Influence of China's Entry into the WTO on Cross-Border Financing

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Abstract
The People's Republic of China (China) was one of the original contracting parties of the General Agreement on Tariffs and Trade (GATT), from which it subsequently seceded. The process of the readmission of China into the multilateral trading system lasted for fifteen years and was the longest and most difficult in history. China's reform process toward a market-based economy has triggered a significant reorientation of international trade flows. China has indeed experienced very quick trade integration into the world markets as is exemplified by a strong increase in its share in world trade. China became a member of the World Trade Organization (WTO) in December 2001. In this paper the modified gravity model of international trade is used for the investigation of the influence of China's entry into the WTO on cross-border financing that China carries out with selected world economies. Empirical gravity models have a long-standing tradition in international financing and banking literature.

Keywords: financing, gravity model, China, World Trade Organization.
JEL codes: C13, C23, F13.

1. Introduction

The reform of the financial sector in the People's Republic of China (China) is lagged compared to the reforms in the trade sector. In 1979 China's economy opened up for obtaining foreign direct investment (FDI) for the purposes of acquiring the foreign capital, advanced technologies and management skills required for upgrading the industrial structure and stimulating economic growth. But for ideological reasons and due to the existing lack of experience, China has followed a gradualist policy towards FDI. In the early years of the liberalization process the Chinese foreign direct investment policy had an experimental character, which means that the bulk of it was mainly concentrated in the four special economic zones in the Guangdong and Fujian provinces. At first the foreign enterprise participation was confined to joint ventures and then the export oriented activities of FDI were gradually allowed into areas other than the special economic zones and into a large number of industrial sectors. Lee (1997), Hayter and Han (1998), Sun (1998), Henley et al. (1999), Wu (1999), Lemoine (2000), Huang (2001) and Wei and Liu (2001) represent the studies oriented to the specification of the foreign direct investment of China's economy.

Wei (2003) distinguishes four stages in the development of the inward FDI: the experimental stage (1979-1983), the growth stage (1984-1991), the peak stage (1992-1994) and the adjustment stage (1995 onwards). The legal and institutional basis for FDI inflows into China was set up during the experimental stage. FDI was mainly directed towards the four special economic zones mentioned above. The total amount of FDI was fairly low, reflecting the cautious attitudes of the Chinese government and the foreign investors. With the seemingly successful experiment with FDI and the satisfactory economic situation nationwide, China took a number of measures and formulated a series of laws and regulations to improve the business environment and facilitate more FDI inflows during the growth stage. The peak stage was associated with the surge of FDI into China. This increase was mainly due a number of events, including Deng Xiaoping's tour of the southern provinces, the nationwide implementation of opening up policies for FDI, and the worldwide rise in FDI flows.

In December 2001, China finally became a formal member state of the World Trade Organization (WTO) after nearly 14 years of talks and negotiations. With the accession, China

promised to abide the WTO's basic principles of non-discrimination, pro-trade, pro-competition and so on. China's accession to the WTO was associated with following FDI opportunities. First of all, the world export market for China, as a WTO member state, will be larger and more predictable. Quota and restrictive measures against China's export will be either eliminated or reduced. In addition, China will be able to resolve trade disputes with other member states under the WTO's trade dispute settlement mechanism. As a result, FDI in industries where China has a comparative advantage should grow according to Fung et al. (2002). On the other hand, opening up the domestic market will attract FDI in industries where market potentials are great. In particular, industries that were originally dominated by relatively inefficient state-owned enterprises, such as telecommunication, banking and insurance, will see increasing interest from foreign investors, especially from large multinational ones (Fung et al., 2002).

The aim of this paper is the investigation of the influence of China's entry into the WTO on cross-border financing using the modified gravity model of international trade.

2. Literature review

The large growth of FDI inflows into China has generated a number of empirical studies, which are primarily focused on the major determinants of FDI in China. Wei (2003) classifies these studies into two groups: studies at the national level (why foreign firms invest in China) and those at the regional level (why a foreign firm chooses a specific region within China). In this paper, the first perspective is applied; therefore the literature review contains studies at the national level.

