to five times higher than primary in the East Asian countries. Clearly, the flow FDI faces a significant resistance when it comes to offering financial services.

The opponents of FDI led financial integration argue that growth could be achieved as well with a better financial system at home following an influential finding by King and Levine (1993a): "*Better financial systems stimulate economic growth.*" However, King and Levine (1993a)'s result hold in a closed economy model. Consequently, the conclusion applies to the health of the global financial system as opposed to that of a country. It may be unwise, therefore, to control the flow of international credits that FDI brings into small open economies.

A political tension does exist, however, in the absence of a clear assessment of the contribution of the FDI that facilitates a regional financial integration relative to that of the liberalised national financial institutions when it comes to economic growth in a small open economy. The current political debate in the APEC regarding the potential contribution of FDI in small open economies of the East Asia would, therefore, benefit from such a study.

This paper does just that. In particular, based on the theoretical framework modelled in King and Levine (1993a and 1993b), it examines empirically the contribution of FDI led financial integration relative to contribution of the privatised domestic financial institutions to economic growth in small open economies of the APEC.

King and Levine use four special indicators to measure financial development. This paper identifies one of those indicators, the degree of privatisation of the domestic financial intermediaries, to most closely reflect the development of the domestic financial sector. It uses a combination of the remaining three indicators to measure how easily the private sector can access the international credit market as a result of FDI. It then compares the relative contribution of the two parallel sources of financial development to economic growth. The findings from this

comparative study offer significant evidence and important insights that are quite relevant for assessing the potential contribution of FDI in other small open economies of the developing world.

Following the introduction there is a brief review of the background literature. A discussion on the key variables, the methodology of the empirical analysis and data sources follows afterwards. The main findings and concluding remarks are summarised before the complete list of references. Appendix A contains a summary of findings from several regressions. Appendix B includes the complete data set and formulas for constructing variables used in this paper.

2. Theoretical Background

Recently theoretical models have linked financial development to long run economic growth not only through its positive effect on capital mobilisation but also through its beneficial effect on the total factor productivity in the economy.

Greenwood and Jovanovic (1990) emphasize the benefit of economies of scale in the processing of information on the marginal efficiency of investment that the financial intermediaries bring in as they develop over time. Bencivenga and Smith (1991) highlight the role of diversification of liquidity risk. Financial intermediaries pooled savings together to keep the level of liquid assets that investors prefer to leave to meet their unforeseeable liquidity risk to a minimum possible level. Consequently, it is possible to allocate a higher proportion of funds to finance innovative projects and this raises the total factor productivity or overall efficiency in the economy. Saint Paul (1992) emphasizes the role of the financial intermediaries in diversifying the risks of investment through technological and financial diversification. In the model a financial sector reduces the risk of specialized investment and, hence, increases the expected return from it, encouraging a higher rate of saving and investment in fully specialized capital that raises productivity in the economy. Pagano (1993) concludes that a greater efficiency of the

financial intermediaries implies that a higher proportion of available savings in the economy would be channelled to augment the economy's capital stock. King and Levine (1993b) argue that a more efficient financial intermediary sector channels a larger fraction of saving to finance a greater number of innovative projects. This increases the technological advancement rate and the growth rate of final goods.

The common experience in APEC includes increased privatisation of banks and insurance companies due to a lower government share in the total assets of the domestic financial intermediaries as well as increased internationalisation of the credit market due to FDI. Interestingly, most of the member countries in the East Asia allow the privatisation process to go hand in hand with a regime of financial repression. McKinnon (1973) provides a good reference for the idea of financial repression. This regime refers to a system of government policies designed to protect the profit of domestic financial institutions against international competition even when they allow competition among the local financial institutions. These policies effectively hold the domestic interest rate above the international market rate. The interest mark-up may help mobilize capital within the economy but would hinder the flow of FDI and technology diffusion, according to Stiglitz and Weiss (1981), by limiting the number of innovators within the economy. Consequently, it is not clear from the abstract theoretical perspective alone how growth has come to the APEC. We would need to design a model for empirical analysis to determine the importance of FDI relative to other competitive channels in transmitting growth to this region.

3. The Model

The model of analysis for this study follows the general framework of King and Levine (1993a, 1993b). It, however, links national economic growth to two distinct channels of financial

development. The twin channels refer to the domestic (or national) financial intermediaries versus global financial systems.

First, greater efficiency in the national financial system due to privatisation allows innovators to have more capital given the amount that a nation saves. The regime of financial repression that keeps the domestic interest rate at an artificially high level also boosts national saving. In the macroeconomic equilibrium, investment equals national saving plus capital inflow from abroad.

