Financial Integration and Economic Growth: An Empirical Analysis Using International Panel Data from 1974-2007*

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Abstract

This paper studies the effects of financial integration on economic growth using an international panel data of 83 countries from 1974-2007. The effects of financial integration on economic growth differ considerably, depending on the type of external assets and liabilities as well as on the characteristics of countries that experience financial integration. In particular, when we break down external liabilities into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth, while the latter, especially public debt, has a negative impact. We also find in general that countries with good institutions and developed financial markets benefit more from financial integration, and countries in Western Europe and North America as well as those in East Asia are more likely to meet these conditions. This paper then considers whether the effects of financial integration have changed over time. Finally, we provide some evidence that financial integration has an additional, indirect effect on economic growth through its impact on other determinants of growth such as the volume of international trade and the development of domestic financial markets.

JEL Classifications: F3, F4, O4

Keywords: Financial integration, economic growth, dynamic panel.

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1 Introduction

The volume of international financial flows increased significantly in the mid-1980s, and the pace of increase has further accelerated in the 2000s in the wake of financial liberalization in many countries. International financial flows are sometimes considered as a virtue, since they are expected to enhance economic growth through technology transfer, resource reallocation, and capital accumulation. At the same time, they are sometimes blamed for increasing a country's vulnerability to international financial crises, which tend to occur during periods of sudden reversals in international capital flows.

In this paper, we study the effects of international financial integrations on economic growth using a comprehensive panel dataset that covers 83 countries for 1974-2007. Specifically, we focus on the following three sets of questions. First, what kind of external assets or liabilities have a relatively large impact on economic growth? To answer this question, we break down external assets and liabilities into four categories: (i) FDI liabilities and equity liabilities, (ii) debt liabilities, (iii) FDI assets and equity assets, and (iv) debt assets, and quantify the differential impacts of these assets and liabilities on economic growth[1].

Second, which countries benefit the most from international financial integration? We consider several characteristics of countries, including trade openness, degree of domestic financial market development, institutional quality, and geographical region. Third, have the effects of financial integration on economic growth changed over time? We are especially interested in the possibility that the recent acceleration in the pace of financial integration has had an impact on economic growth in a way that has not been seen before.

In the empirical analysis, we estimate a dynamic panel data model in which the dependent variable is real per capita GDP growth (5-year change) and the explanatory variables are the four measures of international financial integration described above, as well as other variables that are considered to influence economic growth. These variables include the initial level of real GDP per capita (intended to capture the "convergence effect" which posits that countries with low income levels grow relatively faster to catch up high income countries), years of schooling (a proxy for human

[1] In our dataset, FDI assets and equity assets are grouped together. Similarly, FDI liabilities and equity liabilities are grouped together.

capital), trade openness (the sum of exports and imports divided by GDP), the degree of domestic financial market development or "financial depth" (domestic private credit as a ratio of GDP), and inflation rate.

Our analysis on the first question raised above suggests that, among the four types of financial integration listed above, FDI and equity liabilities have the largest impact on the recipient country's economic growth, while debt liabilities tend to create lower economic growth. Meanwhile, external assets—whether they are FDI assets and equity assets or debt assets—do not have a significant impact on the economic growth of the countries that hold those assets.

Regarding the second question, we find that FDI liabilities and equity liabilities are particularly beneficial when the recipient country has good institutions or a developed financial market. The negative impact of debt liabilities, moreover, is attenuated in these countries. In terms of geographical regions, countries in Western Europe, North America, and East Asia are more likely to benefit from financial integration. This result may reflect the fact that countries in those areas have better institutions or developed financial markets relative to countries in Africa, South America, and other regions.

As for the third question, our estimation results indicate that the parameters related to the marginal impact of financial integration on economic growth have not changed over time. When we look at the changes in the volumes of external liabilities, however, we find that external liabilities increased, especially in countries that have a relatively large impact of external liabilities on economic growth (specifically the countries in Western Europe, North America and East Asia). Thus we conclude that the recent acceleration in the pace of financial integration has had a beneficial impact on the world economy.

The analysis above looks at the direct impact of financial integration on economic growth, controlling for other factors that may influence economic growth (such as trade openness, domestic financial depth, and institutional quality). In the final part of the paper, we ask whether indirect channels through which financial integration affects economic growth also exist. For example, financial integration may stimulate international trade, and such changes may also contribute to economic growth. We find that FDI and equity liabilities have a significantly positive effect on trade openness; once we include the indirect effect that works through an increase in trade openness, the effects of financial integration are larger than the case in which only the direct channels are included.

Our analysis closely follows Bonfiglioli (2008), Kose, Prasad and Terrones (2008), and Kose, Prasad and Taylor (2009). These papers study the effects of financial integration on economic growth using international panel data. Similar to Kose, Prasad and Taylor (2009), we show that the effects of financial integration on economic growth vary significantly depending on the type of external assets and liabilities as well as on the characteristics of individual countries.

Bonfiglioli (2008) takes up the issue of indirect effects, as we do in our study. Specifically, she considers two types of indirect effects: (i) financial integration negatively affects economic growth through an increase in the probability of financial crisis, and (ii) financial integration positively affects economic growth through its impact on the depth of domestic financial system. Our study is different from hers in two key respects. First, we use the broken down measures of financial integration, while she uses the total of external assets and liabilities. Second, we look at the indirect channel that work through changes in trade openness, a possibility not considered in her study. Regarding the second point, we show that the indirect effect of FDI and equity liabilities on economic growth that works through changes in trade openness is significant, and potentially more important than other kinds of indirect channels.

The rest of the paper is structured as follows. Section 2 presents the empirical model and describes the estimation method. Section 3 presents the estimation results, and Section 4 concludes.

2 Empirical Model

Following Bonfiglioli (2008) and Kose, Prasad and Taylor (2009), we regress economic growth (per capita real GDP growth, 5-year change) on several variables that include the measure of financial integration

$$(y_{i,t} - y_{i,t-1}) = \alpha + \beta y_{i,t-1} + \gamma F_{i,t} + \chi Z_{i,t} + \eta_i + \mu_t + \varepsilon_{i,t},$$

where the subscript i denotes country and the subscript t denotes time period. We follow Kose, Prasad and Taylor (2009) to use 5-year change in GDP growth to filter out year-to-year cyclical fluctuations in economic activity which are not the focus of our paper.

In the equation above, the explanatory variables are a constant (α), the lagged level

of per capita real GDP ($y_{i,t-1}$, the level five years ago, in logs) which is intended to capture the "convergence effect," measures of international financial integration ($F_{i,t}$), and a vector of other variables ($Z_{i,t}$) that are expected to influence economic growth. The equation includes country fixed effects (η_i), time dummies (μ_t), and other errors ($\varepsilon_{i,t}$).

As for the variable that measures the extent of international financial integration ($F_{i,t}$), we break down external assets and liabilities into the following four variables and use them in the regressions: (i) stock of FDI and equity liabilities, (ii) debt liabilities, (iii) FDI and equity assets, and (iv) debt assets, all as a ratio of nominal GDP. The data on external assets and liabilities are obtained from the data set constructed by Lane and Milesi-Ferretti (2007).

The vector of variables other than financial integration ($Z_{i,t}$) includes years of schooling (a proxy for human capital), population growth, inflation rate, terms of trade (the price of exports divided by the price of imports, changes from five years ago), trade openness (sum of exports and imports divided by GDP), a variable that measures the extent of domestic financial depth (stock of domestic private credit as a ratio of nominal GDP), and a measure of institutional quality constructed by Kaufmann et al. (2009)[2]. Per capita GDP growth, population growth, and inflation rate are five-year changes. Other variables are five-year averages.

Our panel data set consists of 83 countries and covers the period 1974-2007 (see Table 1 for the list of countries and the data sources[3]).

