



Effect of Financial Crisis on SMEs' Bilateral Trade Relations in Asia

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Abstract

Recent financial crises have particularly impinged on trade through reduced provision and high costs of trade finance. Problems in finance will normally impact business operations, and will especially affect small- and medium-sized enterprises (SMEs) more. In addition, large companies (LMEs) have gone out of businesses, since the latest global financial crisis currently spreading around the world has exerted negative impacts on large industries. For example, a number of biotech companies have been significantly weakened as the investment shortage resulting from the financial crisis forced them to scale down all their activities (Zhang, 2006). In this situation, the role of SMEs has become highlighted in both internal and international business activities. To explore the relationship between financial crisis, SMEs and international trade, through some evidence from Asia, we specify empirically a trade gravity model based on the panel data observations of the selected countries in Asia. The model is estimated by the panel data approach over the period 1998-2008. The empirical results do not confirm a significant effect of the financial crisis on the SMEs bilateral trade relations between the selected Asian trading partners. The implication is that the enhancement of SMEs activities may be a need for Asian economies towards adjusting financial crisis effect and a better-off condition in business environment.

Key Words: International Trade, Financial Crisis, SMEs, Panel Data,

Introduction

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Does trade affect SMEs? What is the relationship between SMEs and trade? Is there an effect of crisis on SMEs? This paper offers empirical evidence on these questions based on a panel data regression of 9 Asian countries during 1998-2008.

Small and medium enterprises (SMEs) have begun to play a critical role in international trade and, accordingly, international trade will affect on SMEs because global markets become larger as foreign competitors have a chance to enter local markets. This triggers a strong competition between internal and external firms, leading to higher productivity. Trade can facilitate technology transfer to SMEs and obtain a competitive advantage relative to local SMEs. Furthermore, SMEs can get advantages from international trade and SME's should focus on extracting values out of local contents and components and then direct them into the mainstream of international market. Evidence from Asia, Europe, and North America indicates that a rising number of SMEs are involved in international trade (Knight, 2001).

SMEs are considered to be the engine of economic growth and employment. One of the primary means through which SMEs are expected to accomplish this task is involvement in international trade and growth. However, there is little evidence to show a relationship between SMEs and developments in international financial markets arising from recent financial crises.

In this paper, the objective is to explore the effect of financial crisis on the export performance of SMEs during 1998-2008. To this end, we estimate an empirical trade model which is able to test the hypothesis that financial crisis may affect the SMEs' bilateral trade in the selected Asian countries. Hence, the rest of the paper is organized as follows. In Section 2, we review a conceptual discussion on the relationship between SMEs' trade and financial crisis. In Section 3, we discuss the stylized facts of the selected countries, and then we specify an econometric panel model based on a gravity framework in Section 4. The empirical results are summarized and discussed in Section 5, and the last section provides the research conclusion and policy implication.

Literature Review

Conceptual Discussion on SMEs' Trade and Crisis

Wilkinson and Brouters (2006) develop an international resource-based view of SMEs by examining the effectiveness of a set of export promotion services. More specifically, they investigate the impact of US state-sponsored export promotion activities on the international marketing efforts of small to medium-sized enterprises. They hypothesize and detect that, even after gaining control over the internal firm resources, the use of trade shows and programs identifying agents and distributors would contribute positively to SMEs satisfaction with export performance.

In other aspects of economic indicators, Smallbone and North (1995) examine the extent to which employment generation in manufacturing SMEs varies according to external environmental conditions, both over time and in different types of locations in the UK. The results reveal a much higher rate of employment growth in rural SMEs compared with urban SMEs that stems mainly from differences in local labor market conditions. Although changes

in macroeconomic circumstances reduced the rate of employment growth in the 1990s compared with the 1980s, the main effect was on the pattern of sector variation. However, employment growth was strongly associated with output growth, which might be affected by types of external conditions like financial crisis.