Let INV denote the ratio of investment to GDP, FI denote a financial development indicator and Z denote a vector of indicators of other aspects of economic development. Then, it follows from the above discussion that

$$(1) \quad INV = I(FI, Z), \text{ where } \frac{\partial INV}{\partial FI} > 0.$$

For a given capital-output ratio Ω , which also depends on the financial and other indicators of development, the growth rate GK of capital per capita directly varies with the difference between the investment rate INV and the sum of the population growth rate n and the depreciation rate DEP of capital such that

$$(2) \quad GK = \frac{INV}{\Omega} - (DEP + n), \quad \Omega = E(FI, Z).$$

Secondly, FDI facilitates a greater access to the international credit market and that helps the entrepreneurs to finance projects efficiently. Also, the opportunity to borrow at a low interest rate from abroad raises the relative proportion of innovators² and hence the growth rate $GTFP$ of total factor productivity³ in the economy. Consequently,

$$(3) \quad \text{GTFP} = F(\text{FI}, Z), \frac{\partial \text{GTFP}}{\partial \text{FI}} > 0.$$

Along its transition path to steady state, the growth rate of per capita output GYP is a function of GK and GTFP as follows:

$$(4) \quad \text{GYP} = \text{GTFP} + \alpha \text{GK}, \quad 0 < \alpha < 1,$$

where the parameter α measures the output elasticity of output with respect to capital in a Cobb-Douglas production technology.

The key independent variable for the empirical exercise consist of one of the four financial indicators (FI) that King and Levine (1993b) list: LLY measured by the ratio of liquid liabilities to GDP, PRIVATE measured by the ratio of total credit received by private enterprises to total credit in the accounts of the public and private enterprises, BANK measured by the share of the domestic assets of private financial intermediaries in the total domestic assets of the private financial intermediaries and the central bank, and PRIVY measured by the ratio of credit received by private enterprises to GDP. Each of these four financial indicators measures a unique aspect of financial development in a country. LLY measures the overall liquidity per unit of GDP. PRIVATE indicates the extent of overall liquidity available to private enterprises. The other two financial indicators play crucial roles in the East Asian context and, deserve a special attention.

BANK measures the extent of private control in the domestic financial sector. Some regard BANK as an indicator of efficiency in the country's financial sector. However, one should note with caution that a regime of financial repression that arbitrarily maintains a positive interest margin between the domestic and the international market does not lower the value of BANK.

Consequently, part of the beneficial effects due to increase in BANK as suggested by King and Levine could be offset in countries that follow a regime of financial repression.

PRIVY refers to the total volume of multinational credit per unit of GDP that the business sector can access. In the East Asian region FDI accounts for a significant share of PRIVY primarily because that region consists of small open economies. Consequently, PRIVY could be used as a quantitative measure for financial integration brought about by FDI in this region and, therefore, PRIVY serves as the proxy for FDI in this paper. In particular, it measures the contribution of FDI indirectly through the implication of FDI on a country's private sector's access to multinational credit.

Table 2 below provides a set of descriptive statistics to characterise the data.

Table 2: Descriptive Statistics of the Data.

Descriptive Statistics	LLY	BANK	PRIVATE	PRIVY (Proxy for FDI)	GYP	GK	GTFP	INV
Mean	0.5786	0.8685	0.8964	0.5071	0.0360	0.0588	0.0184	0.2718
Median	0.4974	0.9095	0.8372	0.4895	0.0333	0.0462	0.0169	0.2565
Standard Deviation	0.3108	0.1206	0.3498	0.2676	0.0255	0.0465	0.0173	0.0587
Maximum Value	1.7819	1.0000	2.4016	1.1352	0.0819	0.1607	0.0500	0.4331
Minimum Value	0.2269	0.4404	0.5214	0.1153	-0.0136	-0.0085	-0.0134	0.1816

On average countries enjoys a high level of development. Also, the distribution has a slight upward bias, since the mean exceeds the median for all variables except BANK. Nevertheless, there is a wide variation in the data and, in particular, the variance is significantly large compared to the mean for each variable, indicating suitability of the data for conducting a successful empirical analysis. Table 3 below reports how the four financial indicators are correlated.

Table 3: Pair-wise Correlation Coefficients among the Financial Development Indicators.

Correlation Coefficients	LLY	BANK	PRIVATE
BANK	0.5512 (0.1478)*		
PRIVATE	0.2182 (0.1569)	0.4038 (0.0660)*	
PRIVY	0.8784 (0.0785)*	0.1834 (0.0661)*	0.1809 (0.0454)*

The values in parentheses below estimated coefficients are standard errors. *Indicates significance at 99% confidence interval.

Note that LLY and PRIVY are highly correlated while BANK and PRIVY are weakly correlated. Recall that LLY is a measure of overall liquidity in proportion to GDP, PRIVY is a measure of the private access to the international credit market and BANK measures the degree of privatisation of the domestic financial sector. The high correlation between LLY and PRIVY, therefore, suggests that the source of a greater volume of liquidity in APEC is greater private access to the international credit market due to FDI. A low correlation between BANK and PRIVY possibly suggests that the national and international sources of finance are possibly not complementary but competitive substitutes. It is important to note that BANK relates to the assets of domestic financial intermediaries. It neither includes funds directed overseas by domestic financial intermediaries nor that channelled into the domestic economy from overseas financial intermediaries. Since the portion of financial services provided by FDI is significant in the East Asia, BANK stands out as the most distinctive financial indicator of the state of the domestic financial sector. Table 4 below reports how the financial and growth indicators are correlated.

