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News release:

***The use of accounting
information to estimate an
indicator of financing cost***

FSA (Financial Statement Analysis) WG
European Committee of Central Balance Sheet
Data Offices (ECCBSO)



FSA Working Group

eccbso

European Committee of Central
Balance Sheet Data Offices

1. MOTIVATION

From the perspective of a Central Bank, it is important to know more and better the financial position of non - financial companies because this sector has a great importance in the assets of the financial institutions and as consequence in the financial stability of a country.

Financial cost is an indicator of great relevance to determine the capacity of firms of giving back their debt service. It is important to know the similarities and differences of this indicator by country, size and sector. For this reason FSA WG decided to build up a database with an indicator of financial cost by country, size and sector. The definition of the indicator has benefited from BACH items.

The financial cost harmonized database pursues the temporal, intersectoral and size comparison, and serves as a basis for further analysis. In line with this goal, FSA WG will approach in a next step two lines of analysis. The first one will identify which are the main determinants of financial cost, and the second one will test the vulnerability of European non-financial companies in different scenarios of increases in interest rate.

2. METHODOLOGY

2.1. DATA DESCRIPTION

Like previous research projects of the FSA WG, this one has been conducted on the basis of the extensive samples of financial statements included in the databases managed by each country. Almost 100% of companies included in the population for this study have a legal form of corporation or cooperative. Sole proprietorships are not included as they are not part of the non-financial corporations institutional sector in the European System of National and Regional Accounts (ESA 2010), but also because sole proprietors have specific features and differ fundamentally from incorporated companies.

The FSA WG of the ECCBSO traditionally uses a long-term perspective for its analyses. 2000 was chosen as the starting year for this research. The data base covers until year 2016.

The database covers all the activities and sizes. The following tables summarize countries (Table 1), activities (Table 2) and sizes (Table 3) and the criteria behind them included in the financing cost database.

Table 1 Countries included in the database

Country /(Label)	Code
BELGIUM (BE)	BE
GERMANY (DE)	DE
DENMARK (DK)	DK
SPAIN (ES)	ES
FRANCE (FR)	FR
CROATIA (HR)	HR
ITALY (IT)	IT
POLAND (PL)	PL
PORTUGAL (PT)	PT
TURKEY (TR)	TR

Table 2 Sectors included in the database

Sector /(Label)	NACE 2
TOTAL (To)	"To"
Primary (A)	A, B
Manufacturing (C)	C
Energy (D)	D, E
Construction (F) *	F
Trade (G)	G
Other (H) **	H, I, J, L, M, N, P, Q, R, S

* Section 43.1 in NACE 2 “Demolition and site preparation” is excluded.

** Section 70.1 in NACE 2 “Head offices” is excluded.

Table 3 Sizes included in the database

Size class	Sales thresholds
all sizes (SZ0)	
Micro (SZ1)	sales <= €2 m
Small (SZ2)	€2 m < sales <= €10 m
Medium (SZ3)	€10 m < sales <= €50 m
Large (SZ4)	sales > €50 m

2.2. VARIABLES AND KIND OF DATA DISSEMINATED

The FSA WG has benefited from the harmonized definition of BACH WG. The ratio financing cost has been defined using the same BACH database items (in brackets the name of BACH item) for all the countries except Denmark. The following table informs about the items used for the definition of the ratio.

Financing Costs 1 (FC_1): FC_1 has been used by all countries except	
Numerator	100 x Interests on Financial Debts (I10)
Denominator	Bonds and Similar Obligations (L1) + Amounts Owed to Credit Institutions (L2) + Other Financial Creditors (L31)
BACH Definition	$FC_1 = 100 \times I10 / (L1 + L2 + L31)$

Financing Costs 2 (FC_2): FC_2 has been used by Denmark	
Numerator	100 x Interests on Financial Debts (I10)
Denominator	Bonds and Similar Obligations (L1) + Amounts Owed to Credit Institutions (L2) + Other Creditors (L3)
BACH Definition	$FC_2 = 100 \times I10 / (L1 + L2 + L3)$

The database includes the following kind of statistical data:

- Distribution of frequencies of companies for different thresholds for the ratio Financing cost
- Percentiles (5,10,, 95) and Weighted mean of the ratio Financing cost
- Number of companies without debt and without financial expenses
- Number of companies included in each table.

2.3. EXCLUSIONS

Some companies have been excluded from the database. Three kind of exclusions can be identified:

- Anomalous companies ("outliers"): Box-Plot method ($k=6$), has been used in order to exclude only very extreme outliers.
- Companies with debt and without financial expenses and companies with financial expenses and without debt.
- Data for samples lower than 30 observations have been deleted and replaced by missing.

