

Online Appendix for “Inter-Enterprise Credit and  
Adjustment During Financial Crises:  
The Role of Firm Size”  
NON INTENDED FOR PUBLICATION\*

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**Abstract**

This Online Appendix includes supplementary material on additional regressions and robustness tests (Appendix A) as well as rankings by 3-digit NACE industries with respect to several measures of interest (Appendix B).

**Keywords:** trade credit, financial crises, SMEs

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# Appendix

## A Additional regressions

### A.1 Robustness test to firms' independence

One possible objection to the empirical results shown in Table 4 is that firm size may not be a relevant factor for firms belonging to industrial groups. Consequently, we want to show that our main results do not change when we focus on the subgroup of most independent firms. In Table A1, we provide a further robustness check to our results by using the "degree of independence" indicator contained in Amadeus, which classifies firms on the basis of the share in the capital owned by other firms. Results do not change when we focus on the subgroup of most independent firms, namely firms that do not have shareholders with more than 25 percent of firms capital. In conclusion, we claim that our results are not affected by cross-controls of firms with potential suppliers/customers. Furthermore, we run the same regression for the sample of firms with shares of outside firms on their capital not larger than 50 percent and again results go through.

### A.2 Robustness test to firms' access to finance

The goal of this Appendix is to show that the main empirical results of Table 4 are not affected by the degree of access to external financing of individual firms. To this aim, we replicate the estimations of Table 4 (Column 1 and Column 2) for two specific sub-groups of firms, *i.e.* *Constrained* vs. *Unconstrained* firms. To select the most and the least financially constrained firms, we adopt a stylized credit scoring system along the the lines of Altman and Hotchkiss (2005) and Altman and Sabato (2007).<sup>1</sup> The inclusion/exclusion of individual firms in the two subsamples is based on their estimated credit quality. Credit quality is proxied by the renowned measure  $Z'$ -Score (Altman and

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<sup>1</sup>The relevant objective here is not to get an optimal scoring system but to distinguish two sub-samples of firms that differ with respect to their relative ability to access external financing.

Hotchkiss, 2005), that is modeled as follows:

$$Z''Score = 6.56 \cdot X_1 + 3.26 \cdot X_2 + 6.72 \cdot X_3 + 1.05 \cdot X_4 \quad (1)$$

where:

$X_1 = \text{Working Capital} / \text{Total Assets},$

$X_2 = \text{Retained Earnings} / \text{Total Assets},$

$X_3 = \text{EBIT} / \text{Total Assets},$

$X_4 = \text{Book Value Equity} / \text{Total Assets}.$

Retained Earnings are not available in the Amadeus dataset, and thus in our measure of  $Z''$ -Score they are proxied by the simple difference between Shareholders' Funds and Capital.

Such  $Z''$ -Score models are usually estimated on the US and on samples dominated by listed companies. This could make the models less suitable for evaluating small firms. In order to take into account the limits of applying a single model for firms of different size, we adopt the following procedure. We regress the measured  $Z''$ -Score on a series of dummies that identify the different industries (NACE Rev.2, 3-digit), the size (micro, small, medium, large) and the country-year pairs. We then split the sample into quartiles based on the residuals of the regression. For each firm, we take the median quartile across the whole period of our estimation.

With this procedure, we are able to classify firms on a relative basis, since their financial health is evaluated with respect to the estimated averages of the corresponding cluster (industry, size, country-year). This makes our classification less dependent on the specific model adopted.<sup>2</sup>

The subsamples of *Constrained* and *Unconstrained* firms coincide respectively with the I and IV quartiles resulting from the procedure just described.

Table A2 shows that the main results of the paper do not change even after splitting the sam-

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<sup>2</sup>Indeed, we verified that the quartile subdivision of the available observations does not significantly change across different models, such the one developed in Altman and Sabato (2007) to consider the specificities of the SME sector.

ple on the basis of this classification. However, the differentials across size classes are higher among the unconstrained firms. In unreported regressions, available on request, we also repeated the estimations of Table 7 by using Receivables to Sales and Payables to Sales as the dependent variables.

### **A.3 Heterogeneous impact on NTCS by country**

In section 3.5, we implement a two-step estimation approach in order to analyse the influence of industry-level characteristics on *NTCS*. To this aim, we introduce a second stage standard OLS model, where the dependent variables are built on coefficients of the industry-period dummies estimated in the first stage regressions (represented in Column 2 of Table 4). Following the same procedure, we carry out a similar second stage analysis now focusing on coefficients on the country fixed effects. The analysis here is more illustrative, as the sample size (25 countries) is much smaller than the one available for the industry-level analysis.

The dependent variable refers to the representative firms of individual countries and it represents the changes in *NTCS* in post-crisis years with respect to the pre-crisis years 2005-2007. Table A3 presents the results of the second stage regressions with respect to country-period observations.

For the cross-country second stage regression we introduce two regressors. The first regressor is a measure of the *creditlessness* nature of the post-crisis period for each country. This measure is based on domestic credit to the private sector as a ratio to GDP, computed from the World Bank database. We compute the average growth rate of Credit-to-GDP in the pre-crisis period 2003-2007 and then we compare it with the average growth rate in the period 2008-2011 (for the regression in Column 1) and in the period 2008-2013 (for the regression in Column 2). The difference gives respectively our measures of *Creditlessness11* and *Creditlessness13*. The higher is the value of *creditlessness* the higher is the fall in credit growth within a country. The coefficient on this variable is not statistically significant, implying that the availability of bank credit in the aftermath the crisis is not a main contributor of heterogeneity in the dynamics of net trade credit.

The second regressor is GDP growth at the country level. We consider the average GDP growth

in the period 2008-2011 (for the regression in Column 1) and in the period 2008-2013 (for the regression in Column 2), respectively defined as *GDPgrowth11* and *GDPgrowth13* in the table below. In this case the coefficients on GDP growth are statistically significant. The negative sign implies that *NTCS* increases more in countries where the recession has been more severe and the recovery slower. This may be a consequence of payment delays from final customers that propagate to all domestic firms along the production chain. One could define this generalized increase in *NTCS* as *involuntary* trade credit, reflecting default in payments rather than the voluntary extension of credit by the suppliers.

#### **A.4 Additional regressions for receivables and payables**

In Section 3.4.1, we test the presence of a Cobb-Douglas relationship between firms' receivables and payables and sales in line with Kim and Shin (2012). In Table 6 we find evidence of such a Cobb-Douglas functional form within the whole European sample. In this Online Appendix (Table A4) we run country-specific regression based on the same Cobb-Douglas functional form. The empirical result show that differences across countries in the coefficients on payables and on sales are large, suggesting significant differences in the industrial structures and in financial arrangements across countries.

In this Online Appendix we also repeat the second stage regressions at the industry level of Section 3.5 taking into account separately Payables to Sales (Table A5) and Receivables to Sales (Table A6) as dependent variables instead of *NTCS*. The results confirm the main conclusions of Section 3.5 and also reveal that the main differences across small and large firms operate through receivables.

## **B Rankings across industries at 3-digit level**

In this section we report the rankings by NACE industries (3-digit level) for several measures of our interest, and in particular: Pre-crisis levels of *NTCS* (Table B1); Upstreamness levels (Table

B2); the values of  $\Delta NTCS$  obtained from the first stage regression of Table 4 and used as dependent variables for the second-stage regressions at the industry level of Section 3.5 (Table B3); the values of *RelativeSize* introduced in Section 3.5 (Table B4).

## References

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Table A1: Heterogeneous firm responses - Independence class: A

Dependent Variable: NTCS				
	(1)	(2)	(3)	(4)
Period(2008-2011) * Small	-2.40*** [0.69]	-2.06*** [0.69]		
Period(2008-2011) * Medium	-8.84*** [1.00]	-8.31*** [1.00]		
Period(2008-2011) * Large	-10.54*** [1.40]	-10.61*** [1.38]		
Period(2012-2013) * Small	-7.01*** [0.87]	-6.74*** [0.88]		
Period(2012-2013) * Medium	-17.56*** [1.24]	-17.77*** [1.24]		
Period(2012-2013) * Large	-20.09*** [1.72]	-19.86*** [1.69]		
Cfw (lag)		25.34*** [4.72]		25.23*** [4.72]
Period(2005-2007) * Cfw(lag)			16.40*** [5.21]	
Period(2008-2011) * Cfw(lag)			24.60*** [4.98]	
Period(2012-2013) * Cfw(lag)			39.97*** [5.73]	
Leverage (lag)		13.92*** [1.59]	14.09*** [1.60]	
Period(2005-2007) * Leverage(lag)				21.12*** [2.03]
Period(2008-2011) * Leverage(lag)				14.24*** [1.81]
Period(2012-2013) * Leverage(lag)				2.12 [2.27]
Cash (lag)		-18.10*** [1.71]	-18.26*** [1.71]	-18.27*** [1.71]
Tangibility (lag)		-28.44*** [2.23]	-28.84*** [2.23]	-28.58*** [2.24]
Profitability (lag)		-8.58** [3.82]	-8.85** [3.82]	-8.26** [3.82]
Firm F.E.	YES	YES	YES	YES
Period F.E.	YES	YES	YES	YES
Country-Period F.E.	YES	YES	YES	YES
Industry-Period F.E.	YES	YES	YES	YES
N	278,480	261,718	261,718	261,718
r2	0.71	0.72	0.72	0.72

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

Robust standard errors in brackets. The set of dummies includes fixed effects by firm, period, country-period and industry-period (coefficients not reported).

