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The effects of financial development on trade performance and the role of institutions

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Abstract

This paper aims to address the empirical question of whether a country's level of manufacturing trade is affected by its financial sector development and to investigate the role of institutions in this relationship. Countries endowed with better-developed financial systems tend to specialize in industries that rely on external finance in production. This effect is likely to be stronger in countries with high-quality institutions. Using cross-sectional and panel specifications on a sample of 75 countries over the period 1971-2010, we find that financial development strongly and robustly exerts a positive effect on manufacturing exports, even after controlling for the effect of banking crises. Furthermore, institutional quality is found to have a favorable effect on the extent to which finance influences manufacturing trade, suggesting a multiplicity of experiences of the largest exporters of manufactured goods.

1.   Introduction

Trade openness in the world's "most open" and "least open" countries differs by a factor of more than 16. Argentina, one of the "least open" economies, experienced a trade volume (% of GDP) of 20% whereas Singapore, had 440% over the period 1971-2010. How can these large differences in levels of trade openness across countries be explained? At the same time, the average level of financial sector development, measured by the domestic credit to private sector (% of GDP), is more than 22 times higher in the most financially-developed country (Japan) than in the least one (Ghana).[1] Are differences in financial sector development importantly linked with differences in trade openness? Figure 1 in appendix shows that over the period 1971-2010, there was a positive association between the financial sector development and the indicators of trade performance, which is stronger between the ratio of domestic private credit and manufacturing exports. Does this *prima facie* evidence of possible linkages between finance and trade suggest that countries with better-developed financial sectors tend to have a comparative advantage in manufacturing industries? Does institutional quality matter in this relationship?

The causes of the wide variation in trade openness between countries have been debated by theorists of international trade. Traditional theory shows that these disparities are due to cross-country differences in labor productivity and technology, as well as endowments of land and capital. More recently, the Hecksher-Ohlin-Vanek multi-factor content theorem predicts the net factor content of trade, which is the difference in goods' factor content. Countries endowed with relatively high-quality institutions tend to specialize in industries that relatively rely more on the services provided by these institutions. Consistent with this theorem, we consider financial system as an endowment and argue that the cross-country disparities in trade performances might be influenced by differences in levels of financial development. Even with identical technology and factor endowments between countries, comparative costs may differ when countries differ in their domestic institutions of credit enforcement. Since financial services provided by the domestic financial systems can be immobile across countries, the pattern of industrial specialization should be influenced by the level of financial intermediation.

The theoretical arguments that support this relationship can be traced back to the seminal work of Kletzer and Bardhan (1987) and Baldwin and Krugman (1989). They show that capital market imperfections importantly determine the countries' comparative advantage in trade. Recent theoretical developments have left no doubt on the relevance of such a relationship between finance and international trade patterns (see for instance Beck, 2002; Matsuyama, 2005; Wynne, 2005; Antras and Caballero, 2009; Manova, 2006).[2] Countries endowed with well developed financial systems tend to specialize in industries that rely more on external finance in production. On the other hand, countries with less developed financial systems tend to export goods not requiring external finance.

However, despite numerous attempts to empirically address this issue, there is little persuasive evidence concerning the relationship between financial development and international trade. While a number of studies find that international trade is driven by financial development (see, for

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[1] Here, the world's "most open" and "least open" countries are the top 1% and the bottom 99% of the distribution of trade openness, respectively. The source of these data is the World Development Indicators of the World Bank. These comparisons are based on data from a sample of 75 countries over the period 1971-2010. GDP stands for Gross Domestic Product.

