
World Trade Organization
Economic Research and Statistics Division

**SUPPLY CHAIN FINANCE AND SMEs:
EVIDENCE FROM INTERNATIONAL FACTORING DATA**

Marc Auboin, Harry Smythe and Robert Teh

Manuscript date: June 2016

Disclaimer: This is a working paper, and hence it represents research in progress. The opinions expressed in this paper are those of its author. They are not intended to represent the positions or opinions of the WTO or its members and are without prejudice to members' rights and obligations under the WTO. Any errors are attributable to the author.

SUPPLY CHAIN FINANCE AND SMEs:
EVIDENCE FROM INTERNATIONAL FACTORING DATA^a
EVIDENCE FROM INTERNATIONAL FACTORING DATA

Marc Auboin^b, Harry Smythe^c and Robert Teh^d

Abstract

The unbundling of trade across countries offers unique opportunities for SMEs to integrate into global trade notably through their involvement in supply chains. With supply chains expanding into new regions of the world, the challenge for SMEs to obtain access to finance remains an important one. In many developing and emerging market economies, the capacity of the local financial sector to support small traders is limited. Moreover, after the financial crisis, a number of global banks have "retrenched", for various reasons. In this context, supply-chain finance arrangements, and other alternative forms of financing such as through factoring, have proven increasingly popular among traders. This paper shows that factoring, in countries in which it is available, boosts SMEs' ability to participate in international trade. Factoring also appears to be employed by firms involved in global supply chains. For the first time, we are able to use data on factoring for the period of 2008-2015 from Factor Chain International (FCI), which collects the most extensive data on factoring available at the moment. Using an instrumentation strategy, we are able to identify a strong, significant effect of factoring on the ability of SMEs, from some of the main traders in the world, to expand their trade.

Keywords: Factoring; trade finance; small and medium-sized enterprise; global supply chains; financial crisis.

JEL classification: F13, F34, G21, G23

^a The authors would like to thank Factors Chain International (FCI) for providing access to their data and

1 Introduction

For decades, trade finance had supported the expansion of international trade, and to some extent, had been taken for granted. Financial crises, in particular the Asian and Latin American crisis of the late 1990's and the great financial crisis of 2008-9, revealed that trade finance could be subject to serious disruptions, by contagion of other segments of the financial industry. Academic interest in the role of trade finance has developed in and around these periods. Several researchers were able to find robust evidence that shortages of trade finance during the great financial crisis had been one factor (albeit not the main) behind the "big trade collapse" of late 2008 to late 2009.¹ More generally, they raised the likelihood of a wider link between financial conditions, trade credits and international trade flows (Amiti and Weinstein, 2011; Bricogne et al., 2012; Manova, 2013; Petersen and Rajan, 1997).

An important reason limiting the exploration of the impact of trade finance on trade has also been – and remains – the lack of consistent data on trade finance and its components. Relying on the relatively basic distinction between bank-intermediated trade finance and non-bank financing (including inter-company lending/credit), the Bank of International Settlements (BIS, 2014) confirmed recently that "there are no readily available data covering the global bank-intermediated trade finance market". Mixing several sources of data, the BIS estimated that annual flows of bank-intermediated finance were anywhere between \$6.5-8 trillion. Data on non-bank financing is not much easier to find. As noted by the BIS (2014 p.5), traders may not require bank's assistance for settling trade transactions; they may rely on one another's credit. The risk involved in extending supplier and buyers' credit can be mitigated through the use of credit insurance and other forms of trade risk offsets. The positive role of trade credit insurance on trade transactions was acknowledged by recent literature (Felbermayr and Yalcin, 2013; Felbermayr et al., 2012; Moser et al., 2008; Egger and Erl, 2006).

Firms' trade financing options are enhanced by the possibility of discounting their receivables. Accounts receivable management (including discounting of short-term receivables through the assignment of invoices) is the primary activity of factoring companies. While receivables purchase and management has been in use for a long time, its expansion internationally is more recent. It seems to coincide with two economic phenomena: the expansion of global supply chains through the growth of open account trade involving ecosystems of small and medium-sized enterprises (SMEs) embedded in "made-in-the-world" product assembly processes; a tightening of bank lending since the great financial crisis of 2007-9, particularly for SMEs; no causality has yet been established, in part due to the lack of data.