Pasadilla (2010) surveys the importance of Central Asian small and medium-sized enterprises (SME) in the economy and their experience during the Russian financial crisis. It also uses survey data from the European Bank for Reconstruction and Development's Business Environment and Enterprise Performance Surveys to infer salient characteristics, features, and dependencies on the financing of Central Asian SMEs and, consequently, derive the potential impact of the crisis on the sector. His study also assesses government support for SMEs and the necessary market reforms that will give a boost to the sector's development in the region.

Radas and Božić (2009) explore factors that drive innovation activities in SMEs in a small emerging transition economy (Croatia), and compare it with findings from developed economies. They find that most factors of innovation that are important in developed economies are imperative in developing economies as well, to control for a crisis effect. Finally, Beckn et al. (2005) explore the relationship between the relative size of the SMEs sector, economic growth and poverty alleviation using a database on the share of SME labor in the total manufacturing labor force. By a sample of 45 countries worldwide, they find a positive relationship between the significance of SMEs and GDP per capita growth. Furthermore, they find no evidence that SMEs alleviate poverty or decrease income instability.

Competitive advantages to SMEs allow them to transact business efficiently with upstream and downstream companies throughout the world. Increasing cross-national competition is pressuring SMEs toward internationalization. This has created many incentives for smaller companies to internationalizing progress (Knight, 2001). SMEs can shape the dynamism of the economy's sector composition, favoring the transition towards more knowledge-intensive activities and in contributing to the overall economic growth objectives and more jobs at the international level.

Evidence from Asia, Europe, and North America indicates that a growing number of SMEs are involved in international trade. Various trends have shown that the share of SMEs to the world economy has been growing up during recent decades (Knight, 2001). As their businesses grow, SMEs will have greater demands for capital to support a great variety of activities, ranging from staff development and application of new technologies, to acquisition of new equipment and marketing.

Other important advantage of SMEs is that they can overcome the limitations of inadequate information about foreign markets by choosing partners, either in their home countries or in targeted host countries. These partners include international not-for-profit trade/export associations, distributors, and various types of export intermediaries (Wilkinson & Brouthers, 2006).

SMEs seem to be fragile facing a crisis due to financial shocks. The recent global financial crisis has profound effects on all sectors and across most economies. SMEs have been particularly affected by the crisis: demand has fallen, suppliers are less likely to sell on credit, clients are more likely to postpone payments, banks and investors are more conservative and national and international markets are shrinking. Relative to large firms, SMEs possess more limited capital and resources which lead to have weaker financial structures, and due to their

small size, it is extremely challenging for SMEs to downsize or diversify economic activities. Therefore, it is relatively more difficult for SMEs to survive this difficult economic situation.

Global crisis causes a drop in demand for providing services and constructing materials affecting the demand for commodities. Moreover, many SMEs customers may go bankrupt and international trade may decrease drastically, resulting in a market decline in the demand for products and services (Wan & Riding, 2008). However, SMEs have played an important role during the recent financial crisis. The world has witnessed that as the world economies are recovering from the financial crisis of 2008-9, many economies urgently need to create employment opportunities for their citizens. In this respect, creation and growth of SMEs is an important item on the policy agenda due to evidence that points to significant contributions by SMEs to employment (Ardic et al., 2011).

In addition, Tambunan (2009) uses various official data and other sources for the 1990s up to 2006, to show that SMEs in some Asian countries such as China play the leading role with their highest export contribution between 40 and 60 percent of the country's total merchandise exports. Hence, we should be able to depict a relationship in such a way SMEs exports can be affected by financial crisis. Following the above discussion, Figure 1 clarifies such relationship in which movements arising from a crisis should affect the world demand and trade, resulting finally in a drop in SMEs exports. Such relationship can be examined empirically for a set of the selected Asian countries including China, India, Indonesia, the Philippines, Thailand, Vietnam, Singapore, Malaysia and Pakistan. The reason of selecting these countries is that SMEs are expected to grow faster in most of them, while availability of data on SMEs has also led us to select such countries.