Table A2: Heterogeneous firm responses - Constrained vs. Unconstrained

Dependent Variable: NTCS				
	Constrained		Unconstrained	
	(1)	(2)	(3)	(4)
Period(2008-2011) * Small	-2.19*** [0.43]	-2.08*** [0.43]	-3.04*** [0.28]	-2.86*** [0.28]
Period(2008-2011) * Medium	-5.13*** [0.74]	-4.80*** [0.74]	-9.51*** [0.46]	-9.35*** [0.46]
Period(2008-2011) * Large	-5.83*** [1.06]	-5.24*** [1.08]	-11.76*** [0.70]	-11.78*** [0.70]
Period(2012-2013) * Small	-4.85*** [0.56]	-4.92*** [0.57]	-5.36*** [0.37]	-5.08*** [0.37]
Period(2012-2013) * Medium	-10.22*** [0.98]	-10.41*** [1.00]	-16.80*** [0.59]	-16.56*** [0.60]
Period(2012-2013) * Large	-11.63*** [1.33]	-11.99*** [1.36]	-19.73*** [0.90]	-19.59*** [0.90]
Cfw (lag)		22.39*** [1.76]		9.30*** [1.60]
Leverage (lag)		14.55*** [0.67]		2.12** [0.87]
Cash (lag)		-7.03*** [0.99]		-16.83*** [0.53]
Tangibility (lag)		-26.30*** [1.01]		-32.05*** [0.95]
Profitability (lag)		0.63 [1.54]		-11.01*** [1.29]
Firm F.E.	YES	YES	YES	YES
Period F.E.	YES	YES	YES	YES
Country-Period F.E.	YES	YES	YES	YES
Industry-Period F.E.	YES	YES	YES	YES
N	1,181,958	1,078,164	1,630,155	1,494,563
r2	0.70	0.71	0.72	0.73

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

Robust standard errors in brackets. The set of dummies includes fixed effects by firm, period, country-period and industry-period (coefficients not reported).



Table A3: Heterogeneous responses by country

Dependent Variable: Changes in NTCS with respect to pre-crisis levels		
	2008-2011 vs. precrisis	2012-2013 vs. precrisis
	(1)	(2)
Creditlessness11	-17.52 [19.29]	
GDPgrowth11	-177.48* [98.81]	
Creditlessness13		-8.28 [18.94]
GDPgrowth13		-475.52*** [138.63]
_cons	11.76*** [2.24]	19.06*** [3.13]
N	25	25
r2	0.14	0.35

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

Robust standard errors in brackets.

Table A4: Receivables, payables and sales: regressions by country (year 2007)

Dependent variable: log receivables				
Year	log payables	log sales	Obs.	R <sup>2</sup>
Austria	0.07	0.94	1,065	0.62
Iceland	0.07	0.79	1,163	0.58
Germany	0.10	0.90	12,253	0.74
Finland	0.16	0.80	46,844	0.68
Luxembourg	0.16	0.72	255	0.66
Estonia	0.17	0.76	22,596	0.64
Norway	0.20	0.71	62,090	0.60
France	0.22	0.72	305,698	0.51
Portugal	0.23	0.70	113,969	0.60
Latvia	0.23	0.76	4,769	0.65
Lithuania	0.24	0.72	1,329	0.62
Slovakia	0.26	0.73	5,935	0.79
Hungary	0.27	0.66	6,018	0.69
Switzerland	0.28	0.82	191	0.73
Sweden	0.29	0.78	7,820	0.54
Czech Republic	0.30	0.66	21,351	0.78
Italy	0.30	0.63	324,143	0.65
Poland	0.31	0.64	26,583	0.79
Croatia	0.31	0.61	41,236	0.71
Greece	0.31	0.68	14,775	0.66
Bulgaria	0.32	0.68	16,340	0.55
Bosnia	0.35	0.62	8,178	0.71
Spain	0.36	0.62	17,214	0.67
Belgium	0.36	0.58	10,985	0.74
Ukraine	0.40	0.53	59,191	0.65
Russia	0.49	0.49	24	0.90
Slovenia	0.50	0.49	6,519	0.84

Cross-section OLS regression results from a balanced AMADEUS sample, after removing firms that did not report a positive figure for either receivables or payables. This table reports country-specific OLS coefficients estimated in the pre-crisis year 2007.

Table A5: Heterogeneous responses by industry - Receivables

Dependent Variable: Changes in the Receivables to Sales ratio				
	2008-2011 vs. precrisis		2012-2013 vs. precrisis	
	(1)	(2)	(3)	(4)
RelativeSize	-6.66*** [2.39]	-5.90*** [2.21]	-14.27*** [4.34]	-13.21*** [4.36]
WeightHhCust	-7.62*** [1.88]	-8.60*** [2.13]	-20.25*** [3.45]	-20.14*** [4.31]
LevCust	-88.68*** [20.13]	-93.15*** [21.32]	-215.85*** [35.62]	-215.04*** [40.37]
WeightAgricCust		0.58 [7.98]		-18.31* [9.47]
WeightFinCust		37.28* [19.82]		60.62* [33.46]
WeightOthCust		-12.13** [5.87]		-8.43 [9.83]
_cons	18.61*** [1.38]	19.71*** [1.85]	38.23*** [2.79]	38.13*** [3.97]
N	198	198	198	198
r2	0.18	0.20	0.26	0.28

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

Robust standard errors in brackets.

Table A6: Heterogeneous responses by industry - Payables

Dependent Variable: Changes in the Payables to Sales ratio				
	2008-2011 vs. precrisis		2012-2013 vs. precrisis	
	(1)	(2)	(3)	(4)
RelativeSize	0.60 [2.39]	-0.15 [2.47]	4.37 [3.12]	2.29 [3.07]
WeightHhCust	2.30** [1.01]	1.60 [1.05]	4.03*** [1.43]	3.42** [1.39]
LevSuppl	-3.96 [14.23]	12.76 [25.30]	5.19 [20.45]	2.77 [33.78]
WeightAgricSuppl		9.55** [4.00]		8.40 [5.18]
WeightFinSuppl		0.61 [15.45]		-19.92 [15.98]
WeightOthSuppl		16.78 [16.94]		23.08 [23.13]
_cons	-1.74 [1.17]	-3.51 [2.96]	-4.66*** [1.69]	-3.91 [3.83]
N	198	198	198	198
r2	0.02	0.05	0.07	0.11

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

Robust standard errors in brackets.

Table B1: *NTCS* across European industries in pre-crisis years [1 of 3]