2.4. NUMBER OF COMPANIES

The following tables offers the number of companies included in the database by country and sector (Table 4) and by country and size (Table 5) in 2016

Table 4 Number of companies by country and sector in 2016

Units	Belgium	Germany	Denmark	Spain	France	Croatia	Italy	Poland	Portugal	Turkey
Primary	67	388	2 190	692	2 724	111	1 120	286	319	164
Manufacturing	1 648	9 231	6 468	6 196	34 462	738	23 717	4 565	3 449	2 620
Energy	177	1 678	1 002	439	3 044	105	1 883	771	342	239
Construction	663	2 782	8 341	1 467	21 227	261	4 598	1 017	852	505
Trade	2 645	8 667	16 485	10 106	65 949	870	19 886	3 964	5 198	1 939
Other services	2 052	10 377	39 116	5 961	49 746	644	12 344	2 938	3 000	1 019
Total	7 252	33 123	73 602	24 861	177 152	2 729	63 548	13 541	13 160	6 486
% of the total	Belgium	Germany	Denmark	Spain	France	Croatia	Italy	Poland	Portugal	Turkey
Primary	0.9	1.2	3.0	2.8	1.5	4.1	1.8	2.1	2.4	2.5
Manufacturing	22.7	27.9	8.8	24.9	19.5	27.0	37.3	33.7	26.2	40.4
Energy	2.4	5.1	1.4	1.8	1.7	3.8	3.0	5.7	2.6	3.7
Construction	9.1	8.4	11.3	5.9	12.0	9.6	7.2	7.5	6.5	7.8
Trade	36.5	26.2	22.4	40.7	37.2	31.9	31.3	29.3	39.5	29.9
Other services	28.3	31.3	53.1	24.0	28.1	23.6	19.4	21.7	22.8	15.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5 Number of companies by country and size in 2016

Units	Belgium	Germany	Denmark	Spain	France	Croatia	Italy	Poland	Portugal	Turkey
Small	2 617	14 618	64 451	19 688	129 715	2 084	43 080	8 284	10 299	2 619
Medium-sized	3 441	12 245	7 010	3 926	37 141	534	16 279	3 974	2 347	2 719
Large	1 194	6 260	2 141	1 247	10 296	111	4 189	1 283	514	1 148
Total	7 252	33 123	73 602	24 861	177 152	2 729	63 548	13 541	13 160	6 486
<i>p.m. Micro</i>	2 395	11 825	37 715	236 816	160 494	34 954	117 523	7 492	154 987	1 260
% of the total	Belgium	Germany	Denmark	Spain	France	Croatia	Italy	Poland	Portugal	Turkey
Small	36.1	44.1	87.6	79.2	73.2	76.4	67.8	61.2	78.3	40.4
Medium-sized	47.4	37.0	9.5	15.8	21.0	19.6	25.6	29.3	17.8	41.9
Large	16.5	18.9	2.9	5.0	5.8	4.1	6.6	9.5	3.9	17.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

3. EMPIRICAL RESULTS

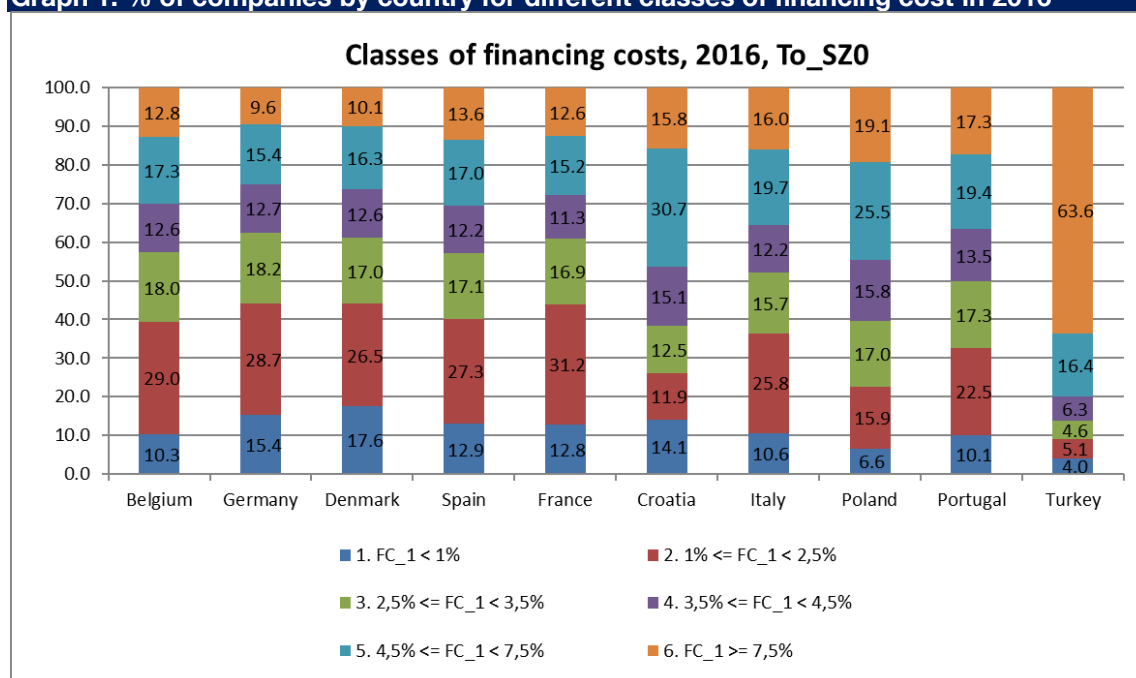
It should be noted that countries belonging to the euro area have lower financing cost. The expansive monetary policy of the European Central Bank has led to a further reduction in the cost of debt. Therefore, as can be seen in the following analysis, the cost of the debt of the countries of the euro area is aligned with this policy, being much lower than in the non-euro area countries.