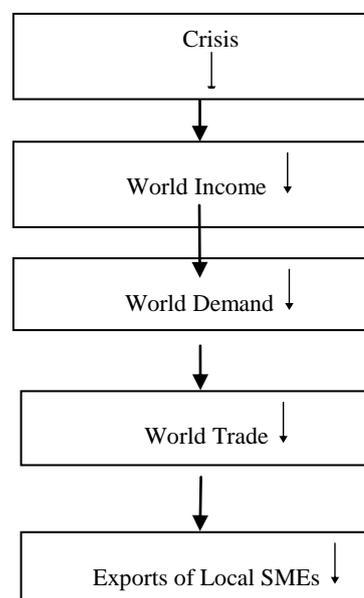


Fig 1. Relationship between trade and crisis

Source: Authors

Stylized Facts of the Selected Countries

Table 1 and Figure 2 also show economic growth in sampling Asian countries during 2005-2010, where the world has experienced a global financial crisis. The data show a major decline in 2008 and 2009 while we see improvements in economic growth after 2009. Statistical figures also reveal the fact that fluctuations in growth rates have been more pronounced in the countries, such as Thailand, Singapore, Malaysia and the Philippines, that have been suffering from the recent financial crisis more than those in other countries reported in the Table.

Table1. Economic growth in the Asian countries during 2005- 2010

Country	2005	2006	2007	2008	2009	2010	average	Standard deviation
East Asian and Pacific	9.75	10.91	12.29	8.47	7.44	9.61	9.75	1.56
China	11.3	12.7	14.2	9.6	9.2	10.3	11.22	2.29
India	9.32	9.27	9.82	4.93	9.1	9.72	8.69	2
Indonesia	5.69	5.5	6.35	6.01	4.58	6.1	5.71	4.08
Philippines	4.78	5.24	6.62	4.15	1.15	7.63	4.93	5.23
Thailand	4.6	5.09	5.04	2.48	-2.33	7.8	3.78	6.74
Vietnam	8.44	8.23	8.46	6.31	5.32	6.78	7.26	2.76
Singapore	13.3	8.7	8.77	1.49	-0.77	14.47	7.66	5.99
Malaysia	5.33	5.85	6.48	4.71	-1.71	7.16	4.64	5.89
Pakistan	7.67	6.18	5.68	1.6	3.63	4.36	4.85	5.27