According to practitioners surveys (ICC, 2015), bank-intermediated trade finance seems to have lost ground relative to inter-company lending in recent years. Financial techniques such as factoring have become increasingly popular; they solve a number of problems specific to traders involved in short-production cycles of intermediary goods or assembly lines. One major problem for SMEs involved in such cycle is the availability of working capital to finance the production of the next orders, including the payment of wages and production inputs. Unless exporting SMEs benefits from open account arrangements from their buyers (which would hence bear the credit risk until delivery, which is not that frequent), the immediate discounting of 30, 45, 90 and up to 120 days receivables provides for an attractive proposition to deal with "high-frequency" orders from buyers, under a strong cash-flow constraint. The attractiveness

¹Eaton et al. (2011) find that demand shocks can explain 80% of the decline in trade and for some countries, like China and Japan, this share is a lot smaller. Hence, a significant share of the trade collapse remains to be explained.

tional (FCI), the professional association of factoring companies, in 2014 the receivables finance industry generated €2.35 trillion in factoring transactions, mostly for domestic trade (78% of the total), and mostly generated by SMEs. The EU accounted for 65% of global transactions, mainly from domestic trade (intra-French trade; intra-German trade, etc.). According to FCI, SMEs account for 75% of the European Union's factoring sector, based on the number of clients that use the service. As the European Union accounts for 65% of the global receivables finance industry, it can be surmised that the majority of users globally are SMEs. As shown in the next sections, the cross-border share of factoring transactions is 28% and it has grown much faster than domestic factoring in recent years.

Literature

The existing literature suggests that an absence of or weak access to finance can strongly inhibit formal SME development, regardless of the level of per capita income of countries. Market failures, notably in financial markets (be they financial crises or "information asymmetries"), fall disproportionately on SMEs, resulting in more credit rationing, higher costs of "screening" and higher interest rates from banks than larger enterprises (Stiglitz and Weiss, 1981; Beck and Demirgüç-Kunt, 2006). Credit constraints are particularly reflected in access to trade finance and in general working capital for the production of goods aimed at foreign markets. In modern supply chains, characterized by high volumes of orders (of parts and components) for exports towards global markets, obtaining cash-in-time for SMEs is key to continuing to produce and supply their larger buyers. Still, buyers typically pay their suppliers on 90 days (or more) terms. As a result, SMEs are in search for immediate cash to be able to pay the salaries and inputs necessary to fulfil their order. In this process, factoring can constitute a quick and efficient way to get immediate cash against invoice(s), notably for SMEs.

Still, the academic about the role, operations and impact of factoring, and supply chain finance in general, is also rather limited by the lack of previously available data. An initial batch of papers appeared in industrial organization and portfolio choice literatures of the mid-1990's, to explain the motives of factoring. Sopranzetti (1999) explained that receivable financing could mitigate underinvestment problems in smaller firms, while vertical integration and transaction cost reduction appeared to be major determinants for Smith and Suckner (1994). Sopranzetti (1998) discussed and tested the determinants motivating firms (sellers) using factoring to factor with or without recourse. As it turned out, sellers with a higher percentage of poor quality receivables (with a greater exposure to credit risk) tended to be restricted to factoring with recourse. Sellers with higher quality receivables could sell their claims without recourse, while intermediate quality receivables were handled both ways, depending on the assessment of risk.

A decade later, Lapper (2006) reflected on factoring patterns and its role for small and medium sized enterprises (SMEs), based mainly on domestic factoring data. The features making factoring a popular form of finance for SMEs were described: smaller firms received immediate cash against creditworthy receivables at a discount; unlike a loan, factoring did not increase firm liabilities; unlike other forms of working capital financing, it did not involve loan collateralization; factoring qualified as a full financial service including collection services, credit protection, and book-keeping of receivables.