There are potentially two types of endogeneity problems in our regression. First, our model includes a lagged dependent variable ($y_{i,t-1}$) as an explanatory variable, and it is correlated with the country fixed effects (η_i) in the error term. It is known that standard estimation procedures such as the OLS produce biased estimates of parameters in this case. To deal with this problem, we use the system GMM method proposed by Blundell and Bond (1998). This method estimates a system of equations that is composed of (i) a first-differenced equation in which the country fixed effects are removed and (ii) the original equation. Lagged levels and lagged differences in the explanatory variables are used as instruments in the GMM estimation. Second, other

[2]The institutional quality is a composite index of six factors, including (i) voice and accountability, (ii) political stability and absence of violence/terrorism, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control and corruption. This index is available only for 1996-2008, and the regressions that use this variable have a smaller sample size than other regressions have.

[3]Our sample does not include countries in Eastern Europe.

explanatory variables ($F_{i,t}$, $Z_{i,t}$) in the regression may be correlated with the error term ($\varepsilon_{i,t}$). To tackle this problem, we use lagged levels of $F_{i,t}$ and $Z_{i,t}$ as instruments in our regression.

3 Estimation Results

3.1 Baseline Specification

Table 2 presents the baseline estimation results, in which we regress per capital GDP growth on the four measures of financial integration described above as well as other variables that are expected to influence economic growth. Since the sample period of our dataset is 1974-2004, we have six non-overlapping observations for each country.

Looking at the estimated parameters on explanatory variables other than those related to financial integration, we obtain fairly reasonable results. Specifically, (i) countries with low initial income tend to grow faster (the so called convergence effect), (ii) human capital enhances economic growth, (iii) both population growth and inflation have negative impacts on per capita GDP growth, (iv) countries with greater trade openness tend to have higher economic growth, and (v) countries with developed domestic financial markets tend to have higher economic growth. Although some of these parameters are not statistically significant in our result, the signs of these parameters are similar to those obtained in the related studies (Barro 1991; King and Levine 1993).

Shifting our attention to the estimated parameters related to financial integration, we can see that the effects of financial integration on economic growth vary significantly across the types of external assets and liabilities. In particular, on the external liability side, the FDI and equity liabilities tend to have a positive impact on economic growth of the recipient countries, while the debt liabilities tend to have a negative impact on economic growth[4]. Similar results are obtained in Kose, Prasad, and Terrones (2008) and Kose, Prasad, and Taylor (2009). It is argued in previous studies that FDI has a positive impact on technology growth through transfers of technology and managerial expertise, while debt liabilities are less likely to bring these benefits (see, for example, Kose, Prasad, Rogoff, and Wei 2009).

[4]FDI liabilities and equity liabilities may have different effects on economic growth. In our dataset, FDI liabilities and equity liabilities are grouped together, and we do not have separate estimates for the effects of these two types of liabilities.

On the external assets side, FDI and equity assets do not have a significant impact on economic growth of the countries that hold those assets. Similarly, debt assets do not seem to contribute significantly to economic growth. External assets are expected to have the following two conflicting effects on economic growth, and that may be the reason why we obtain such ambiguous result. On the one hand, having more assets abroad may increase exports from the country that holds those assets to the country that receives financial flows. This alone works to increase the economic growth of the countries that hold these assets. On the other hand, an increase in external assets may lead to a shift in the production location from the country that holds those assets to other countries, resulting in a decrease in domestic production. This may work to offset the positive impact on economic growth described above.

3.2 Relation to Country Characteristics

In Table 3, we consider whether the effects of financial integration are different depending on the characteristics of a country. For each of the following seven variables, namely, (1) initial real GDP per capita, (2) years of schooling, (3) domestic private credit, (4) institutional quality, (5) trade openness, (6) share of the manufacturing sector, and (7) inflation rate, we divide our sample of 83 countries into two groups that we call the "high group" and the "low group," according to the historical averages of the characteristics variables (such as inflation rate and years of schooling) over 1974-2007 (see Table 4 for the list of countries by group). We then estimate the same model as in Table 2 with a dummy variable for each of the two groups. Since we are primarily interested in the effects of financial integration on economic growth, we attach the dummy variables only for the parts related to financial integration (specifically, we attach dummy variables to each of FDI and equity liabilities, debt liabilities, FDI and equity assets, and debt assets). We assume that the parameters on other explanatory variables are common across two groups.

Looking at the estimation results in Table 3, we can see that the positive impact of FDI and equity liabilities on economic growth is larger for countries with (i) higher initial per capita GDP, (ii) higher level of human capital, (iii) developed domestic financial market (high ratio of domestic private credit to GDP), (iv) better institutions, (v) larger trade openness, and (vi) lower inflation rate. Among these results, (iii) implies that countries with developed financial system use external funds more effectively.

Thus, increasing FDI and equity liabilities contributes to economic growth, while countries with less-developed financial systems do not use obtained funds efficiently. Also, (vi) tells us that countries with sound monetary policy benefit more from international financial integration. Overall, countries with good institutions and developed financial systems are more likely to benefit from increasing FDI and equity liabilities[5].

As we saw earlier in Table 2, debt liabilities have a negative impact on economic growth. Table 3 shows that such negative impact tends to be smaller for countries with good institutions and developed financial systems. A similar explanation to that in the case of FDI and equity liabilities seems to apply here.

Table 5 separates countries into five groups according to geographical regions: (i) Western Europe and North America, (ii) East Asia, (iii) Other Asia, (iv) Central and South America, and (v) Africa (see Table 1 for the list of countries by region). According to our estimation results, FDI and equity liabilities work to enhance economic growth for countries in Western Europe and North America as well as countries in East Asia, while countries in other regions do not enjoy such benefits[6]. This result may reflect the fact that countries in Western Europe and North America and countries in East Asia have good institutions and developed financial systems.

As for debt liabilities, they do not have a negative impact on economic growth for countries in Western Europe and North America. In fact, debt liabilities have a positive impact on economic growth for those countries, even though they are not statistically significant. Again, this result may reflect the fact that countries in this region have good institutions and developed financial systems.

3.3 Have the Effects of Financial Integration Changed Over Time?

In Figures 1 and 2, we consider whether the "marginal impact" of financial integration on economic growth (i.e., the parameter on financial integration in the growth regressions) have changed over time. To do so, we run the same regression as we ran in Table 3, using the moving window of 15 years. Here, we focus on the liability side of financial integration: Figure 1 reports the parameter concerning the effects of FDI

[5] We anticipated that countries with relatively large manufacturing sectors benefit more from FDI and equity liabilities, but the estimation results in Table 3 do not necessarily support this idea.

[6] Strictly speaking, the effects of FDI and equity liabilities on economic growth are positive but not significant in East Asia (Table 5).

and equity liabilities, and Figure 2 reports the parameter related to the effects of debt liabilities. As we can see from the figures, we do not see significant changes in the estimated parameters over time.

Although the parameter that governs the marginal impact of external liabilities has not changed over time, the volume of external liabilities has increased in recent years. Figure 3 shows the volume of FDI and equity liabilities (as a ratio of nominal GDP) in five regions from the mid-1970s to the mid-2000s. From this figure, we observe that countries in Western Europe and North America as well as counties in East Asia have experienced significant increases in the volume of FDI and equity liabilities. Since these countries tend to have a relatively large "marginal impact" of FDI and equity liabilities as we saw in Table 5, the "total impact" of FDI and equity liabilities on economic growth—which includes the marginal impact of these liabilities on economic growth as well as the changes in the volume of these liabilities—have increased over time.

As for debt liabilities, Figure 4 shows that the volume of debt liabilities (as a ratio of GDP) has increased recently for countries in Western Europe and North America as well as for countries in East Asia, while it has decreased or remained unchanged in other regions (Other Asia, Central and South America, and Africa). Since the former group of countries tends to have less negative "marginal impact" of debt liabilities on economic growth as we saw in Table 5, recent increase in the volume of external debt in these countries may not have been a factor that depresses economic growth in these regions. Similarly, the decrease in the volume of external debt in Central and South America as well as Africa may have served to raise economic growth in these regions because the marginal effect of debt liabilities on economic growth is negative in these regions.