Source: World Bank (2010) and Authors' findings

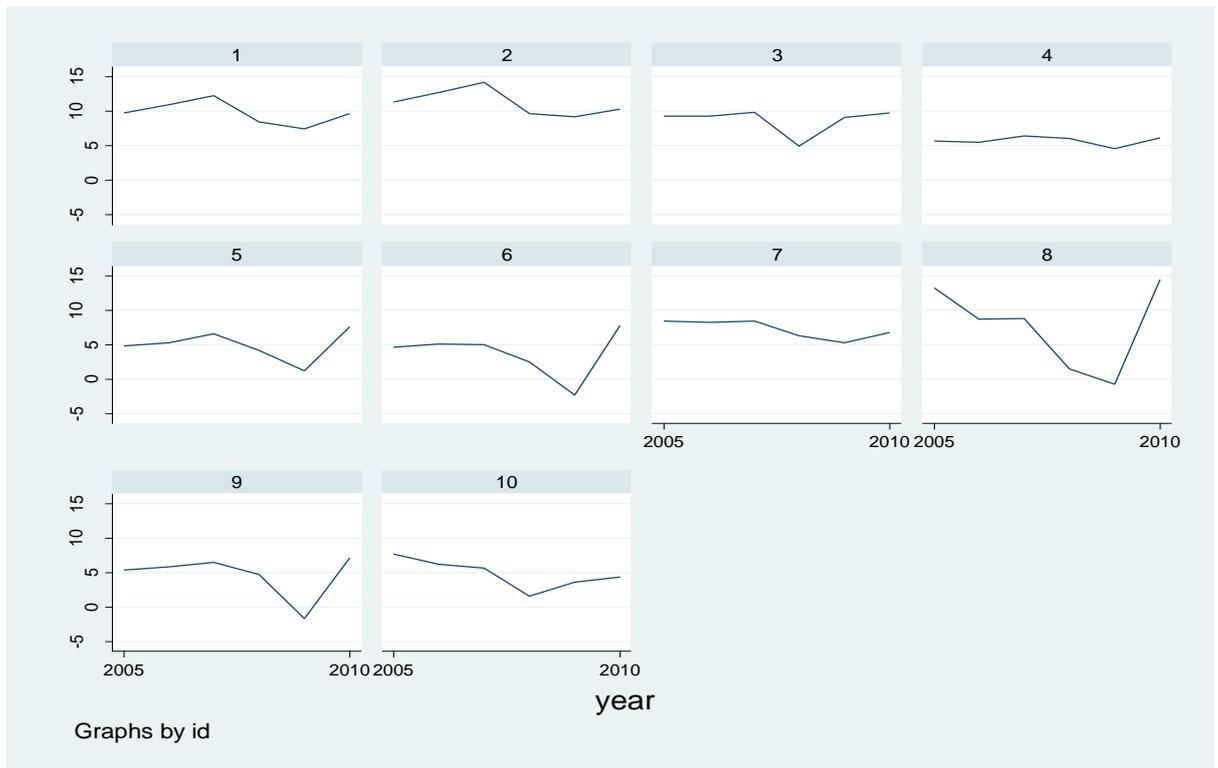


Fig 2. Economic growth in the Asian countries during 2005- 2010

Source: Authors

To collect the data required for to our sample countries, the number of employees and sale volumes are probably the most accurate parameters to define SMEs (Ardic et al, 2011). But we cannot have access to these data and data on exports of SMEs' are not easily available or are difficult to verify for all Asian developing countries. To measure the role of SMEs in the economy, we get data from the World Bank mostly for 9 countries (see Table 2 for their pronounced share in exports by the SMEs) during 1998-2008 and use shares of SMEs exports in total exports (Tambunan, 2009). Considering these facts, we calculate the share of SMEs related to international trade, implying the SMEs export performance.

Table 2. The share of SMEs exports in total exports in the selected Asian countries, average for the period of the1990s and 2008

Country	Share (%)
China	60
India	38-40
Vietnam	20
Singapore	16
Malaysia	15
Indonesia	18
Thailand	46
Philippines	22
Pakistan	25

Model Specification: An Application of a Gravity Framework

Tinbergen (1962) and Poyhonen (1963) used initially gravity model to examine the bilateral trade relations among the European countries. They found significance evidence that exports from one country to another are explained by their GDPs and the geographical distance between them. Then, Helpman and Krugman (1985) derived a version of the gravity equation from a model that consisted of sectors producing homogeneous products with constant returns and those producing differentiated products with increasing returns. Bergstrand (1985) has also developed microeconomic foundations of the gravity equation under alternative assumptions, while Deardoff (1998) has revealed that the gravity equation can be derived from the Heckscher-Ohlin theory in which with identical and homothetic preferences and frictionless trade, every country produces and exports different goods.

In empirical studies of international trade, Endoh (1999) has used a population variable, as an explanatory variable, to account for its negative effect on trade flows. Additionally, Frankel et al. (1995) and Elliott and Ikemoto (2004) have employed a per capita income variable to provide a good proxy for the level of economic development which can have a positive effect on international trade. It should be noted that several kinds of dummy variables have been added into the gravity models to account for specific factors, such as cultural and institutional factors, that can support or hinder bilateral flows of goods. For instance, Aitken (1973) first included a dummy variable showing intra-regional trade to capture trade creation between members of region. Later, Kien and Trung (2009) incorporated three dummy variables in order to offer a clear distinction between trade creation and trade diversion.

Zhu and Yang (2004) have investigated the factors that contribute to financial crisis contagion. They synthesize the literature on contagion by combining all major explanatory variables into an adapted gravity model. Their finding is that financial crisis contagion is positively related to trade and financial linkages and negatively related to psychic distance between crisis -originating countries and crisis-affected countries, when macroeconomic fundamentals and institutional factors are controlled.

Following Zhu and Yang (2004), we adopt a gravity model to synthesize the explanatory variables used in the current literature. Various works use gravitational forces to explain the flows of migration and trade between different regions or countries (See Askari et al., 2003; Wall, 1999; Hufbauer et al., 1997). Such models have the advantage of classifying explanatory variables for interactions between two regions or countries affecting their trade performance of SMEs. It is thus believed that the gravitational forces can also explain the transfer of financial crisis among different regions or countries. The factors are international economic linkages, namely, trade linkages and financial linkages.