[2] While all of these studies consider financial development as exogenous, Do and Levchenko (2007) suggest that financial development is an outcome of the demand for external finance and, therefore, is endogenous.

instance, Beck, 2002, 2003; Svaleryd and Vlachos, 2005; Becker and Greenberg, 2007; Manova, 2008), a recent and expanding body of work, however, finds evidence that the demand of a well developed financial sector is higher in countries with industrial structures that heavily rely on external finance (see for instance Huang and Temple, 2005; Klein and Olivei, 2008; Baltagi *et al.*, 2009; Do and Levchenko, 2007). In contrast, the demand for external finance will be lower in countries that specialize in goods not requiring external finance. Furthermore, in this empirical literature, with exception of Ju and Wei (2011), no emphasis has been placed on the importance of institutions in the relationship between finance and trade. Ju and Wei (2011) build upon a general equilibrium framework and argue that finance is passive in countries with high-quality institutions and appears to be a source of comparative advantage in countries with low-quality institutions.[3] In line with the recent and growing literature on the relationship between finance, institutions, and growth (see for instance Claessens and Laeven, 2003; Klein, 2005; Bose *et al.*, 2012), we argue that in countries with high-quality institutions, transactions in financial and goods markets are better cleared and settled owing to better information and increased competition. In addition, when property rights and shareholders are more secure, firms might have better governance and greater efficiency in production due to better resource allocation. Thus, the institutional quality might reinforce the expected positive impact of financial development on international trade flows.

This paper, to the best of our knowledge, is the first study which empirically tackles the issue of the effects of financial development on manufacturing trade by highlighting the role of institutional quality in this relationship. We also overcome one of the major shortcomings of the previous empirical work. We use an indicator of financial development that helps capture differences in domestic financial system level and quality across countries, namely the ratio of domestic private credit to GDP. Existing studies usually use the credit to the private sector to GDP to proxy for financial sector development. However, the underlying rationale for the hypothesis that financial development is a source of comparative advantage is that countries differ in their domestic institutions of credit enforcement. It is therefore more appropriate to consider domestic private credit rather than total private credit. The rest of the paper is organized as follows. In Section 2, we first present the empirical strategy and the data used. Section 3 presents and discusses our main results, while Section 4 concludes and draws some policy implications.

2. Empirical approach

2.1. Econometric analysis: strategy and issues

Do differences in trade performance strongly associated with differences in financial sector development? To understand the effects of finance on the pattern of trade we estimate the following regression:

$$Trade_{it} = \alpha + \beta_1 * Finance_{it} + \beta_2 * X_{it} + \mu_i + \gamma_t + \varepsilon_{it} \tag{1}$$

where $Trade_{it}$ is the measure of trade performance and $Finance_{it}$ is the proxy for financial sector development for the country i in period t. X represents a set of conditioning information to control for other factors associated with trade performance. α, β_1, and β_2 are unknown parameters to

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[3] Ju and Wei (2011) define the institutional quality by referring to the competitiveness of the financial sector, the quality of corporate governance, and the level of property right protection.

be estimated. μ, γ, and ε are country fixed effects, time fixed effects, and the idiosyncratic error term, respectively. Country fixed effects control for any fixed effects common across countries while time dummies allow us to account for business cycle effects.

In line with the empirical work on the finance-trade nexus, we control for the Initial real GDP per capita, the total Population, Foreign Direct Investment (FDI), the Growth rate of Terms of Trade (TOT), the Real Effective Exchange Rate (REER), and Inflation. Unlike previous studies, we also control for Banking Crisis which is a dummy variable taking the value 1 for the banking crisis inception year and 0 otherwise.[4] Indeed, a recent empirical literature establishes that banking crises exert a negative effect on international trade flows through their effects on trade finance and economic growth (see for instance Ronci, 2004; Iacovone and Zavacka, 2009; Chor and Manova, 2010). In (1), β_1 is our coefficient of interest. This equation is estimated using both pure cross-sectional and panel specifications.[5]