3.4 Private and Public Debt Liabilities

We have seen so far that the marginal impact of debt liabilities on economic growth is negative, and that this adverse effect looms larger for less-developed countries. One interpretation for this finding is that, as we suggested earlier, these countries use external funds less effectively due to inefficiencies in the domestic financial market.

Another possible interpretation is that the types of debt liabilities are different across developed and less developed countries. Table 6 takes up this point. We break

down debt liabilities into debt liabilities of private institutions and those of public institutions. The latter includes sovereign debt and borrowings from international organizations such as the IMF. We then check if there is any differences between the effects of these two types of debt liabilities on economic growth.

The estimation results shown in Table 6 indicate that the debt liabilities of public institutions have a relatively large negative impact on economic growth, while the debt liabilities of private institutions have less of a negative impact; such effects, moreover, are statistically insignificant. Therefore, our previous result—which showed that less-developed countries tend to experience more adverse impact of external debt liabilities—may reflect, at least partially, the fact that these countries rely more on the debt liabilities of public institutions[7].

3.5 Indirect Channels

So far, we have focused on the effects of financial integration on economic growth, controlling for the effects of other variables (such as domestic financial depth and trade openness) that might also influence economic growth. Such analysis may underestimate the total impact of financial integration on economic growth. In particular, when an increase in FDI and equity liabilities stimulates international trade and increase trade openness, the total impact of FDI and equity liabilities on economic growth may be larger than when we take into account only the direct impact of these liabilities on economic growth; it also ignores the indirect impact of such liabilities on economic growth through the increase in trade openness.

Here, we consider the possibility of two types of indirect effect. One is the possibility mentioned above. The other is the possibility that an increase in debt liabilities raises the ratio of private domestic credit to GDP, and economic growth is increased through both a) the direct channel of debt liabilities on economic growth and b) the indirect effect that operates through an increase in the ratio of private domestic credit to GDP.

To evaluate the first possibility, we regress trade openness on lagged trade openness, four measures of financial integration (FDI and equity liabilities, debt liabilities, FDI

[7] Although we make no analysis on the subject in this paper, short-term and long-term capital flows may have different impacts on economic growth. In particular, certain types of short-term capital inflows may do harm to economic stability and to long-term economic growth; restricting such inflows through macroeconomic and prudential policies or capital controls may lead to better economic outcomes in some circumstances. Additional disaggregated measures of FDI, equity and debt are needed to study this issue (see Ostry et al. 2010 for an analysis of this point).

and equity assets, and debt assets, each as a ratio of GDP), and GDP growth[8]. GDP growth is included in the regression in order to control for the effects of other factors that may influence trade openness. The first column in Table 7 shows the estimation result. It implies that FDI and equity liabilities indeed have a statistically significant impact on trade openness. Thus the total impact of FDI and equity liabilities on economic growth can be larger than in the case where only direct effect is included.

To consider the second possibility, we regress domestic private credit (as a ratio of GDP) on lagged domestic credit, four measures of financial integration, and other variables that may be related to economic growth such as trade openness and the initial level of income per capita. The second and third columns in Table 7 show the estimation result. As we can see from the second column, debt liabilities tend to increase domestic private credit, although the effects are not statistically significant.

The third column in Table 7 shows the estimation result when we break down debt liabilities into two types (debt liabilities of private financial institutions and those of public institutions). Debt liabilities of private financial institutions tend to increase domestic private credit (although not statistically significant), while debt liabilities of public institutions have the opposite effect. Therefore, debt liabilities of public institutions decrease economic growth through both the direct effect and the indirect effect. As for the debt liabilities of private financial institutions, they have little direct effect on economic growth (Table 6) and a small positive indirect effect that works through increase in domestic private credit. The latter indirect effect arises because an increase in domestic private credit tends to stimulate economic growth.

4 Conclusions

This paper analyzed the effects of financial integration on economic growth using an international panel dataset of 83 countries from 1974-2007.

The effects of financial integration on economic growth differ considerably depending on the type of external assets and liabilities. In particular, when we break down external liabilities into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth while the latter has a negative impact. The negative impact of debt liabilities on economic growth is relatively larger when the external funds are used by public institutions. As for the external assets, we do not find

[8] We conducted the estimation using the Blundell and Bond approach.

significant impact on economic growth whether they are FDI and equity assets or debt assets. Also, we find in general that countries with good institutions and developed financial markets benefit more from financial integration. Countries in Western Europe and North America and those in East Asia are more likely to meet these conditions.

We have also explored the possibility that the effects of financial integration on economic growth have changed over time. According to our analysis, the parameter that represents the marginal impact of financial integration on economic growth has not changed significantly over time. Once we take into account the fact that the volumes of the external liabilities have increased recently in countries that benefit relatively more from external liabilities (countries in Western Europe, North America and East Asia), however, the recent increase in the volume of external liabilities (or recent acceleration in the pace of financial integration) seems to have had a beneficial impact on the world economy as a whole.

Finally, we have presented some evidence that financial integration affects economic growth indirectly through its impact on other variables that may influence economic growth, such as trade openness and the depth of the domestic financial market. In particular, our analysis suggests that an increase in FDI and equity liabilities stimulates international trade, and this in turn has a positive impact on economic growth. Thus economic growth is enhanced both directly through an increase in FDI and equity liabilities and indirectly through the mechanism described above.

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Table 1: Data Source and List of Countries

(1) Data Source

Variables	Sources
Initial Real GDP per capita	Penn World Table (version 6.2)
Years of Schooling	Barro and Lee [2001]
Population Growth	Penn World Table (version 6.2)
Consumer Price Index	World Depelopement Indicators
Terms of Trade	Penn World Table (version 6.2)
Trade Openness	Penn World Table (version 6.2)
Domestic Private Credit	World Depelopement Indicators
External Assets and Liabilities	Lane and Milesi-Ferretti [2007]
Ratio of Private and Public Debt Liabilities	World Depelopement Indicators
Nominal GDP	World Depelopement Indicators
Share of Manufacturing sector	National Accounts Main Aggregates (UN)
Institutional Quality	Worldwide Governance Indicators

(2) List of Countries (by Region)

Western Europe and North America	East Asia	Other Asia	Central and South America	Africa
Australia	Japan	India	Argentina	Egypt
Austria	China	Israel	Brazil	South Africa
Belgium	Indonesia	Jordan	Chile	Algeria
Canada	Korea, Republic of	Pakistan	Colombia	Benin
Denmark	Malaysia	Turkey	Mexico	Botswana
Finland	Philippines	Bangladesh	Peru	Cameroon
France	Singapore	Iran	Venezuela	Congo, Republic of
Germany	Thailand	Kuwait	Bolivia	Ghana
Greece		Nepal	Costa Rica	Kenya
Ireland		Papua New Guinea	Dominican Republic	Malawi
Italy		Sri Lanka	Ecuador	Mali
Netherlands		Syria	El Salvador	Mauritius
New Zealand			Guatemala	Mozambique
Norway			Haiti	Niger
Portugal			Honduras	Rwanda
Spain			Jamaica	Senegal
Sweden			Nicaragua	Sudan
Switzerland			Panama	Togo
United Kingdom			Paraguay	Tunisia
United States			Trinidad &Tobago	Uganda
			Uruguay	Zambia
				Zimbabwe

Table 2: Effects of Financial Integration on Economic Growth
(Dependent variable: real per capita GDP growth; five-year panel)

Initial Real GDP per capita (in logs)	-0.0586 **	[0.0236]
Years of Schooling	0.0024	[0.0086]
Population Growth (% change)	-3.2081	[2.0737]
Consumer Price Index (% change)	-0.0038	[0.0032]
Terms of Trade (% change)	0.5521 *	[0.3144]
Trade Openness (% GDP)	0.0330	[0.0270]
Domestic Private Credit (% GDP)	0.0725 **	[0.0304]
FDI & Equity Liabilities (% GDP)	0.1192 ***	[0.0448]
Debt Liabilities (% GDP)	-0.1021 ***	[0.0304]
FDI & Equity Assets (% GDP)	-0.0393	[0.0462]
Debt Assets (% GDP)	0.0143	[0.0232]
Constant	0.5947 ***	[0.1915]
Observations	455	
AR2 test p-value	0.8478	
Hansen p-value	1.0000	

Note: The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels respectively.
Robust standard errors are reported in brackets.

