

Financial integration, information and communication technology, and macroeconomic volatility: Evidence from ten Asian economies

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Abstract

This paper aims to examine the impact of financial integration and information and communication technology (ICT) development on output volatility. It applies a two-country dynamic general equilibrium model, in which ICT is assumed to increase the volume and speed of capital flows. This model predicts that economies with a high ICT development or/and a high degree of financial integration exhibit greater output fluctuations in the face of monetary policy shocks, but lower output fluctuations in the face of fiscal policy shocks. The empirical findings estimated by using the panel vector autoregression approach and impulse response analysis support these predictions.

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1. Introduction

During the last two decades, the financial markets of Asian economies have become increasingly integrated with international financial markets through capital flows. The surge in capital flows to Asian economies is due not only to changes in their policies, such as the liberalization

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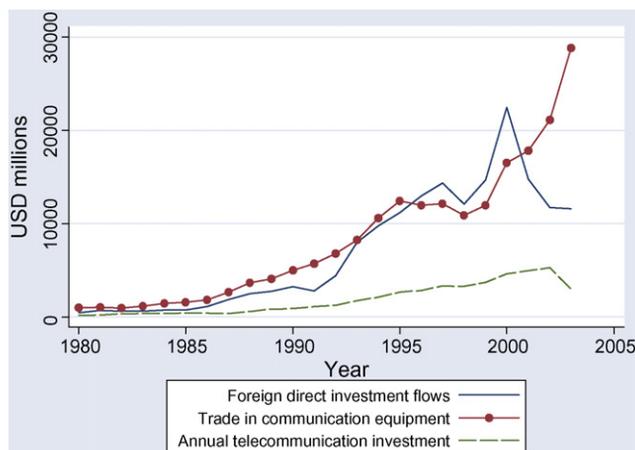


Fig. 1. Relationship between capital flows and ICT development.

Table 1
Output volatility

Country	1980–1985	1986–1991	1992–1997	1998–2003	1980–2003
China	3.44	7.40	6.77	0.31	5.70
Hong Kong	1.09	2.27	0.83	3.08	2.87
India	2.51	3.84	3.77	1.51	3.48
Korea	3.30	4.67	7.11	15.40	6.99
Malaysia	2.85	1.52	5.75	8.17	5.53
Pakistan	1.28	1.82	3.05	0.62	2.03
The Philippines	12.36	5.52	5.49	7.21	7.22
Singapore	3.81	2.73	3.87	4.22	3.81
Taiwan	2.77	4.68	1.48	5.46	4.09
Thailand	5.43	2.28	5.92	10.31	5.02
Overall mean	3.88	3.67	4.40	5.63	4.67

All data here are real GDP and are logged. They are then detrended using a band-pass (2, 8) filter. Volatility is measured by the standard deviation (in percentage).

of these flows and opening up of stock markets, but also to the developments in information and communication technology (ICT). In the present study, financial integration refers to cross-border capital flows, and output volatility refers to short-term output fluctuations.

As shown in Fig. 1, gross foreign direct investment (FDI) flows increase for 10 Asian economies – China, Hong Kong, India, Korea, Malaysia, Pakistan, the Philippines, Singapore, Taiwan, and Thailand – from 1980 to 2000. This trend is accompanied by an increase in trade in telecommunication equipment or telecommunication investment, both of which reflect an advance in ICT. Within the same period, the average annual growth rate of gross FDI flows, trade in telecommunication equipment and telecommunication investment are 19, 17, and 16%, respectively.

Table 1 reports the overall mean value of output volatility, as measured by the standard deviation of real GDP,² for the sample countries. It decreased slightly from 3.88% in the first period (1980–1985) to 3.67% in the second one (1986–1991) and then increased to 4.40% in the third

² They are logged and then detrended using a band-pass (2, 8) filter.

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