Does institutional quality matter in the relationship between finance and trade? In order to answer this question, we specify an augmented version of (1) as follows:

$$Trade_{it} = \alpha' + \beta_1' * Finance_{it} + \beta_2' * Finance_{it} * Z_{it} + \beta_3' * Z_{it} + \beta_4' * X_{it} + \mu_i' + \gamma_t' + \varepsilon_{it}' \quad (2)$$

where Z_{it} represents the institutional variable that measures the strength of the domestic institutions for the country i in period t. Here, we empirically test that, $\beta_2' = 0$, the coefficient on the interaction term between financial development and the institutional variable is positive and statistically significant. The underlying assumption is that countries with strong institutions are likely to enjoy greater the positive effect of finance on trade than countries with weak institutions. In other words, financial development, in the presence of high-quality institutions, might lead to higher performances in international trade. In this specification, $\delta = \beta_1' + \beta_2' * Z_{it}$ is the responsiveness of trade performance to financial development that varies, in a linear fashion, with the institutional variable (Z_{it}). This specification nests the first one, (1), in which the effect of finance on trade does not depend upon institutional strength (suggesting that $\beta_2' = 0$ and $\beta_3' = 0$). Since institutional quality tend to be strongly associated with the real income per capita, we isolate the impact of institutions by following Francois and Manchin (2007) and use the residuals from the regression of each measure of institutional quality on the logs of Initial GDP per capita and total Population.

Assessing the influence of finance on trade raises a number of issues. The endogeneity bias is the first and potentially most important problem to be dealt with. This problem may originate from a number of sources. First, reverse causality, running from international trade to financial development, is a serious problem because it could lead to a statistical bias in the estimated coefficient on financial development, with Ordinary Least Squares (OLS) estimates exaggerating its impact on international trade. Second, our measure of financial development could be correlated with omitted relevant determinants of international trade. In this case, OLS estimator could attribute the effects of these omitted variables to financial development, suggesting a statistical bias similar to reverse causality. Finally, endogeneity bias can arise from measurement errors in the regressor variables. We therefore use the System GMM estimator developed by Blundell and Bond (1998) to address these issues.[6] For this estimator, the sample period was divided

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[4] The banking crisis dummy comes from Reinhart and Rogoff (2011) and Laeven and Valencia (2012) datasets.

[5] Except of institutional variables and banking crisis dummy, all variables are included in logs, so that the results can be interpreted as elasticities.

[6] GMM stands for Generalized Method of Moments.

into 8 nonoverlapping sub-periods as follows: 1971-1975, 1976-1980, 1981-1985, 1986-1990, 1991-1995, 1996-2000, 2001-2005, 2006-2010.[7] The instrumentation procedure was performed so as to limit the problem of too many instruments (Roodman, 2009).[8] For the lagged dependent variable, we use the first difference lagged one period as instrument in the equations in levels, suggesting that this variable is predetermined. In the equations in differences, we also use its first lagged value as instrument. In the same way, we use second lagged values in levels of the other regressors as instruments in the equations in differences and their second lagged values in differences as instruments in the equations in levels, assuming that these variables are endogenous.[9] We use the Windmeijer (2005) finite-sample correction to the standard errors in two-step estimation. As another issue, it is likely that there are country unobserved characteristics that influence the pattern of trade. The System GMM estimator also allows us to take into account this unobserved heterogeneity.

2.2. Data and summary statistics

Our sample consists of 75 developed and developing countries over the period 1971-2010. This subsection describes the variables and provides the summary statistics (see Table 1).

Measure of financial development

In this study, it is assumed that there are large differences in the quality of domestic financial systems across countries, suggesting that financial system can be viewed as an endowment. Countries with well-functioning financial systems should tend to specialize in financially intensive goods. We would like measure of how countries' financial sector improves the firms' ability to fulfill their need for external finance. Therefore, our measure of financial development is the ratio of domestic credit to private sector to GDP (Domestic credit). This measure excludes credits to central, development, and private banks, as well as credits to the private sector by non-money banks. It is assumed to better channel the domestic financial savings to domestic private sector. As shown in Table 1, there is wide cross-country variation in the ratio of domestic credit to private sector to GDP.