In this paper, we use a generalized gravity model on the SMEs' bilateral exports of the Asian countries by following Zhu and Yang (2004). As previously explained, gravity variables such as GDP, population, geographical distance and exchange rates in countries i and j are expected to affect different export activities of the Asian internationalized SMEs, while the inclusion of the financial crisis variable is the core of our problem which is supposed to affect international business through a change in SMEs export performance. In fact, investigating

such effects reveals how SMEs in Asia, for instance, can contribute to a process of internationalization. The model is thus defined as follows:

$$LEXSMEs_{kijt} = \theta_0 + \theta_{ij} + \theta_1 LGDP_{it} + \theta_2 LGDP_{jt} + \theta_3 LPOP_{it} + \theta_4 LPOP_{jt} + \theta_5 LDis_{ij} + \theta_6 LER_{it} + \theta_7 LER_{jt} + \sum_k \lambda_k W_{kt} + U_{kijt}$$

(1)

$$\theta_1, \theta_2, \theta_6, \theta_7 > 0, \theta_3, \theta_4 > 0 \text{ or } < 0, \theta_5 < 0, \lambda_k > 0 \text{ or } < 0, (k = 1, 2, \dots, K)$$

where,

$LEXSMEs_{kijt}$ denotes the log value of SMEs' exports from country i to country j in year t in case k .

$LGDP_{it}$ is the log value of exporting country i 's GDP in year t .

$LGDP_{jt}$ is the log value of importing country j 's GDP in year t .

$LPOP_{it}$ is the log value of exporting country i 's population in year t .

$LPOP_{jt}$ is the log value of importing country j 's population in year t .

$LDis_{ij}$ is the log value of geographical distance between the capital cities of country i and j .

LER_{it} is the log value of country i 's exchange rate year t .

LER_{jt} is the log value of importing country j 's exchange rate in year t .

W_{kt} is a vector of control variables including a financial crisis index and dummies.

U_{kijt} denotes the error terms in time t .

θ_0 denotes the intercept.

θ_{ij} stands for individual effects of a country pair between i and j .

We estimate Equation (1) by using the cross-section data of 9 Asian countries during 1998-2008, and analyze the empirical results in next section. The data on trade explain the SMEs bilateral exports between country i and country j included in our sample comprising the selected Asian countries. Such data are obtained from various versions of PC-TAS, while other data are collected from Penn World Tables, Version 7.0¹. Using these data, the equation is estimated by the Random-Effects Generalized Least Squares (RE-GLS) to make estimates robust through controlling for heteroskedasticity across panels and autocorrelation of error terms (Greene, 2003)².

Results

Empirical results are obtained in several cases due to justification of one or more control variables included in Equation (1). In Case 1, we explore the effect of financial crisis (as a control variable) on the SMEs export performance through estimating a panel regression model as defined below:

$$LEXSMEs_{1ijt} = \theta_0 + \theta_{ij} + \theta_1 LGDP_{it} + \theta_2 LGDP_{jt} + \theta_3 LPOP_{it} + \theta_4 LPOP_{jt} + \theta_5 LDis_{ij} + \theta_6 LER_{it} + \theta_7 LER_{jt} + \lambda_1 FCI_t + U_{1ijt}$$

(2)

1. <http://pwt.econ.upenn.edu/>

2. The results for LR-test shown in Tables 3, 4, 5 and 6 justify the use of RE_GLS.

where FCI_t stands for the financial crisis, so that the relevant coefficient, λ_j , shows an expected negative effect on the SMEs bilateral exports. The data for the crisis index used in the estimation process are obtained from Hatzius et al. (2010).¹