3.1. FREQUENCY CLASSES

The following graphs include the distributions of companies per different percentages of financing cost by country and for the year 2016.

3.1.1. COMPARISON DIFFERENT CLASSES FINANCING COST BY COUNTRY, 2016

Graph 1. % of companies by country for different classes of financing cost in 2016



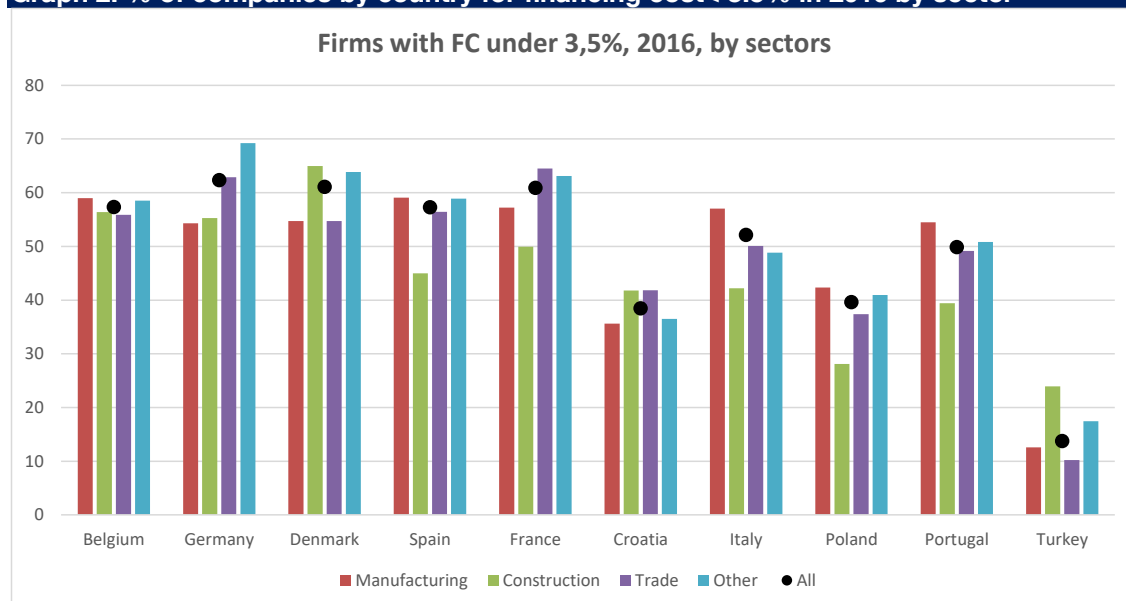
In the non-euro area countries the share of firms with FC $\geq 7,5\%$ is somewhat high but especially in the case of Turkey reaching 63,6%. Figures for the categories 5 and 6 of higher financing costs (i.e. share of firms with FC $\geq 4,5\%$) show that in addition to Turkey (80%) Croatia and Poland have also shares with FC $\geq 4,5\%$ greater than 40%. However in the euro area countries the share of firms with FC $\geq 4,5\%$ is much lower (25%-36,7%).

Euro area countries have a share of firms with FC $< 3,5\%$ bigger than 50% reaching 62,3% in Germany.

Nevertheless it is quite difficult to draw conclusions from this comparison. In order to enhance the analysis the graphics below display the share of firms with financing costs under 3,5% broken down by size and by activity. This threshold has been chosen because it is quite close to the average national median value for 2016 (4% for the 10 countries, 3.3% if Turkey is excluded).