In describing the characteristics of prevalent factoring (without recourse), Lapper highlighted that factoring was well suited for financing the receivables "from large or foreign firms when those receivables are obligations of buyers who are more creditworthy than the seller

itself". This meant that large buyers in some industries (distributors, end-products/brand owners) may be the "cornerstone" of the factoring system, as they provide for great payment security, although it is noted that their strong market power may at times place the factor at a greater disadvantage. Another feature of the factoring market is that credit information, which is necessary to enforce factoring transactions and contractual arrangements, is an important condition for the market to develop – an observation made on data from 48 countries (at the time mostly domestic factoring data). This is an interesting observation as data (section below) from FCI seems to suggest that international factoring has mainly developed in developed

comprehensive source of information on factoring transactions, with details by sub-category of factoring transaction (export factoring with and without recourse, import factoring, two-factor), and by country and region. As indicated in Section 2, factoring is mostly used in domestic trade but its use in international trade is the fastest growing part, in particular since 2008. FCI international transactions for 2014 totalled over \$500 billion, from 70 countries. The average transaction is less than \$50,000 – such transactions may involve one or several invoices. For this study, FCI provided its original data set of 70 countries, although complete observations only exist for 49 of them for the period 2008-2014.

Among the 49 countries, 35 are high income countries, 9 are upper middle income countries, and 5 are lower-middle income countries according to the World Bank's country classification by income groups.⁴ Reflecting the very recent expansion of international factoring in many countries, each country appears for an average of 5.8 years (out of 6). Altogether, the 49 countries account for a share of 93% of global trade. It includes the United States, China, the main members of the European Union, Brazil, India, Russia, Turkey, the main members of the ASEAN, countries of the Middle-East, and a few African countries. The exact list of countries included in our sample can be found in Table A.1 in the Appendix.

One important limitation for empirical work is that data on total international factoring is only available annually, which altogether limits the number of observations for data analysis. However, directional data for one important component, two-factor transactions (that is factoring transactions involving both an export and an import factor) is available monthly and quarterly. This component accounts for about 15% of total international cross border factoring transactions. Other forms of trade finance, such as Berne Union data (below) is available quarterly. Importantly, the respective profiles of total factoring transactions, on the one hand, and its two-factor component, on the other, are very similar. In fact, the growth trends of the annual cross border factoring figures are predictive, as the former is generally growing at a similar rate as the cross border two-factor figures reported monthly, even though it is a relatively small subset of the former. Therefore, as explained in the empirical strategy section, a first set of analysis is done with the overall, annual data – not the least because annual data allows working with both factoring transactions, and other trade finance data (Berne Union, see below). Thus, we worked with two-factor data – with more numerous observations but lower transaction "coverage", with a view to verify some of the analysis done with annual data, which cover larger amounts of trade finance but with smaller number of observations.

4.2 Other trade finance data

transactions (MLT). Short-term transactions account for over 80% of total transactions, so our analysis focused on it.

4.3 Trade data

Trade data used in this paper is directly extracted from the WTO database. It includes cross-country data for all countries in the world and sectoral data for most of them. SME data, used in the equations is the share of SMEs in each country's trade, according to standard SME definition (less than 250 employees), albeit the SME share is applied to overall and sector trade ex-post, as the SME share of trade for each sector is not a piece of information available for most countries (see Table A.2 in the Appendix). Regarding trade flows, a high level of sectoral disaggregation is available at sectoral and country-level, annually and monthly. For more details about the WTO database, please consult in www.wto.org, the International Trade Statistics section.

5 Empirical Strategy

As indicated above, the average factor transaction, which generally contains several receivables, is around \$50,000 which suggests that SMEs are large users of factoring. Countries with the largest volumes of factoring transactions are also those involved into international supply chain trade (China, Germany, France, Chinese Taipei), also raising the presumption that international factoring can be linked to SME trade. The strategy is hence to link the growth of international factoring, a relatively recent phenomenon, and SME trade – in an environment marked by the retrenchment of bank intermediated finance (as a direct result of the post-financial crisis environment). Another objective is to verify, as possible, whether international factoring is a complement or a substitute to other trade finance instruments, which are proxied by Bernerion data. The first set of analysis is conducted with available annual data, using the logs of FCI factoring transaction data, Bernerion Data as a proxy for international trade credit, WTO trade statistics on yearly merchandise trade times the SME share for each country used, and the Average Days until Payment (also from the FCI data) as a proxy for risk (the longer the payment is due, the higher the risk). The models are specified just below. In a second stage, we use bilateral data on two-factor transactions, which albeit just a subset of total factoring transactions is available in shorter frequencies.