Table 4: Correlation Coefficients between the Financial and the Growth indicators.

Correlation Coefficients	LLY	BANK	PRIVATE	PRIVY
GYP	0.3018 (0.0064)*	-0.0245 (0.0071)*	0.4587 (0.0048)*	0.3756 (0.0087)*

GK	0.3196 (0.0118)*	0.2275 (0.0118)*	0.4476 (0.0079)*	0.4123 (0.0146)*
GTFP	0.1867 (0.0043)*	-0.2334 (0.0044)*	0.3234 (0.0033)*	0.2250 (0.0059)*
INV	0.3401 (0.0321)*	0.2952 (0.0295)*	0.4741 (0.0217)*	0.4917 (0.0449)*

The values in parentheses below estimated coefficients are standard errors. *Indicates significance at 99% confidence interval.

Note that BANK is negatively correlated to both the growth rate of per capita income (GYP) and the growth rate of total factor productivity (GTFP). The regime of financial repression that protects the domestic sector from the foreign competition may be responsible for offsetting the positive effects of the privatisation process for generating such significantly negative correlations. Another contributing factor could be inflation that typically follows privatisation.

The privatisation process may indirectly push the government increasingly to rely on seignorage or inflation tax that typically retards economic growth. We note from Table 5 that the variable GL that denotes the amount of loans channelled to government as a percentage to GDP actually decreases as BANK increases.

Table 5: Results from Regression of Government Loan on BANK.

$GL = 0.38494 (0.1180)^* - 0.31629 (0.1360)^* BANK$
<p>Adjusted $R^2 = 0.1499$ F-statistics = 5.410</p>

The values in parentheses below estimated coefficients are standard errors. *Indicates significance at 99% confidence interval.

Table 6 offers further evidence that a higher value of BANK also accompanies a higher ratio of currency to GDP, which leads to inflation that negatively affects productivity growth.

Table 6: Results from Regression of BANK on the Currency to GDP Ratio.

$M1 = -0.2645 (0.1049) + 0.4933 (0.1182) BANK, M1 = \text{Currency}/\text{GDP}$
<p>Adjusted $R^2 = 0.3697$ F-statistics = 17.43</p>

The values in parentheses below estimated coefficients are standard errors. *Indicates significance at 99% confidence interval.

To isolate the contribution of BANK and FDI, therefore, one needs to perform appropriate regressions only after controlling for various macroeconomic factors that may indirectly lead to possible correlations. Following King and Levine (1993b) the study controls for independent effects on growth that arises from a set of five economic factors: $Z_i, i=1, \dots, 5$ such that $Z_1 =$ TRADE measuring degree of openness, $Z_2 =$ GOV measuring the share of government expenditure in GDP, $Z_3 =$ INF measuring the inflation rate, and $Z_4 =$ LYO measuring the log of per capita GDP level in the initial year and $Z_5 =$ LSCH measuring the log of secondary enrolment rate in the initial year. TRADE captures the positive effect of specialisation from international trade. GOV captures the negative effect of the average tax burden. INF controls for the adverse effect of inflation tax. LYO factors out the autonomous differences due to diminishing returns as functions of the level of economic development measured by the initial per capita income. LSCH captures the positive effect of labour quality due to country specific schooling.

4. Empirical Methodology and Data

The growth theoretical framework of King and Levine as described above serves as a guiding principle for organising the relevant data and the empirical experiment for this study. Let Y denote the set of growth performance indicators {INV, GK, GTFP, GYP}, which are the dependent variables. Let X denote the set of financial development indicators {BANK, PRIVY, LLY, PRIVATE}, from which a unique independent variable is chosen. Let $i=1, 2, \dots, N$ denote index for countries and $t=1, 2, \dots, T$ denote index for time intervals. The specific restrictions on the data, following King and Levine (1993b) is given by

$$(5) \quad Y_{it} = \text{Constant}_i + \beta_Y^X X_{it} + \sum_{j=1, \dots, 4} \theta_Y^j Z_{it}^j + u_{it}, \quad Y \in G, X \in FI,$$

where, u_{it} describes an *i.i.d.* error that is normally distributed with zero mean and a finite variance. All variables for study turn out to be integrated of order zero or stationary. Consequently, the causality implied by the estimated coefficients would be meaningful.

Note that, by (1), (2) and (4), the model allows the possibility that a better financial system at home measured by a higher value of BANK would be sufficient for ensuring economic growth. In other words, holding the effect of PRIVY (or FDI) constant, the model does not restrict the partial effect of BANK on the economic growth indicators from becoming positive and significant. If the partial effects of BANK on the growth indicators exhibit more positive and significant effects than PRIVY (or FDI) only then a small country may seriously weigh the merits and demerits of a policy of limiting FDI to protect national financial intermediaries. Consequently, the above experiment would be quite relevant when FDI competes with the domestic financial sector.