Industry [NACE Code]	Pre-crisis <i>NTCS</i>
Retail Sale of Cultural and Recreation Goods in Specialized Stores [47.6]	-31.5
Sale, Maintenance and Repair of Motorcycles and Related Parts and Accessories [45.4]	-26.7
Retail Sale of Other Goods in Specialized Stores [47.7]	-24.8
Retail Sale of Other Household Equipment in Specialized Stores [47.5]	-21.4
Retail Sale in Non-Specialized Stores [47.1]	-20.3
Retail Sale of Food, Beverages and Tobacco in Specialized Stores [47.2]	-14.9
Camping Grounds, Recreational Vehicle Parks and Trailer Parks [55.3]	-13.0
Retail Sale Via Stalls and Markets [47.8]	-12.6
Restaurants and Mobile Food Service Activities [56.1]	-12.5
Retail Trade Not in Stores, Stalls Or Markets [47.9]	-10.2
Hotels and Similar Accommodation [55.1]	-9.4
Beverage Serving Activities [56.3]	-8.8
Sale of Motor Vehicle Parts and Accessories [45.3]	-7.9
Sale of Motor Vehicles [45.1]	-7.5
Passenger Rail Transport, Interurban [49.1]	-7.3
Manufacture of Bakery and Farinaceous Products [10.7]	-7.3
Retail Sale of Automotive Fuel in Specialized Stores [47.3]	-6.5
Holiday and Other Short-Stay Accommodation [55.2]	-6.2
Development of Building Projects [41.1]	-5.0
Inland Passenger Water Transport [50.3]	-4.3
Retail Sale of Information and Communication Equipment in Specialized Stores [47.4]	-3.8
Travel Agency and Tour Operator Activities [79.1]	-2.6
Photographic Activities [74.2]	-2.4
Sea and Coastal Passenger Water Transport [50.1]	-1.3
Buying and Selling of Own Real Estate [68.1]	-0.9
Other Accommodation [55.9]	-0.5
Veterinary Activities [75.0]	-0.3
Repair of Personal and Household Goods [95.2]	0.1
Non-Specialized Wholesale Trade [46.9]	0.9
Manufacture of Motor Vehicles [29.1]	1.4
Maintenance and Repair of Motor Vehicles [45.2]	2.3
Wholesale of Food, Beverages and Tobacco [46.3]	2.5
Manufacture of Coke Oven Products [19.1]	2.7
Renting and Leasing of Personal and Household Goods [77.2]	2.9
Other Telecommunications Activities [61.9]	3.5
Processing and Preserving of Meat and Production of Meat Products [10.1]	3.9
Event Catering and Other Food Service Activities [56.2]	4.2
Passenger Air Transport [51.1]	4.2
Manufacture of Dairy Products [10.5]	4.4
Renting and Operating of Own Or Leased Real Estate [68.2]	4.9
Manufacture of Vegetable and Animal Oils and Fats [10.4]	4.9
Freight Air Transport and Space Transport [51.2]	6.4
Construction of Residential and Non-Residential Buildings [41.2]	6.6
Manufacture of Articles of Fur [14.2]	7.1
Processing and Preserving of Fruit and Vegetables [10.3]	7.2
Manufacture of Transport Equipment N.E.C. [30.9]	7.9
Other Specialized Wholesale [46.7]	8.1
Wholesale of Agricultural Raw Materials and Live Animals [46.2]	8.6
Wholesale of Household Goods [46.4]	9.4
Combined Facilities Support Activities [81.1]	9.7
Processing and Preserving of Fish, Crustaceans and Molluscs [10.2]	10.1
Transport Via Pipeline [49.5]	10.2
Manufacture of Other Food Products [10.8]	10.3
Organization of Conventions and Trade Shows [82.3]	10.4

## NTCS across European industries in pre-crisis years [2 of 3]

Industry [NACE Code]	Precrisis NTCS
Manufacture of Agricultural and Forestry Machinery [28.3]	10.3
Manufacture of Furniture [31.0]	10.5
Sawmilling and Planing of Wood [16.1]	10.6
Building of Ships and Boats [30.1]	11.1
Inland Freight Water Transport [50.4]	11.6
Postal Activities Under Universal Service Obligation [53.1]	11.7
Other Reservation Service and Related Activities [79.9]	12.4
Manufacture of Bodies (Coachwork) for Motor Vehicles; Manufacture of Trailers and Semi-Trailers [29.2]	12.6
Wired Telecommunications Activities [61.1]	13.2
Wholesale of Other Machinery, Equipment and Supplies [46.6]	13.9
Manufacture of Refined Petroleum Products [19.2]	14.1
Real Estate Activities on a Fee Or Contract Basis [68.3]	14.1
Sea and Coastal Freight Water Transport [50.2]	14.5
Manufacture of Footwear [15.2]	15.1
Manufacture of Other Products of First Processing of Steel [24.3]	15.2
Manufacture of Products of Wood, Cork, Straw and Plaiting Materials [16.2]	15.6
Manufacture of Basic Iron and Steel and of Ferro-Alloys [24.1]	15.7
Renting and Leasing of Motor Vehicles [77.1]	15.7
Manufacture of Sports Goods [32.3]	15.9
Research and Experimental Development on Natural Sciences and Engineering [72.1]	16.4
Manufacture of Beverages [11.0]	16.5
Wireless Telecommunications Activities [61.2]	16.9
Technical Testing and Analysis [71.2]	17.0
Manufacture of Air and Spacecraft and Related Machinery [30.3]	17.0
Manufacture of Tobacco Products [12.0]	17.2
Manufacture of Domestic Appliances [27.5]	17.4
Manufacture of Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus [27.1]	17.4
Manufacture of Tanks, Reservoirs and Containers of Metal [25.2]	17.9
Support Activities for Transportation [52.2]	18.0
Other Passenger Land Transport [49.3]	18.1
Manufacture of Tubes, Pipes, Hollow Profiles and Related Fittings, of Steel [24.2]	18.4
Freight Rail Transport [49.2]	18.7
Activities of Head Offices [70.1]	18.9
Manufacture of Parts and Accessories for Motor Vehicles [29.3]	19.2
Manufacture of Basic Precious and Other Non-Ferrous Metals [24.4]	19.3
Manufacture of Weapons and Ammunition [25.4]	19.4
Manufacture of Prepared Animal Feeds [10.9]	20.0
Manufacture of Other Special-Purpose Machinery [28.9]	20.1
Manufacture of Computers and Peripheral Equipment [26.2]	20.5
Other Specialized Construction Activities [43.9]	20.6
Publishing of Books, Periodicals and Other Publishing Activities [58.1]	20.7
Manufacture of Railway Locomotives and Rolling Stock [30.2]	20.8
Radio Broadcasting [60.1]	20.8
Tanning and Dressing of Leather; Manufacture of Luggage, Handbags, Saddlery and Harness; Dressing and Dyeing of Fur [15.1]	21.1
Manufacture of General-Purpose Machinery [28.1]	21.1
Manufacture of Musical Instruments [32.2]	21.2
Manufacture of Games and Toys [32.4]	21.3
Manufacture of Articles of Concrete, Cement and Plaster [23.6]	21.4
Manufacture of Basic Chemicals, Fertilizers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms [20.1]	21.4
Manufacture of Wearing Apparel, Except Fur Apparel [14.1]	21.5
Cutting, Shaping and Finishing of Stone [23.7]	21.5
Television Programming and Broadcasting Activities [60.2]	21.8
Casting of Metals [24.5]	21.8
Manufacture of Plastics Products [22.2]	21.9
Manufacture of Optical Instruments and Photographic Equipment [26.7]	22.0
Manufacture of Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations [20.4]	22.2
Wholesale of Information and Communication Equipment [46.5]	22.4
Manufacture of Pulp, Paper and Paperboard [17.1]	22.5
Building Completion and Finishing [43.3]	22.8
Manufacture of Batteries and Accumulators [27.2]	23.0
Manufacture of Metal Forming Machinery and Machine Tools [28.4]	23.1
Construction of Roads and Railways [42.1]	23.1
Wholesale on a Fee Or Contract Basis [46.1]	23.1
Manufacture of Glass and Glass Products [23.1]	23.6
Manufacture of Articles of Paper and Paperboard [17.2]	23.8
Manufacture of Grain Mill Products, Starches and Starch Products [10.6]	24.1
Manufacture of Structural Metal Products [25.1]	24.3
Warehousing and Storage [52.1]	24.3
Manufacture of Other General-Purpose Machinery [28.2]	25.0
Manufacture of Basic Pharmaceutical Products [21.1]	25.1
Manufacture of Knitted and Crocheted Apparel [14.3]	25.2
Manufacturing N.E.C. [32.9]	25.5
Manufacture of Other Fabricated Metal Products [25.9]	25.8