Table 3: Effects of Financial Integration on Economic Growth (by Country Characteristics)
(Dependent variable: real per capita GDP growth; five-year panel)

		Spliting sample according to:						
		Initial Real GDP per capita	**Years of Schooling**	**Domestic Private Credit**	**Institutional Quality**	**Trade Openness**	**Share of Manufacturing**	**Consumer Price Index**
Initial Real GDP per capita (in logs)		-0.0754 **	-0.0588	-0.0732	-0.0954 ***	-0.0464	-0.0797 **	-0.0626 *
		[0.0336]	[0.0405]	[0.0519]	[0.0331]	[0.0319]	[0.0308]	[0.0339]
Years of Schooling		0.0112	0.0026	0.0083	0.0085	0.0138	0.0149 *	0.0120
		[0.0076]	[0.0084]	[0.0106]	[0.0078]	[0.0124]	[0.0078]	[0.0092]
Population Growth (% change)		-1.8712	-2.4038	-2.4847	-2.9010	-1.5748	-2.1683	-2.0416
		[2.3911]	[2.4005]	[2.4490]	[2.6297]	[2.7644]	[2.1415]	[2.3676]
Consumer Price Index (% change)		-0.0023	-0.0022	-0.0033	-0.1356	-0.0054 **	-0.0043	-0.0037
		[0.0026]	[0.0026]	[0.0034]	[0.0853]	[0.0024]	[0.0033]	[0.0024]
Terms of Trade (% change)		0.6496 **	0.6157 *	0.6963 **	0.3534	0.4616	0.5753 *	0.5132 *
		[0.3009]	[0.3632]	[0.3208]	[0.4503]	[0.3200]	[0.3085]	[0.2857]
Institutional Quality		___	___	___	0.0358	___	___	___
					[0.0370]			
Share of Manufacturing Sector (% GDP)		___	___	___	___	___	0.5782	___
							[0.3858]	
Trade Openness (% GDP)		0.0435	0.0403	0.0426	0.0010	0.0595	0.0404	0.0453 *
		[0.0293]	[0.0270]	[0.0277]	[0.0194]	[0.0375]	[0.0270]	[0.0243]
Domestic Private Credit (% GDP)		0.0414	0.0536	0.0367	0.0065	0.0259	0.0345	0.0673 *
		[0.0373]	[0.0467]	[0.0505]	[0.0413]	[0.0455]	[0.0367]	[0.0392]
FDI & Equity Liabilities (% GDP)	High group	0.0914 **	0.1047 ***	0.1415 *	0.0902 *	0.1470 **	0.0874	0.0243
		[0.0409]	[0.0387]	[0.0739]	[0.0458]	[0.0684]	[0.1154]	[0.1385]
	Low group	-0.0608	0.0226	-0.0508	-0.0379	-0.0136	0.0057	0.1064 **
		[0.1205]	[0.1034]	[0.1271]	[0.0924]	[0.0790]	[0.1180]	[0.0529]
Debt Liabilities (% GDP)	High group	-0.0462 *	-0.0502 *	-0.0610 *	-0.1086 *	-0.1276 ***	-0.0583	-0.0822 *
		[0.0254]	[0.027]	[0.0356]	[0.0571]	[0.0292]	[0.0640]	[0.0425]
	Low group	-0.1201 ***	-0.1189 **	-0.1153 ***	-0.1423 ***	-0.0196	-0.0845 ***	-0.1131 ***
		[0.0369]	[0.0502]	[0.0411]	[0.0484]	[0.0637]	[0.0323]	[0.0412]
FDI & Equity Assets (% GDP)	High group	-0.0626	-0.0729	-0.1038	-0.0419	-0.1077	-0.0730	-0.2248
		[0.0573]	[0.0505]	[0.0821]	[0.0418]	[0.0723]	[0.0933]	[0.3078]
	Low group	0.0701	-0.3329	-0.1411	-0.6568	0.1187	0.1177	-0.0794
		[0.5678]	[0.4679]	[0.6278]	[0.4409]	[0.1852]	[0.1221]	[0.0566]
Debt Assets (% GDP)	High group	0.0005	0.0023	-0.0021	0.0459	0.0228	0.0088	-0.0325
		[0.0246]	[0.0283]	[0.0369]	[0.0328]	[0.0259]	[0.0649]	[0.0982]
	Low group	0.1633	0.0981	0.0214	0.1478	-0.0843	0.0190	0.0281
		[0.1887]	[0.1886]	[0.2223]	[0.1584]	[0.1237]	[0.0332]	[0.0390]
Constant		0.6826 **	0.5966	0.7080 *	0.9733 ***	0.4061	0.6177 ***	0.5790 **
		[0.2752]	[0.3634]	[0.3968]	[0.2793]	[0.2471]	[0.2332]	[0.2699]
Observations		455	455	455	162	455	455	455
AR2 test p-value		0.5333	0.5890	0.6695		0.4612	0.6718	0.5832
Hansen p-value		1.0000	1.0000	1.0000	0.9999	1.0000	1.0000	1.0000

Note 1: Due to data limitation, the estimation using institutional quality is conducted only for periods 1996-2004.
Note 2: The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels respectively.
Robust standard errors are reported in brackets.

Table 4: List of Countries (by Country Characteristics)

