

Financial Turmoil, External Finance and UK Exports

Muhammad Akram and Abdul Rashid

International Institute of Islamic Economics
International Islamic University
Islamabad

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- ▶ According to the Business Environment and Enterprise Survey (BEEPS (2010)), about 66% of the respondent firms in 29 countries of Europe and Central Asia (ECA) and 63% of EU-10 countries respondent firms report that access to external finance is one of the major obstacles in doing business.
- ▶ According to (Aubion (2009)) 80% to 90% of the world trade depends on the some form of trade financing.
- ▶ According to (WTO (2010)), the volume of the global trade contracted by 12.2% during 2007-2009 global economic crisis. It was the largest decline in world trade since World War 2.
- ▶ Similarly, (Mora and Powers (2010)) report that nominal global merchandise exports dropped by 32% between the second quarter of 2008 and second quarter of 2009.
- ▶ According to (WEO (2010)) the imports and exports of the advanced economies declined by 12.7% and 12.4% respectively in 2009, whereas the imports and exports of the emerging and developing economies declined by 8.2% and 7.8% respectively in 2009.

- ▶ **3 main reasons of exports reliance on the external finance**
- ▶ To bear upfront fixed cost to setup their business in foreign markets
- ▶ To smooth the delayed transaction,
- ▶ To avoid risk.

- ▶ Viner (1950), Lipsey (1957), Bhagwati (1971), Gehrels (1956), Riezman (1979) and Kowalczyk (2000) have discussed theoretical framework about trade creation, trade diversion and the welfare effects of the RTA.
- ▶ Empirical investigation of an RTA and trade includes the studies like Sayan (1998), Keuschnigg et al. (1996), Radelet (1997), Goto and Hamada (1999), Watcher (2005), Nguyen and Ezaki (2005), Kandogan (2005), Sarker and Jayasinghe (2007), Georges (2008), Lee et al. (2008), Lambert and McKoy (2009), Datta and Kouliavtsev (2009) and Vollrath et al. (2009).
- ▶ However, These studies present mixed results. Some of them conclude that an RTA creates trade and while the other studies point out that an RTA diverts the trade. Moreover, the effects of an RTA on trade flows vary from bloc to bloc, country to country and from commodity to commodity.
- ▶ Cooper (2006) divides the existing empirical findings into three groups.

The Objectives of the Study

- ▶ To estimate the impact of external finance on the UK export.
- ▶ To measure the impact of 2007-2008 financial crisis on the UK export.
- ▶ To identify which sector export has been effected more during 2007-2008 financial crisis.

- ▶ UK is one of the economies that was severely affected by the financial crisis 2007-2008. UK growth rate fall to -0.4% percent. unemployment rose to 12.4% percent (Das (2010)). lending rate shoot up to 6.5% percent per annum. UK credit market dried up and credit to private sector decreased to 3.353% billion dollar. 25% percent manufacturer reported the lack of credit as a major reason in fulfilling their export orders. 15% percent manufacturer reported lack of credit as major constraint their investment (BOE (2011))

- ▶ To estimate the impact of financial crisis on the UK export we have used model used by the [Chor and Manova \(2012\)](#) but with little modification. The modified version of the model is given below in equations (1).

$Exports_{uk,kit} =$

$$\begin{aligned} & \beta_1 IBrate_{uk,t} \times EXTFIN_{uk,k} + \beta_2 D_{Crisis} \times IBrate_{uk,t} \times EXTFIN_{uk,k} \\ & + \beta_3 IBrate_{it} \times EXTFIN_{i,k} + \sum_{j=1}^n \alpha_j Z_j + D_{kt} + D_{it} + D_{ik} \\ & + \epsilon_{ikt} \end{aligned} \quad (1)$$

where

- ▶ $k =$ sector, $t =$ time and $i =$ importer country
- ▶ $Exports_{uk,kit}$ = UK exports in sector K going to importing country i .
- ▶ $IBrate_{uk,t}$ = cost of capital in UK at time t .