Measure of trade performance

Our measure of trade performance is the ratio of manufacturing exports to merchandise exports (Manufacturing exports). The assumption underlying the use of this measure is that manufactured goods are considered as goods with increasing returns to scale, in line with the standard theory of international trade (see for instance chapter 6 in Krugman and Obstfeld, 2009). Indeed, industries with increasing returns to scale benefit more from a higher level of external finance than other industries, because this allows them to exploit scale economies (Beck, 2002). Consistent with this hypothesis, results from Figure 1 in Appendix, shows that manufacturing exports (% of merchandise exports) is more correlated with financial sector development than total exports (% of GDP).

Institutional variables

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[7] For cross-sectional specifications, for which data were collapsed into 40-year averages, we present results from the standard OLS.

[8] Too many instruments may overfit endogenous variables leading to a failure in expunging their endogenous components.

[9] The assumptions underlying this system is that there is one-order serial correlation in the differenced residual and that the instruments are exogenous. However, there should be no second-order serial correlation in the first difference residuals. We use a number of diagnostic statistics to test for the validity of these assumptions.

As previously indicated, the relationship between financial development and international trade can be conditional on a number of institutional parameters. In this study, we first use the International Country Risk Guide (ICRG) indicator of quality of government as an indicator of institutional quality. This composite index is the mean value of the ICRG variables "Corruption", "Law and Order" and "Bureaucracy Quality', scaled 0-1, with higher values indicating better quality of government. We also use the Civil Liberties index (CLI) from Freedom House, and the Revised Combined Polity Score (Polity) from the Center for Systemic Peace (CSP). Countries are graded between 1 (most free) and 7 (least free) for the CLI and between -10 (strongly autocratic regime) and 10 (strongly democratic regime) for Polity.

Table 1: Summary statistics

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
Domestic credit, 1971-2010	75	51.54	35.17	7.54	170.90
Manufacturing exports, 1971-2010	75	42.51	28.08	1.33	94.15
FDI, 1971-2010	75	2.16	1.82	0.07	10.70
Inflation, 1971-2010	74	22.55	60.54	1.88	353.60
Terms of trade, 1971-2010	74	106.26	17.43	81.87	166.73
Population, 1971-2010	75	5.05e+07	1.63e+08	71936	1.12e+09
ICRG, 1984-2010	70	0.61	0.21	0.29	0.99
Civil Liberties Index, 1972-2010	75	3.14	1.58	1	6.78
Polity, 1972-2010	70	3.34	6.23	-10	10
REER, 1976-2010	50	2855.53	19345.25	74.64	136910.80

3. Results

3.1. Does financial development affect manufacturing trade?

Consistent with the findings of earlier empirical studies, the regression results in Table 2 show that countries with higher levels of financial development experienced higher levels of manufacturing exports over the period 1971-2010.[10] We first control for the Initial GDP per capita and total Population (columns 1 and 4). The Initial Domestic Credit enters positively and significantly at conventional levels, for both OLS and System GMM estimators.[11] The coefficient on Initial Domestic Credit ranged from 0.793 to 0.837 and from 0.387 to 0.591 for OLS and System GMM estimators, respectively. These results are quite similar to those of Beck (2002) who found a coefficient on private credit of 0.572 and 0.488 for OLS and System GMM estimators, respectively. These differences can be explained by the choice of the proxies for financial development

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[10] The diagnostic statistics are favorable. The Hansen test of overidentification, which is robust to heteroskedasticity, does not reject the validity of instrumental variables used and the Arellano and Bond test rejects the second order serial correlation.

[11] In unreported regressions, we consider two alternative measures of financial development, namely, the ratio of bank deposit liabilities to GDP and the ratio of the broad money stock (M2) to GDP. This does not alter our main findings.