## NTCS across European industries in pre-crisis years [3 of 3]

Industry [NACE Code]	Precrisis NTCS
Manufacture of Rubber Products [22.1]	26.0
Manufacture of Other Textiles [13.9]	26.0
Manufacture of Steam Generators, Except Central Heating Hot Water Boilers [25.3]	26.1
Manufacture of Cement, Lime and Plaster [23.5]	26.1
Sound Recording and Music Publishing Activities [59.2]	26.5
Manufacture of Paints, Varnishes and Similar Coatings, Printing Ink and Mastics [20.3]	26.6
Electrical, Plumbing and Other Construction Installation Activities [43.2]	26.7
Repair of Computers and Communication Equipment [95.1]	26.9
Manufacture of Medical and Dental Instruments and Supplies [32.5]	27.0
Construction of Other Civil Engineering Projects [42.9]	27.0
Motion Picture, Video and Television Programme Activities [59.1]	27.1
Office Administrative and Support Activities [82.1]	27.2
Manufacture of Electric Lighting Equipment [27.4]	27.6
Satellite Telecommunications Activities [61.3]	27.6
Manufacture of Man-Made Fibres [20.6]	27.8
Manufacture of Clay Building Materials [23.3]	27.8
Manufacture of Abrasive Products and Non-Metallic Mineral Products N.E.C. [23.9]	28.2
Preparation and Spinning of Textile Fibres [13.1]	28.3
Manufacture of Jewellery, Bijouterie and Related Articles [32.1]	28.5
Manufacture of Other Chemical Products [20.5]	28.6
Manufacture of Pharmaceutical Preparations [21.2]	29.0
Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy [25.5]	29.4
Renting and Leasing of Other Machinery, Equipment and Tangible Goods [77.3]	29.7
Manufacture of Refractory Products [23.2]	29.8
Advertising [73.1]	30.1
Manufacture of Other Porcelain and Ceramic Products [23.4]	30.5
Weaving of Textiles [13.2]	30.7
Manufacture of Communication Equipment [26.3]	30.7
Manufacture of Irradiation, Electromedical and Electrotherapeutic Equipment [26.6]	30.7
Manufacture of Other Electrical Equipment [27.9]	31.2
Manufacture of Consumer Electronics [26.4]	31.5
Manufacture of Wiring and Wiring Devices [27.3]	31.5
Manufacture of Pesticides and Other Agrochemical Products [20.2]	31.5
Manufacture of Electronic Components and Boards [26.1]	32.6
Construction of Utility Projects [42.2]	32.6
Freight Transport By Road and Removal Services [49.4]	33.0
Other Postal and Courier Activities [53.2]	33.2
Landscape Service Activities [81.3]	33.5
Demolition and Site Preparation [43.1]	34.5
Printing and Service Activities Related to Printing [18.1]	34.9
Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks [26.5]	34.9
Translation and Interpretation Activities [74.3]	35.1
Repair of Fabricated Metal Products, Machinery and Equipment [33.1]	35.2
Business Support Service Activities N.E.C. [82.9]	35.4
Reproduction of Recorded Media [18.2]	36.5
Specialized Design Activities [74.1]	37.3
Security Systems Service Activities [80.2]	37.5
Manufacture of Military Fighting Vehicles [30.4]	38.8
Manufacture of Cutlery, Tools and General Hardware [25.7]	38.8
Other Information Service Activities [63.9]	39.6
Leasing of Intellectual Property and Similar Products, Except Copyrighted Works [77.4]	39.8
Activities of Employment Placement Agencies [78.1]	40.0
Private Security Activities [80.1]	42.5
Manufacture of Magnetic and Optical Media [26.8]	43.4
Treatment and Coating of Metals; Machining [25.6]	43.4
Finishing of Textiles [13.3]	43.4
Market Research and Public Opinion Polling [73.2]	44.5
Other Human Resources Provision [78.3]	45.3
Investigation Activities [80.3]	45.3
Activities of Call Centres [82.2]	45.5
Other Professional, Scientific and Technical Activities N.E.C. [74.9]	46.5
Research and Experimental Development on Social Sciences and Humanities [72.2]	46.8
Installation of Industrial Machinery and Equipment [33.2]	47.9
Legal Activities [69.1]	48.0
Management Consultancy Activities [70.2]	48.2
Computer Programming, Consultancy and Related Activities [62.0]	48.9
Software Publishing [58.2]	52.8
Architectural and Engineering Activities and Related Technical Consultancy [71.1]	52.8
Cleaning Activities [81.2]	54.1
Temporary Employment Agency Activities [78.2]	63.5
Data Processing, Hosting and Related Activities; Web Portals [63.1]	66.3
Accounting, Bookkeeping and Auditing Activities; Tax Consultancy [69.2]	68.1

Table B2: Upstreamness across NACE industries based on U.S. data [1 of 3]

Industry [NACE Code]	Upstreamness
Manufacture of Motor Vehicles [29.1]	1.007
Manufacture of Footwear [15.2]	1.008
Manufacture of Games and Toys [32.4]	1.057
Manufacture of Sports Goods [32.3]	1.057
Manufacture of Tobacco Products [12.0]	1.066
Manufacture of Military Fighting Vehicles [30.4]	1.070
Manufacture of Articles of Fur [14.2]	1.115
Manufacture of Wearing Apparel, Except Fur Apparel [14.1]	1.115
Retail Sale of Other Goods in Specialized Stores [47.7]	1.126
Retail Sale of Other Household Equipment in Specialized Stores [47.5]	1.126
Retail Trade Not in Stores, Stalls Or Markets [47.9]	1.126
Retail Sale of Automotive Fuel in Specialized Stores [47.3]	1.126
Retail Sale of Cultural and Recreation Goods in Specialized Stores [47.6]	1.126
Retail Sale Via Stalls and Markets [47.8]	1.126
Retail Sale of Food, Beverages and Tobacco in Specialized Stores [47.2]	1.126
Retail Sale of Information and Communication Equipment in Specialized Stores [47.4]	1.126
Retail Sale in Non-Specialized Stores [47.1]	1.126
Manufacture of Consumer Electronics [26.4]	1.135
Manufacture of Jewellery, Bijouterie and Related Articles [32.1]	1.139
Manufacture of Musical Instruments [32.2]	1.160
Manufacture of Irradiation, Electromedical and Electrotherapeutic Equipment [26.6]	1.176
Manufacture of Domestic Appliances [27.5]	1.181
Building of Ships and Boats [30.1]	1.204
Manufacture of Beverages [11.0]	1.214
Veterinary Activities [75.0]	1.220
Manufacture of Optical Instruments and Photographic Equipment [26.7]	1.225
Demolition and Site Preparation [43.1]	1.238
Other Specialized Construction Activities [43.9]	1.238
Development of Building Projects [41.1]	1.238
Electrical, Plumbing and Other Construction Installation Activities [43.2]	1.238
Construction of Roads and Railways [42.1]	1.238
Construction of Residential and Non-Residential Buildings [41.2]	1.238
Construction of Other Civil Engineering Projects [42.9]	1.238
Construction of Utility Projects [42.2]	1.238
Building Completion and Finishing [43.3]	1.238
Manufacture of Transport Equipment N.E.C. [30.9]	1.240
Software Publishing [58.2]	1.265
Manufacture of Knitted and Crocheted Apparel [14.3]	1.306
Manufacture of Bodies (Coachwork) for Motor Vehicles; Manufacture of Trailers and Semi-Trailers [29.2]	1.306
Manufacture of Furniture [31.0]	1.326
Manufacture of Other Electrical Equipment [27.9]	1.344
Event Catering and Other Food Service Activities [56.2]	1.389
Restaurants and Mobile Food Service Activities [56.1]	1.389
Beverage Serving Activities [56.3]	1.389
Manufacture of Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations [20.4]	1.399
Manufacture of Weapons and Ammunition [25.4]	1.418
Maintenance and Repair of Motor Vehicles [45.2]	1.438
Manufacture of Computers and Peripheral Equipment [26.2]	1.441
Manufacture of Communication Equipment [26.3]	1.445
Manufacture of Pharmaceutical Preparations [21.2]	1.475
Renting and Leasing of Personal and Household Goods [77.2]	1.483
Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks [26.5]	1.557
Manufacture of Medical and Dental Instruments and Supplies [32.5]	1.562
Publishing of Books, Periodicals and Other Publishing Activities [58.1]	1.569