King and Levine (1993b) use 30-year averages between 1960 and 1990 but for a large set of countries around the world. The APEC sample contains only 18 countries and imposes a tight constraint for any empirical analysis. Consequently, the study includes 10-year averages for the period 1964-93 to expand the data set. The data set has been compiled from various sources. Information of financial indicators is collected from International Financial Statistics (IFS) published by International Monetary Fund (IMF) except Chinese Taipei and Hong Kong. The information of Chinese Taipei is collected from 'The Statistical Yearbook of the Republic of China' published by Administrative Yuan of the Republic of China whereas that of Hong Kong is obtained from 'Hong Kong Statistics' published by Statistic Department of the Hong Kong Government. After adjusting for the missing information there are 37 data points in the sample consisting of 3 time periods and 17 out of 18 members of APEC, since the relevant information from Brunei is not available.

The issue arises that a division of data into 3 time periods could bias the estimated coefficients of the equation (5) that exclude time specific effects. A full panel data study would be ideal to identify those effects. Unfortunately, the small sample size implies that the degrees of freedom would be too small to perform a meaningful panel data exercise. However, a modification of equation (5) that allows for a time effect λ can be used to get unbiased estimates of the coefficients as follows:

$$(6) \quad Y_{it} = \text{Constant}_i + \lambda_t + \beta_Y^X X_{it} + \sum_{j=1, \dots, 4} \theta_Y^j Z_{it}^j + u_{it}, \quad Y \in G, X \in FI$$

Some manipulations of equation (6) yield a new equation, which is similar to (5) but does not have any constant and is given by

$$(7) \quad \tilde{Y}_{it} = \beta_Y^X \tilde{X}_{it} + \sum_{j=1, \dots, 4} \theta_Y^j \tilde{Z}_{it}^j + \tilde{u}_{it}, \quad \text{where, } \tilde{Y}_{it} = Y_{it} - \frac{1}{N} \sum_{i=1}^N Y_{it},$$

$$\tilde{X}_{it} = X_{it} - \frac{1}{N} \sum_{i=1}^N X_{it}, \quad \tilde{Z}_{it}^j = Z_{it}^j - \frac{1}{N} \sum_{i=1}^N Z_{it}^j, \quad j=1, \dots, 5.$$

In Appendix A, Tables 7 to 9 present results from regressions using equations (5) and (7).

5. Main Findings

Tables 7a and 7b compare the relative contribution of all four financial development indicators to economic growth report that BANK, the indicator of financial development through domestic channel, stands out to be unique in its negative impact on the growth rate of per capita output. To discern this negative impact on economic growth in more details let us focus on the results presented in Tables 8a and 8b. The first columns of Table 8a and 8b contain the same

information as the second columns of 7a and 7b. The information presented in Tables 8a and 8b show that BANK have a significant negative effect on the growth rate of per capita output GYP and the growth rate of TFP (or efficiency) GTFP. It does have a weak but positive effect on the investment rate INV and on the growth rate of capital GK. These findings isolate BANK as the incorrect indicator for growth promoting financial development in the APEC. These results, therefore, stand in sharp contrast with the findings of King and Levine (1993b). The financial indicator LLY measures the amount of all loans but includes the stock of domestic currency as well. The latter does not correspond to the volume of financial services. Moreover, if the government has a tendency to finance its expenditure by increasing money supply following privatisation, as suggested in an earlier discussion of Tables 5 and 6, then LLY would overestimate the beneficial aspect of financial development on growth after privatisation. The indicator PRIVATE is a measure of the efficiency in allocating funds only with the traditional assumption that a higher portion of loans directed to government represents a lower efficiency in allocating resources. It does not, however, capture the size of the financial development. The indicator PRIVY, on the other hand, can be expressed as a combination of a size indicator such as LLY as well as an efficiency indicator such as PRIVATE. Moreover, by definition PRIVY accounts for the loans received by private firms only and, therefore, excludes the currency part of the liquidity that is related to seignorage, which is a factor harmful for growth. By definition, M1 is included in LLY whereas PRIVY excluded M1 from LLY and adjusts the difference by the efficiency factor defined by PRIVATE. Precisely, PRIVY can be expressed as follows:

$$(8) \quad \text{PRIVY} = \text{PRIVATE} * (\text{LLY} - \text{M1}), \quad \text{where, } \text{M1} = \text{Currency}/\text{GDP}.$$

M1 represents the part of the liquidity measured by LLY that is primarily utilised by the government. It follows that PRIVY primarily measures the flow of multinational credit from abroad through an efficient channel. The most important channel in this context would be the

flow of FDI which also represents an efficient channel because of it is guided by profit motive. In other words, the definition of PRIVY captures the effect of the flow of FDI both on capital accumulation and on the growth of TFP. Therefore, PRIVY constitutes a relevant proxy for FDI as far as financial sectors are concerned.