Table 2: The impact of financial development on manufacturing exports

Dependent variable: Manufacturing exports	OLS: 40-year averages, cross-section			System GMM: 5-year averages		
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing Exports (t-1)				0.976***	0.721***	0.671***
				(0.181)	(0.123)	(0.143)
Initial Domestic Credit	0.793***	0.799***	0.837***	0.463***	0.591***	0.387***
	(0.123)	(0.103)	(0.122)	(0.150)	(0.144)	(0.140)
Initial GDP per capita	-0.023	-0.047	0.132	0.524	0.106*	0.140
	(0.089)	(0.105)	(0.215)	(0.799)	(0.060)	(0.180)
Population	0.152**	0.067	0.072	0.143*	0.047	0.054
	(0.068)	(0.145)	(0.147)	(0.081)	(0.154)	(0.156)
FDI		0.013**	0.088***		0.105**	0.091***
		(0.005)	(0.022)		(0.043)	(0.032)
Growth rate of TOT		0.001	0.001		0.001**	2.32e-04**
		(0.001)	(0.003)		(4.78e-04)	(9.72e-05)
Inflation		-2.25e-03***	-2.06e-03***		-3.55e-04***	-3.53e-04***
		(6.69e-04)	(6.14e-04)		(9.20e-05)	(8.98e-05)
REER		-6.15e-07	-9.29e-07*		-2.69e-04*	-2.4e-04*
		(2.33e-06)	(5.16e-07)		(1.46e-04)	(1.26e-04)
Banking Crisis dummy			-0.621*			-0.617***
			(0.345)			(0.222)
Constant	-3.075**	2.989**	3.024***	1.284***	3.337***	2.410**
	(1.221)	(1.448)	(0.737)	(0.354)	(1.166)	(1.128)
Observations	75	48	47	490	277	269
Number of countries	-	-	-	71	45	44
R-squared	0.456	0.654	0.657	-	-	-
m1 (p-value)	-	-	-	0.018	0.032	0.019
m2 (p-value)	-	-	-	0.358	0.133	0.191
Hansen Overidentification test (p-value)	-	-	-	0.106	0.250	0.301

Note: ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Robust standard errors are reported in parentheses. $m1$ and $m2$ denote the Arellano and Bond statistics tests for lack of one-order and second-order serial correlation, respectively.

and by the sample period used.[12] The Initial GDP per capita does not enter significantly, with exception of results from System GMM in column 5. Population enters positively and significantly with coefficients of 0.152 and 0.143. This suggests that, on average, the most populous countries tend to experience higher levels of manufacturing exports than the least populous countries. However, coefficients on Population become statistically insignificant when controlling for additional factors. It is clear that controlling for FDI, the Growth rate of TOT, Inflation, and the REER does not alter the results on the positive effect of financial development on manufacturing exports (columns 2 and 5). As expected, FDI exerts a positive and statistically significant effect on manufacturing exports, irrespective of the estimation method used. The Growth rate of TOT enters positively but its coefficient is statistically significant only for the System GMM estimator (column 5). Inflation and the REER significantly exert detrimental effects on exports of manufactured goods. The positive effect of financial development on manufacturing exports holds even after controlling for Banking Crisis. As expected, Banking Crisis exerts a negative and statistically significant effect on exports of manufactured goods (columns 3 and 6).

The size of the coefficients on the Initial Domestic Credit implies an economically important effect. Let's consider the examples of the two (advanced and developing) countries, Japan and Nepal, respectively. In 1971, Nepal has a ratio of domestic private credit to GDP of 4%, while Japan has a ratio of 124%. The results from our cross-sectional regression (column 3), that provides estimates of long-run effects, suggest that, other things equal, Nepal's ratio of manufacturing exports would have been at least 78% over the period 1971-2010, rather than its actual 60%, if it had experienced the same initial level of domestic private credit as Japan. Similar results were found in results from System GMM estimator, that indicate the short-term impact. However, as in Beck (2002), the long-run impact of financial development on manufacturing exports appears to be stronger than its short-term impact.