## Upstreamness across NACE industries based on U.S. data [2 of 3]

Industry [NACE Code]	Upstreamness
Sound Recording and Music Publishing Activities [59.2]	1.600
Manufacture of Dairy Products [10.5]	1.610
Processing and Preserving of Fruit and Vegetables [10.3]	1.610
Manufacture of Bakery and Farinaceous Products [10.7]	1.610
Processing and Preserving of Meat and Production of Meat Products [10.1]	1.610
Processing and Preserving of Fish, Crustaceans and Molluscs [10.2]	1.610
Manufacture of Vegetable and Animal Oils and Fats [10.4]	1.610
Manufacture of Grain Mill Products, Starches and Starch Products [10.6]	1.610
Manufacture of Other Food Products [10.8]	1.610
Freight Air Transport and Space Transport [51.2]	1.611
Passenger Air Transport [51.1]	1.611
Manufacture of Batteries and Accumulators [27.2]	1.632
Photographic Activities [74.2]	1.655
Manufacture of Other Textiles [13.9]	1.722
Computer Programming, Consultancy and Related Activities [62.0]	1.756
Camping Grounds, Recreational Vehicle Parks and Trailer Parks [55.3]	1.759
Other Accommodation [55.9]	1.759
Holiday and Other Short-Stay Accommodation [55.2]	1.759
Hotels and Similar Accommodation [55.1]	1.759
Inland Freight Water Transport [50.4]	1.764
Inland Passenger Water Transport [50.3]	1.764
Sea and Coastal Freight Water Transport [50.2]	1.764
Sea and Coastal Passenger Water Transport [50.1]	1.764
Manufacture of Railway Locomotives and Rolling Stock [30.2]	1.768
Manufacture of Other Special-Purpose Machinery [28.9]	1.769
Manufacture of Agricultural and Forestry Machinery [28.3]	1.769
Manufacture of Cutlery, Tools and General Hardware [25.7]	1.769
Manufacture of General-Purpose Machinery [28.1]	1.769
Manufacture of Metal Forming Machinery and Machine Tools [28.4]	1.769
Manufacture of Other General-Purpose Machinery [28.2]	1.769
Cutting, Shaping and Finishing of Stone [23.7]	1.776
Other Passenger Land Transport [49.3]	1.790
Manufacture of Air and Spacecraft and Related Machinery [30.3]	1.848
Tanning and Dressing of Leather; Manufacture of Luggage, Handbags, Saddlery and Harness; Dressing and Dyeing of Fur [15.1]	1.855
Sale of Motor Vehicle Parts and Accessories [45.3]	1.889
Wholesale on a Fee Or Contract Basis [46.1]	1.889
Other Specialized Wholesale [46.7]	1.889
Sale of Motor Vehicles [45.1]	1.889
Non-Specialized Wholesale Trade [46.9]	1.889
Wholesale of Food, Beverages and Tobacco [46.3]	1.889
Sale, Maintenance and Repair of Motorcycles and Related Parts and Accessories [45.4]	1.889
Wholesale of Information and Communication Equipment [46.5]	1.889
Wholesale of Household Goods [46.4]	1.889
Wholesale of Other Machinery, Equipment and Supplies [46.6]	1.889
Wholesale of Agricultural Raw Materials and Live Animals [46.2]	1.889
Other Information Service Activities [63.9]	1.891
Other Telecommunications Activities [61.9]	2.001
Radio Broadcasting [60.1]	2.001
Satellite Telecommunications Activities [61.3]	2.001
Wired Telecommunications Activities [61.1]	2.001
Wireless Telecommunications Activities [61.2]	2.001
Television Programming and Broadcasting Activities [60.2]	2.001
Renting and Operating of Own Or Leased Real Estate [68.2]	2.002
Real Estate Activities on a Fee Or Contract Basis [68.3]	2.002
Buying and Selling of Own Real Estate [68.1]	2.002
Renting and Leasing of Motor Vehicles [77.1]	2.009
Manufacture of Clay Building Materials [23.3]	2.038
Manufacture of Other Porcelain and Ceramic Products [23.4]	2.038
Manufacture of Electric Lighting Equipment [27.4]	2.048
Motion Picture, Video and Television Programme Activities [59.1]	2.143
Legal Activities [69.1]	2.148
Freight Transport By Road and Removal Services [49.4]	2.182
Travel Agency and Tour Operator Activities [79.1]	2.261
Other Reservation Service and Related Activities [79.9]	2.261
Manufacture of Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus [27.1]	2.261
Technical Testing and Analysis [71.2]	2.273
Architectural and Engineering Activities and Related Technical Consultancy [71.1]	2.273
Manufacture of Rubber Products [22.1]	2.274
Manufacture of Parts and Accessories for Motor Vehicles [29.3]	2.307
Manufacture of Articles of Concrete, Cement and Plaster [23.6]	2.330
Security Systems Service Activities [80.2]	2.409
Private Security Activities [80.1]	2.409

## Upstreamness across NACE industries based on U.S. data [3 of 3]

Industry [NACE Code]	Upstreamness
Investigation Activities [80.3]	2.409
Manufacture of Magnetic and Optical Media [26.8]	2.421
Repair of Personal and Household Goods [95.2]	2.427
Installation of Industrial Machinery and Equipment [33.2]	2.427
Repair of Fabricated Metal Products, Machinery and Equipment [33.1]	2.427
Repair of Computers and Communication Equipment [95.1]	2.427
Manufacture of Glass and Glass Products [23.1]	2.435
Combined Facilities Support Activities [81.1]	2.471
Manufacture of Structural Metal Products [25.1]	2.486
Manufacture of Steam Generators, Except Central Heating Hot Water Boilers [25.3]	2.486
Manufacture of Tanks, Reservoirs and Containers of Metal [25.2]	2.486
Research and Experimental Development on Social Sciences and Humanities [72.2]	2.490
Research and Experimental Development on Natural Sciences and Engineering [72.1]	2.490
Manufacture of Refined Petroleum Products [19.2]	2.529
Manufacture of Coke Oven Products [19.1]	2.529
Manufacture of Prepared Animal Feeds [10.9]	2.530
Sawmilling and Planing of Wood [16.1]	2.532
Manufacture of Products of Wood, Cork, Straw and Plaiting Materials [16.2]	2.532
Manufacture of Plastics Products [22.2]	2.581
Postal Activities Under Universal Service Obligation [53.1]	2.590
Manufacture of Pesticides and Other Agrochemical Products [20.2]	2.598
Manufacture of Abrasive Products and Non-Metallic Mineral Products N.E.C. [23.9]	2.599
Manufacture of Wiring and Wiring Devices [27.3]	2.606
Landscape Service Activities [81.3]	2.618
Cleaning Activities [81.2]	2.618
Printing and Service Activities Related to Printing [18.1]	2.633
Accounting, Bookkeeping and Auditing Activities; Tax Consultancy [69.2]	2.637
Weaving of Textiles [13.2]	2.665
Manufacture of Tubes, Pipes, Hollow Profiles and Related Fittings, of Steel [24.2]	2.677
Manufacture of Other Fabricated Metal Products [25.9]	2.677
Manufacture of Basic Precious and Other Non-Ferrous Metals [24.4]	2.677
Manufacturing N.E.C. [32.9]	2.677
Organization of Conventions and Trade Shows [82.3]	2.722
Activities of Call Centres [82.2]	2.722
Office Administrative and Support Activities [82.1]	2.722
Business Support Service Activities N.E.C. [82.9]	2.722
Finishing of Textiles [13.3]	2.737
Preparation and Spinning of Textile Fibres [13.1]	2.737
Warehousing and Storage [52.1]	2.755
Specialized Design Activities [74.1]	2.812
Support Activities for Transportation [52.2]	2.812
Manufacture of Articles of Paper and Paperboard [17.2]	2.814
Manufacture of Pulp, Paper and Paperboard [17.1]	2.814
Passenger Rail Transport, Interurban [49.1]	2.824
Freight Rail Transport [49.2]	2.824
Data Processing, Hosting and Related Activities; Web Portals [63.1]	2.837
Other Human Resources Provision [78.3]	2.855
Temporary Employment Agency Activities [78.2]	2.855
Activities of Employment Placement Agencies [78.1]	2.855
Renting and Leasing of Other Machinery, Equipment and Tangible Goods [77.3]	2.860
Manufacture of Cement, Lime and Plaster [23.5]	2.888
Advertising [73.1]	2.891
Other Professional, Scientific and Technical Activities N.E.C. [74.9]	2.893
Translation and Interpretation Activities [74.3]	2.893
Market Research and Public Opinion Polling [73.2]	2.893
Management Consultancy Activities [70.2]	2.893
Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy [25.5]	2.935
Activities of Head Offices [70.1]	2.941
Other Postal and Courier Activities [53.2]	2.943
Manufacture of Electronic Components and Boards [26.1]	2.958
Transport Via Pipeline [49.5]	3.046
Reproduction of Recorded Media [18.2]	3.068
Treatment and Coating of Metals; Machining [25.6]	3.074
Manufacture of Man-Made Fibres [20.6]	3.172
Casting of Metals [24.5]	3.208
Manufacture of Other Products of First Processing of Steel [24.3]	3.208
Manufacture of Paints, Varnishes and Similar Coatings, Printing Ink and Mastics [20.3]	3.254
Manufacture of Basic Chemicals, Fertilizers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms [20.1]	3.254
Manufacture of Basic Pharmaceutical Products [21.1]	3.254
Manufacture of Other Chemical Products [20.5]	3.254
Leasing of Intellectual Property and Similar Products, Except Copyrighted Works [77.4]	3.292
Manufacture of Basic Iron and Steel and of Ferro-Alloys [24.1]	3.347
Manufacture of Refractory Products [23.2]	3.537

Table B3: Changes in *NTCS* by industry (2012-2013 vs. pre-crisis years) [1 of 3]