The empirical results which are reported in Table 3 are namely consistent with theoretical expectations. The signs of the GDP's for both partners i and j are significantly positive, showing that SMEs of wealthier countries trade more. For the population variables, we obtain negative and significant coefficients, implying the increasing size of the market is not an incentive for exporting products, since the larger population leads to the greater domestic demand in the countries under consideration. Bilateral trade flows of SMEs are also negatively correlated with the geographic distance as expected. This result can be considered as a barrier to trade relations between partners' SMEs. Exchange rates of the trading partners (Exporters and importers) have significantly negative effects on bilateral trade of Asian SMEs. It means appreciation of domestic currencies should lead to SMEs trade promotion even though the result seems unexpected. The coefficient of the financial crisis variable, FCI , is not statistically significant, implying no effect on SMEs' bilateral trade among the selected Asian countries. Despite the Zhu and Yang (2004)'s results, our findings reveal that financial crisis contagion could not be related to trade relations in the type of SMEs activities, at least during the period of 1998-2008 that we have investigated.

Table 3. Panel estimation results for the Asia SMEs' Exports based on cross-sectional time-series FGLS regression: Case 1

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDP_i</i>	1.73	23.99	0.000
<i>LGDP_j</i>	0.51	12.15	0.000
<i>LPOP_i</i>	-0.80	-15.72	0.000
<i>LPOP_j</i>	-0.19	-5.51	0.000
<i>LDIS</i>	-1.25	-16.00	0.000
<i>FCI</i>	-0.004	-0.08	0.940
<i>LER_i</i>	-1.59	-28.10	0.000
<i>LER_j</i>	-.46	-14.94	0.000
<i>Cons</i>	-5.71	-3.82	0.000
<i>Diagnostic Tests</i>	Wald Chi2 (8) = 1276.75 ^a , Prob.> Chi2 = 0.000		
	H-Chi2(7) = 384.67 ^b , Prob.> Chi2 = 0.000		
	LM- Chi2(1) = 2929.48 ^c , Prob.> Chi2 = 0.000		
	LR- Chi2 (71) = 808.49 ^d , Prob.> Chi2 = 0.000		

Source: Authors

1. Data on global financial crisis have been obtained from Hatzius et al. (2010), such data refer to FCI that should measure financial shocks – exogenous shifts in financial conditions that influence or otherwise predict future economic activity. Hatzius et al. (2010) selected 45 variables and their starting point for the selection of these variables was the coverage of existing FCIs. At a later stage in this analysis, we also purge the FCI of monetary policy influences that may arise from including the yield curve in the *FCI*. Next, they wished to fill in areas that were not fully covered by existing FCIs. Most FCIs are dominated by interest rate level or spread variables and by asset price variables. They have added several price and spread variables that were not included in other FCIs, including new-car loan rates, jumbo mortgage rates, and home prices. Existing FCIs also include few quantity or flow variables, and only one FCI included a survey variable. During the recent financial meltdown, these indicators appeared to become much more important than they had been in the past. At the same time, price signals became potentially less reliable as markets seized up, non-price credit conditions tightened dramatically, and credit flows slowed abruptly. In an effort to capture these effects, they added 15 financial stock and flow variables to the list, including a representative sample of bank and non-bank credit variables in a variety of markets.

Note: Except for FCI, explanatory variables are in logarithm.

^a The Wald Statistic which is used for the ‘goodness of fit’ of the RE and RE-GLS models.

^b The Hausman test which is used for testing a consistent selection of RE or FE.

^c Brusch-Pagan LM Statistic, which tests the consistent results of OLS or RE.

^d F-Leamer Statistic, which tests a consistent selection of FE and a pooled model.

^f LR-test, which tests to control heteroskedasticity across panels and autocorrelation of error terms

Now, in a re-specification of the SMEs export model (Case 2), shown below in Equation (3), we substitute GDP per capita by countries i and j to their GDP and population variables for a better result particularly on the crisis,

$$LEXSMEs_{2ijt} = \theta_0 + \theta_{ij} + \theta_1 LGDPPC_{it} + \theta_2 LGDPPC_{jt} + \theta_3 LER_{it} + \theta_4 LER_{jt} + \theta_5 LDis_{ij} + \lambda_1 FCI_t + U_{2ijt} \quad (3)$$

where $LGDPPC_{it}$ and $LGDPPC_{jt}$ are log values of GDP per capita by both countries. The relevant estimates reported in Table 4 seem to be more reliable in case of coefficient significance. Although a greater Z-statistic value for the crisis variable, FCI , its coefficient is not yet significant at the 5 % significance level. It reveals that there has been no financial crisis effect on the SMEs export performance in the selected Asian countries over the given period.