Empirical findings presented in Tables 9a-9b show that PRIVY has a significant positive effect on four growth indicators in the APEC countries. The effect is transmitted through three channels. They are a higher real per capita physical capital growth rate, improved efficiency in other production factors and a higher investment rate. In other words, unlike the privatisation at home that has only mobilised capital but has not increased efficiency or per capita output growth rates, the flow of FDI from abroad has contributed to economic growth in the APEC through all three channels.

Theoretical models suggest that financial development can take two forms, improvement in efficiency and increase in size. The findings reported above suggest that the privatisation of domestic financial intermediaries indicated by BANK possibly measures only the latter. On the other hand, PRIVY, the proxy for FDI, induces both a greater volume of financial services as well as a better efficiency of allocation.

6. Concluding Remarks

The regression results presented at the end of this paper highlight that the contribution of financial development to growth in the APEC economies has come mainly from a greater access to the global financial system via FDI that presumably has reduced the interest rate gap without reducing the volume of available capital in the economy. Those results also highlight that the greater privatisation of domestic assets has only led to a higher rate of saving and a higher rate of accumulation of capital while the flow of FDI into the APEC contributed to the increase in the overall efficiency and the resulting growth in the total factor productivity. In addition, the empirical evidence, presented in this paper, indicate that the growth of national financial

institutions under the regime of financial repression has lowered TFP growth. In other words, financial repressions and barriers to FDI inflows into financial services for the protection of the interests of the domestic financial intermediaries would be a bad economic policy to follow in small open economies. Such a policy may mobilise capital but would impede productivity growth.

Thus the study of the APEC reveals that the concern of nationalist governments against financial integration led by FDI to be ill founded. Such policies would likely lower the efficiency of resource allocation and hinder growth. Unfortunately, however, East Asian members of APEC maintain significant entry barriers to foreign providers of financial services. Consequently, the credit ratings of the domestic banks in those countries depend to a large extent on the quality of the expected support from the State rather than on the quality of banks' balance sheets and profitability. This paper suggests that a key to economic growth for these East Asian countries is the appropriate usage of FDI for efficient allocation of resources facilitated by a freer access to the international credit market.

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APPENDIX A

Note: “a” refers to regressions using equation (5) that omits time specific effects and “b” refers to regressions using equation (7) that allows for time specific effects. Standard errors are in parentheses below estimated coefficients; * indicates coefficient is statistically significant at the 90 percent confidence interval; ** indicates coefficient is statistically significant at the 95 percent confidence interval; *** indicates coefficient is statistically significant at the 99 percent confidence interval.

Table 7a: Equation (5)
Results from Regressions of the Growth Rate on the Financial Development Indicators.

X \ Y	GYP	GYP	GYP	GYP
LLY (National-FDI Mix)	0.022456 (0.012911)**			
BANK (National)		-0.020165 (0.009860)***		
PRIVATE (National-FDI Mix)			0.002725 (0.008780)***	
PRIVY (Primarily FDI)				0.025887 (0.012307)**
CONSTANT	0.083039 (0.028092)**	0.083627 (0.027621)**	0.076768 (0.029759)**	0.101541 (0.025775)**
INF	-0.105152 (0.064491)*	-0.137447 (0.061922)*	-0.126163 (0.067028)*	-0.072238 (0.064906)*
TRADE	0.006879 (0.004454)***	0.008930 (0.004040)***	0.009593 (0.004470)***	0.009745 (0.004189)***
LYO	-0.015732 (0.004113)***	-0.012696 (0.004225)***	-0.015118 (0.004315)***	-0.009889 (0.002926)***
Adjusted R ²	0.369122	0.389880	0.309702	0.328811
F-Statistics	5.212673	5.600965	4.230271	5.409036

Table 7b: Equation (7)
Results from Regressions of the Growth Rate on the Financial Development Indicators with Time Dummies to Control for Paradigm Shifts.

	GYP	GYP	GYP	GYP
LLY (National-FDI Mix)	0.032698 (0.010527)**			
BANK (National)		-0.017589 (0.017505)**		
PRIVATE (National-FDI Mix)			0.009412 (0.013502)**	
PRIVY (Primarily FDI)				0.056269 (0.010857)**
TRADE	0.007119 (0.003515)***	0.008094 (0.004092)***	0.006854 (0.005817)***	0.008645 (0.003147)***
LYO	-0.019041 (0.003422)***	-0.005342 (0.002910)***	-0.018389 (0.004240)***	-0.016392 (0.002995)***
Adjusted R ²	0.5697	0.4608	0.4506	0.6775
F-Statistics	12.9172	7.1962	7.5617	23.4065

Table 8a: Equation (5)
Results from Regressions of the Growth Indicators on BANK.