Wang and Swain (1995), Wei (1995), Liu et al. (1997), Dees (1998), Zhang (2000) and others investigate the determinants of FDI at the national level. The empirical results from all these studies indicate that market size, measured by the gross domestic product (GDP), GDP per capita, gross nation product (GNP) or GNP per capita has a significant and positive effect on inward FDI. These results are in accordance with the economic theory which expects that rapid economic growth may create large domestic markets and business opportunities for foreign investment. Two of the above mentioned studies by Liu et al. (1997) and Dees (1998) provide evidence that China's low labor costs and relatively large volumes of exports play an important role in the firms' FDI decisions. This result is again in accordance with the economic theory where the labor costs create an important part of the total costs (especially in labor intensive manufacturing), and the lower labor costs in a host country increase their attraction for foreign investors. In addition to labor costs, these studies also examined the relationship between the exchange rate and FDI inflows. The real depreciation of the host country's currency favors the foreign firms' purchase of the host country's assets and allows foreign investors to take advantage of the relatively cheap labor in the host country. Basically, the depreciation is positively associated with FDI inflows. The next determination is the geographical distance, which is discussed by Wei (1995, 2000), Liu et al. (1997) and Wei and Liu (2001). The geographic proximity of the host to the home country of the investors reduces informational and managerial uncertainty, lowers monitoring and transportation costs and reduces the exposure of multinationals to risk. Most recent studies count on agglomeration effects which stem from positive spillovers from investors already producing in this area. This gives rise to economies of scale and positive externalities, including knowledge spillovers, specialized labor and intermediate inputs. The degree of openness, measured by the trade to GDP ratio, has also been taken into account. Sun et al. (2002) state that the impact of this factor is ambiguous, since a more open economy attracts FDI because foreign investors are already familiar with the host economy, but it also increases competition.

Huang (2001) formulates a demand perspective on FDI, which stresses that China's lagging internal reforms contributed to the fantastic growth of FDI in China during the 1990s. He argues that the large inflow of FDI is not only the consequence of good policies, but also results from certain distortions in the Chinese banking market and in state investment policies. Havrylchyk and Poncet (2007) introduce, beside traditional determinants, proxies of the restricted access to external funding by private enterprises and of the state interference related mismanagement of state enterprises to explain the cumulative stock of FDI across China.

3. Empirical model

In investigating the pattern of China's bilateral cross-border financing the modified gravity model of international trade is used as a benchmark framework. The gravity model was originally developed as an explanation of the gravitational forces in physics and later became popular in economic modeling to explain cross-border bilateral trade in goods and services. The original gravity model of international trade in goods is based on the idea that the size of the bilateral trade exchange between two geographical entities is positively dependent on the economic size and the power of these entities, generally measured by the gross domestic product (GDP), and negatively dependent on the geographical distances, generally measured as the distance between the cities with the largest concentration of industry or the distance between the capitals. Tinbergen (1963) and Pöyhönen (1963) specified the following gravity model equation, which is denoted as a core gravity model:

$$Trade_{ij} = \alpha \cdot \frac{GDP_i \cdot GDP_j}{Dis_{ij}}, \tag{1}$$

where $Trade_{ij}$ represents a dependent variable which is specified as the monetary value of bilateral trade in goods or services between two entities, namely between two countries i and j. The dependent variable can be expressed as the monetary value of the export or the import or the total trade meaning export plus import. To determine the dependent variable we can also use the arithmetic or the geometric averages of the values. The independent variables GDP_i and GDP_j represent the economic size and power of two countries measured by their gross domestic product. The last independent variable Dis_{ij} represents the geographical distance between the capitals of two countries in kilometers. To simplify the empirical estimation, the original equation (1) is transformed into the linear form using the natural logarithm:

$$\ln(Trade_{ij}) = \alpha + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) - \beta_3 \ln(Dis_{ij}) + \varepsilon_{ij}, \tag{2}$$

where the dependent variable and all independent variables have the same meaning as in the previous equation: α is an intercept, β_1, β_2 and β_3 are the estimated regression coefficients and ε_{ij} represents a random component.