Industry [NACE Code]	$\Delta NTCS$
Development of Building Projects [41.1]	40.07
Construction of Residential and Non-Residential Buildings [41.2]	37.69
Construction of Other Civil Engineering Projects [42.9]	35.92
Data Processing, Hosting and Related Activities; Web Portals [63.1]	34.80
Construction of Roads and Railways [42.1]	31.75
Renting and Leasing of Other Machinery, Equipment and Tangible Goods [77.3]	30.47
Building of Ships and Boats [30.1]	29.33
Construction of Utility Projects [42.2]	28.31
Architectural and Engineering Activities and Related Technical Consultancy [71.1]	27.82
Manufacture of Articles of Concrete, Cement and Plaster [23.6]	27.71
Electrical, Plumbing and Other Construction Installation Activities [43.2]	27.46
Buying and Selling of Own Real Estate [68.1]	26.99
Manufacture of Railway Locomotives and Rolling Stock [30.2]	26.42
Research and Experimental Development on Natural Sciences and Engineering [72.1]	26.35
Leasing of Intellectual Property and Similar Products, Except Copyrighted Works [77.4]	26.07
Demolition and Site Preparation [43.1]	26.05
Renting and Operating of Own Or Leased Real Estate [68.2]	25.97
Reproduction of Recorded Media [18.2]	25.61
Manufacture of Structural Metal Products [25.1]	24.82
Cutting, Shaping and Finishing of Stone [23.7]	24.55
Other Professional, Scientific and Technical Activities N.E.C. [74.9]	23.48
Renting and Leasing of Motor Vehicles [77.1]	23.14
Other Specialized Construction Activities [43.9]	22.74
Building Completion and Finishing [43.3]	22.57
Landscape Service Activities [81.3]	22.20
Manufacture of Coke Oven Products [19.1]	22.00
Legal Activities [69.1]	21.80
Private Security Activities [80.1]	21.75
Combined Facilities Support Activities [81.1]	21.75
Cleaning Activities [81.2]	21.70
Manufacture of Products of Wood, Cork, Straw and Plaiting Materials [16.2]	21.68
Business Support Service Activities N.E.C. [82.9]	20.61
Manufacture of Paints, Varnishes and Similar Coatings, Printing Ink and Mastics [20.3]	20.36
Other Telecommunications Activities [61.9]	20.31
Real Estate Activities on a Fee Or Contract Basis [68.3]	19.80
Manufacture of Glass and Glass Products [23.1]	19.64
Other Accommodation [55.9]	19.51
Management Consultancy Activities [70.2]	19.49
Activities of Call Centres [82.2]	19.30
Manufacture of Communication Equipment [26.3]	19.29
Other Human Resources Provision [78.3]	18.91
Sea and Coastal Freight Water Transport [50.2]	18.74
Wired Telecommunications Activities [61.1]	18.70
Manufacture of Bodies (Coachwork) for Motor Vehicles; Manufacture of Trailers and Semi-Trailers [29.2]	18.69
Renting and Leasing of Personal and Household Goods [77.2]	18.62
Transport Via Pipeline [49.5]	18.57
Office Administrative and Support Activities [82.1]	18.39
Sound Recording and Music Publishing Activities [59.2]	18.23
Satellite Telecommunications Activities [61.3]	18.03
Inland Passenger Water Transport [50.3]	17.99
Manufacture of Tanks, Reservoirs and Containers of Metal [25.2]	17.97
Accounting, Bookkeeping and Auditing Activities; Tax Consultancy [69.2]	17.82
Sea and Coastal Passenger Water Transport [50.1]	17.66
Manufacture of Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus [27.1]	17.27

## Changes in *NTCS* by industry (2012-2013 vs. pre-crisis years) [2 of 3]

Industry [NACE Code]	$\Delta NTCS$
Security Systems Service Activities [80.2]	17.18
Repair of Personal and Household Goods [95.2]	17.16
Market Research and Public Opinion Polling [73.2]	17.15
Radio Broadcasting [60.1]	17.11
Manufacture of Furniture [31.0]	17.03
Wireless Telecommunications Activities [61.2]	16.99
Manufacture of Games and Toys [32.4]	16.84
Repair of Computers and Communication Equipment [95.1]	16.64
Technical Testing and Analysis [71.2]	16.61
Passenger Air Transport [51.1]	16.59
Wholesale of Other Machinery, Equipment and Supplies [46.6]	16.58
Other Specialized Wholesale [46.7]	16.14
Retail Sale of Other Household Equipment in Specialized Stores [47.5]	16.06
Other Passenger Land Transport [49.3]	15.98
Repair of Fabricated Metal Products, Machinery and Equipment [33.1]	15.85
Retail Sale of Information and Communication Equipment in Specialized Stores [47.4]	15.80
Advertising [73.1]	15.77
Installation of Industrial Machinery and Equipment [33.2]	15.61
Manufacture of Cement, Lime and Plaster [23.5]	15.51
Printing and Service Activities Related to Printing [18.1]	15.46
Computer Programming, Consultancy and Related Activities [62.0]	15.38
Manufacture of Agricultural and Forestry Machinery [28.3]	15.37
Postal Activities Under Universal Service Obligation [53.1]	15.30
Manufacture of Tubes, Pipes, Hollow Profiles and Related Fittings, of Steel [24.2]	15.30
Manufacture of Abrasive Products and Non-Metallic Mineral Products N.E.C. [23.9]	15.21
Travel Agency and Tour Operator Activities [79.1]	15.11
Sale of Motor Vehicle Parts and Accessories [45.3]	15.11
Translation and Interpretation Activities [74.3]	15.09
Research and Experimental Development on Social Sciences and Humanities [72.2]	15.01
Publishing of Books, Periodicals and Other Publishing Activities [58.1]	15.00
Motion Picture, Video and Television Programme Activities [59.1]	14.97
Other Information Service Activities [63.9]	14.96
Wholesale on a Fee Or Contract Basis [46.1]	14.92
Wholesale of Information and Communication Equipment [46.5]	14.82
Camping Grounds, Recreational Vehicle Parks and Trailer Parks [55.3]	14.63
Maintenance and Repair of Motor Vehicles [45.2]	14.62
Manufacture of Pesticides and Other Agrochemical Products [20.2]	14.47
Temporary Employment Agency Activities [78.2]	14.37
Sale of Motor Vehicles [45.1]	14.37
Sawmilling and Planing of Wood [16.1]	14.36
Manufacture of Sports Goods [32.3]	14.33
Activities of Head Offices [70.1]	14.19
Manufacture of Motor Vehicles [29.1]	14.07
Photographic Activities [74.2]	14.06
Manufacture of Other Fabricated Metal Products [25.9]	13.86
Event Catering and Other Food Service Activities [56.2]	13.85
Manufacture of Wearing Apparel, Except Fur Apparel [14.1]	13.80
Non-Specialized Wholesale Trade [46.9]	13.73
Other Postal and Courier Activities [53.2]	13.67
Other Reservation Service and Related Activities [79.9]	13.61
Manufacture of Other Textiles [13.9]	13.45
Manufacture of Other General-Purpose Machinery [28.2]	13.29
Inland Freight Water Transport [50.4]	13.28
Manufacture of Magnetic and Optical Media [26.8]	13.23
Specialized Design Activities [74.1]	13.12
Software Publishing [58.2]	12.94
Processing and Preserving of Fish, Crustaceans and Molluscs [10.2]	12.89
Wholesale of Household Goods [46.4]	12.55
Manufacture of Computers and Peripheral Equipment [26.2]	12.42
Manufacture of Other Special-Purpose Machinery [28.9]	12.14
Retail Sale Via Stalls and Markets [47.8]	12.11
Retail Sale of Cultural and Recreation Goods in Specialized Stores [47.6]	12.07
Manufacture of Other Porcelain and Ceramic Products [23.4]	12.02
Investigation Activities [80.3]	12.01
Retail Sale of Other Goods in Specialized Stores [47.7]	11.80
Manufacture of Knitted and Crocheted Apparel [14.3]	11.72
Freight Transport By Road and Removal Services [49.4]	11.71
Manufacture of Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations [20.4]	11.68
Wholesale of Agricultural Raw Materials and Live Animals [46.2]	11.62
Holiday and Other Short-Stay Accommodation [55.2]	11.53
Manufacture of Other Food Products [10.8]	11.44
Retail Trade Not in Stores, Stalls Or Markets [47.9]	11.35