	GYP	GK	GTFP	INV
BANK	-0.020165 (0.009860)***	-0.003542 (0.018813)**	-0.022325 (0.006629)***	0.006193 (0.023805)**
TRADE	0.008930 (0.004040)***	0.026765 (0.008375)***		0.035862 (0.009755)
GOV		0.175421 (0.138738)	-0.111370 (0.043365)**	
INF	-0.137447 (0.061922)*	-0.213898 (0.119144)	-0.071131 (0.042024)**	-0.256106 (0.149503)
LYO	-0.012696 (0.004225)***	-0.030248 (0.008942)***		-0.025730 (0.010201)
LSCH		0.061173 (0.020008)**		0.047513 (0.022475)**
CONSTANT	0.1017 (0.0409)	0.027142 (0.060942)*	0.055448 (0.008953)	0.272953 (0.066686)
Adjusted R ²	0.389880	0.334965	0.327133	0.330882
F-Statistics	5.600965	4.022078	6.834127	4.560434

Table 8b: Equation (7)
Results from Regressions of the Growth Indicators on BANK with Time Dummies to Control for Paradigm Shifts.

	GYP	GK	GTFP	INV
BANK (Health of Domestic Financial System)	-0.017589 (0.017505)**	0.021890 (0.033543)**	-0.027133 (0.012538)**	0.014183 (0.036836)**
TRADE	0.008094 (0.004092)***	0.025287 (0.007843)***		0.032319 (0.008613)***
GOV	-0.231357 (0.072339)*	-0.244252 (0.180474)	-0.124582 (0.052934)*	-0.826740 (0.198191)
INF	-0.121261 (0.057356)*	-0.189988 (0.108330)	-0.063169 (0.041230)**	-0.258435 (0.118964)
LYO	-0.005342 (0.002910)***	-0.019226 (0.010624)**		0.009273 (0.011667)**
LSCH		0.030777 (0.022833)**		-0.029974 (0.025075)**
Adjusted R ²	0.4608	0.4933	0.2632	0.6533
F-Statistics	7.1962	6.6469	4.8232	11.9284

Table 9a: Equation (5)
Results from Regressions of the Growth Indicators on the FDI indicator.

Dependent	GYP	GK	GTFP	INV
Independent				
PRIVY	0.025887 (0.012307)**	0.051569 (0.022290)**	0.003051 (0.009021)***	0.100019 (0.023300)**
TRADE	0.009745 (0.004189)***	0.026946 (0.007644)***		0.034216 (0.008221)***
GOV		0.144201 (0.128497)	-0.106512 (0.047314)**	-0.169752 (0.128069)
INF	-0.072238 (0.064906)*	-0.137007 (0.114349)	-0.074161 (0.047059)**	
LYO	-0.009889 (0.002926)***	-0.027445 (0.008021)***	-0.005304 (0.002174)***	-0.012245 (0.005673)
CONSTANT	0.101541 (0.025775)**	0.044096 (0.056418)	0.080976 (0.018849)**	0.322785 (0.046785)
Adjusted R ²	0.328811	0.434992	0.214428	0.525945
F-Statistics	5.409036	5.619316	3.456617	10.98515

Table 9b: Equation (7)
Results from Regressions of the Growth Indicators on the FDI indicator
with Time Dummies to Control for Paradigm Shifts.

Dependent	GYP	GK	GTFP	INV
Independent				
PRIVY	0.056269 (0.010857)**	0.082766 (0.026630)**	0.030338 (0.008648)***	0.122926 (0.028022)**
TRADE	0.008645 (0.003147)***	0.028784 (0.007543)***	0.035326 (0.008207)***	
GOV		0.184336 -0.13441	-0.054136 (0.040609)**	-0.227891 (0.131393)&
LYO	-0.016392 (0.002995)***	-0.0298 (0.008175)***	-0.007496 (0.001758)***	-0.012953 (0.005688)***
Adjusted R ²	0.677482	0.556738	0.464144	0.635098
F-Statistics	23.40647	9.038418	14.85877	19.56493

Note: Standard errors are in parentheses below estimated coefficients; * indicates coefficient is statistically significant at the 90 percent confidence interval; ** indicates coefficient is statistically significant at the 95 percent confidence interval; *** indicates coefficient is statistically significant at the 99 percent confidence interval.

