The Impact of Social Capital on International Financial Integration

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ABSTRACT

This study investigates the impact of social capital on international financial integration (IFI) using a newly constructed social capital series. Although previous studies have identified the social capital as one of the perquisites of IFI, the relationship between social capital and IFI is inconclusive. This study employs the generalized method of moment (GMM) panel technique on a sample of 60 countries for the period of 1990 to 2014. The results suggest that social capital can positively affect IFI, where improvement of social capital can promote international cooperation in financial market.

JEL Classification: F36, F62, G38.

Keywords: Social capital; international financial integration; generalized method of moment; panel data

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INTRODUCTION

In early 1990s, the interest in international financial integration (IFI) has increased extensively (Obstfeld, 2013). Empirical studies on many developed and developing countries illustrated that the development of cross-border investment is largely motivated by higher rates of return and risk diversification opportunities (Kim et al., 2006; Kleimeier and Sander, 2000). This linkage has encouraged policy makers in many countries to take steps towards eliminating restrictions, deregulating domestic financial markets, improving their economic environment and prospects and promoting mutual financial interconnection among countries (Arfaoui and Abaoub, 2010).

Similar financial policies in different countries result in different levels of global financial market integration and risk adjustment. IFI is only effective in expanding opportunities for portfolio diversification and higher risk-adjusted rates of return in some countries. Existing literature on IFI that addressed this conflict could only explain part of these differences (Vo and Daly, 2007; Kurihara, 2012; Sapwarobol and Denzau, 2012). IFI requires the enforcement of a formal cross-border contract and collaborative policies to prevent financial distractions, as well as the removal of cross-border financial operation limitation and legal barriers. Therefore, IFI will not presence impulsively when the legal barriers are removed. The regulation system should allow the development of international financial market and induce comparative and secure operations (Von Furstenberg, 1998; Vo and Daly, 2007). There are numerous theoretical and empirical studies examining the determinants of IFI. The majorities of these studies contribute the variation of IFI in countries to some determinants such as formal institution (Lemmen and Eijffinger, 1996; Portes and Rey, 2005; Alesina et al., 1993; Vo and Daly, 2007). Von Furstenberg (1998) suggests that formal institutional prerequisites for IFI range from the introduction of standardized, internationally tradable financial products and of quotation and trading systems to the development of international conventions and the adoption of mutually recognized regulatory, supervisory, large-value transfer and final-settlement practices. In addition, the operation of financial institutions is subject to the integration arrangement in respective economies. Financial institutions should follow a standardized valuation rules that enhance the transparency in the financial sectors and reinforce the stability of the financial system. Therefore, financial integration could emerge involving informal agreements. Some studies suggest that IFI also needs informal institutions arrangements such as mutual confidence, the capability to form capital, and charter value to basically induce firms to trust in the suppliers of financial services and their motivations (Von Furstenberg, 1998; Ekinci et al., 2007). Therefore, the differences in cross-country IFI can be related to other factors than formal institutions that is called informal institutions such as confidence and trust (Ekinci et al., 2007).

Von Furstenberg (1998) is among the first researchers who test the importance of social factors on IFI. He argues that IFI requires mutual confidence and trust between parties involved in trading financial services. Social factors are the results of either the decision implemented or informal institutional endowments, which are effective instruments in financial system corporation. As every financial transaction is involved debtors and creditors that are mutually dependent on each other, accordingly, social interaction and IFI should evolve simultaneously over the time (Von Furstenberg, 1998). Every financial cooperation incorporates contracts, warranties, and legal advices, which are transaction costs. The mechanism which social capital may affect IFI is through financial contracts. As the concept of financing is to exchange some amount of money today and promise to return it in the future, these kinds of promises hold not only because of enforceability of contracts, but also it may depend on the human interactions plus strength of network and relationship between financier and financee. In another word, informal institutions can guarantee the enforcement of contracts and positively associate with IFI. As studies suggest that trustworthiness, controls of internal management, ethical infrastructure and the quality of collateral are important informal institutions, absent of these elements causes countries miss efficient linkage to international financial markets (Von Furstenberg, 1998). Thus, verifying this linkage can help understand the mechanism through which social capital contributes to IFI. However, measuring social capital is complicated due to its complex nature and intangible quality (Bjørnskov, 2006a). This study follows Lee et al. (2011) who constructed a social capital index using four groups of social factors. Using the generalized method of moment (GMM) method, we investigate the impact of various dimensions of social factors on IFI by computing and developing the social capital series for 60 countries for every five years from 1990 to 2014. Our social capital series cover four component areas, namely social trust, norms, network and social structure, which are extracted from 34 variables using the principle component analysis (PCA).