		Initial Real GDP per capita	Years of Schooling	Domestic Private Credit	Institutional Quality	Trade Openness	Share of Manufacturing	Consumer Price Index
Industrial	Australia	H	H	H	H	L	L	L
	Austria	H	H	H	H	H	H	L
	Belgium	H	H	H	H	H	H	L
	Canada	H	H	H	H	H	L	L
	Denmark	H	H	H	H	H	L	L
	Finland	H	H	H	H	L	H	L
	France	H	H	H	H	L	H	L
	Germany	H	H	H	H	L	H	L
	Greece	H	H	H	H	L	L	H
	Ireland	H	H	H	H	H	H	L
	Italy	H	H	H	H	L	H	L
	Japan	H	H	H	H	L	H	L
	Netherlands	H	H	H	H	H	L	L
	New Zealand	H	H	H	H	L	H	L
	Norway	H	H	H	H	H	L	L
	Portugal	H	L	H	H	L	H	H
	Spain	H	H	H	H	L	H	L
	Sweden	H	H	H	H	H	H	L
	Switzerland	H	H	H	H	H	H	L
	United Kingdom	H	H	H	H	L	H	L
	United States	H	H	H	H	L	H	L
Emerging Economies	Argentina	H	H	L	H	L	H	H
	Brazil	H	L	H	H	L	H	H
	Chile	H	H	H	H	L	L	H
	China	L	L	H	L	L	H	L
	Colombia	H	L	L	L	L	L	H
	Egypt	L	L	H	L	H	L	H
	India	L	L	L	L	L	L	L
	Indonesia	L	L	L	L	H	H	H
	Israel	H	H	H	H	H	H	H
	Jordan	L	H	H	H	H	L	L
	Korea, Republic of	H	H	H	H	L	H	L
	Malaysia	H	H	H	H	H	H	L
	Mexico	H	H	L	H	L	H	H
	Pakistan	L	L	L	L	L	L	L
	Peru	L	H	L	L	L	L	H
	Philippines	L	H	H	L	H	H	H
	Singapore	H	H	H	H	H	H	L
	South Africa	H	H	H	H	L	H	H
	Thailand	L	H	H	H	H	H	L
	Turkey	L	L	L	L	L	H	H
	Venezuela	H	H	L	L	L	H	H
Other Developing Countries	Algeria	H	L	H	L	H	L	H
	Bangladesh	L	L	L	L	L	L	L
	Benin	L	L	L	L	H	L	H
	Bolivia	L	L	L	L	L	L	H
	Botswana	L	L	L	H	H	L	H
	Cameroon	L	L	L	L	L	L	L
	Congo, Republic of	L	L	L	L	H	L	L
	Costa Rica	H	H	L	H	H	H	H
	Dominican Republic	L	L	L	L	L	H	H
	Ecuador	L	H	L	L	H	L	H
	El Salvador	L	L	L	L	L	H	H
	Ghana	L	L	L	L	H	L	H
	Guatemala	L	L	L	L	L	H	H
	Haiti	L	L	L	L	L	L	H
	Honduras	L	L	H	L	H	H	H
	Iran	H	L	L	L	H	L	H
	Jamaica	L	L	L	H	H	L	H
	Kenya	L	L	L	L	H	L	H
	Kuwait	H	H	H	H	H	L	L
	Malawi	L	L	L	L	H	L	H
	Mali	L	L	L	L	L	L	L
	Mauritius	H	H	H	H	H	H	H
	Mozambique	L	L	L	L	L	L	H
	Nepal	L	L	L	L	L	L	L
	Nicaragua	L	L	L	L	L	H	L
	Niger	L	L	L	L	L	L	L
	Panama	H	H	H	H	H	L	L
	Papua New Guinea	L	L	L	L	H	L	L
	Paraguay	L	H	L	L	H	H	H
	Rwanda	L	L	L	L	L	L	L
	Senegal	L	L	L	L	H	L	L
	Sri Lanka	L	H	L	L	H	H	H
	Sudan	L	L	L	L	L	L	H
	Syria	L	L	L	L	H	L	H
	Togo	L	L	L	L	H	L	L
	Trinidad &Tobago	H	H	H	H	H	L	H
	Tunisia	H	L	H	H	H	H	L
	Uganda	L	L	L	L	L	L	H
	Uruguay	H	H	H	H	L	H	H
	Zambia	L	L	L	L	H	H	H
	Zimbabwe	L	L	L	L	L	H	H

Note1: “H” refers to “high group” and “L” refers to “low group.” We categorize 83 countries into “high group” and “low group” according to the historical averages of the characteristics variables (such as years of schooling and inflation rate) over 1974-2007.

Note2: The definitions of “Industrial”,“Emerging Economies” and “Other Developing Countries” follow Kose, Prasad and Taylor (2009).

Table 5: Effects of Financial Integration on Economic Growth (by Region)

(Dependent variable: real per capita GDP growth; five-year panel)

	Western Europe and North America	**East Asia**	**Other Asia**	**Central and South America**	**Africa**
Initial Real GDP per capita (in logs)			-0.0838 *		
			[0.0428]		
Years of Schooling			0.0168		
			[0.0103]		
Population Growth (% change)			-0.6175		
			[2.3124]		
Consumer Price Index (% change)			-0.0041		
			[0.0033]		
Terms of Trade (% change)			0.3788		
			[0.2901]		
Trade Openness (% GDP)			0.0375		
			[0.0859]		
Domestic Private Credit (% GDP)			-0.0362		
			[0.0526]		
FDI & Equity Liabilities (% GDP)	0.3232 *	0.3861	-0.1503	0.0046	-0.0110
	[0.1921]	[0.3482]	[0.3115]	[0.1195]	[0.2101]
Debt Liabilities (% GDP)	0.0603	-0.1973	-0.0658	-0.1354 *	-0.1714 ***
	[0.1376]	[0.1904]	[0.1163]	[0.0813]	[0.0506]
FDI & Equity Assets (% GDP)	-0.2846	-0.4418	0.9138	-0.2568	0.4824
	[0.1789]	[0.2697]	[1.0915]	[0.5559]	[0.5061]
Debt Assets (% GDP)	-0.0896	0.1676	0.0319	0.0898	0.1271
	[0.1304]	[0.3790]	[0.1037]	[0.1033]	[0.6469]
Constant			0.7515 **		
			[0.3428]		
Observations			455		
AR2 test p-value			0.3470		
Hansen p-value			1.0000		

Note: The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels respectively. Robust standard errors are reported in brackets.

Table 6: Private Debt Liabilities vs Public Debt Liabilities
(Dependent variable: real per capita GDP growth; five-year panel)

Initial Real GDP per capita (in logs)	-0.0769 *
	[0.0434]
Years of Schooling	0.0190
	[0.0130]
Population Growth (% change)	-0.0267
	[4.9519]
Consumer Price Index (% change)	-0.0028
	[0.0032]
Terms of Trade (% change)	0.3564
	[0.3322]
Trade Openness (% GDP)	0.0516
	[0.0778]
Domestic Private Credit (% GDP)	0.0689
	[0.1084]
FDI & Equity Liabilities (% GDP)	-0.0716
	[0.1501]
Private Debt Liabilities (% GDP)	-0.0528
	[0.0878]
Public Debt Liabilities (% GDP)	-0.1605 *
	[0.0860]
FDI & Equity Assets (% GDP)	0.0094
	[0.3287]
Debt Assets (% GDP)	0.1187
	[0.1211]
Constant	0.6283 *
	[0.3595]
Observations	301
AR2 test p-value	0.3329
Hansen p-value	1.0000

Note: The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels respectively. Robust standard errors are reported in brackets.

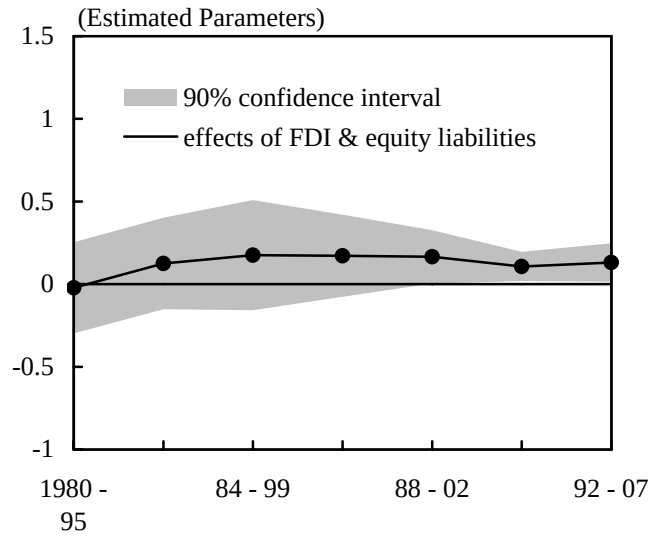
Table 7: Indirect Effects of Financial Integration through Trade Openness and Domestic Private Credit