3.2. Do Institutional factors matter much?

In this section we discuss the hypothesis that the responsiveness of export performance to finance depends, in a linear fashion, upon institutional quality. The regression results of (2) are reported in Table 3. Each institutional variable is included along with its interaction with financial development. We start with the cross-sectional OLS regressions on the averages of all the variables over the entire time period (columns 1-3). As before, we then present panel specifications on a sample of nonoverlapping five-year averages using the System GMM estimator (columns 4-6). The instrumentation was made in a way consistent with the procedure indicated in Subsection 2.1. Similarly, the interaction terms are instrumented with their second lagged values in each equation of the system. Once again, the diagnostic statistics are favorable. As shown in Table 3, the Hansen test of overidentification does not reject the validity of instrumental variables used and the Arellano and Bond test rejects the second order serial correlation. Our results support the prediction that the responsiveness of manufacturing trade to financial development depends on the level of institutional quality. Taking into account these interaction terms does not alter the results on the positive impact of finance on manufacturing exports. The coefficient on the Initial Domestic Credit is positive and statistically significant at conventional levels. As expected, the estimated coefficients are positive for ICRG and Polity, and negative for the CLI. For the

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[12] While Beck (2002) uses total private credit as a proxy for financial development, we use domestic private credit. Furthermore, our sample period (1971-2010) is longer than that of Beck (2002) (1966-1995).

Table 3: Finance and trade, and the interaction with the quality of institutions

Dependent variable: Manufacturing exports	OLS: 40-years averages, cross-section			System GMM: 5-year averages		
	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing Exports (t-1)				0.750***	0.630***	0.728***
				(0.211)	(0.097)	(0.141)
Initial Domestic Credit (DC)	0.384**	0.644***	0.774**	0.258**	0.684**	0.233*
	(0.228)	(0.195)	(0.309)	(0.100)	(0.280)	(0.134)
ICRG	1.139***			2.992**		
	(0.455)			(1.336)		
Civil Liberty Index (CLI)		-0.105			-7.59e-03	
		(0.164)			(0.591)	
Policy			0.155***	0.670*		0.026**
			(0.038)	(0.388)		(0.010)
DC×ICRG	0.544***					
	(0.139)					
DC×CLI		-0.017			-4.11e-03**	
		(0.024)			(1.61e-03)	
DC×Policy			0.032**			7.76e-03*
			(0.012)			(4.43e-03)
Initial GDP per capita	0.020	0.109	5.77e-03	0.014	0.084	0.037
	(0.166)	(0.173)	(0.174)	(0.188)	(0.203)	(0.267)
Population	0.107	0.116	0.063	0.056	-0.051	0.214
	(0.102)	(0.098)	(0.114)	(0.121)	(0.111)	(0.224)
FDI	1.623**	1.035*	1.226*	0.780***	0.602***	0.550***
	(0.625)	(0.613)	(0.728)	(0.114)	(0.160)	(0.155)
Growth rate of TOT	1.23e-04	5.88e-04	1.03e-03	3.2e-04***	3.51e-04***	3.63e-04***
	(1.53e-03)	(1.59e-03)	(1.55e-03)	(5.13e-05)	(8.08e-05)	(8.42e-05)
Inflation	-0.032*	-0.133	-0.102*	-1.66e-03	-5.44e-03	-0.012
	(0.018)	(0.104)	(0.058)	(0.015)	(0.019)	(0.037)
REER	-2.30e-06	-2.64e-07*	-2.65e-08**	-2.48e-05**	-3.95e-04**	-2.43e-04**
	(2.08e-06)	(1.38e-07)	(1.21e-08)	(1.45e-5)	(1.62e-04)	(1.4e-04)
Banking Crisis	-0.163	-0.128	-0.230**	-0.364**	-0.476***	-0.402***
	(0.456)	(0.073)	(0.089)	(0.144)	(0.099)	(0.118)
Constant	2.210	6.023*	4.770***	2.500	4.917**	5.695***
	(4.337)	(3.200)	(1.036)	(1.793)	(2.442)	(1.099)
Observations	44	45	43	277	238	267
Number of countries	-	-	-	44	45	43
R-squared	0.545	0.528	0.530	-	-	-
m1 (p-value)	-	-	-	0.094	0.022	0.061
m2 (p-value)	-	-	-	0.459	0.437	0.414
Hansen Overidentification test (p-value)	-	-	-	0.275	0.218	0.532

Note: ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively. Robust standard errors are reported in parentheses. *m1* and *m2* denote the Arellano and Bond statistics tests for lack of one-order and second-order serial correlation, respectively.