## Changes in *NTCS* by industry (2012-2013 vs. pre-crisis years) [3 of 3]

Industry [NACE Code]	$\Delta NTCS$
Veterinary Activities [75.0]	11.10
Manufacture of Air and Spacecraft and Related Machinery [30.3]	11.08
Manufacture of Consumer Electronics [26.4]	10.92
Manufacturing N.E.C. [32.9]	10.90
Manufacture of General-Purpose Machinery [28.1]	10.75
Manufacture of Medical and Dental Instruments and Supplies [32.5]	10.34
Manufacture of Steam Generators, Except Central Heating Hot Water Boilers [25.3]	10.26
Manufacture of Jewellery, Bijouterie and Related Articles [32.1]	10.21
Television Programming and Broadcasting Activities [60.2]	10.03
Finishing of Textiles [13.3]	10.03
Manufacture of Beverages [11.0]	9.75
Wholesale of Food, Beverages and Tobacco [46.3]	9.75
Support Activities for Transportation [52.2]	9.71
Manufacture of Plastics Products [22.2]	9.59
Manufacture of Musical Instruments [32.2]	9.50
Freight Rail Transport [49.2]	9.49
Manufacture of Electronic Components and Boards [26.1]	9.37
Manufacture of Cutlery, Tools and General Hardware [25.7]	9.19
Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy [25.5]	9.18
Manufacture of Other Electrical Equipment [27.9]	8.97
Passenger Rail Transport, Interurban [49.1]	8.77
Manufacture of Irradiation, Electromedical and Electrotherapeutic Equipment [26.6]	8.74
Sale, Maintenance and Repair of Motorcycles and Related Parts and Accessories [45.4]	8.71
Manufacture of Prepared Animal Feeds [10.9]	8.70
Freight Air Transport and Space Transport [51.2]	8.64
Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks [26.5]	8.56
Manufacture of Other Chemical Products [20.5]	8.53
Manufacture of Clay Building Materials [23.3]	8.53
Retail Sale in Non-Specialized Stores [47.1]	8.53
Manufacture of Refractory Products [23.2]	8.42
Manufacture of Basic Iron and Steel and of Ferro-Alloys [24.1]	8.33
Manufacture of Bakery and Farinaceous Products [10.7]	8.07
Retail Sale of Automotive Fuel in Specialized Stores [47.3]	7.82
Retail Sale of Food, Beverages and Tobacco in Specialized Stores [47.2]	7.80
Treatment and Coating of Metals; Machining [25.6]	7.76
Manufacture of Articles of Fur [14.2]	7.65
Manufacture of Footwear [15.2]	7.49
Casting of Metals [24.5]	7.33
Manufacture of Parts and Accessories for Motor Vehicles [29.3]	7.29
Warehousing and Storage [52.1]	6.99
Manufacture of Wiring and Wiring Devices [27.3]	6.85
Manufacture of Metal Forming Machinery and Machine Tools [28.4]	6.76
Manufacture of Basic Pharmaceutical Products [21.1]	6.54
Restaurants and Mobile Food Service Activities [56.1]	6.54
Organization of Conventions and Trade Shows [82.3]	6.45
Processing and Preserving of Meat and Production of Meat Products [10.1]	6.16
Manufacture of Articles of Paper and Paperboard [17.2]	5.92
Manufacture of Basic Precious and Other Non-Ferrous Metals [24.4]	5.90
Hotels and Similar Accommodation [55.1]	5.65
Manufacture of Rubber Products [22.1]	5.25
Processing and Preserving of Fruit and Vegetables [10.3]	5.24
Preparation and Spinning of Textile Fibres [13.1]	5.05
Manufacture of Electric Lighting Equipment [27.4]	5.00
Manufacture of Basic Chemicals, Fertilizers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms [20.1]	4.85
Manufacture of Refined Petroleum Products [19.2]	4.68
Manufacture of Dairy Products [10.5]	4.48
Manufacture of Pharmaceutical Preparations [21.2]	4.47
Manufacture of Vegetable and Animal Oils and Fats [10.4]	4.46
Activities of Employment Placement Agencies [78.1]	3.52
Manufacture of Transport Equipment N.E.C. [30.9]	3.49
Manufacture of Pulp, Paper and Paperboard [17.1]	3.43
Manufacture of Domestic Appliances [27.5]	3.26
Manufacture of Other Products of First Processing of Steel [24.3]	2.82
Tanning and Dressing of Leather; Manufacture of Luggage, Handbags, Saddlery and Harness; Dressing and Dyeing of Fur [15.1]	1.44
Manufacture of Optical Instruments and Photographic Equipment [26.7]	1.23
Manufacture of Weapons and Ammunition [25.4]	-0.63
Manufacture of Grain Mill Products, Starches and Starch Products [10.6]	-0.67
Weaving of Textiles [13.2]	-1.30
Beverage Serving Activities [56.3]	-5.49
Manufacture of Batteries and Accumulators [27.2]	-7.50
Manufacture of Man-Made Fibres [20.6]	-11.42
Manufacture of Tobacco Products [12.0]	-19.82

Table B4: *RelativeSize* of NACE industries based on EU data [1 of 3]

Industry [NACE Code]	RelativeSize
Treatment and Coating of Metals; Machining [25.6]	-0.382
Reproduction of Recorded Media [18.2]	-0.344
Manufacture of Magnetic and Optical Media [26.8]	-0.291
Specialized Design Activities [74.1]	-0.246
Cutting, Shaping and Finishing of Stone [23.7]	-0.231
Finishing of Textiles [13.3]	-0.222
Manufacture of Structural Metal Products [25.1]	-0.221
Manufacture of Other Products of First Processing of Steel [24.3]	-0.208
Translation and Interpretation Activities [74.3]	-0.190
Other Professional, Scientific and Technical Activities N.E.C. [74.9]	-0.190
Building Completion and Finishing [43.3]	-0.188
Printing and Service Activities Related to Printing [18.1]	-0.186
Veterinary Activities [75.0]	-0.176
Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy [25.5]	-0.175
Manufacture of Musical Instruments [32.2]	-0.168
Transport Via Pipeline [49.5]	-0.167
Development of Building Projects [41.1]	-0.145
Manufacturing N.E.C. [32.9]	-0.142
Manufacture of Jewellery, Bijouterie and Related Articles [32.1]	-0.139
Manufacture of Articles of Fur [14.2]	-0.136
Other Specialized Construction Activities [43.9]	-0.129
Preparation and Spinning of Textile Fibres [13.1]	-0.125
Repair of Computers and Communication Equipment [95.1]	-0.107
Repair of Personal and Household Goods [95.2]	-0.107
Demolition and Site Preparation [43.1]	-0.096
Manufacture of Plastics Products [22.2]	-0.093
Manufacture of Other Fabricated Metal Products [25.9]	-0.092
Advertising [73.1]	-0.086
Leasing of Intellectual Property and Similar Products, Except Copyrighted Works [77.4]	-0.082
Manufacture of Refractory Products [23.2]	-0.074
Photographic Activities [74.2]	-0.073
Activities of Head Offices [70.1]	-0.071
Market Research and Public Opinion Polling [73.2]	-0.064
Tanning and Dressing of Leather; Manufacture of Luggage, Handbags, Saddlery and Harness; Dressing and Dyeing of Fur [15.1]	-0.053
Renting and Leasing of Other Machinery, Equipment and Tangible Goods [77.3]	-0.052
Office Administrative and Support Activities [82.1]	-0.047
Activities of Call Centres [82.2]	-0.047
Organization of Conventions and Trade Shows [82.3]	-0.047
Business Support Service Activities N.E.C. [82.9]	-0.047
Electrical, Plumbing and Other Construction Installation Activities [43.2]	-0.039
Buying and Selling of Own Real Estate [68.1]	-0.037
Renting and Operating of Own Or Leased Real Estate [68.2]	-0.037
Real Estate Activities on a Fee Or Contract Basis [68.3]	-0.037
Freight Transport By Road and Removal Services [49.4]	-0.036
Motion Picture, Video and Television Programme Activities [59.1]	-0.032
Accounting, Bookkeeping and Auditing Activities; Tax Consultancy [69.2]	-0.029
Passenger Rail Transport, Interurban [49.1]	-0.024
Freight Rail Transport [49.2]	-0.024
Manufacture of Other Textiles [13.9]	-0.013
Casting of Metals [24.5]	-0.013
Support Activities for Transportation [52.2]	-0.011
Sale of Motor Vehicles [45.1]	-0.006
Sale of Motor Vehicle Parts and Accessories [45.3]	-0.006
Sale, Maintenance and Repair of Motorcycles and Related Parts and Accessories [45.4]	-0.006