Table 4. Panel estimation results for the Asia SMEs’ Exports based on Cross-sectional time-series FGLS regression: Case 2

Variable	Coefficient	Z-Statistic	P> Z
$LGDPPC_i$	0.57	8.73	0.000
$LGDPPC_j$	0.40	9.10	0.000
$LDis$	-0.75	-7.68	0.000
FCI	-0.09	-1.40	0.162
LER_i	-0.64	-12.88	0.000
LER_j	-0.35	-11.62	0.000
$Cons$	23.15	20.50	0.000
Diagnostic Tests	Wald Chi2 (8) = 397.21 ^a , Prob. > Chi2 = 0.000		
	H-Chi2(5) = 349.94 ^b , Prob.> Chi2 = 0.000		
	LM- Chi2(1) = 2938.29 ^c , Prob. > Chi2 = 0.000		
	LR- Chi2 (71) = 731.61 ^d , Prob. > Chi2 = 0.000		

Source: Authors

Note: Except for FCI, explanatory variables are in logarithm.

^a The Wald Statistic which is used for the ‘goodness of fit’ of the RE and RE-GLS models.

^b The Hausman test which is used for testing a consistent selection of RE or FE.

^c Brusch-Pagan LM Statistic, which tests the consistent results of OLS or RE.

^d F-Leamer Statistic, which tests a consistent selection of FE and a pooled model.

^f LR-test, which tests to control heteroskedasticity across panels and autocorrelation of error terms

In Case 3, we add two dummies to the model in conjunction with the dominant roles of China and India, DUM_{CHINA} and DUM_{INDIA} , respectively, in SMEs activities (see Table 2),

$$LEXSMEs_{3ijt} = \theta_0 + \theta_{ij} + \theta_1 LGDPPC_{it} + \theta_2 LGDPPC_{jt} + \theta_3 LER_{it} + \theta_4 LER_{jt} + \theta_5 LDis_{ij} + \lambda_1 FCI_t + \lambda_2 DUM_{CHINA} + \lambda_3 DUM_{INDIA} + U_{3ijt} \quad (4)$$

According to the empirical results summarized in Table 5, both dummy coefficients are highly significant and positive, indicating the expected direct effects of these two important nations on bilateral SMEs trade relations in Asia. A new specification of the model in Case 4 includes two new variables, $FCI * DUM_{CHINA}$ and $FCI * DUM_{INDIA}$, which explore a cross effect between these two important nations and the financial crisis.

$$LEXSMEs_{4ijt} = \theta_0 + \theta_{ij} + \theta_1 LGDPPC_{it} + \theta_2 LGDPPC_{jt} + \theta_3 LER_{it} + \theta_4 LER_{jt} + \theta_5 LDis_{ij} + \lambda_1 FCI_t + \lambda_2 FCI * DUM_{CHINA} + \lambda_3 FCI * DUM_{INDIA} + U_{4ijt} \quad (5)$$

As reported in Table 6, the relevant coefficient for China is highly significant and negative, indicating the interactive effect of financial crisis and the dominant role of China on the SMEs' bilateral trade of the selected Asian countries. The results show that China should empower the effect of recent crisis because this country has close financial relationships with the US and financial crisis would spread to the selected Asian countries through China's channel.