Background of study

There are two types of indicators for IFI, namely the de jure factors and the de facto factors. The de jure factors emphasize on policies implemented by the government to restrict capital flow and limit cross-border transactions. The de facto factors emphasize on a country's exposure to international flow of capital. These indicators are measured based on the existence of cross-border transactions. Therefore, they are unbiased and less disposed to measurement errors (Chen and Quang, 2014). Figure 1 illustrates the evolution of de facto measures of IFI in a sample of industrial, emerging and developing countries[1] over the period of 1990 to 2014. The organization of the plots is as follows: (a) aggregate stock of assets and liabilities, (b) stock of liabilities, (c) stock of foreign direct investment (FDI) and portfolio investment (PI), and (d) aggregate flows of equity. Figure 1 shows that industrial countries are most financially open and they receive the highest share of international capital flows.
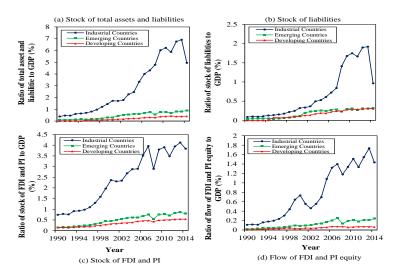

Figure 1 De facto measures of IFI across industrial, emerging and developing countries (1990-2014)
Source: International Monetary Fund (IMF), World Bank (WB)

The recent wave of financial market integration has generated an intense debate among economists, attracting both strong supporters and opponents. There are numerous of empirical studies examining the determinants of IFI. Some recent studies have focused on the relationship between social capital and IFI (Von Furstenberg, 1998; Ekinci et al., 2007). Social capital is a result of the effect of social institutions, human relations, and norms on quality and quantity of social interactions (Bourdieu, 1986; Coleman, 1990; Putnam, 2001). Although there is controversial debate about the positive or negative role of social capital in economic performance, economic development literatures attempt to recognize its contribution to social dimension of individual and community behavior. As in every financial contracts it is promised to receive return at the end of investment period, social capital may play important role to secure the promises. As Banfield (1958) argued that people may count more on others' to keep their promises. Therefore, it is very important financier can trust borrower. In addition, social capital can help promote effective enforcement of contract by induce sanctions against who abuse it, and by this means reduce the cost of doing business. Thus, social capital may have vital effect on enhancing international financial market cooperation. Figure 2.a and b compares social capital index with IFI.

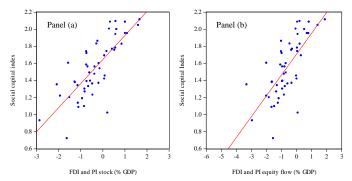[1] See the list of countries in Appendix A.

Figure 2 Social capital index and international financial integration (2000-2007)
Source: International Monetary Fund (IMF), Lee et al. (2011)

Figure 2(a) and (b) show that social capital index links positively to IFI indicators in a sample of developing and developed countries. Since in the society with higher social capital, for example generalized trust, the costs of transaction are lower and diversification of risks are higher. Therefore, in that environment doing business is easier. In trustworthy society, government can gather groups for overcoming recession easier. Thus, this will motivate investors to increase their investments in countries with strong social capital. This is consistent with the results found by Ekinci et al. (2007) suggest regions with higher social capital meet higher financial market integration. Apparently, there should be a relationship between social capital and subcomponents of the capital flows. This is important to highlight the value of considering the association of different dimensions of social factors with IFI.

LITERATURE REVIEW

Von Furstenberg (1998) investigated the preconditions of IFI and focused on financial institutions and markets. Further studies on IFI examined its features and compared the level of IFI among different countries (Lane and Milesi-Ferretti, 2003; Vo, 2005a). Lemmen and Eijffinger (1996) found government instability and investment play important roles in capital movement within the European countries. La Porta et al. (1997, 1999), Toniolo et al. (2003), and Lucey and Zhang (2011) found a robust connection between the regulatory system and international financial integration. Kearney and Lucey (2004), Vo and Daly (2007), Lane and Milesi-Ferretti (2008), and Sapwarobol and Denzau (2012) showed that the level of financial integration between countries is highly related to trade openness. Other studies found robust relationship between IFI and economic growth (Edison et al., 2002; Vo, 2005b; Vo and Daly, 2007).

Lane and Wälti (2007) found that common membership to the European Monetary Union (EMU) increases the bilateral bond holdings. Esqueda et al. (2012) found a positive relationship between IFI and total stock return stability in emerging markets while Henry (2000) suggested a positive link between IFI and domestic investment. Kurihara (2012) argued that the differences in domestic and foreign prices, as well as economic growth, are the most important factors in studying the macroeconomic determinants of foreign capital flows. Other studies suggested factors such as market size, resource endowment, institutional characteristics and absorptive capacity also contribute to IFI (Shepherd, 1994; Lemmen, 1996; Adam et al., 2002; Obstfeld and Taylor, 2003; Shin and Wang, 2004; Fung et al., 2008).

The social dimension of trade in financial services has not been studied extensively as one of the determinants of IFI. There are some studies examined relationship between various social factors and economic variables. For example the effect of social factors were studies on international financial integration (Ekinci et al., 2007), economic development (Miguel, 2003; Mogues and Carter, 2005; Rupasingha et al., 2006), financial market development (Guiso et al. 2004, 2008; Law and Mansur, 2013), and economic growth (Neira et al., 2009; Tabellini, 2010; Dincer and Uslaner, 2010; Hall and Ahmad, 2013).