	Dependent Variable:		
	Trade Openness (% GDP)	**Domestic Private Credit (% GDP)**	
Lag(Trade Openness)	0.9953 ***	—	—
	[0.0539]		
Economic Growth (% change)	0.1406	—	—
	[0.1194]		
Lag(Domestic Private Credit)	—	0.9422 ***	0.9176 ***
		[0.0435]	[0.1087]
Trade Openness (% GDP)	—	0.0178	0.1015 ***
		[0.0316]	[0.0376]
Initial Real GDP per capita (in logs)	—	0.0486 **	0.0053
		[0.0197]	[0.0370]
FDI & Equity Liabilities (% GDP)	0.0995 ***	0.0281	-0.0151
	[0.0374]	[0.0533]	[0.1265]
Debt Liabilities (% GDP)	0.0015	0.0103	
	[0.0193]	[0.0270]	
Private Debt Liabilities (% GDP)			0.1273
			[0.1255]
Public Debt Liabilities (% GDP)			-0.0800 *
			[0.0455]
FDI & Equity Assets (% GDP)	0.0798 ***	0.0054	0.0251
	[0.0241]	[0.0590]	[0.5386]
Debt Assets (% GDP)	-0.0176	0.0013	0.0147
	[0.0140]	[0.0242]	[0.0308]
Constant	-0.0093	-0.3741 **	-0.0576
	[0.0395]	[0.1552]	[0.2593]
Observations	482	476	313
AR2 test p-value	0.7624	0.1202	0.4524
Hansen p-value	0.9654	1.0000	1.0000

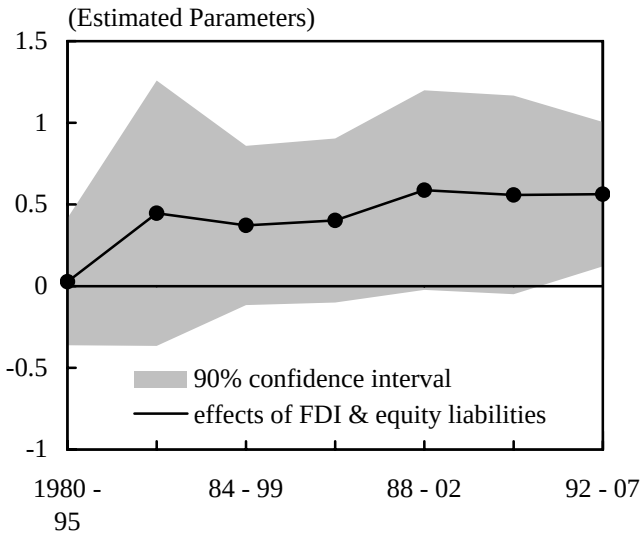
Note: The symbols *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels respectively. Robust standard errors are reported in brackets.

Figure 1: Changes in the Effects of FDI & Equity Liabilities on Economic Growth

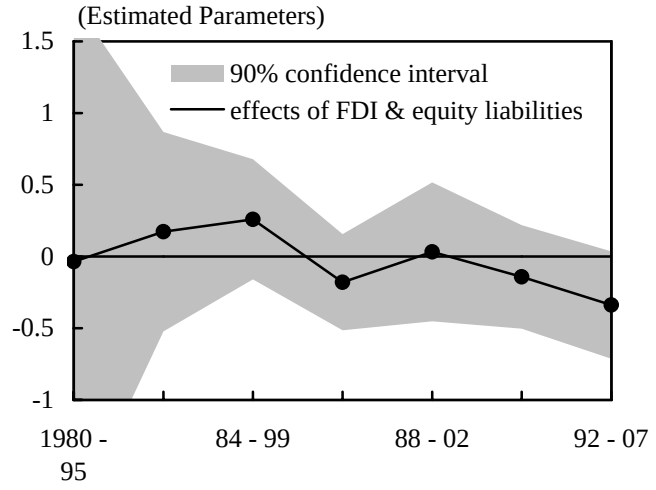
(1) Western Europe and North America



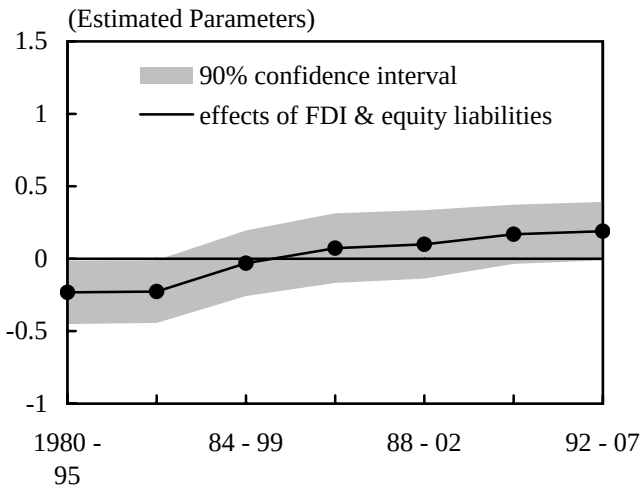
(2) East Asia



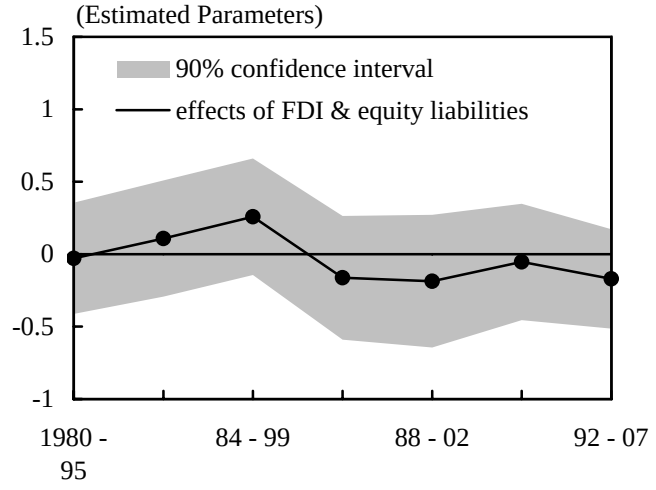
(3) Other Asia



(4) Central and South America



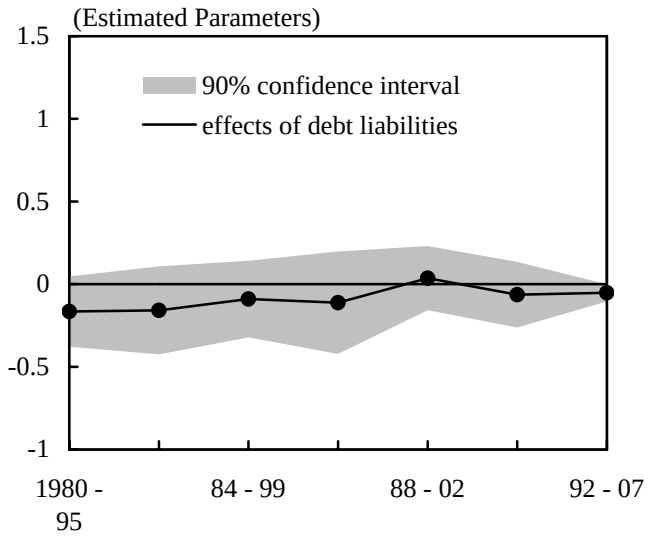
(5) Africa



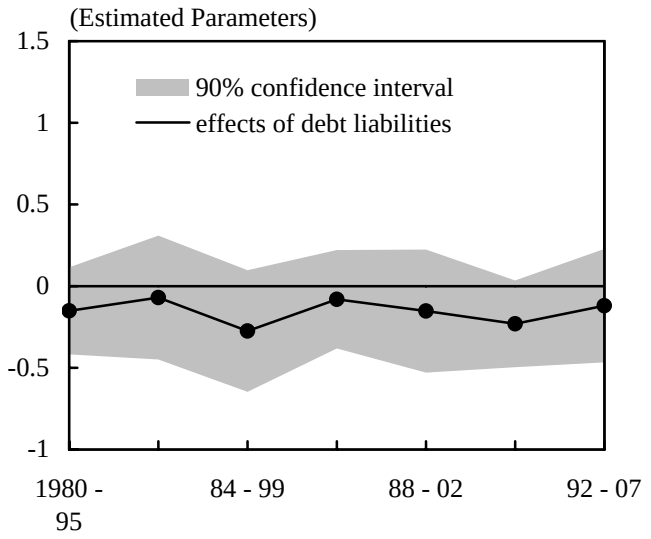
Note: The figure shows the variations over time in the parameters on the FDI and equity liabilities.
Each parameter is estimated using the previous 15 years of data.

