

Research on the Financial Cooperation and Economic Growth— Evidence from China and ASEAN

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Abstract: China has actively carried out financial cooperation with countries along the route, utilizing the new framework of financial cooperation to inject new momentum into economic growth. This paper measures the development level of China-ASEAN financial cooperation with the help of the China-ASEAN Financial Cooperation Index from 2000 to 2022, and empirically examines the impact of China-ASEAN financial cooperation on the economic growth of ASEAN countries through the fixed effect model. The study shows that China-ASEAN financial cooperation significantly contributes to the economic growth of ASEAN countries by advancing financial development, improving the degree of financial stability, and expanding financial openness. Heterogeneity analysis found that the promoting effect of China-ASEAN financial cooperation on economic growth is more pronounced in countries with high institutional quality and high economic development level.

Keywords: China-ASEAN; Financial Cooperation; Economic Growth

1. Introduction

After the impact of the epidemic and other emergencies, the economy is gradually recovering, but the momentum is unstable. The economic development of all countries is facing multiple pressures. Grasping new economic growth points and realizing economic upturn has become a top priority. Under such circumstances, there is great potential to promote the high-quality implementation of the Belt and Road Initiative, improve inter-regional economic and trade agreements, and strengthen economic and trade cooperation with countries and regions along the route to drive economic development. ASEAN, as a close partner of China's "Belt and Road" strategy, has become the most successful and dynamic model of regional cooperation in

the Asia-Pacific. China - ASEAN financial cooperation continues to promote, has achieved initial results, follow-up cooperation power is still strong, is gradually forming a unique model, in-depth exploration of China - ASEAN financial cooperation, China and ASEAN to activate the economy of both sides of the great significance.

Current research on China-ASEAN financial cooperation focuses more on the current situation and dilemma of cooperation. Under the joint efforts of China and ASEAN countries, China-ASEAN financial cooperation mechanisms have been gradually enriched, and financial infrastructure is becoming more and more perfect. The financial regulatory mechanism has become more sound, financial exchange platforms are increasing. Of course, the process of advancing China-ASEAN financial cooperation is also faced with practical problems such as slow process, lack of effective regulation, ineffective cooperation mechanism, interference from big countries (Zhang, 2022) and imbalance of regional development (Li, 2018). However, in general, the overall development of China-ASEAN financial cooperation is favorable. Some scholars' studies have found that financial cooperation has a promoting effect on economic growth. Financial cooperation may act on economic growth through channels such as improving import and export trade, attracting direct investment, and stimulating domestic consumption. Although economists have generally agreed that financial cooperation has a certain role to play in promoting economic growth, they have not explored the channels

Based on this, this paper examines the impact of China-ASEAN financial cooperation on economic growth with the help of the China-ASEAN Financial Cooperation Index for the period 2000-2022, using the logarithm of GNP per capita to measure economic growth. The empirical results show that there is a significant contribution of China-ASEAN

financial cooperation to economic growth. Further mechanism tests show that financial cooperation can play a role in promoting economic growth through three channels: financial development, financial stability, and financial openness.

The research contributions of this paper are as follows: Firstly, it systematically examines the impact of China-ASEAN financial cooperation on economic growth, providing new evidence to assess the economic effects of China-ASEAN financial cooperation. Secondly, it elucidates the internal mechanism of financial cooperation affecting economic growth from a new perspective. Third, from the national conditions of ASEAN countries, a rich heterogeneity analysis is carried out to provide useful insights for subsequent cooperation.

2. Theoretical Analysis

2.1 Financial Development Channels

Economic growth is closely related to the level of financial development. Studies on the causal relationship between financial development and economic growth are numerous and have not yet reached a unified conclusion, but overall, the view that financial development can act on economic growth dominates (Jiang and Su, 2016). Through theoretical analysis and empirical research, scholars have found that financial development may contribute to economic growth by optimizing resource allocation, promoting capital formation (Anis et al., 2015), facilitating the accumulation of human capital, enhancing investment efficiency and total factor productivity, strengthening credit market competitiveness (Deidda, 2006) and other rich channels to stimulate the economy and promote economic growth.