Though there are controversial debates on the positive and negative roles of social capital, previous studies recognized the contribution of the social dimension of individual and community behavior. Knack and Keefer (1997) and Arrows (1999) showed that social capital can facilitate economic transactions by reducing the transaction costs. Empirical evidence supported that social capital plays an important role in expanding the financial market (Calderon et al., 2002; Guiso et al., 2004, 2008, 2009; Law and Mansor, 2013). Ekinci et al.

(2007) investigated the nexus of financial integration and social capital within European countries and suggested that higher level of confidence and trust can promote better cooperation in the financial market. However, trust and confidence are not the only indicators to represent social capital. Other variables to be considered in measuring social capital are norms, networks, social structure, civic attitude and social conflict. Some of the previous studies have examined subsets of these indicators and this study continues to investigate the role of social capital in IFI.

METHODOLOGY

Theoretical background of IFI

Von Furstenberg (1998) investigated the prerequisites of IFI and suggested that IFI should be assessed with respect to the structure of financial system in a particular country. Following his method, the model used in this study is defined as follows:

$$IFI = \alpha + \sum \beta x + \varepsilon \tag{1}$$

where IFI denotes the degree of IFI, X is a set of variables identified as the potential determinants of financial integration.

Empirical model

Empirically, Vo and Daly (2007) examine a wide group of variables creating the financial structure including institution, the degree of economic development, Real GDP per capita, the openness of international trade, and the depth of domestic financial markets as the potential determinants of financial integration. In this study, we add social capital to the their model. The specification of this study aims to explain the determinants of financial integration by testing the role of social capital. One set of variables are treated as control variables with a potential direct causal influence on the benefits and costs of IFI. Our model is formulated as follows:

$$LIFI_{it} = \beta_0 + \beta_1 SC_{it} + \beta_2 LINS_{it} + \beta_3 LRGDPC_{it} + \beta_4 LFD_{it} + \beta_5 LTO_{it} + \beta_6 LSE_{it} + \beta_7 L(SD.D)_{it} + \varepsilon_{it} \tag{2}$$

where IFI represents international financial integration as dependent variable, SC is social capital, INS is institution , RGDPC is real income per capita, FD denotes domestic financial development, TO is trade openness, SE is level of economic development, and SC.D denotes the interaction between social capital and country dummy variable.

Generalized method of moments (GMM)

Previous studies confirm that the econometric approach has a key role to assess the results on IFI. Vo and Daly (2007) suggested that IFI may be influenced by its past, therefore, the model should be analyzed using the lagged value of IFI as the explanatory variable in a dynamic panel analysis. In order to understand the effect of lagged values, it might be meaningful to use dynamic panel analysis.

Since cross section (N) is larger than time dimension (T), Generalized Method of Moments (GMM) is applied. There are two advantages of using GMM panel estimation. The first is, GMM can help exploit the time-series fluctuations in the data. And the second is, GMM can help control the endogeneity of the explanatory variables by inclusion the lagged dependent variables as regressors.

Holtz-Eakin et al. (1988) are the first ones who use the GMM. Later studies such as Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) try to extend the model. In the presence of a lagged dependent variable, the GMM estimator is capable of producing consistent coefficients (Fingleton and Le Gallo, 2008). Our estimation equation for the GMM method is as follows;

$$LIFI_{it} = \beta_0 + \alpha LIFI_{it-1} + \beta_1 SC_{it} + \beta_2 SC.D_{it} + \beta_3 LSE_{it} + \beta_4 RGDPCg_{it} + \beta_5 LTO_{it} + \beta_6 LFD_{it} + \beta_7 LINS_{it} + \varepsilon_{it} \tag{3}$$

There are two specific tests that show the consistency of the GMM estimator. The first test examines the hypothesis of validity of instruments is Hansen (1982) J test of over-identifying restrictions. Under the null of joint validity of all instruments, the empirical moments have zero expectation, so the J statistic is distributed as a chi-square (χ^2) with degrees of freedom equal to the degree of over-identification (number of instruments, (K) minus the number of independent variables, (L)). If the model is miss-specified and or some of the moment conditions do not hold then the J−statistic will be large relative to a χ^2 random variable with (K–L) degrees of freedom. The J-test is the classic Sargan (1958) statistic when the errors are homoscedastic. The second test tests the hypothesis of no second-order serial correlation in the error term (Arellano and Bond, 1991). Failure to reject the null of both tests provides support to the estimated model.

DATA DESCRIPTION

Sample

We use a panel data for 60 developed and developing countries in five-year intervals from 1990 to 2014. The reason to choose the countries is based on the availability of data for constructing social capital series, as the data on social capital index are retrieved from the World Value Survey (WVS). These data are tabulated every five years up to the fifth wave. Hence, the data on IFI and control variables are also averaged every five years to give five observations per country.