Table 5. Panel estimation results for the Asia SMEs' Exports based on Cross-sectional time-series FGLS regression: Case 3

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDPi</i>	1.08	18.32	0.000
<i>LGDPj</i>	0.30	8.59	0.000
<i>DUM_{CHINA}</i>	3.34	20.49	0.000
<i>DUM_{INDIA}</i>	1.67	10.41	0.000
<i>LDIS</i>	-0.93	-11.77	0.000
<i>FCI</i>	-0.07	-1.35	0.177
<i>LERi</i>	-0.89	-20.97	0.000
<i>LERj</i>	-0.29	-11.72	0.000
<i>Cons</i>	19.96	21.79	0.000
<i>Diagnostic Tests</i>	Wald Chi2 (8) = 1056.07 ^a , Prob. > Chi2 = 0.000		
	H-Chi2(5) = 355.15 ^b , Prob. > Chi2 = 0.000		
	LM- Chi2(1) = 2649.57 ^c , Prob. > Chi2 = 0.000		
	LR- Chi2 (71) = 647.17 ^d , Prob. > Chi2 = 0.000		

Source: Authors

Note: Except for FCI, explanatory variables are in logarithm.

^a The Wald Statistic which is used for the 'goodness of fit' of the RE and RE-GLS models.

^b The Hausman test which is used for testing a consistent selection of RE or FE.

^c Brusch-Pagan LM Statistic, which tests the consistent results of OLS or RE.

^d F-Leamer Statistic, which tests a consistent selection of FE and a pooled model.

^f LR-test, which tests to control heteroskedasticity across panels and autocorrelation of error terms

Table 6. Panel estimation results for the Asia SMEs' Exports based on Cross-sectional time-series FGLS regression: Case 4

Variable	Coefficient	Z-Statistic	P> Z
<i>LGDP_i</i>	0.58	8.98	0.000
<i>LGDP_j</i>	0.39	9.05	0.000
<i>FCI*DUM_{CHINA}</i>	-0.73	-3.36	0.001
<i>FCI*DUM_{INDIA}</i>	-0.27	-1.26	0.207
<i>LDIS</i>	-0.76	-7.82	0.000
<i>FCI</i>	0.02	0.20	0.840
<i>LER_i</i>	-0.64	-13.06	0.000
<i>LER_j</i>	-0.35	-11.61	0.000
<i>Cons</i>	23.10	20.62	0.000
<i>Diagnostic Tests</i>	Wald Chi2 (8) = 415.32 ^a , Prob. > Chi2 = 0.000		
	H-Chi2(7) = 321.19 ^b , Prob. > Chi2 = 0.000		
	LM- Chi2(1) = 2817.26 ^c , Prob. > Chi2 = 0.000		
	LR- Chi2 (71) = 726.35 ^d , Prob.> Chi2 = 0.000		

Source: Authors

Note: Except for FCI, explanatory variables are in logarithm.

^a The Wald Statistic which is used for the 'goodness of fit' of the RE and RE-GLS models.

^b The Hausman test which is used for testing a consistent selection of RE or FE.

^c Brusch-Pagan LM Statistic, which tests the consistent results of OLS or RE.

^d F-Leamer Statistic, which tests a consistent selection of FE and a pooled model.

^f LR-test, which tests to control heteroskedasticity across panels and autocorrelation of error terms

Conclusions

In the recent crisis, economists deal with illiquidity in the global financial market and this problem has affected the world economy, halting more than a decade of robust economic growth. It has particularly impinged on trade through reduced provision and high cost of trade finance. To investigate the effect of financial crisis on SMEs activities, particularly on trade, we have specified a trade gravity model based on the panel data observations of the selected countries in Asia, including China, India, Vietnam, Singapore, Malaysia, Indonesia, Thailand, the Philippines and Pakistan during 1998-2008, where SMEs are expected to grow faster in most of them. Additionally, availability of data on SMEs has led us to select such countries. Overall, the empirical results did not confirm a significant effect of the financial crisis on the SMEs bilateral trade relations between these countries. Despite the Zhu and Yang (2004)'s results, our findings did not confirm a significant relationship between financial crisis contagion and SMEs trade flows in Asia. This relies on the fact that the samples of period and countries as well as the estimation method used by Zhu and Yang (2004) are different from those we used in this paper. However, the results showed that out of the sample China should

empower the effect of recent crisis, because a cross effect of the crisis and the China's role was negatively significant on the SMEs' bilateral trade between the selected Asian countries.

The implication is that the enhancement of SMEs activities may be a need for the selected Asian economies towards adjusting crisis effect and a better-off condition in business environment.

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