Continuously deepening financial cooperation has provided strong financial support to China and ASEAN bilaterally, promoted the financial development of ASEAN countries. Financial cooperation between China and ASEAN is all-encompassing. Cooperation includes, but is not limited to, financial institution cooperation, financial infrastructure cooperation, financial regulatory cooperation and monetary cooperation. First, financial institution cooperation optimizes the financial structure and promotes the financial development of ASEAN countries. At present, the financial branches set up by Chinese-funded banks have fully covered

the ten ASEAN countries, and some ASEAN countries have also actively set up branches in China. The mutual establishment of financial branches gradually breaks down information barriers and guarantees the quality of financial development. Secondly, a sound financial infrastructure is the cornerstone of financial progress, provides a solid guarantee for financial development. China and ASEAN have joined hands to actively promote cooperation in the field of financial infrastructure. A constantly enriched financial infrastructure contributes to orderly financial development. Finally, financial regulation is a key pillar for long-term smooth financial development. Financial regulatory cooperation between China and ASEAN has gradually clarified each other's rights and responsibilities. It improves the efficiency of financial regulation and better promotes orderly financial development. Therefore, it can be inferred that China-ASEAN financial cooperation can promote ASEAN economic growth by improving the level of financial development in ASEAN countries.

2.2 Financial Stability Channels

Financial stability is a prerequisite for economic growth. Most real economic transactions cannot be carried out without the services of the financial system. The stability of the financial system is therefore crucial for economic development. Financial instability can trigger many forms of economic damage. It may cause damage to the trading environment of the financial market, disrupt the channels of capital transmission, and affect the operation of the financial market. In severe cases, it can even trigger a financial crisis and affect the trend of the entire economy. In contrast, a stable financial system can improve the role of the financial system's ability to withstand risks and play a positive role in economic growth.

The deepening of China-ASEAN financial cooperation is also a process of increasing financial stability between China and ASEAN. The contribution of China-ASEAN financial cooperation to financial stability is mainly reflected in the following two aspects: Firstly, monetary cooperation will ensure financial stability by lowering transaction costs and smoothing exchange rate risks. China and ASEAN have signed a series of agreements on the occasion of currency cooperation. This greatly eases the financial friction in the process

of capital exchanges, reduces transaction costs, and plays a role in stabilizing the exchange rate. It strengthens the ability of economies to prevent and resolve financial risks and enhances financial stability. Second, effective financial regulatory cooperation is an effective way and institutional guarantee to resist external shocks and maintain financial stability (Lin and Yang, 2011). The signing of the Memorandum of Understanding (MOU) and the establishment of the ASEAN-China-Japan-Korea Macroeconomic Research Office (AMRO) provide a new and efficient platform for financial regulation and further safeguard financial stability. The above analysis shows that China-ASEAN financial cooperation can promote ASEAN economic growth by enhancing financial stability.

2.3 Open Financial Channels

Financial openness has a promoting effect on economic growth. Financial openness is both a state and a policy. Financial openness is like a "double-edged sword" for economic growth. On the one hand, financial openness usually implies easier trade channels and more efficient allocation of resources, which are obviously of great significance for economic growth. Financial openness also brings competition, which encourages economies to actively promote domestic reforms to realize their own potential and may contribute to economic growth by promoting reforms in the host country (Mishkin, 2009). However, on the other hand, financial openness under immature conditions and inadequate institutional development may undermine financial stability and, in severe cases, even induce financial crises and become a drag on economic development. Although financial openness increases macroeconomic uncertainty to a certain extent, the positive effects of financial openness can more than compensate for its negative effects (Bekaert et al., 2011), and in general financial openness can promote economic growth.

The increasingly close relationship between China and ASEAN has provided broad space for deepening financial cooperation and raised higher requirements for both sides to expand financial liberalization. The role of China-ASEAN financial cooperation in advancing financial openness in ASEAN countries is mainly reflected in the following aspects: first, China-ASEAN financial

cooperation has expanded financial openness by liberalizing the capital account. China has abolished the restrictions on the investment quota of Qualified Foreign Institutional Investors (QFII) and Renminbi Qualified Foreign Institutional Investors (RQFII). Relaxed the restrictions on cross-border capital transactions, so as to further liberalize the capital account to promote financial liberalization. Secondly, the cooperation of financial markets between China and ASEAN countries has promoted the opening of financial markets and further expanded financial liberalization. China and ASEAN countries have set up bank branches for each other and jointly established the China-ASEAN Banking Union, which has pushed forward the liberalization of the banking industry; the formulation and continuous improvement of the Asian Bond Market Initiative (ABMI) has steadily pushed forward financial liberalization. Finally, the establishment of free trade zones in the process of bilateral cooperation has injected new vitality into financial liberalization. Based on the above analysis, financial cooperation should promote the economic growth of ASEAN countries by enhancing their level of financial openness. Based on the above analysis, the hypothesis is formulated that China-ASEAN financial cooperation can contribute to the economic growth of ASEAN countries by promoting their financial development, enhancing financial stability, and promoting financial openness.