APPENDIX B

Table 10: The Complete Data Set

COUNTRY	LLY*	BANK*	PRIVATE*	PRIVY*	GYP ⁺	GK ^x	GTFP ⁺	INV ⁺	TRADE ⁺	GOV ⁺	INF ⁺	LYO ⁺	LSCH ⁺	MI/GDP
AUSTRALIA I	0.4974	0.9316	0.5551	0.2529	0.0260	0.0343	0.0157	0.2680	0.2947	0.1536	0.0520	8.9834	4.1271	0.1752
AUSTRALIA II	0.4239	0.9075	0.6728	0.2898	0.0126	0.0227	0.0058	0.2454	0.3194	0.1713	0.0865	9.2412	4.4659	0.1252
AUSTRALIA III	0.5101	0.9582	0.8276	0.5408	0.0123	0.0138	0.0081	0.2282	0.3579	0.1780	0.0422	9.4026	4.5433	0.1251
CANADA I	0.3770	0.9696	0.7556	0.2529	0.0325	0.0293	0.0237	0.2392	0.4140	0.2116	0.0416	9.0282	4.0254	0.1817
CANADA II	0.4582	0.9314	0.8608	0.4195	0.0139	0.0384	0.0023	0.2358	0.4998	0.2136	0.0735	9.3759	4.5109	0.1237
CANADA III	0.4825	0.9618	0.8765	0.4895	0.0083	0.0271	0.0002	0.2060	0.5335	0.2015	0.0271	9.5656	4.6347	0.1494
CHILE III	0.7236		0.9792	0.8042	0.0713	0.0748	0.0489	0.3627	0.3446	0.0918	0.0753	5.1912	3.6109	0.0829
CHINA III	0.3908	0.4404	0.6649	0.8464	0.0465	0.0198	0.0406	0.2266	0.5848	0.1057	0.1660	7.2762	4.1897	
CHINESE TAIPEI I	0.4020		0.7183	0.3186	0.0638	0.1107	0.0306	0.2565	0.4930	0.2009	0.0453	7.1846	3.5978	
CHINESE TAIPEI II	0.6501		0.7863	0.5740	0.0560	0.0883	0.0295	0.3159	0.8633	0.2159	0.0727	7.9217	4.1503	
CHINESE TAIPEI III	1.2540		0.8449	0.9834	0.0588	0.1582	0.0114	0.3314	0.7926	0.2603	0.0685	8.3248	4.3581	
HONG KONG I	0.7266				0.0617	0.0392	0.0500	0.2440	1.6700	0.0781	0.0457	7.6610	3.3673	0.2899
HONG KONG II	0.8218				0.0542	0.0618	0.0356	0.2902	1.7551	0.0758	0.0764	8.2771	3.8918	0.1931
HONG KONG III	1.7819				0.0454	0.0464	0.0315	0.2623	2.4647	0.0701	0.0721	8.8960	4.2767	0.1864
INDONESIA III	0.3146	0.6899			0.0370	0.0639	0.0179	0.2877	0.4864	0.0975	0.0689	5.9733	3.6636	0.1086
JAPAN I	0.7645	0.9373	0.9213	0.8282	0.0702	0.1087	0.0376	0.3569	0.1958	0.1090	0.0535	8.8157	4.4067	0.3160
JAPAN II	0.8522	0.9358	0.8372	0.8690	0.0266	0.0508	0.0114	0.3175	0.2603	0.1012	0.0398	9.4940	4.5109	0.3166
JAPAN III	1.0563	0.9469	0.8569	1.1352	0.0291	0.0462	0.0152	0.3013	0.2016	0.0905	0.0119	9.7920	4.5433	0.2897
KOREA I	0.2530	0.7449	0.8678	0.2481	0.0727	0.1082	0.0402	0.2247	0.3676	0.1729	0.1101	6.3975	3.5553	0.1038
KOREA II	0.3282	0.7623	0.8843	0.3843	0.0568	0.1001	0.0267	0.2978	0.6784	0.1355	0.1431	7.1981	4.0254	0.1083
KOREA III	0.3748	0.7993	0.9543	0.5269	0.0652	0.0892	0.0385	0.3294	0.6487	0.1019	0.0552	7.8364	4.5109	0.0955
MALAYSIA III	0.7046	0.9723	0.8849	0.6775	0.0333	0.1268	-0.0048	0.3020	1.3327	0.1493	0.0160	7.5864	3.9703	0.2141
MEXICO III	0.2459	0.7905	0.5214	0.1844	-0.0034	0.0097	-0.0063	0.2130	0.3018	0.0851	0.3490	7.5437	3.9703	0.0824
NEW ZEALAND I	0.2269	0.7834	0.7765	0.1153	0.0174	0.0227	0.0106	0.2492	0.4576	0.1543	0.0563	9.0189	4.3175	0.1752
NEW ZEALAND II	0.2670	0.7994	0.6945	0.1723	0.0035	0.0245	-0.0038	0.2554	0.5896	0.1677	0.1182	9.2332	4.3944	0.1249
NEW ZEALAND III	0.4927	0.9178	0.8811	0.4748	0.0041	0.0367	-0.0069	0.2299	0.5728	0.1614	0.0592	9.3051	4.4543	0.2245
PHILLIPINES III	0.3176	0.7025	0.7451	0.1931	-0.0020	0.0056	-0.0036	0.2011	0.5684	0.0862	0.0859	6.4333	4.2195	0.0801
PAPUA NEW GUINEA II	0.2935	0.9259	0.9403	0.1598	-0.0136	-0.0006	-0.0134	0.2379	0.9056	0.2902	0.0663	6.8857	2.4849	0.1169
PAPUA NEW GUINEA III	0.3557	0.8801	0.8820	0.2759	0.0272	-0.0085	0.0297	0.2319	0.9319	0.2193	0.0312	6.7226	2.3979	0.1123
SINGAPORE I	0.6118		2.4016	0.4335	0.0819	0.1341	0.0416	0.2997	2.4060	0.1159	0.0332	7.3969	3.8067	0.2827