- ▶ $IBrate_{i,t}$ =cost of capital the cost of trade financing in importing country at time t .
- ▶ $EXTFIN_{uk,k}$ =dependence of sector k of the UK on external resources.
- ▶ $EXTFIN_{i,k}$ =dependence of sector k of the importing country on external resources.
- ▶ Z =is a vector of control variables, D_{it} = Country-time fixed effects, D_{kt} = Sector-time fixed effects, D_{ik} = Country-sector fixed effects.
- ▶ D_{Crisis} =dummy variable, equal to 1 if the period is crisis period, otherwise zero, ϵ_{ikt} = error term

External Finance (EXTFIN)

$$EXTFIN = \frac{\text{Total Capital Expenditure not Financed by Internal Cash Flow}}{\text{Investment}} \quad (2)$$

Trade Credit (TCRED)

$$TCRED = \frac{\text{Trade Credit}}{\text{Book Value of Total Assets of Firm}} \quad (3)$$

Tangible Assets (TANG)

$$TANG = \frac{\text{Total Tangible Assets}}{\text{Book Value of Total Assets of Firm}} \quad (4)$$

Leverage (LEVERAGE)

$$LEVERAGE = \frac{\text{Total Debt}}{\text{Book Value of Total Assets of Firm}} \quad (5)$$

- ▶ Monthly data \Rightarrow January 1988 to September 2008.
- ▶ Monthly data on UK exports (X) have been taken from the **Overseas Trade Statistics, HM Revenue and Customs (HMRC) Database**.
- ▶ Monthly Lending interest rate, Overnight interbank rate data has been extracted from **International Financial Statistics (IFS) Database**.
- ▶ Financial dependence of the sectors, firm level data has been extracted from **Financial Analysis Made Easy (FAME) Database**.
- ▶ Data on UK GDP, Labor force, and Gross fixed capital formation are extracted from **World Development Indicator (WDI)**.

Table 1: The UK Major Trading Partner

No	Trading partner	No	Trading Partner
1	BELGIUM	14	NETHERLANDS
2	CANADA	15	NORWAY
3	CHINA	16	POLAND
4	CZECH REPUBLIC	17	QATAR
5	DENMARK	18	RUSSIA
6	FRANCE	19	SINGAPORE
7	GERMANY	20	SPAIN
8	HONG KONG	21	SWEDEN
9	HUNGARY	22	SWITZERLAND
10	INDIA	23	TAIWAN
11	IRISH REPUBLIC	24	TURKEY
12	ITALY	25	USA
13	JAPAN		

Table 2: Percentage Decline in the UK Exports at the Peak and During the Financial Crisis

Sector	Peak of the Crisis	Overall during the Crisis
Food and Live Animal	-9.2	11.1
Beverages and Tobacco	-19.4	-7.7
Crude Materials, Inedible except Fuel	-44.5	-32.7
Minerals Fuels, Lubricants and Related material	-11.5	-5.5
Animal and vegetable oils, Fats and Waxes	-9.9	47.6
Chemical and Related Products, n.e.s	-22.1	5.9
Manufactured goods classified chiefly by material	-14.9	-38.8
Machinery and Transport Equipments	-11.9	-24.9
Miscellaneous manufactured article	-9.0	-11.7
Commodities and Transactions not Classified elsewhere in the SITC	-10.6	8.7
Total Exports	-14.2	-13.8

Note: Calculated from Overseas Trade Statistics, HM Revenue & Customs (HMRC) monthly data on UK exports. Peak of the Crisis values are calculated using the exports from October 2008 to November 2008. Overall during the Crisis values are calculated using the exports from March 2007 to February 2009.

Aggregate Results

Table 3: External Finance and Lending Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
Lrate * EXTFIN	-0.031*** (0.010)	-0.019* (0.010)	-0.024* (0.014)
D.Crisis * Lrate * EXTFIN		-0.013*** (0.004)	-0.009* (0.005)
Lrate * Pvt.Claims			0.032** (0.012)
UK Interest Rate	-0.004 (0.012)	-0.004 (0.012)	-0.0005 (0.015)
Partner Interest Rate	-0.011 (0.025)	-0.011 (0.024)	-0.519** (0.198)
UK GDP	27.944*** (2.482)	27.230*** (2.565)	18.236*** (2.793)
Partner GDP	0.382*** (0.021)	0.383*** (0.021)	0.588*** (0.032)
UK K/L Ratio	1.803** (0.795)	1.797** (0.795)	1.686* (0.858)
Partner K/L Ratio	-0.468*** (0.025)	-0.467*** (0.024)	-0.083*** (0.024)
<i>N</i>	13216	13216	12206
<i>r</i> ²	0.958	0.958	0.957