3. Empirical Model

To test the relationship between China-ASEAN financial cooperation and economic growth, a two-way fixed-effects model is constructed for the following year countries:

$$EG_{it} = \alpha + \beta \times FC_{it} + \gamma \times \text{Controls} + u_i + v_t + \varepsilon_{it} \quad (1)$$

Among them, t represents the year, i represents the 10 ASEAN countries, and the dependent variable EG represents the economic growth of ASEAN countries, expressed as the logarithm of per capita GDP adjusted for purchasing power parity (Acemoglu Daron, 2008). In addition, the per capita GDP (\ln pcGDP) and total GDP (\ln GDP) in 2015 were also tested using constant US dollars. The core explanatory variable FC represents the China-ASEAN Financial Cooperation Index. Controls are the control variables, u and v represent annual fixed effects and ASEAN country fixed effects, respectively.

ε is the disturbance term. β is the coefficient of interest, which, if significantly positive, suggests that, controlling for the other variables, China-ASEAN financial cooperation is able to significantly promote the economic growth of ASEAN countries.

Referring to the existing literature (Acemoglu Daron, 2008), the logarithm of GDP per capita adjusted by purchasing power parity (EG) is selected as the explanatory variable to measure the economic growth of ASEAN countries in this paper. In addition, GDP per capita (ln pcGDP) and total GDP (ln GDP) in constant 2015 dollars are tested. The China-ASEAN financial cooperation index (FC) constructed by Tian and Yu (2023) is used as an explanatory variable to measure the level of China-ASEAN financial cooperation. This paper sets the following control variables: labor level (Lab), population growth (PGR), population dependency ratio (Fert), urbanization level (Urban), trade level (Trade), science and technology level (Intech), government spending (Gov), fixed capital (Capital), inflation level (Inf), management quality (Rq), rule of law (Rul), voice and responsibility (Va). The specific descriptions of variables and data sources are shown in Table 1.

The data range covered in this article is from 2000 to 2022. The reason for choosing 2000 as the starting point is that the signing of the Chiang Mai Initiative in 2000 is widely regarded as the beginning of East Asia ASEAN financial cooperation.

Table 1. Variables and Data Sources

Variable	Definition	Unit	Data sources
FC	China-ASEAN Financial Cooperation Index		Tian and Yu (2023)
EG	Ln (per capita GDP adjusted for purchasing power parity)		WDI
Ln pcGDP	Ln (per capita GDP (in 2015 constant US dollars))		
Ln GDP	Ln (GDP in 2015 constant US dollars)		
Lab	Ln (total labor force)		
PGR	Annual percentage of population growth	%	
Fert	The percentage of population aged 65 and above and under 15 years old to the working age population	%	
Urban	Urban population as a percentage of total population	%	
Trade	The percentage of commodity trade to GDP	%	

Intech	The percentage of information and communication technology product exports to total product exports	%	
Gov	The percentage of general government final consumption expenditure to GDP	%	
Capital	The percentage of total fixed capital formation to GDP	%	
Inf	GDP deflator		
Rq	WGI's management quality indicators		WGI
Rul	WGI's Rule of Law Indicators		
Va	WGI's discourse power and responsibility indicators		