Measuring IFI

Two indicators of IFI are employed in this study. First, we use the aggregate stock of foreign direct investment (FDI) and portfolio investment (PI) as share of GDP. Secondly, we use the flow of foreign direct investment (FDI) and portfolio investment (PI) in equity as share of GDP. The first indicator is a stock-based measure and the latter is a flow-based measure. We include the stock-based indicator due to the short-run fluctuations in capital flow. These fluctuations are usually related to factors that are not linked to IFI. Vo and Daly (2007) argued that stock-based measures are less sensitive to such fluctuations. Therefore, we also use the equity flow-based measure to capture the short-run fluctuations and its measurement mechanism (Lane and Milesi-ferretti, 2003).

Measuring social capital

Despite the importance of understanding social capital, there is criticism that why the empirical studies is limited on this area. The reason is measuring social capital because of its intangible quality and complex nature is not easy (Bjørnskov, 2006a). This implies that conducting general framework for measuring a single indicator of social capital is not easy.

This study develop social capital series (SC) using the principle component analysis (PCA) based on Lee et al. (2011). It incorporates four main components constructed from 34 variables, including (i) social trust variables such as generalized trust, domestic credit to private sector (a proxy for trust in the financial market), fairness and systemic trust (shown by the level of confidence in social and public institutions), (ii) social structure variables that incorporate democracy, government effectiveness, immigrants, income inequality, internet usage, political rights and urbanization, (iii) norm variables indicated by elements that creates social behavior such as civic attitude, control of corruption and rule of law, and (iv) network variables that basically imply the behavior of individual in a group. The social capital index constitutes two different networks; the Olson group and the Putnam group. The Olson group shows the activities of individuals in labor unions, political parties and professional organizations. The Putnam group includes the network of individuals cooperating in art, music, education, sports, recreation and regional groups.

Potential determinants of IFI

Data for institution (INS) is retrieved from the International Country Risk Guide – a monthly publication by the Political Risk Services (PRS). The overall institutional environment is measured using five PRS indicators, namely (1) corruption, (2) rule of law, (3) bureaucratic quality, (4) democratic accountability and (5) government

stability. The institution factor is obtained by summing these five indicators following Law and Mansor (2013). The level of development (LD) data is measured by secondary education enrolment rate (SE), which is the proportion of population enrolled in secondary education. It is extracted from the World Bank's World Development Indicators (WDI). The annual data on real GDP per capita growth rate is also obtained from WDI based on constant 2010 U.S. Dollar. Trade openness (TO) is represented by total import and export as share of GDP, retrieved from the WDI and the IMF's Direction of Trade Statistics. Domestic financial development depth (FD) is indicated by domestic credit provided by banks and financial institution as share of GDP, as published by the World Bank in WDI.

EMPIRICAL RESULT

Analysis of social capital series

The extent of social cooperation is found to be influenced by two dimensions of social capital index, namely attitude and infrastructure. The constructed social capital series of this study are given in Table 1, indicating that social capital varies across countries. The index scales are between 0 and 10; with New Zealand showing the highest mean score of 7.84 and Uganda showing the lowest score of 2.61. This result is consistent with the constructed index by Lee et al. (2011). Minor variations are due to the difference in the number of variables and the time trend between the two studies.

Table 1 Social capital series for 60 countries (1990-2014)

Country	SC1						SC2
	1990-94	1995-99	2000-04	2005-09	2010-14	Mean	2000-07
Argentina	3.83	4.7	3.01	3.36	3.62	3.70	4.38
Armenia	3.03	3.53	3.18	3.14	3.32	3.24	-
Australia	7.49	8.04	7.66	7.79	7.76	7.75	8.12
Bangladesh	2.5	3.45	2.41	2.65	3.76	2.95	2.54
Brazil	4.83	4.56	4.34	4.16	4.26	4.43	4.04
Bulgaria	4.17	4.41	4.66	4.68	4.31	4.45	4.77
Canada	7.13	6.74	6.71	7.7	7.72	7.20	7.39
Chile	4.35	4.77	4.71	5.34	5.36	4.91	2.78
China	2.7	2.92	3.2	3.02	3.26	3.02	4.98
Colombia	4.41	4.01	3.96	3.62	4.07	4.01	3.56
Cyprus	5.5	5.6	6.03	5.87	5.98	5.80	5.80
Czech Rep.	5.34	5.54	5.76	5.52	5.08	5.45	6.24
Egypt	3.47	2.9	3.63	3.32	3.98	3.46	2.97
Estonia	3.12	5.11	3.3	4.7	6.02	4.45	5.71
Finland	5.86	6.57	6.97	7.55	7.49	6.89	7.06
France	5.98	6.11	6.11	6.22	6.27	6.14	6.23
Germany	6.85	7.31	7.23	7.15	6.83	7.07	6.98
Hong Kong	6.4	6.76	6.49	6.2	6.38	6.45	-
Hungary	5.34	4.35	4.19	3.78	3.27	4.19	5.44
India	3.45	4.85	4.3	4.26	3.6	4.09	3.39
Indonesia	3.4	3.75	3.96	4.49	4.77	4.07	3.33
Italy	5.32	6.01	5.45	5.58	5.61	5.59	5.87
Japan	5.99	6	6.19	6.35	6.58	6.22	6.44
Jordan	3.56	3.46	3.84	3.43	4.67	3.79	4.14
Kazakhstan	4.27	5.85	5.08	5.43	5.36	5.20	-
Kyrgyzstan	3.57	3.19	3.76	4.23	4.52	3.85	3.12
Latvia	4.05	4.05	4.92	4.81	4.15	4.40	4.88
Lebanon	3.7	3.84	3.9	3.93	4.3	3.93	-
Macedonia	4	3.82	2.9	3.21	4.1	3.61	4.50
Malaysia	4.8	3.46	3.55	3.34	4.06	3.84	3.94

Note: Social capital index scaled from 0 to 10

Table 1 Cont.