This gravity equation is typically used in analyzing cross-sectional trade data, i.e. data for more countries in one selected year. Often other variables are included such as population size to reflect the possible economies of scale or the set of dummy variables incorporating institutional characteristics such as economic integration arrangements, infrastructure or cultural and linguistic proximity, historical links, the exchange rate, foreign direct investments, the common language, common border, inland location, cultural differences and various barriers to trade. In this paper the influence of China's entry into the WTO on cross-border financing is estimated. For this reason a modified gravity model with a panel data structure is used. The gravity model with the panel data structure is obtained by the inclusion of the time factor into the equation (2). The modified gravity model with the panel data structure means the inclusion of one specific dummy variable for determining the membership in the World Trade Organization. The modified gravity model with the panel data structure used in this model is specified as follows:

$$\ln(FDI_{ijt}) = \alpha + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) - \beta_3 \ln(Dis_{ijt}) + \beta_4 WTO_{jt} + \varepsilon_{ij}, \tag{3}$$

where the dependent variable $\ln(FDI_{ijt})$ is the natural logarithm of China's FDI inflow from selected countries in time t. The independent variable $\ln(GDP_{it})$ is the natural logarithm of the gross domestic product of FDI country's origin in time t. The independent variable $\ln(GDP_{jt})$ is the natural logarithm of the gross domestic product of China's economy in time t. The independent variable $\ln(Dis_{ijt})$ is the natural logarithm of the geographical distance in kilometers between China's capital (Beijing) and the capital of FDI country's origin in time t. The independent variable WTO_{jt} is the dummy variable for determining China's membership in the WTO in time t. The coefficient α is an intercept, β_1, β_2, β_3 and β_4 are the estimated regression coefficients and ε_{ij} is a random component.

4. Data and methodology

To determine the impact of China's accession to the World Trade Organization on cross-border financing, 15 world countries were chosen, namely the following countries: Australia, Austria, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States. The choice of these countries was mainly linked to the availability of data in the required years 1992-2011.The dependent variable $\ln(FDI_{ijt})$ is the natural logarithm of China's FDI inflow from one of the 15 countries. The monetary value of China's FDI inflows was obtained from the statistic database of the Organization for Economic Cooperation and Development (OECD) in current American dollars. The independent variable $\ln(GDP_{jt})$ is the natural logarithm of the gross domestic product of China in the required years. In accordance with the economic theory, a positive relationship between China's economic power measured by the GDP and China's FDI inflows is expected. The independent variable $\ln(GDP_{it})$ is the natural logarithm of the gross domestic product of one of the 15 countries in the required years. Like for the previous variable, a positive relationship between the GDP of the origin's country and China's FDI inflows is expected. It is expected that the GDP of the origin's country will have a bigger effect on China's FDI inflows than the GDP of China because if the country has a bigger GDP, it can invest more resources in other countries. The values of the GDP were obtained from the United Nations Conference on Trade and Development (UNCTAD) in current American dollars. In the international trade theory, the independent variable $\ln(Dis_{ijt})$ is understood as the variable for determining transportation costs. In the foreign direct investment theory, this variable is associated with informational and managerial uncertainty, which lowers monitoring and transportation costs and reduces the exposure of multinationals to risk. The independent variable $\ln(Dis_{ijt})$ represents the physical distance between China's capital and between the capitals of the 15 countries in kilometers. The distance between the capitals is measured using the great circle formula, which takes into account the longitude and latitude of the capitals. The dummy variable WTO_{jt} is the variable for determining the membership of China in the WTO in the required years 1992-2011. If China was the member state of the WTO in the selected year, the variable has a value of 1 (if not, the variable has a value of 0). A positive relationship between the membership in the WTO and between China's FDI inflows is expected, because China's accession to the WTO in 2001 is associated with the liberalization of the foreign direct investment policy. Table 1 presents the summary statistics for the variables that were included in the model.

Table 1: Summary statistics.