Figure 2: Changes in the Effects of Debt Liabilities on Economic Growth

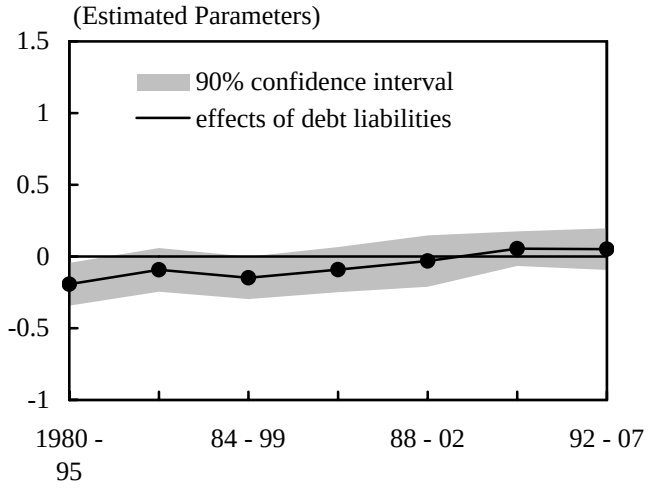
(1) Western Europe and North America



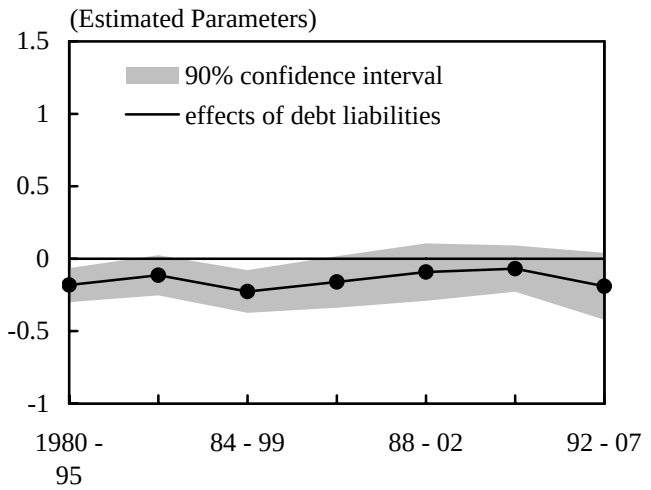
(2) East Asia



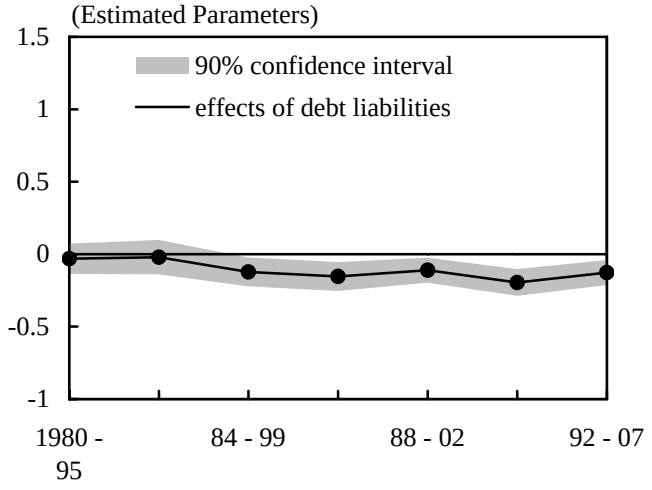
(3) Other Asia



(4) Central and South America



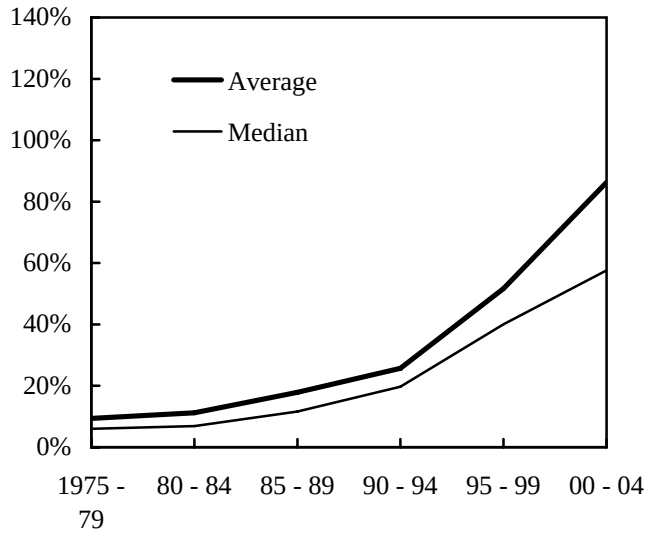
(5) Africa



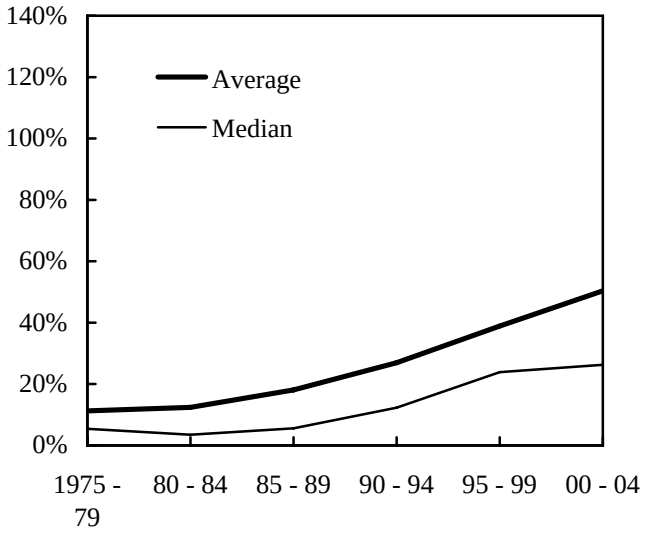
Note: The figure shows the variations over time in the parameters on the debt liabilities.
Each parameter is estimated using the previous 15 years of data.

Figure 3: Changes in the Volume of FDI & Equity Liabilities (%GDP)