Table 2 reports the descriptive statistics of the raw data of the main variables. The financial cooperation (FC) indicator has a mean value of 4.177, a standard deviation of 6.505, a minimum value of 0, and a maximum value of 34.139, indicating a more significant difference in financial cooperation between China and ASEAN countries. The data for each control variable is also basically consistent with the existing literature.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Max	Min
EG	230	9.278	1.166	6.881	11.590
ln pcgdp	230	8.317	1.350	5.762	11.118
ln gdp	230	25.257	1.532	22.329	27.746
FC	230	4.177	6.505	0	34.139
Lab	228	16.207	1.810	11.926	18.737
PGR	230	1.308	0.755	-4.170	5.322
Fert	230	50.371	11.574	27.311	85.752
Urban	230	49.814	24.083	18.586	100
Trade	230	106.75	66.097	28.792	343.488
Intech	194	17.200	16.762	0.0130	54.974
Gov	212	12.068	5.299	3.460	29.399
Capital	214	25.308	5.837	10.465	40.891
Inf	230	101.401	37.925	15.373	206.869
Rq	220	-0.033	1.008	-2.349	2.252
Rul	220	-0.217	0.889	-1.736	1.838
Va	220	-0.755	0.685	-2.233	0.468

4. Empirical Results

4.1 Benchmark Results

Table 3 reports the results of the benchmark regression of the impact of China-ASEAN cooperation on economic growth. The regression coefficient from column (1) is 0.008, which is significantly positive at the 5% level. This confirms that there is a significant contribution of financial cooperation to economic growth and that for every one point increase in the financial cooperation index, the ASEAN countries' economy grows by 0.8%. The results in columns

(2) and (3) are also consistent with theoretical expectations. The above test shows that China-ASEAN cooperation promotes economic growth.

Table 3. Impact of China-ASEAN Financial Cooperation on ASEAN Economic Growth

	(1)	(2)	(3)
	EG	ln pcgdp	ln gdp
FC	0.008**	0.008**	0.007**
	(0.003)	(0.003)	(0.003)
Control	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
within R2	0.919	0.919	0.950
Observation	230	230	230

4.2 Robustness Testing

To ensure the reliability of the results, this paper performs the following robustness tests. First, the explanatory variables are replaced. The non-logarithmic purchasing power-adjusted per capita GDP value (pcgdp) is used as the explanatory variable for the regression. The results are shown in column (1) of Table 4, and the conclusions of this paper still hold. Second, the 2007-2008 data are excluded. Considering that the financial crisis has caused a large impact on the ASEAN economy, the 2007-2008 data is excluded. The results are shown in Column (2) of Table 4, and the estimated coefficients are significantly positive, further enhancing the reliability of the findings. Third, the data for 2020-2021 are excluded. 2020-2021 is the year when the outbreak of the New Crown Epidemic led to a major global economic upheaval, and most of the ASEAN countries experienced negative economic growth. In order to exclude the impact of the New Crown Epidemic, the 2020-2021 data are excluded, and the results are shown in column (3) of Table 4, and the results of the benchmark regression in this paper are robust. Fourth, the control variables are excluded. In order to avoid the interference of missing variables on the regression results, the control variable indicator of science and technology level (Intech) with the most missing values is excluded, and the results are shown in column (4) of Table 4, and the conclusions of this paper are still valid.

Table 4. Robustness Test

	(1)	(2)	(3)	(4)
	pcgdp	EG	EG	EG
FC	0.105***	0.007**	0.007*	0.008**
	(0.012)	(0.003)	(0.004)	(0.003)

Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
within R2	0.903	0.921	0.915	0.916
Observation	230	210	210	230

5. Further Research

5.1 Mechanism Analysis

Theoretical analysis shows that China-ASEAN financial cooperation promotes economic growth through three channels: financial development, financial stability, and financial openness, which are empirically tested below.

To test the impact of financial cooperation on financial development, this paper refers to Zhao and Lin (2023), proxies the level of financial development (FD) by the percentage of private sector's domestic credit to GDP. The empirical results are shown in Column (1) of Table 6, where every 1-point increase in the China-ASEAN financial cooperation index increases the level of financial development in ASEAN countries by 1.3%. This indicates that China-ASEAN financial cooperation enhances the level of financial development of ASEAN countries. Meanwhile, according to the previous analysis, there is a facilitating effect of financial development on economic growth (Beck, 2002). Therefore, China-ASEAN financial cooperation can promote economic growth through promoting financial development.