5.1 Main model (annual data)

For our principal specifications, we regress the natural logarithm of international trade of SMEs against the natural logs of working capital obtained by discounting invoices under factoring

qualify for bank credit.⁵

$$\text{Ln(SME Trade)}_{it} = \beta_0 + \beta_1 \text{Ln(Factoring)}_{it} + \beta_2 \text{Ln(Credit)}_{it} + \mu_i + \epsilon_{it} \quad (1)$$

Here $\text{Ln(SME Trade)}_{it}$ is the natural logarithm of trade (sum of exports and imports) attributable to the SMEs of country i in year t ; $\text{Ln(Factoring)}_{it}$ is the value of total factoring in country i in year t ; Ln(Credit)_{it} is the value of trade credit in country i in year t ; μ_i are the country-specific fixed effects; and ϵ_{it} is the error term. The betas are the regression coefficients where β_1 is the elasticity of SME trade with respect to the volume of factoring and

disaggregate the country pair data into quintiles and estimate equation (3) while systematically reducing the sample from 100% of all two factor transactions to the largest 20% of such transactions.

6 Result

6.1 Main specification

Table 1 contains the results of our main specification for Equation (1) and (2). Equation (1) and (2) are estimated using generalized least squares regression, random effects instrumental variable estimate (RE-IV) and fixed effects instrumental variable estimator (FE-IV coefficient).

Using RE-IV and FE-IV we can control for observed and unobserved time constant country effects, such as institutions. We use the Hausman test to check whether RE-IV or FE-IV should be our preferred specification. In all specifications we use heteroscedasticity - robust standard errors, taking into account the time-series structure of our data (see next section of robustness).

Table 1 shows that total factoring and trade credit have a strong explanatory effect on SME's trade. The estimated elasticity of factoring transactions is 0.112, that is for any additional 1 percent of factoring transaction available, SME trade would be increased by 0.112 percent.

The estimated elasticity of 0.32 to 0.38 for trade credit (Berne Union) is roughly comparable albeit somewhat smaller than in Auboin and Engemann (2014). The difference in coefficients is not a surprise, as Berne Union data cover a significant volume and wide variety of other trade finance instruments, including letters of credit and the like, pre-shipment lending and various types of inter-company trade loans (supplier and buyer's credit for example). Both factoring and trade credit are positively correlated to SME trade, suggesting that they are complements rather than substitutes, both contributing to support international trade flows.

The results of estimating equation 2, which includes payment delays as a measure of financial risk, shows that risk has a small, negative but statistically significant impact upon SME trade. A one percent increase in the number of days that payments are delayed decreases SME trade by a little less than two-thousandth of a percent. The coefficients for factoring and trade credit are unaffected.

Wald Chi2 statistic (1)	15.33	-
F-statistic (1,943)	-	7.32
Prob > test statistic	0.0000	0.0000
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 3 contains the results of this series of estimations on progressively smaller subsets of the sample. It shows that as we move from estimating 100% of all transactions (cell on bottom right) to just the top 20% (boxed cell on the top left), the estimated coefficient approaches the estimates in Table 1. The results make sense as the global pattern is dominated by large economies with many SME exporters. Only two cells in Table 3 are statistically insignificant, where Ln (SME Trade) is in the top quintile and Ln(Two Factor) is either in the top four quintiles or in all quintiles. Of the 994 country pairs, 86 pairs account for the top 20% of both SME trade and two factor transactions. A breakdown of the number of country pairs and the number of observations in each quintile is available in the appendix (see Table A.3).

Table 1 : Quintile regressions of Bilateral SME Trade and Two Factor Transactions

	Ln(SME Trade)
--	---------------

Ln(Delay) _{it}	-0.006110*** (0.02078)	-0.06773*** (0.09689)
Constant	0.02978 (0.06781)	0.2244 (0.3045)
Number of observations	226	226
R-squared	0.7025	0.6983
Number of Countries	45	45
Wald Chi2	52.16	
F		15.933
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

.2 Testing for endogeneity

Another potential pitfall of the estimation is endogeneity of the explanatory variables. This could occur for example if the volume of SME trade (the dependent variable) affects the amount of factoring or trade credit that SMEs will demand (the explanatory variables). The greater the value of SME trade, the more these firms will demand factoring or trade credit. In this case, the regressions will produce inconsistent estimates. We test for possible endogeneity in two ways: through the use of Granger-causality tests (Granger, 1969) and the Hausman test.