## *RelativeSize* of NACE industries based on EU data [2 of 3]

Industry [NACE Code]	RelativeSize
Maintenance and Repair of Motor Vehicles [45.2]	-0.004
Restaurants and Mobile Food Service Activities [56.1]	-0.001
Event Catering and Other Food Service Activities [56.2]	-0.001
Beverage Serving Activities [56.3]	-0.001
Management Consultancy Activities [70.2]	0.011
Manufacture of Man-Made Fibres [20.6]	0.011
Legal Activities [69.1]	0.019
Sawmilling and Planing of Wood [16.1]	0.025
Manufacture of Other Chemical Products [20.5]	0.028
Wholesale on a Fee Or Contract Basis [46.1]	0.037
Wholesale of Agricultural Raw Materials and Live Animals [46.2]	0.037
Wholesale of Food, Beverages and Tobacco [46.3]	0.037
Wholesale of Household Goods [46.4]	0.037
Wholesale of Information and Communication Equipment [46.5]	0.037
Wholesale of Other Machinery, Equipment and Supplies [46.6]	0.037
Other Specialized Wholesale [46.7]	0.037
Non-Specialized Wholesale Trade [46.9]	0.037
Manufacture of Articles of Concrete, Cement and Plaster [23.6]	0.041
Manufacture of Abrasive Products and Non-Metallic Mineral Products N.E.C. [23.9]	0.041
Hotels and Similar Accommodation [55.1]	0.046
Holiday and Other Short-Stay Accommodation [55.2]	0.046
Camping Grounds, Recreational Vehicle Parks and Trailer Parks [55.3]	0.046
Other Accommodation [55.9]	0.046
Architectural and Engineering Activities and Related Technical Consultancy [71.1]	0.049
Technical Testing and Analysis [71.2]	0.049
Installation of Industrial Machinery and Equipment [33.2]	0.056
Manufacture of Sports Goods [32.3]	0.057
Renting and Leasing of Motor Vehicles [77.1]	0.066
Cleaning Activities [81.2]	0.067
Landscape Service Activities [81.3]	0.067
Warehousing and Storage [52.1]	0.072
Data Processing, Hosting and Related Activities; Web Portals [63.1]	0.074
Manufacture of Footwear [15.2]	0.076
Repair of Fabricated Metal Products, Machinery and Equipment [33.1]	0.081
Manufacture of Paints, Varnishes and Similar Coatings, Printing Ink and Mastics [20.3]	0.081
Renting and Leasing of Personal and Household Goods [77.2]	0.081
Manufacture of Bodies (Coachwork) for Motor Vehicles; Manufacture of Trailers and Semi-Trailers [29.2]	0.081
Other Passenger Land Transport [49.3]	0.087
Construction of Residential and Non-Residential Buildings [41.2]	0.088
Manufacture of Cutlery, Tools and General Hardware [25.7]	0.094
Manufacture of Furniture [31.0]	0.099
Weaving of Textiles [13.2]	0.100
Sound Recording and Music Publishing Activities [59.2]	0.102
Manufacture of Products of Wood, Cork, Straw and Plaiting Materials [16.2]	0.112
Manufacture of Tanks, Reservoirs and Containers of Metal [25.2]	0.116
Sea and Coastal Passenger Water Transport [50.1]	0.126
Sea and Coastal Freight Water Transport [50.2]	0.126
Inland Passenger Water Transport [50.3]	0.126
Inland Freight Water Transport [50.4]	0.126
Other Information Service Activities [63.9]	0.144
Construction of Other Civil Engineering Projects [42.9]	0.148
Manufacture of Articles of Paper and Paperboard [17.2]	0.155
Manufacture of Other Electrical Equipment [27.9]	0.163
Combined Facilities Support Activities [81.1]	0.169
Manufacture of Wearing Apparel, Except Fur Apparel [14.1]	0.173
Manufacture of Metal Forming Machinery and Machine Tools [28.4]	0.177
Manufacture of Other General-Purpose Machinery [28.2]	0.177
Manufacture of Electronic Components and Boards [26.1]	0.182
Construction of Utility Projects [42.2]	0.186
Travel Agency and Tour Operator Activities [79.1]	0.187
Other Reservation Service and Related Activities [79.9]	0.187
Manufacture of Transport Equipment N.E.C. [30.9]	0.190
Manufacture of Parts and Accessories for Motor Vehicles [29.3]	0.207
Manufacture of Irradiation, Electromedical and Electrotherapeutic Equipment [26.6]	0.208
Manufacture of Steam Generators, Except Central Heating Hot Water Boilers [25.3]	0.209
Manufacture of Clay Building Materials [23.3]	0.216
Manufacture of Other Special-Purpose Machinery [28.9]	0.217
Manufacture of Prepared Animal Feeds [10.9]	0.217
Computer Programming, Consultancy and Related Activities [62.0]	0.225
Manufacture of Glass and Glass Products [23.1]	0.227
Software Publishing [58.2]	0.230
Manufacture of Knitted and Crocheted Apparel [14.3]	0.230

## *RelativeSize* of NACE industries based on EU data [3 of 3]

Industry [NACE Code]	RelativeSize
Manufacture of Basic Precious and Other Non-Ferrous Metals [24.4]	0.232
Manufacture of Coke Oven Products [19.1]	0.241
Manufacture of Wiring and Wiring Devices [27.3]	0.242
Processing and Preserving of Fish, Crustaceans and Molluscs [10.2]	0.242
Publishing of Books, Periodicals and Other Publishing Activities [58.1]	0.244
Manufacture of Basic Pharmaceutical Products [21.1]	0.245
Manufacture of Electric Lighting Equipment [27.4]	0.249
Manufacture of Bakery and Farinaceous Products [10.7]	0.251
Research and Experimental Development on Natural Sciences and Engineering [72.1]	0.274
Research and Experimental Development on Social Sciences and Humanities [72.2]	0.274
Construction of Roads and Railways [42.1]	0.275
Manufacture of Other Porcelain and Ceramic Products [23.4]	0.279
Private Security Activities [80.1]	0.281
Security Systems Service Activities [80.2]	0.281
Investigation Activities [80.3]	0.281
Activities of Employment Placement Agencies [78.1]	0.288
Temporary Employment Agency Activities [78.2]	0.288
Other Human Resources Provision [78.3]	0.288
Manufacture of Beverages [11.0]	0.293
Manufacture of Pesticides and Other Agrochemical Products [20.2]	0.300
Manufacture of Grain Mill Products, Starches and Starch Products [10.6]	0.303
Manufacture of Tubes, Pipes, Hollow Profiles and Related Fittings, of Steel [24.2]	0.310
Manufacture of Basic Chemicals, Fertilizers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms [20.1]	0.313
Retail Sale in Non-Specialized Stores [47.1]	0.317
Retail Sale of Food, Beverages and Tobacco in Specialized Stores [47.2]	0.317
Retail Sale of Automotive Fuel in Specialized Stores [47.3]	0.317
Retail Sale of Information and Communication Equipment in Specialized Stores [47.4]	0.317
Retail Sale of Other Household Equipment in Specialized Stores [47.5]	0.317
Retail Sale of Cultural and Recreation Goods in Specialized Stores [47.6]	0.317
Retail Sale of Other Goods in Specialized Stores [47.7]	0.317
Retail Sale Via Stalls and Markets [47.8]	0.317
Retail Trade Not in Stores, Stalls Or Markets [47.9]	0.317
Manufacture of Medical and Dental Instruments and Supplies [32.5]	0.327
Processing and Preserving of Fruit and Vegetables [10.3]	0.338
Manufacture of Instruments and Appliances for Measuring, Testing and Navigation; Watches and Clocks [26.5]	0.345
Manufacture of Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus [27.1]	0.357
Manufacture of Agricultural and Forestry Machinery [28.3]	0.359
Manufacture of Cement, Lime and Plaster [23.5]	0.366
Processing and Preserving of Meat and Production of Meat Products [10.1]	0.366
Manufacture of Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations [20.4]	0.380
Manufacture of Vegetable and Animal Oils and Fats [10.4]	0.388
Manufacture of Optical Instruments and Photographic Equipment [26.7]	0.397
Manufacture of Games and Toys [32.4]	0.403
Manufacture of Computers and Peripheral Equipment [26.2]	0.406
Manufacture of Batteries and Accumulators [27.2]	0.411
Manufacture of Rubber Products [22.1]	0.414
Manufacture of General-Purpose Machinery [28.1]	0.433
Manufacture of Pulp, Paper and Paperboard [17.1]	0.433
Other Postal and Courier Activities [53.2]	0.442
Manufacture of Basic Iron and Steel and of Ferro-Alloys [24.1]	0.443
Manufacture of Communication Equipment [26.3]	0.457
Manufacture of Dairy Products [10.5]	0.467
Building of Ships and Boats [30.1]	0.478
Manufacture of Other Food Products [10.8]	0.482
Manufacture of Refined Petroleum Products [19.2]	0.494
Postal Activities Under Universal Service Obligation [53.1]	0.538
Manufacture of Domestic Appliances [27.5]	0.541
Passenger Air Transport [51.1]	0.566
Freight Air Transport and Space Transport [51.2]	0.566
Manufacture of Weapons and Ammunition [25.4]	0.573
Manufacture of Railway Locomotives and Rolling Stock [30.2]	0.591
Radio Broadcasting [60.1]	0.598
Television Programming and Broadcasting Activities [60.2]	0.598
Manufacture of Consumer Electronics [26.4]	0.630
Wired Telecommunications Activities [61.1]	0.635
Wireless Telecommunications Activities [61.2]	0.635
Satellite Telecommunications Activities [61.3]	0.635
Other Telecommunications Activities [61.9]	0.635
Manufacture of Motor Vehicles [29.1]	0.677
Manufacture of Pharmaceutical Preparations [21.2]	0.701
Manufacture of Air and Spacecraft and Related Machinery [30.3]	0.713
Manufacture of Tobacco Products [12.0]	0.791