Country	SC1						SC2
	1990-94	1995-99	2000-04	2005-09	2010-14	Mean	2000-07
Mexico	4.06	4.79	3.26	4.17	3.96	4.05	3.79
Moldova	3.57	3.12	3.21	3.27	2.99	3.23	3.68
Morocco	3.4	4.28	4.81	3.77	4.51	4.15	3.29
Netherlands	7.18	7.31	7.24	7.29	7.21	7.25	8.29
New Zealand	7.67	7.96	7.98	7.86	7.71	7.84	8.06
Nigeria	5.9	5.08	6.21	6.14	5.94	5.85	-
Norway	6.64	7.37	7.96	7.77	7.62	7.47	-
Pakistan	4.88	5.42	4.65	4.54	4.49	4.80	-
Peru	4.88	4.15	2.86	3.74	3.67	3.86	4.02
Philippines	3.61	3.19	3.36	3.45	3.28	3.38	3.00
Poland	4.73	4.85	3.98	4.11	4.52	4.44	4.77
Romania	4.04	4.44	3.71	3.73	4.1	4.00	3.83
Russia	4.8	3.67	3.32	3.3	3.12	3.64	3.91
Slovakia	4.46	4.09	3.67	3.79	3.86	3.97	4.96
Slovenia	4.3	3.85	4.29	4.82	2.89	4.03	5.58
South Africa	4.92	4.67	3.64	3.9	3.77	4.18	4.29
South Korea	5.68	5.11	5.16	5.36	5.21	5.30	5.70
Spain	5.51	5.65	5.01	5.55	5.54	5.45	5.95
Sweden	6.84	7.26	7.06	7.47	7.23	7.17	8.06
Switzerland	6.54	7.25	7.41	7.82	7.76	7.36	7.75
Thailand	4.37	4.81	4.46	4.04	4.47	4.43	4.45
Trinidad &Tobago	4.37	2.53	3.87	3.45	3.61	3.57	4.67
Tunisia	3.64	3.3	3.24	2.88	2.98	3.21	-
Turkey	3.86	4.19	4.58	4.43	4.86	4.38	3.97
Uganda	2.7	2.87	2.69	2.7	3.09	2.81	2.06
Ukraine	3.6	3.68	4.13	4.29	3.66	3.87	4.00
United Kingdom	6.48	7.16	6.86	7.1	7.05	6.93	7.05
United States	7	7.91	6.84	7.13	6.96	7.17	7.43
Uruguay	5.15	5.22	4.87	4.38	4.25	4.77	-
Venezuela	4.04	4.74	3.76	3.25	2.95	3.75	3.43

Note: Social capital index scaled from 0 to 10

Role of social capital in international financial integration

The GMM estimator for panel data is employed to measure social capital impact on IFI. In small sample sizes, inclusion and exclusion of outliers may influence the estimation of the results; hence the possible effect of outlier observations needs to be assessed. To test the presence of outliers, this study uses Cook's distance test (Cook and Weisberg, 1982) that measures the impact of an individual observation on the estimated regression coefficient (Neter et al. 1985). A higher value of the test statistic implies the corresponding observation has higher influence on the regression coefficient. Figure 4 provides a graphical view of the possible impact of individual countries on the estimated result. It shows the value of leverage point versus normalized residual squared. A potential outlier (Appendix C) is the one with a high combination of leverage and residual.

(a) IFI1 and social capital   (b) IFI2 and social capital
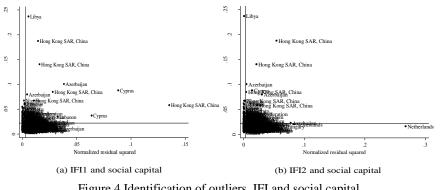
Figure 4 Identification of outliers, IFI and social capital

Table 2 shows the empirical result of the impact of social capital on stock-based and equity-based IFI measures. The table shows the empirical results using constructed social capital series (denoted by SC1) and different proxy of IFI. In Model 1a, b, and c, IFI1 denotes the aggregate stock of FDI and PI as share of GDP. In Model 2a, b, and c, IFI2 represents the aggregate flow of FDI and PI equity as a share of GDP. Both models are estimated using the System GMM estimator without outliers.