.3 Granger causality tests

We run a Granger causality test to determine whether the dependent variable "Granger-causes" the explanatory variables (factoring and trade credit). The results of the Granger causality tests on both the levels and first differenced data are shown in Table A.5 in the appendix. They show that there is no Granger causality from the dependent variable to the explanatory variables providing support that endogeneity is not a significant problem in the estimation.

.4 Hausman testing

Alternatively, we use the test for endogeneity as proposed by Hausman (1978; 1983). We find that $p=0.0014$ and 0.0016 for each model (Equations 1 and 2 respectively). Values of $p>0.05$ would have indicated random effects specification, but as our values are well below that threshold, we determined to use a fixed effects model, and to specify a robust model to correct for heteroscedasticity. The Hausman test for equation 3 yielded similar values of $p=0.000$, since these values are lower than the accepted thresholds of $p=0.05$, a fixed effects model was selected,

we find there is little change in the coefficients. The biggest sensitivity was 0.41 in the Pay Delay model, otherwise the sensitivity in the variables of interest was between 0.07 and 0.40. Our results maintain their robust explanatory power, particularly because in the variables of interest generally do not show a large degree of sensitivity to the introduced dummy variable.

Table 5: Tesing obustness of the esults to the Financial Crisis

Variable	Original Coefficient	Robustness	
		Check	Coefficient
		Tabl9:mx1.378-4e Results to the FinaFina	

For the purpose of our statistical analysis, the two networks are represented by square matrices. Note that since the data are dyadic, the observations in each matrix are not independently distributed and so the usual estimates of standard errors are inconsistent. To produce

We also find that the correlation between factoring volumes and GVC trade is positive and large, 0.41 and 0.31 respectively, and statistically significant at the 5% and 1% level respectively suggesting a strong positive link between the two networks.

There are several avenues for future work on factoring. First, more extensive quarterly data, for factoring transactions as a whole (not only one, even if major, components), would be needed to be able, on the micro-side, to know more about the determinants, the choice between the different sub-instruments of trade finance and the company-impacts. For this, transaction-level data would also be needed. Transaction-level data would be also important to analyse inter-firm credit patterns, which are important to understand supply-chain financing arrangements. This would in particular help understand how the (short or long) supply of financing in supply-chains may eventually have an impact on production order and sharing within these supply-chains, thereby linking the "vertical specialisation" and its determinants/constraints.

BIBLIOGRAPHY

Amiti, M. and Weinstein, D. E. (2011), 'Exports and Financial Shocks', *The Quarterly Journal of Economics* 126(4): 1841-1877.

Auboin, M. and Engemann, M. (2014), 'Testing the trade credit and trade link: evidence from data on export credit insurance', *Review of World Economics*, Volume 150, Issue 4, pp 715-743

Bank of International Settlements (BIS) (2014) *Trade Finance, Developments and Issues*, CGFS Paper No. 50 Basel: Bank of International Settlements.

Bernheim (2010) *Credit Insurance in Support of International Trade: Observations Throughout the Crisis*, London: Bernheim.

Bricogne, J.-C., Fontagné, L., Gaulier, G., Taglioni, D. and Vicard, V. (2012), 'Firms and the Global Crisis: French Exports in the Turmoil', *Journal of International Economics* 87(1): 134-146.

Demirgüç-Kunt, A. and Maksimovic, V. (2002), 'Funding Growth in Bank-Based and Market-Based Financial Systems: Evidence From Firm Level Data', *Journal of Financial Economics* 65(3).

Eaton, J., Kortum, S., Neiman, B. and Romalis, J. (2011), 'Trade and the Global Recession',

Egger, P. and Turr, T. (2006), 'Public Export Credit Guarantees and Foreign Trade Structure: Evidence From Austria', *The World Economy* 29(4): 399-418.

Felbermayr, G., Heiland, I. and Yalcin, E. (2012), 'Mitigating Liquidity Constraints: Public Export Credit Guarantees in Germany',

Felbermayr, G. and Yalcin, E. (2013), 'Export Credit Guarantees and Export Performance: An Empirical Analysis for Germany', *The World Economy* 36(8): 967-999.

Hanneman, R.