OLS estimator, the interaction terms between ICRG and Policy and Initial Domestic Credit enter positively and significantly with coefficients equal to 0.544 and 0.032, respectively (columns 1 and 3). This suggests that the positive effect of financial sector development on manufacturing exports is more pronounced for countries with high-quality institutions. Similar results are found when considering the System GMM estimator (columns 4 and 6). The coefficients on CLI and DC×CLI are each statistically insignificant for OLS estimator but the Wald test for joint significance gives *p-value* equals to 0.039, suggesting that these variables are jointly significant at 5% level.

These results imply an important economically effect of institutions on the responsiveness of manufacturing trade to finance. Considering the results from pure cross-sectional specifications (columns 1-3), all other things being equal, moving from the 25th to the 75th percentile of ICRG results in 75 percentage points rise in the responsiveness of manufacturing trade to finance, equivalent to about 0.57 of the standard deviation of the ratio of manufacturing exports. As for Polity, this corresponds to an increase in the responsiveness of about 135%. Furthermore, an exogenous decrease of one point in the CLI is associated with an increase in the responsiveness of trade to finance of about 62 percentage points. Overall, these effects appear to be quite similar to those of the System GMM estimator (columns 4-6).

Regarding the control variables, it is clear that the magnitude and the signs of the coefficient estimates are consistent with those of our benchmark regressions in Table 2. Overall, Initial GDP per capita and Population enter positively but not statistically significant at any conventional level. On average, FDI and the Growth of TOT positively and significantly affect manufacturing exports, although the coefficient on the latter is only statistically significant for the System GMM estimator. In contrast, Inflation and the REER exert a negative impact on the exports of manufactured goods. As before, Banking Crisis is found to be strongly associated with a collapse in manufacturing exports.

In sum, results in Tables 2 and 3 suggest that countries with well-functioning financial systems experience higher levels of manufacturing exports. Therefore, these countries tend to have a comparative advantage in manufacturing industries. Furthermore, the results on both institutional quality and its interaction with finance suggest that financial sector development is more favorable to manufacturing exports in countries with high-quality institutions. These results complement those of previous empirical work on the relationship between finance and trade (see for instance Beck, 2002, 2003; Svaleryd and Vlachos, 2005; Manova, 2008). By showing that the relationship between finance and trade depends on the quality of institutions, this study reconciles the two opposite views in the empirical literature on finance-trade nexus.[13]

4.   Concluding comments

This paper investigates the effects of financial sector development on manufacturing trade, using a sample of 75 countries over the period 1971-2010. Using both cross-sectional and panel specifications, as well as appropriate estimation methods, our results indicate that financial de-

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[13] As indicated in Section 1, there is a controversial recognition of the positive association between finance and trade. While a number of studies find that international trade is driven by financial development (see, for instance, Beck, 2002, 2003; Svaleryd and Vlachos, 2005; Becker and Greenberg, 2007; Manova, 2008), an opposite viewpoint suggests that financial development is an outcome of the supply and demand for external finance (see for instance Huang and Temple, 2005; Klein and Olivei, 2008; Baltagi *et al.*, 2009; Do and Levchenko, 2007).

velopment exerts a strong and robust impact on manufacturing trade. On average, countries with better-developed financial sector are found to have higher levels of exports of manufactured goods. Interestingly, financial development has a greater effect on manufacturing exports in the presence of high-quality institutions. By using System GMM estimator as an alternative method, it is apparent that these results are not driven by reverse causality or simultaneity bias.

Our results suggest that there is another favorable impact of financial sector development on economic development beyond its positive impact on economic growth, namely its positive effect on manufacturing exports. As policy implications, economic policies that promote financial sector development should rather be used to boost exports of manufactured goods and to reduce current account deficits than exchange rate manipulations. This is particularly the case in countries with high-quality institutions.

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Appendix

Figure 1: Finance and Exports, simple cross-country correlations