Table 2 Social capital and international financial integration by the System GMM estimation

Regressor	System GMM (without outlier)					
	IFI1(aggregate stock of FDI and PI)			IFI2 (aggregate flow of equity)		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
Log Lag international financial integration (LIFI (L))	0.61***	0.62***	0.64***	0.84***	0.85***	0.83***
	-0.045	-0.033	-0.049	-0.018	-0.016	-0.017
Social capital (SC1)	0.09**	-	0.10**	0.07**	-	0.07**
	-0.06		-0.062	-0.061		-0.066
Log Institution (LINS)	-	0.30**	0.37**	-	0.26***	0.16***
		-0.211	-0.264		-0.159	-0.194
Log real GDP per capita (RGDPC)	0.01*	0.01**	0.01*	0.01*	0.01*	0.01*
	-0.013	-0.013	-0.013	-0.01	-0.01	-0.01
Log Domestic financial development (LFD)	0.13*	0.15*	0.16*	0.10**	0.05	0.08*
	-0.081	-0.084	-0.087	-0.079	-0.081	-0.083
Log Trade openness (LTO)	0.16**	0.15**	0.10**	0.29**	0.31**	0.33**
	-0.115	-0.114	-0.126	-0.121	-0.142	-0.137
Log Level economic development (LSE)	0.05**	0.05**	0.04**	0.04**	0.01**	0.03**
	-0.112	-0.086	-0.102	-0.112	-0.127	-0.119
Social capital. dummy (SCD)	0.14**	-	0.14**	0.01**	-	0.01***
	-0.089		-0.085	-0.09		-0.091
Sargan Test (p-value)[1]	0.191	0.671	0.2	0.121	0.131	0.14
Arellano-Bond test for AR(2) (p-value)[2]	0.186	0.188	0.265	0.142	0.142	0.144
Observations	220	220	220	220	220	220
No. of instruments	15	14	16	15	14	16
Cross-sectional observations	58	58	58	58	58	58

Note: The independent variables, Social capital (SC1) calculated as social capital index ranging from 10 (highest) to 0 (lowest); institution (INS) calculated as summation of five political risk services indicators higher is better institutional environment. Real GDP per capita (RGDPC) calculated as annual growth rate of real per capita GDP; financial domestic development (FD) calculated as domestic credit provided by banks and financial institution as share of GDP; trade openness (TO) calculated as total import and export as share of GDP; level economic development (SE) calculated as ratio of gross secondary school enrollment. [1]The null hypothesis is that model and overidentifying conditions are correct specified. [2]The null hypothesis is that there is no serial correlation in the first-differenced disturbances. Values in parenthesis are standard error. ***,**, * indicates significance at 1%,5% and 10% levels respectively.

Model 1a and 2a present the results when institution is dropped from model. The results show that social capital has positive and significant relationship with IFI. This finding is consistent with Ekinci et al. (2007) who found that social capital significantly and positively contributes to financial integration within European Union (EU).

Model 1b and 2b show the results when social capital is excluded from the model. The results show that the level of institution is found to be positive and significant, implying that higher institutional quality leads to higher integration (La Porta et al., 1997; Lothian, 2006; Capannelli and Tan, 2012). Real income per capita has positive and significant relationship with IFI. This is supported by view suggested by Edison et al. (2002) and Vo and Daly (2007) who reported positive impact of economic growth on IFI.

Model 1c and 2c includes both social capital and institution variables. The results shows that social capital has significant effect on IFI1, when formal institution is in the model. A positive relationship between social capital and IFI implies that a higher social capital promotes financial corporation between countries. Perhaps this can be justified by the fact that social components can improve business deals by reducing transaction costs and promoting risk-taking behavior, therefore, capital can flow more easily among countries when social capital stock is higher. For financial transactions, individuals must have confidence and trust in the institutions that provide the financial intermediation. They also must have trust in the recipients of capital and the legal system. High level of social capital is more prominent where the measuring components include confidence in public, legal and social institutions are (Guiso et al., 2004). Economic growth has a positive and significant relationship. This finding supports the view suggested by Edison et al. (2002) and Vo and Daly (2007. Variables such as domestic financial development, trade openness and level of economic development are found to have significant link with IFI. These findings are consistent with Vo and Daly (2007).

As developed and developing countries have different level of IFI and social capital (presented in the background of study), we split the sample to develop and developing countries. Thus, developed country dummy variable interacts with social capital to capture the impact of social capital on IFI in developed and developing countries. The results reveal that the estimated coefficient of SC-developed countries are significant and positive. These results support the view that social capital has higher impact on IFI in developed countries. These findings amplify the importance of the level of the financial integration among country in increasing the positive effect of social capital on IFI.

There are two specific tests for showing the consistency of the GMM estimator. The Sargan test of overidentifying restriction checks the validity of instruments, where failure to reject the null hypothesis implies that overidentifying restrictions are valid. The second test is AR (2), which checks for the hypothesis of no second-order serial correlation in the error terms (Arellano and Bond, 1991). Failure to reject the null hypothesis based on this test supports that both models are correctly specified (Baum et al., 1970).