HannWorl967-85('Firms')-294()

Table A.1

Country	World Bank Classification	SME percentage of trade	009	010	011	01	013	014
			Factoring (millions USD)	Factoring (millions USD)	Factoring (millions USD)	Factoring (millions USD)	Factoring (millions USD)	Factoring (millions USD)
Argentina	High income: nonOECD	11%	9	38	44	8	3	73
Australia	High income: OECD	58%		99	107	109	1 4	0
Austria	High income: OECD	44%	1,7 0	1, 94	1,530	,5 3	4, 53	,557
Belgium	High income: OECD	44%	7,4 3	9,3 8	10,7 5	11,3 9	11,973	1 ,104
Brazil	U er middle income	11%	44	3	0	74	70	74
Bulgaria	U er middle income	44%	90	194	335	4	448	4 7
Canada	High income: OECD	40%	599	1,003	,1 3	1,45	1,714	3, 71
Chile	High income: OECD	15%	511	553	1,745	,05	1,387	80
China	U er middle income	8%	30,783	4 , 37	7 ,845	1 3,353	14 ,309	191, 83
Colombia	U er middle income	9%	71	37	58	51	4	71
Croatia	High income: nonOECD	44%	41	44	33	39	55	4
Cy rus	High income: nonOECD	70%	5	3	81	40	1	1
Czech Re ublic	High income: OECD	3%	54	57	1,144	1, 88	8,0 0	1,580
Denmark	High income: OECD	37%	945	554	495	493	575	1,085

Estonia	High income: OECD	8%	94	310	188	511	715	809
Finland	High income: OECD	%	78	1, 14	,009	, 73	,940	4,15
France	High income: OECD	38%	1 , 44	3,580	,953	33,413	8,491	1,1 5

Poland	High income: OECD	9%	1,983	,174	1,73	1,9 4	, 43	3, 34
Portugal	High income: OECD	4 %	1,185	1,501	1,579	1,479	1,3	1,40
Romania	U er middle income	34%	89	90	945	894	78	898
Russia	High income: nonOECD	50%	103	10	3 5	489	941	1
Serbia	U er middle income	44%	38	7	80	47	4	55
Singa ore	High income: nonOECD	0%	9,4	4,	5,489	,49	14,0 5	13, 03
Slovakia	High income: OECD							

Table A.2

Country

Estonia	High income: OECD	8%	5 4	8,118	11, 17	11, 19	11,8 3	11, 70
Finland	High income: OECD	%	1 ,087	17,98	1, 43	19,441	19,7 1	19, 5
France	High income: OECD	38%	198, 74	15, 19	50,135	3 ,193	39,8	39,45
Germany	High income: OECD	9%	9 ,7	335,49	395, 84	37 ,407	383, 90	394,871
Greece	High income: OECD	58%	,07	7,510	9,375	8, 44	8, 4	8,8 8
Hong ong	High income: nonOECD	8%	31,7 5	8 ,301	3 8,58	355,774	393, 45	38 ,391
Hungary	High income: OECD	4%	19, 9	,039	5,770	3,849	4,914	5,88
India	Lower middle income	40%	84,4	115,317	153,473	157,304	15 ,049	15 ,9
Indonesia	Lower middle income	1 %	-	3,475	30,475	30,538	9,534	8,358
Italy	High income: OECD	5 %	13,7 4	4 ,931	81,33	57,375	59,40	0,13
orea	High income: OECD	41%	140,757	18 ,777	1,3 4	18,8 8	0,419	5,1
Latvia	High income: nonOECD	9%	,04	7,3	10,150	10,81	11,154	11,1 4
Lithuania	High income: nonOECD	4 %	7,994	10,155	13,759	14,1	15,503	15,5
Luxembourg	High income: OECD	50%	11, 7	11, 10	1 ,43	11,594	11,344	11,47
Malaysia	U er middle income	19%	, 95	34,507	39,478	40, 73	41, 5	4 ,085
Malta	High income: nonOECD	51%	1,870	, 05	,7 3	,7	,494	,37
Morocco	Lower middle income	30%	7,040	7,973	9,889	9,948	10,074	10,4 4