SINGAPORE II	0.6343		1.8501	0.6795	0.0614	0.0932	0.0334	0.4331	3.5473	0.1118	0.0387	8.2634	3.9512	0.2565
SINGAPORE III	0.8364		1.2483	0.8488	0.0492	0.1607	0.0010	0.3921	3.4056	0.1131	0.0245	8.8977	4.2627	0.2328
THAILAND II	0.3813	0.7910	0.6920	0.3005	0.0385	0.0553	0.0219	0.2749	0.4744	0.1151	0.0608	6.3038	3.2581	0.1424
THAILAND III	0.6546	0.8895	0.8260	0.5724	0.0628	0.1279	0.0244	0.3419	0.6517	0.1054	0.0387	6.7277	3.4340	0.1075
UNITED STATES I	0.6462	0.8735	0.7365	0.5516	0.0236	0.0224	0.0169	0.1961	0.1091	0.2075	0.0396	9.3940	4.2485	0.2400
UNITED STATES II	0.6342	0.9000	0.8033	0.6374	0.0135	0.0140	0.0093	0.1981	0.1825	0.1798	0.0658	9.6167	4.4188	0.1791
UNITED STATES III	0.6602	0.9115	0.8326	0.6932	0.0133	0.0175	0.0081	0.1816	0.2017	0.1774	0.0288	9.7654	4.5433	0.1727

- I indicates the period of 1964 to 1973
 II indicates the period of 1974 to 1983
 III indicates the period of 1984 to 1993

- * Data source: International Financial Statistics by International Monetary Fund
 + Data source: World Data published by World Bank
 x Data source: King-Levine data set or Nehru-Dhareshwar data set

KEY FORMULAS:

LLY is calculated by dividing the sum of IFS line 34 and line 35 by GDP for each year. Then, ten-year averages are calculated. For Chinese Taipei and Hong Kong, LLY is calculated with dividing M2 by GDP

BANK is calculated by dividing the sum of IFS lines 22a to 22f by the sum of IFS lines 12a to 12f and 22a to 22f. Each data point is constructed by the respective ten-year average. There is no information on BANK for People's Republic of China, Chinese Taipei, Hong Kong and Singapore.

PRIVATE is calculated by dividing IFS line 32d by the sum of IFS line 32a to 32d and 32f and ten-year averages are used to construct data points. There is no information on PRIVATE for Hong Kong and Indonesia.

PRIVY is calculated by dividing IFS line 32d by GDP. Ten-year averages are used as data points. There is not enough information to construct PRIVY for Hong Kong and Indonesia.

Information on the five country specific control factors come from the World Data.

TRADE is the calculated by dividing the total value of exports and imports by GDP and ten-year average is used to construct data points.

GOV is the amount of government expenditure divided by GDP and ten-year average is used.

INF is constructed by $[\ln(Dt+10) - \ln(Dt+1)]/10$

The information on growth indicators are collected from World Data published by World BANK unless specified.

GYP = $[\ln \text{ real GDP per capitat}+10 - \ln \text{ real GDP per capitat}+1]/10$

GK = $[\ln \text{ real per capita Capital Stockt}+10 - \ln \text{ real per capita Capital Stockt}+1]/10$. The information on real per capita physical capital stock is from Nehru-Dhareshwar '*Rivista de Analysis Economic*' (1993) 108 (1):37-59 <<http://www.worldbank.org/html/prdgm/grthweb/ddnehdha.htm>> for all countries except Chinese Taipei, Hong Kong and Papua New Guniea. For Chinese Taipei, the information is from 'The Statistical Yearbook for the Republic of China'. For Hong Kong and Papua New Guniea, their information is collected from King-Levine 'Capital Fundamentalism, Economic Development and Economic Growth' Carnegie-Rochester Conference Serieson Public Policy Vol 40 (1994) <<http://www.worldbank.org/html/prdmg/grthweb/datasets.htm>>.

Depreciation rate and gross investment data are calculated and collected respectively to facilitate extrapolation of the data. In the process of calculating the depreciation of Mexico, it is found that its annual depreciation rates are 0.00006 and 0.00013 whereas those of other countries are between 0.05 and 0.22. It is expected that the data on real gross domestic fixed investment in Mexico is represented in thousand and so it is multiplied by 1000 for adjustments.

GTFP is constructed by assuming $\alpha = 0.3$, following King-Levine (1993b), such that by (4) $GTFP = GYP - 0.3 GK$.

GL denotes the ratio of loans channelled to government to GDP.

TL denotes the ratio of total loans to GDP.

Note: $GL = TL - PRIVY$ and $TL = PRIVY/PRIVATE$.

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² Stiglitz and Weiss (1981) also conclude a positive effect of a lower interest on the total number of innovators in the economy.

³ Bandyopadhyay (1997) models an economy where growth of total factor productivity due to technology diffusion increases with the relative proportion of the workforce that conducts innovative activities.