As discussed earlier, stock-based indicators of IFI have lower sensitivity to short-term fluctuations, possibly due to other factors that are not related to IFI. Perhaps aggregate stock of FDI and PI are more reliable and accurate than equity-based measures (Lane and Milesi-ferretti, 2003). Therefore, the relationship between social capital and IFI remains positive and significant as suggested in Model 1. This implies that higher stock of social capital leads to higher financial corporation among countries. It further supports the importance of social capital to improve IFI.

Cross-sectional estimation of the results

To check for the robustness of the impact of social capital on IFI, we employ the social capital index constructed by Lee et al. (2011) with 44 variables. The cross-country analysis are presented in Table 4, with two indicators as proxies for IFI, namely IFI1 (aggregate stock of FDI and PI) and IFI2 (aggregate flow of equity). All variables are in terms of average values over 2000-2007. As heteroskedasticity is a common issue in cross-sectional data, we apply robust standard errors. Model 3a, b, and c and Model 4a, b, and c are estimated using robust standard errors without outliers.

Table 3 Social capital index and international financial integration cross-sectional analysis in 2000-2007

| Regressor | OLS with robust standard (without outlier) | | | | | |
| | IFI1(aggregate stock of FDI and PI) | | | IFI2 (aggregate flow of equity) | | |
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Social capital (SC2)	0.25**	-	0.23**	0.32**	-	0.25**
	(0.140)		(0.139)	(0.192)		(0.192)
Institution (INS)	-	1.42***	0.58**	-	0.71***	0.38**
		(0.494)	(0.858)		(0.231)	(0.282)
Log real GDP per capita	0.14**	0.08**	0.14**	0.16***	0.01**	0.14***
(RGDPC)	(0.030)	(0.031)	(0.033)	(0.043)	(0.065)	(0.045)
Domestic financial development	0.15*	0.26*	0.10*	0.11*	0.40*	0.07*
(FD)	(0.119)	(0.135)	(0.126)	(0.159)	(0.230)	(0.166)
Trade openness (TO)	0.50***	0.54**	0.49***	0.69***	0.45**	0.63***
	(0.139)	(0.207)	(0.149)	(0.166)	(0.297)	(0.183)
Level economic development	0.53**	0.51**	0.55**	0.19**	0.26**	0.20**
(SE)	(0.427)	(0.340)	(0.407)	(0.493)	(0.438)	(0.459)
Social capital. dummy (SCD)	0.01**	-	0.01**	0.01*	-	0.05**
	(0.052)		(0.053)	(0.066)		(0.054)
Sargan Test (p-value)[1]	0.78	0.72	0.78	0.71	0.69	0.72
Cross-sectional observations	50	58	49	49	57	48

Note: For the independent variables, social capital (SC2) is as introduced by Lee et al. (2011), ranging from 10 (highest) to 0 (lowest); institution (INS) is calculated as summation of five political risk service indicators, where a higher value denotes better institutional environment; economic growth rate Rela GDP per capita (RGDPC) is calculated as annual real per capita GDP; financial domestic development (FD) is calculated as domestic credit provided by banks and financial institution as share of GDP; trade openness (TO) is calculated as total import and export as share of GDP; level economic development (SE) is calculated as ratio of gross secondary school enrolment. OLS with robust standard error estimation is used to investigate the effect of social capital on various de facto IFI indicators. Standard errors (in parentheses) are adjusted for heteroscedasticity. ***, **, * indicates significance at 1%, 5% and 10% levels, respectively.

Table 3 shows that Model 3 and Model 4 present similar results with the estimation by System GMM in Model 1 and Model 2. The result supports that social capital shows a positive and significant impact on IFI. This finding agrees that social capital plays a vital role in improving financial cooperation among countries.

CONCLUSION

There are numerous theoretical and empirical studies that investigate the determinants of IFI, whereas the impact of social capital on IFI has received less attention. In this study, the empirical evidence supports that social capital can positively affect IFI. Social capital is found to vary widely across countries. As stock-based and flow-based IFI measures are incorporated in this study, it is found that social capital is a more important determinant as stock-based indicators than the flow of equity that is subject to short-run movements. Consistent with the theoretical work by Von Furstenberg (1998), it is observed that social capital enhances IFI when de facto factors

is used as a proxy for IFI. Thus, it implies that social capital contributes more to IFI when a country reaches a certain level of social capital. Our finding suggests that social factors can promote cooperation in global financial market by facilitating risk sharing and reducing transaction costs.

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APPENDICES

A List of country

Argentina	Cyprus	Indonesia	Mexico	Poland	Thailand
Armenia	Czech Rep.	Italy	Moldova	Romania	Trinidad
Australia	Egypt	Japan	Morocco	Russia	Tunisia
Bangladesh	Estonia	Jordan	Netherlands	Slovakia	Turkey
Brazil	Finland	Kazakhstan	New Zealand	Slovenia	Uganda
Bulgaria	France	Kyrgyzstan	Nigeria	South Africa	Ukraine
Canada	Germany	Latvia	Norway	South Korea	United
Chile	Hong Kong	Lebanon	Pakistan	Spain	United States
China	Hungary	Macedonia	Peru	Sweden	Uruguay
Colombia	India	Malaysia	Philippines	Switzerland	Venezuela

B Constructing social capital

Following Lee et al. (2011), this study employs the principal component analysis (PCA) to construct the social capital index for five waves from 1990 to 2014. The data set for the social capital series consist of 34 variables for 60 countries, prepared in a matrix of 60 rows and 34 columns. Then, 34 principle components (PC) are calculated using PCA.