Variable	Observation	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
$ln(FDI_{ijt})$	272	5.403403	2.132335	-0.807436	9.678530	-0.432185	2.689486
$ln(GDP_{it})$	300	13.64365	1.199990	11.37760	16.52973	0.433875	2.387847
$ln(GDP_{jt})$	300	14.31758	0.784503	13.12208	15.79012	0.373413	2.008697
$ln(Dis_{ijt})$	300	8.754142	0.620667	6.859300	9.319195	-2.183148	6.573763

Source: author's calculations using EViews 7.

The modified gravity model with the panel data structure is estimated using the Least Squares Method (LMS).

5. Empirical results

The explanatory ability and power of the modified gravity model with the panel data structure is very high. The value of R-squared and adjusted R-squared is 0.67. All independent variables included in the model are statistically significant, and also the model is statistically significant as a whole. Table 2 contains the estimation results.

Table 2: Estimation results.

Variable	Coefficient	t-Statistic	Probability
$ln(GDP_{it})$	0.872480	14.28997	0.0000
$ln(GDP_{jt})$	0.339828	3.861758	0.0001
$ln(Dis_{ijt})$	-1.371259	-12.53169	0.0000
WTO_{jt}	1.218828	6.689974	0.0000

Source: author's calculations using EViews 7.

The estimated regression coefficient β_1 is in line with the expectations. The value of this coefficient is 0.87. It can be interpreted as follows: when the monetary value of the gross domestic product of the country of origin increased by 1 percent, China's FDI inflows increased by 0.87 percent in the selected period of 1992-2011. The positive relationship is also confirmed by the estimated regression coefficient β_2, whose value is 0.33. This result can be interpreted similarly: when the monetary value of China's GDP increased by 1 percent, China's FDI inflows increased by 0.33 percent in the selected time period. The model also confirms the expectation that the GDP of the origin's country will have a bigger effect on China's FDI inflows than the GDP of China. The influence of China's economic size and power on China's FDI inflows is twofold. Firstly, FDI will move to countries with larger and expanding markets and greater purchasing power, where firms can potentially receive a higher return on their capital and by implication receive higher profit from their investment. Secondly, the economic size and power hypothesis supports the idea that a large marker is required for the efficient utilization of resources and the exploitation of economies of scale: as the market size grows to some critical value, FDI will thereafter start to increase with its further expansion. The value of the estimated regression coefficient β_3 is -1.37. It can be interpreted as follows: when the physical distance between the capitals increased by 1 percent, China's FDI inflows decreased by 1.37 percent in the selected time period. This result confirms that the increase in the informational and managerial uncertainty is associated with the lower value of FDI inflows. The estimated regression coefficient β_4 is positive, indicating that China's accession to the World Trade Organization had a positive and significant influence on China's FDI inflows in the selected time period. The value of the coefficient points to the fact that China's FDI inflows were on average 3.35 times larger after China's accession to the WTO in December 2001.

6. Conclusion

The financial system plays an important role in increasing the economic growth in China, in the country that has been the second largest economy in the world after the United States since 2010. However, many analysts believe that the financial system represents a major vulnerability for China's economic development. The main fears stem from the opacity and continuing evolution of the financial system in China. The opacity is associated with the political influence of the leading Chinese Communist Party that is enshrined in the Constitution and is obvious in all areas of the sectors of the economy, including the banking sector. Using the banking sector for government purposes was also seen after the global financial crisis in 2008 when the government obscured its interventions into the financial system. The government influences the financial system in China especially through the "Big Four" state-owned banks (the Bank of China, the Agricultural Bank of China, the China Construction Bank and the Industrial and Commercial Bank of China). The central government supports them in different ways, for example it grants them implicit deposit guarantees, the assumption by investors that the banks will cover losses on wealth management products, etc. It results in a situation in which the large state-owned banks are not sufficiently commercial in their outlooks. On the other hand, the Chinese government acceded to a financial reform in 2002 with the aim of making the financial system more effective. It also fueled the entrance of China into the WTO in 2001, which had to bring more liberal access to China's financial market for foreign providers. The results of the empirical analysis confirmed that the entrance of China into the WTO had a positive influence on FDI inflows (incl. into the financial market) regardless of the fact that many state regulators and structural obstacles to foreign banks existed in China the whole time. As a result of this, foreign banks play a small role in China, with only 2% of loans coming from foreign entities.

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