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Aggregate Results

Table 4: Trade Credit and Lending Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
Lrate * TCRED	1.046*** (0.315)	0.851** (0.307)	0.855** (0.308)
D.Crisis * Lrate * TCRED		0.170*** (0.055)	0.118* (0.059)
Lrate * Pvt.Claims			0.031** (0.012)
UK Interest Rate	-0.080*** (0.022)	-0.080*** (0.022)	-0.071*** (0.021)
Partner Interest Rate	-0.010 (0.024)	-0.012 (0.024)	-0.496** (0.196)
UK GDP	25.577*** (2.609)	25.118*** (2.641)	15.915*** (2.639)
Partner GDP	0.382*** (0.021)	0.383*** (0.021)	0.591*** (0.032)
UK K/L Ratio	1.793** (0.798)	1.798** (0.799)	1.688* (0.862)
Partner K/L Ratio	-0.468*** (0.024)	-0.467*** (0.024)	-0.082*** (0.024)
<i>N</i>	13216	13216	12206
<i>r</i> ²	0.958	0.958	0.957

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Aggregate Results

Table 5: Tangible Assets and Lending Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
Lrate * TANG	-0.196** (0.070)	-0.241*** (0.067)	-0.208** (0.077)
D.Crisis * Lrate * TANG		0.041** (0.016)	0.029* (0.015)
Lrate * Pvt.Claims			0.031** (0.011)
UK Interest Rate	0.057** (0.026)	0.056** (0.026)	0.056* (0.030)
Partner Interest Rate	-0.010 (0.024)	-0.011 (0.024)	-0.507** (0.191)
UK GDP	24.088*** (2.121)	23.103*** (2.211)	14.298*** (2.368)
Partner GDP	0.382*** (0.021)	0.383*** (0.021)	0.589*** (0.031)
UK K/L Ratio	1.818** (0.797)	1.822** (0.797)	1.711* (0.861)
Partner K/L Ratio	-0.468*** (0.024)	-0.467*** (0.024)	-0.082*** (0.024)
<i>N</i>	13216	13216	12206
<i>r</i> ²	0.958	0.958	0.957

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Aggregate Results

Table 6: Leverage and Lending Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
Lrate * Leverage	-0.240 (0.157)	-0.285* (0.160)	-0.254 (0.165)
D.Crisis * Lrate * Leverage		0.040** (0.017)	0.036** (0.017)
Lrate * Pvt.Claims			0.029** (0.013)
UK Interest Rate	0.085 (0.055)	0.085 (0.055)	0.070 (0.061)
Partner Interest Rate	-0.010 (0.024)	-0.011 (0.024)	-0.467** (0.220)
UK GDP	26.753*** (2.695)	26.235*** (2.733)	16.435*** (3.032)
Partner GDP	0.382*** (0.021)	0.383*** (0.021)	0.595*** (0.035)
UK K/L Ratio	1.812** (0.799)	1.818** (0.799)	1.702* (0.865)
Partner K/L Ratio	-0.468*** (0.024)	-0.467*** (0.024)	-0.079*** (0.025)
<i>N</i>	13216	13216	12206
<i>r</i> ²	0.958	0.958	0.957

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sectoral Analysis

Table 7: External Finance and Lending Interest Rate (Sectoral Analysis)