Figure A1 shows the variances of the first 10 PCs for each period of time. From 1990 to 1994, the variance of the first PC (PC_1) explains 25.10 percent of the total variance of the original variables, and the second PC (PC_2) explains 17.50 percent. From 1995 to 1999, the variance PC_1 and PC_2 account for 24.60 percent and 18.60 percent of the total variance of the original variables, respectively. From 2000 to 2004, the variance of PC_1 and PC_2 are 24.20 percent 19.70 percent, respectively. The variances of PC_1 and PC_2 are 25 percent and 20.90 percent from 2005 to 2009, and 23.30 percent and 20.20 from 2010 to 2014. As indicated in Figure A1, the sums of total variances for these two components are 42.60, 43.63, 43.84, 45.87, and 43.50 percent in each time period.
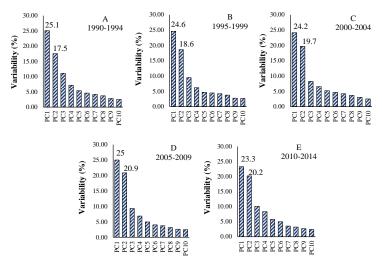

Figure A1 Proportion of the variance explained by PCA (1990-2014)

The variable factor map (VFM) is used to understand the PCs. Each variable v_i is a two-dimensional vector with a horizontal component of c_{i1}, which consists of the correlation coefficient with PC_1, and the vertical component c_{i2}, which consists of the correlation coefficient with PC_2. The condition $c_{i1}^2 + c_{i2}^2 \leq 1$ should hold for all PCs. The correlation circle is a circle of radius 1 with every vector located in it. Figure A2 shows the VFM of 34 social capital variables. Locating several reference variables on the VFM determines the meaning of each PC in different periods of time. As shown in Figure A2, the international financial integration (ifi in VFM) shows a correlation of 0.56 with PC_1 and 0.02 with PC_2 in 1990-1994; 0.50 with PC_1 and -0.03 with PC_2 in 1995-1999; 0.57 with PC_1 and 0.02 with PC_2 in 2000-2004; 0.53 with PC_1 and 0.09 with PC_2 in 2005-2009; and 0.29 with PC_1 and 0.12 with PC_2 in 2010-2014. The economic growth (egr in VFM) shows a similar result, located in the coordinates (0.45, 0.31), (0.34, 0.02), (0.15, -0.39), (0.42, -0.14) and (0.10, 0.04) in 1990-1994, 1995-1999, 2000-2004, 2005-2009 and 2010-2014, respectively. The reference variable for economic growth has a higher correlation with PC_1 than with PC_2. However, the financial development (fdev in VFM), located in the coordinates (0.60, 0.46), (0.73, 0.27), (0.75, -0.15), (72, -0.16), and (0.60, -0.14) has a higher correlation with PC_1 than PC_2 from 1990 to 2014. We conclude that PC_1 is closely associated with the level of financial integration, economic growth and financial development of each country in each time period from 1990 to 2014.
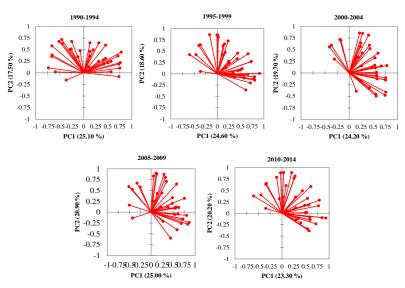
Figure A2 Variable factor map of constituent variables and reference variables (1990-2014)

Results in Figure A2 show ambiguous meaning of PC_2. Since the variables that are strongly correlated with PC_2 belong to the public trust category, PC_2 offers little information to the interpretation of the index of social capital series. Thus, it is concluded that only PC_1 contains meaningful information and is suitable for the index of social capital.

Finally, PC_1 values of all sample countries approximately follow a normal distribution with zero average and standard deviation of 2.95, with $N(0, 2.95^2)$ in 1990-1994, $N(0, 3.05^2)$ in 1995-1999, $N(0, 3.02^2)$ in 2000-2004, $N(0, 3.07^2)$ in 2005-2009, and $N(0, 2.96^2)$ in 2010-2014. To avoid negative values, we normalized the index by using $SC = 0.5 * PC1 + 5$, yielding $N(5, 1.475^2)$, $(5, 1.53^2)$, $(5, 1.51^2)$, $(5, 1.54^2)$, and $(5, 1.48^2)$ in all time periods.

C List of outliers

Potential outlier countrie	
Independent Variable	
IFI1	IFI2
Azerbaijan	Azerbaijan
Cyprus	Cyprus
Hong Kong	Hong Kong
Libya	Libya
	Netherlands