Poland	High income: OECD	9%	41,4 4	48,977	57,898	55,743	59,8	3, 94
Portugal	High income: OECD	4 %	, 51	9, 4	3 ,778	30,019	31,8 5	3 ,704
Romania	U er middle income	34%	1 ,131	18,987	3,718	1,7 8	3, 73	5,077
Russia	High income: nonOECD	50%	1 3,798	1 ,31	11,4 1	1 ,175	1 ,153	01,448
Serbia	U er middle income	44%	5,3	5,83	,9 1	, 34	7,73	7,799
Singa ore	High income: nonOECD	0%	51,5	,	77,5 7	78,81	78,3 7	77, 0
Slovakia	High income: OECD	34%	18,994	,047	7,144	,8	8,47	8, 81
Slovenia	High income: OECD	39%	10, 73	11,5	13, 9	1 ,518	13,14	13, 90
S ain	High income: OECD	4 %	119,7 8	133,730	157,1	145,495	151,439	157,173
Sweden	High income: OECD	37%	4 ,371	5 ,887	-	-	-	-
Thailand	U er middle income	4 %	5,810	8 ,53	103,813	109,991	110,150	104,771
Turkey	U er middle income	5 %	8,0 0	83,840	105, 10	108,9	11 ,970	111,94
Ukraine	Lower middle income	50%	1,317	8,097	37,7 4	38, 9	35, 81	7,13
United ingdom	High income: OECD	37%	1 1, 85	18 ,305	18,941	15,344	1,41	0,117
United States	High income: OECD	0%	3,473	3 1,5 0	371,105	384,340	38 ,957	399, 75
Vietnam	Lower middle income	0%	1 ,705	15,708	0,3	,831	,407	9,974
Total			\$3,911,8 0	\$4,789,714	\$5, 5,49	\$5, 88,95	\$5,888,4	\$5,938,590

Table A.

Log (Factoring)	Top %	Log (SME Trade)				
		20%	40%	60%	80%	100%
	20%	Pairs: 8 Obs: 3	Pairs: 131 Obs: 493	Pairs: 1 5 Obs: 5	Pairs: 184 Obs: 77	Pairs: 194 obs: 701
	40%	Pairs: 119 Obs: 494	Pairs: 11 Obs: 844	Pairs: 81 Obs: 1,1	Pairs: 34 Obs: 1,33	Pairs: 385 Obs: 1,47
	60%	Pairs: 14 Obs: 09	Pairs: 75 Obs: 1,11	Pairs: 380 Obs: 1,5 3	Pairs: 495 Obs: 1,953	Pairs: 579 Obs: , 40
	80%	Pairs: 1 3 Obs: 700	Pairs: 3 9 Obs: 1,349	Pairs: 470 Obs 1,9	Pairs: 3 Obs ,535	Pairs: 78 Obs: 3,010
	100%	Pairs: 17 Obs: 7 0	Pairs: 35 Obs: 1,5	Pairs: 5 3 Obs: , 80	Pairs: 730 Obs: 3,038	Pairs: 994 Obs: 3,795

Table A.4: Unit root Tests of stationarity

Fisher-type unit-root test for Ln(SME Trade)
Based on augmented Dickey-Fuller tests
Ho: All panels contain unit roots Number of panels = 52
Ha: At least one panel is stationary Avg. number of periods = 5.67
AR parameter: Panel-specific (error)32347cm[0d0J0u7mptotics:1

Inverse normal Z 0.5613 0.7127
Inverse logit t(284) L* -3.0756 0.0012
Modified inv. chi-squared Pm 9.5883 0.0000
P statistic requires number of panels to be finite.
Other statistics are suitable for finite or infinite number of panels.

Fisher-type unit-root test for Ln(Credit)		
Based on augmented Dickey-Fuller tests		
Ho: All panels contain unit roots	Number of panels =	79
Ha: At least one panel is stationary	Avg. number of periods =	5.37

Panel means: Included	
Time trend: Included	
Drift term: Not included ADF regressions: 0 lags	
Statistic p-value	
Inverse chi-squared(112) P 366.9419 0.0000	
Inverse normal Z -3.4136 0.0003	
Inverse logit t(239) L* -9.3785 0.0000	
Modified inv. chi-squared Pm 17.0340 0.0000	

Table A.5: Testing Endogeneity of Factoring: Granger Causality Tests

Explanatory Variables	chi2 Statistic	Prob[$\chi^2 > \chi^2$]
dLn(Factoring)	1.925	0.165
dLn(Credit)	1.227	0.268