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)									
	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
Lrate * EXFIN	0.042 (0.079)	-0.240*** (-0.055)	-0.497* (0.201)	-0.352 (0.744)	0.839 (0.904)	-1.021*** (0.212)	-0.693 (3.548)	-1.316 (0.967)	-2.023 (2.229)	-3.469** (1.158)
D.Crisis * Lrate * EXTFIN	-0.047* (0.025)	-0.112 (0.070)	-0.019* (0.008)	-0.012** (0.005)	-1.678* (0.927)	-0.022 (0.048)	-0.369 (0.406)	-284.106*** (41.429)	-0.503** (0.220)	-0.889*** (0.214)
Lrate * Pvt.Claims	-0.017 (0.012)	0.077*** (0.024)	0.017 (0.020)	0.060 (0.089)	-0.021 (0.049)	0.001 (0.011)	-0.012 (0.015)	0.035** (0.012)	0.002 (0.024)	-0.000 (0.004)
UK Interest Rate	-0.071 (0.070)	-0.227** (0.082)	-0.747 (0.425)	-0.323 (1.147)	-0.184 (0.569)	-2.631*** (0.686)	0.868 (3.045)	-0.082 (0.054)	1.493 (1.406)	1.925*** (0.495)
Partner Interest Rate	0.309 (0.189)	-1.223*** (0.364)	-0.279 (0.379)	-0.883 (1.473)	0.411 (0.772)	0.006 (0.160)	0.225 (0.230)	-0.539** (0.189)	-0.030 (0.370)	-0.183 (0.100)
UK GDP	7.103** (2.959)	32.682*** (7.008)	-8.535*** (1.701)	-769.959*** (74.432)	21.421*** (6.700)	57.039*** (10.463)	22.799** (10.106)	164.626*** (26.648)	41.775*** (6.412)	4.043 (9.788)
Partner GDP	-8.192*** (1.566)	-20.115*** (4.023)	2.094*** (0.392)	15.572*** (0.745)	-19.534*** (4.659)	-14.871*** (1.653)	-9.740*** (2.193)	-9.034*** (1.429)	-24.699*** (3.222)	17.157*** (3.913)
UK K/L Ratio	1.863*** (0.316)	3.244*** (0.354)	-0.785 (0.599)	256.252*** (22.995)	4.058 (2.497)	6.116*** (0.869)	0.954 (1.007)	-149.254*** (22.680)	3.722*** (0.699)	-1.949*** (0.315)
Partner K/L Ratio	-2.801*** (0.513)	-7.020*** (1.328)	0.699 (0.611)	1.900*** (0.128)	-7.175*** (1.465)	-5.212*** (0.540)	-3.645*** (0.715)	-3.096*** (0.464)	-8.720*** (1.046)	6.034*** (1.338)
trec	0.033*** (0.007)	0.087*** (0.017)	-0.935*** (0.096)	15.987*** (1.572)	0.079*** (0.022)	0.061*** (0.007)	0.046*** (0.010)	0.041*** (0.006)	0.105*** (0.014)	-0.081*** (0.016)
N	889	889	184	256	886	889	889	889	889	622
r2	0.978	0.903	0.869	0.976	0.907	0.979	0.960	0.958	0.983	0.815

Robust Standard errors in parentheses, Standard errors are clustered by Partner Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Sensitivity Analysis, Alternative Proxy

Table 8: External Finance and Overnight Interbank Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
IBrate * EXTFIN	-0.013* (0.007)	-0.007 (0.007)	-0.007 (0.007)
D.Crisis * IBrate * EXTFIN		-0.015*** (0.005)	-0.014** (0.005)
IBrate * Pvt.Claims			0.010*** (0.002)
UK Interest Rate	0.003 (0.011)	-0.0003 (0.010)	-0.005 (0.013)
Partner Interest Rate	-0.024* (0.012)	-0.024* (0.012)	-0.143*** (0.026)
UK GDP	5.541* (3.055)	5.114 (3.039)	5.652 (3.551)
Partner GDP	1.002*** (0.065)	1.001*** (0.064)	1.070*** (0.026)
UK K/L Ratio	-1.872** (0.676)	-1.887** (0.674)	-2.350*** (0.689)
Partner K/L Ratio	0.546*** (0.089)	0.545*** (0.089)	0.617*** (0.035)
<i>N</i>	13916	13916	12566
<i>r</i> ²	0.939	0.939	0.935

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sensitivity Analysis, Alternative Proxy

Table 9: Trade Credit and Overnight Interbank Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
IBrate * TCRED	0.572*** (0.141)	0.444** (0.146)	0.463*** (0.148)
D.Crisis * IBrate * TCRED		0.179*** (0.054)	0.138** (0.057)
IBrate * Pvt.Claims			0.010*** (0.002)
UK Interest Rate	-0.050** (0.016)	-0.058*** (0.017)	-0.061*** (0.018)
Partner Interest Rate	-0.024* (0.012)	-0.024* (0.012)	-0.142*** (0.026)
UK GDP	4.107 (2.907)	3.620 (2.952)	4.300 (3.484)
Partner GDP	1.002*** (0.065)	1.002*** (0.065)	1.070*** (0.027)
UK K/L Ratio	-1.902** (0.680)	-1.903** (0.678)	-2.366*** (0.695)
Partner K/L Ratio	0.547*** (0.090)	0.546*** (0.090)	0.618*** (0.036)
<i>N</i>	13916	13916	12566
<i>r</i> ²	0.939	0.939	0.935

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sensitivity Analysis, Alternative Proxy