This article chooses the non-performing loan ratio reverse proxy financial stability (FS), where the lower the non-performing loan ratio, the higher the degree of financial stability. According to the estimation results in column (2), the coefficient is significantly negative at the 5% level. Financial cooperation has reduced the non-performing loan ratio of ASEAN countries, which means that financial cooperation has improved financial stability. According to the previous analysis, financial stability means that the financial system has a strong ability to resist risks and promotes economic growth. Based on the above analysis, financial cooperation serves as a channel to enhance the financial stability level of ASEAN countries and promote their economic growth. Referring to Zhang and Liu (2020), the financial liberalization index compiled by the Heritage Foundation (USA) is used to measure the financial openness of ASEAN countries. From the estimation result of column (3), it can be

seen that China-ASEAN financial cooperation promotes financial openness in ASEAN countries. Meanwhile, according to the previous analysis, although financial openness may have a negative impact on economic growth, on the whole, financial openness is a general trend and there is a facilitating effect on economic growth (Bekaert et al. 2011). This can show that financial cooperation can promote the economic growth of ASEAN countries by promoting financial openness in each country.

Table 5. Mechanism Analysis

	(1)	(2)	(3)
	FD	FS	FL
FC	1.316**	-0.036**	0.956*
	(0.538)	(0.015)	(0.429)
Control	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
within R2	0.745	0.927	0.593
Observation	192	116	216

5.2 Heterogeneity Analysis

According to the benchmark regression results, China ASEAN financial cooperation has a significant promoting effect on the economies of ASEAN countries. However, the national conditions of ASEAN countries vary greatly, and simple benchmark regression cannot explain the impact of individual differences in ASEAN countries on the effectiveness of financial cooperation. Therefore, heterogeneity analysis is conducted from two perspectives: national system quality and economic development level. The role of financial cooperation in economic growth may differ in countries with different institutional quality, which is measured in this paper along three dimensions: government efficiency, social stability and the level of the rule of law. A good system is a prerequisite for ensuring financial stability and promoting economic growth. Financial cooperation may perform better in promoting economic growth in countries with high institutional quality. In order to verify the above analysis, the indicators of government efficiency, social stability and rule of law level in the World Bank Global Governance Indicators (WGI) database are used to measure institutional quality. The dummy variable GE is set to indicate government efficiency, SS to indicate social stability, LI to indicate the level of rule of law. The results of the heterogeneity analysis are shown in columns (1)-(3) of Table 7, which indicate that financial

cooperation has a stronger contribution to economic growth in countries with high government efficiency, social stability and rule of law level, i.e., financial cooperation has a stronger contribution to economic growth in countries with high institutional quality.

As the level of economic development of ASEAN countries varies considerably, the role of financial cooperation in economic growth in countries with different levels of economic development deserves attention. On the one hand, countries and regions with high levels of economic development often have higher levels of financial development; on the other hand, the higher the level of economic development of a host country, the more it attracts foreign direct investment, which contributes to financial development and thus to economic growth. Therefore, the role of financial cooperation may be more obvious in countries with high levels of economic development. Using the World Bank's published criteria for classifying the income levels of countries and regions in the world to distinguish the economic development levels of ASEAN countries, the sample is divided into two groups according to the median, and the dummy variable ED is set. The regression results, as shown in Column (4) of Table 7, show that the role of financial cooperation in promoting economic growth is greater in countries with a high level of economic development.

Table 6. Heterogeneity Analysis

	(1)	(2)	(3)	(4)
	EG	EG	EG	EG
FC	-0.053***	-0.025*	-0.047**	-0.022
	(0.015)	(0.011)	(0.016)	(0.013)
GE×FC	0.060***			
	(0.017)			
SS×FC		0.041***		
		(0.013)		
LI×FC			0.053**	
			(0.017)	
ED×FC				0.028*
				(0.013)
Control	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
within R2	0.959	0.959	0.961	0.969
Observation	230	230	230	230

6. Summary and Policy Recommendations

China-ASEAN financial cooperation provides the necessary safeguards for the economic

development of each country by advancing the financial development of each economy, enhancing the degree of financial stability and expanding financial openness. It injects sustained momentum into economic development and serves as a catalyst for economic growth. The effectiveness of financial cooperation on economic growth is affected by the quality of national systems, the level of economic development and the degree of national risk. Therefore, on the basis of the findings of the above study and in the light of the current situation affecting China-ASEAN financial cooperation, the following recommendations are made: Firstly, China and ASEAN should continue to strengthen financial cooperation and give full play to the role of cooperation in promoting economic growth. Secondly, ASEAN countries should grasp the favorable trend of financial cooperation and actively improve their own environment. Finally, China and ASEAN need to formulate targeted financial cooperation policies and continuously improve the financial cooperation system.

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