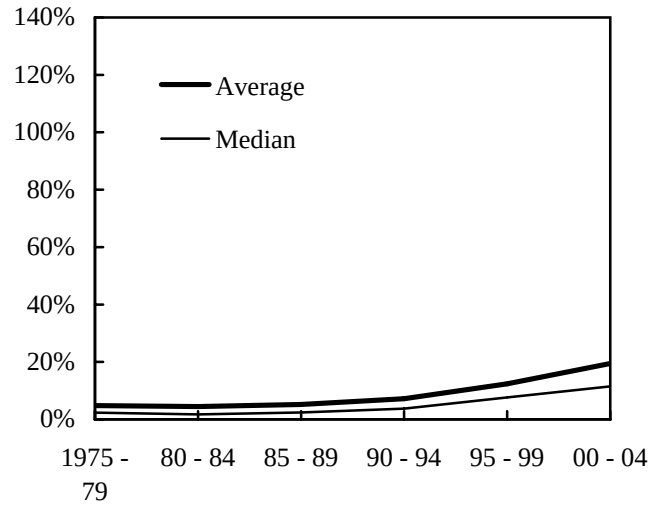
(1) Western Europe and North America



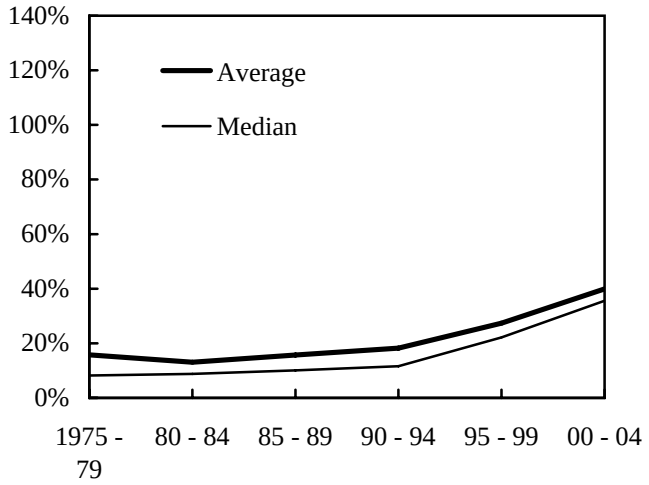
(2) East Asia



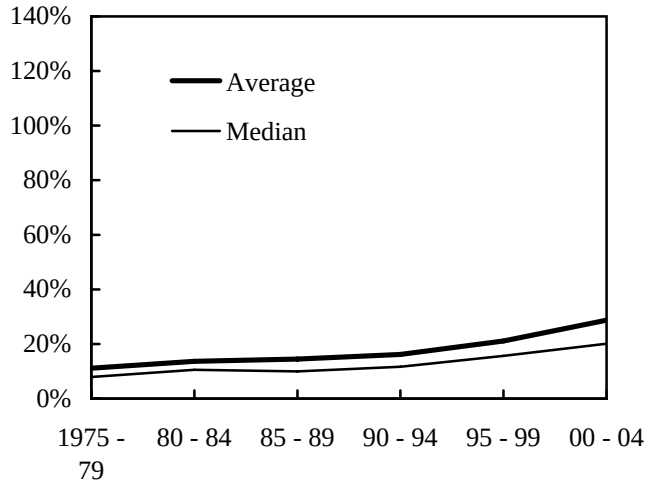
(3) Other Asia



(4) Central and South America



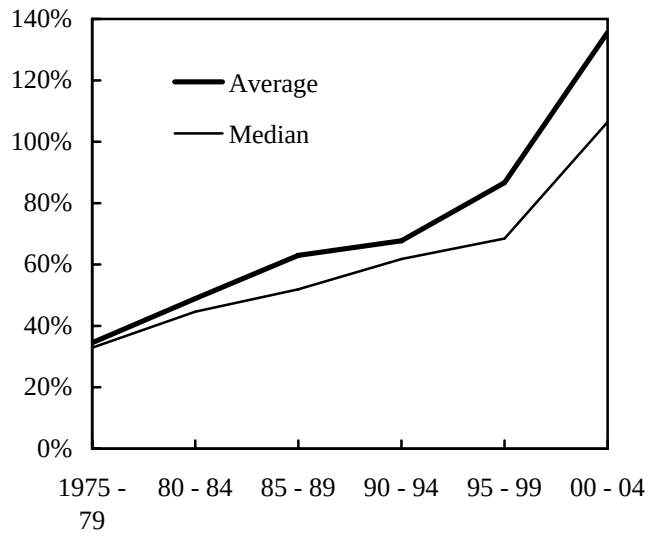
(5) Africa



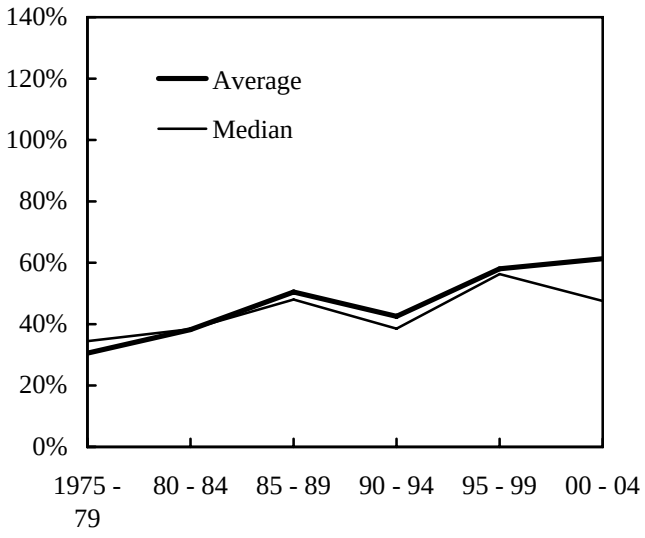
Note: Unweighted average and median are calculated in each period and region.

Figure 4: Changes in the Volume of Debt Liabilities (%GDP)

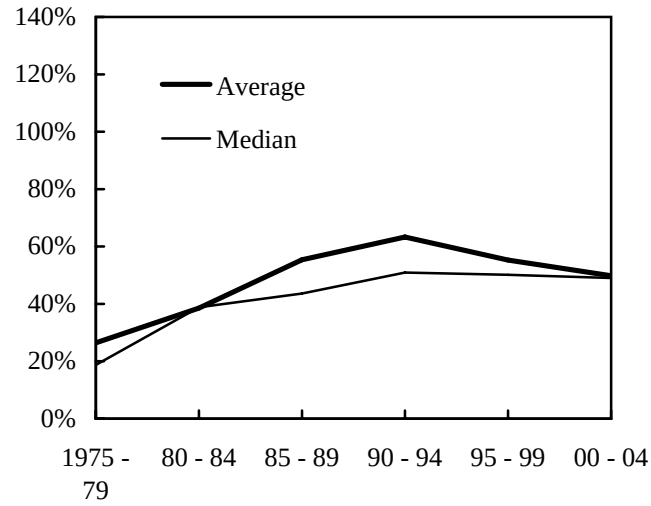
(1) Western Europe and North America



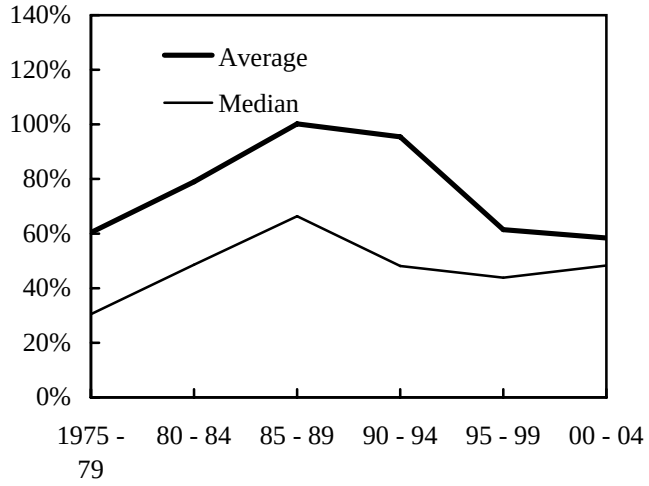
(2) East Asia



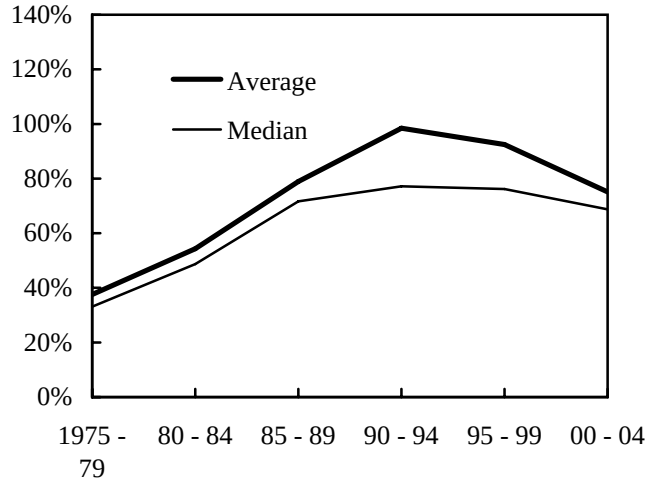
(3) Other Asia



(4) Central and South America



(5) Africa



Note: Unweighted average and median are calculated in each period and region.