Table 10: Tangible Assets and Overnight Interbank Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
IBrate * TANG	0.022 (0.040)	-0.013 (0.044)	-0.006 (0.044)
D.Crisis * IBrate * TANG		0.048*** (0.013)	0.040** (0.014)
IBrate * Pvt.Claims			0.010*** (0.002)
UK Interest Rate	0.004 (0.017)	-0.002 (0.017)	-0.007 (0.021)
Partner Interest Rate	-0.024* (0.012)	-0.024* (0.012)	-0.143*** (0.025)
UK GDP	5.179* (2.887)	4.312 (2.945)	5.001 (3.281)
Partner GDP	1.002*** (0.064)	1.002*** (0.064)	1.070*** (0.026)
UK K/L Ratio	-1.865** (0.675)	-1.861** (0.674)	-2.326*** (0.691)
Partner K/L Ratio	0.546*** (0.088)	0.545*** (0.088)	0.618*** (0.035)
<i>N</i>	13916	13916	12566
<i>r</i> ²	0.939	0.939	0.935

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sensitivity Analysis, Alternative Proxy

Table 11: Leverage and Overnight Interbank Rate

Crisis Period=May 07 to Feb 09	Dependent Variable: log (Sectoral Exports of the UK)		
	(1)	(2)	(3)
IBrate * Leverage	0.154*** (0.049)	0.123** (0.054)	0.131** (0.051)
D.Crisis * IBrate * Leverage		0.050*** (0.014)	0.041** (0.015)
IBrate * Pvt.Claims			0.010*** (0.002)
UK Interest Rate	-0.049** (0.020)	-0.059*** (0.019)	-0.064** (0.023)
Partner Interest Rate	-0.024* (0.012)	-0.024* (0.012)	-0.142*** (0.025)
UK GDP	4.466 (2.938)	3.849 (2.975)	4.497 (3.509)
Partner GDP	1.002*** (0.065)	1.002*** (0.065)	1.070*** (0.026)
UK K/L Ratio	-1.889** (0.678)	-1.882** (0.677)	-2.348*** (0.692)
Partner K/L Ratio	0.547*** (0.090)	0.546*** (0.090)	0.618*** (0.035)
<i>N</i>	13916	13916	12566
<i>r</i> ²	0.939	0.939	0.935

Robust Standard errors in parentheses, Standard errors are clustered by Importers

Country-time, Sector-time and Country-Sector effects are controlled

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sensitivity Analysis, Instrumental Variable Technique

Table 12: IV Results new External Finance and Overnight Interbank Rate

Crisis Period=May 07 to Feb 09 Fin vulnerability measure:	Dependent Variable: log (Sectoral Exports of the UK)		
	(LEVERAGE)	(TCRED)	(EXTFIN)
I.Exports	0.902*** 0.011	0.901*** 0.011	0.910*** -0.008
IBRate * Fin Vul	0.025* (0.013)	0.072*** (0.017)	-0.001** (0.001)
D.Crisis * IBRate * Fin Vul	-0.024*** (0.007)	-0.077*** (0.028)	-0.0001 (0.001)
IBRate * Pvt.Claims	0.002* (0.001)	0.002** (0.001)	-0.002*** (0.0003)
UK Interest Rate	-0.005 (0.005)	-0.005* (0.003)	-0.003* (0.001)
Partner Interest Rate	-0.038** (0.016)	-0.039** (0.016)	0.019*** (0.003)
UK GDP	1.498*** (0.193)	1.503*** (0.199)	0.910*** (0.146)
Partner GDP	0.004 (0.043)	0.004 (0.043)	0.036 (0.037)
UK K/L Ratio	-0.342*** (0.065)	-0.338*** (0.066)	-0.232*** (0.044)
Partner K/L Ratio	0.004 (0.037)	0.005 (0.038)	0.045** (0.018)
<i>N</i>	11734	11734	12204
<i>r</i> ²	0.351	0.352	0.353
Hansen Test	0.983	0.990	0.912

Robust Standard errors in parentheses, Standard errors are clustered by Partner
Time, Reporter, Partner and Sector fixed effects are controlled

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Key Findings

- ▶ Credit conditions are important channel through which financial crisis affects the volume of UK exports .
- ▶ Adverse market conditions and UK exports are negatively correlated. This negative effect has been further intensified during 2007-08 financial crisis
- ▶ cost of capital and UK export are negatively correlated.
- ▶ Adverse credit conditions affect both supply and demand for UK export.
- ▶ GDP and and relative factor endowment also play a significant role in determining the UK exports.
- ▶ Reduce the cost of capital to reduce the detrimental effects of severe financial disruptions on international trade flows.

Thank You