3.1.2. FIRMS WITH FINANCING COSTS UNDER 3.5% IN 2016

Graph 2. % of companies by country for financing cost < 3.5% in 2016 by sector



NOTE: primary and energy sectors are excluded (due to their smaller number of firms)

Although there is no an overall trend for most sectors of activity, except for construction, certain behaviors can be appreciated:

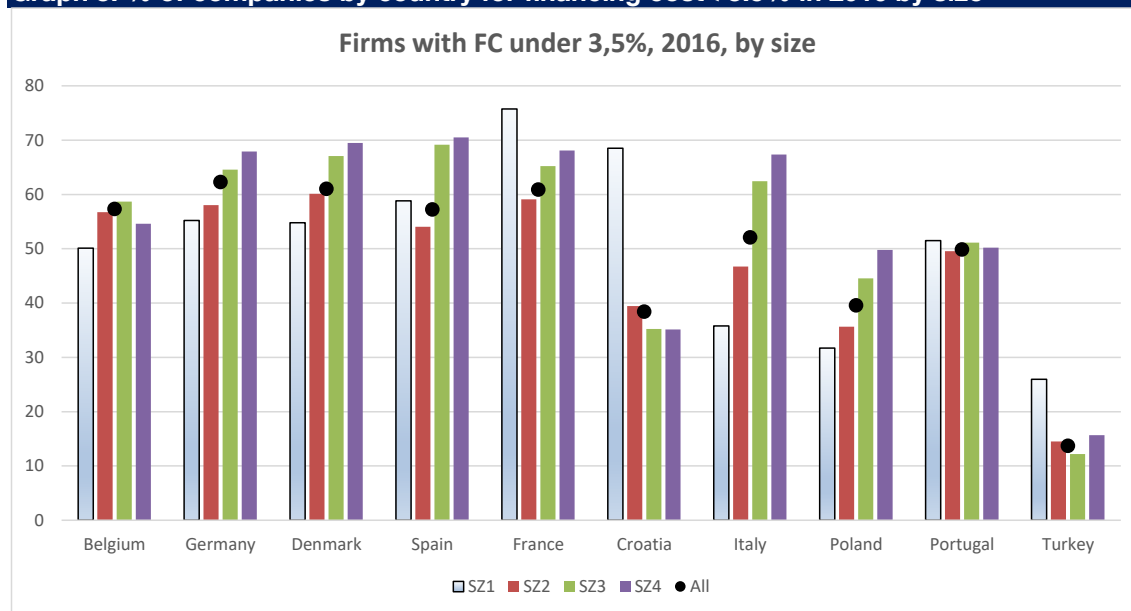
Construction despite having the FC higher (shorter share of firms with “low” FC) for most of the countries, however has some relevant exceptions such as DK and TR.

Manufacturing have FC rather different according to the country. It is clearly lower in the following countries: ES, IT PL and PT.

With respect to the services (Trade and Other) there are some countries with lower FC: DE and FR.

In BE there are marginal differences in the FV broken down by sector.

Graph 3. % of companies by country for financing cost < 3.5% in 2016 by size



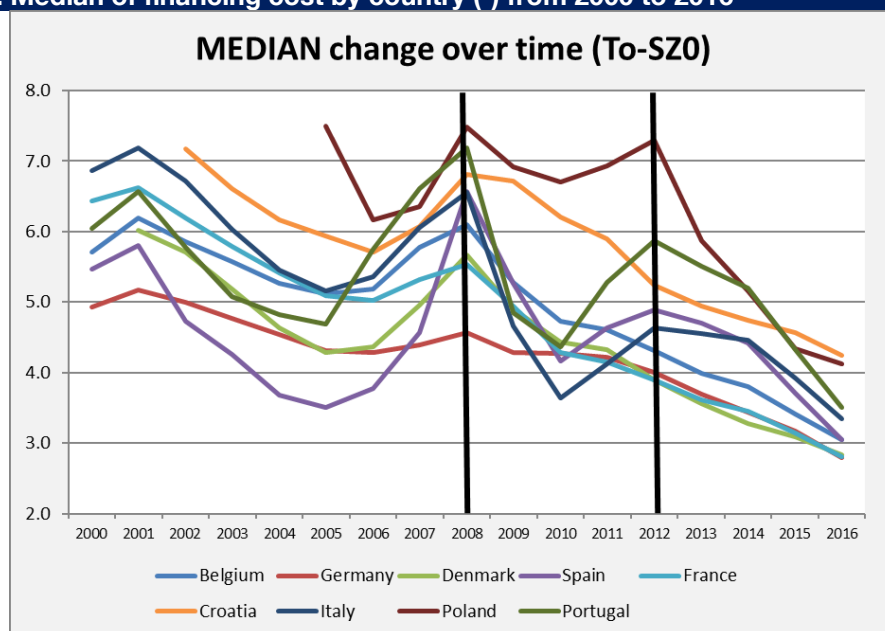
The general trend is that the bigger the firms, the more likely to have lower FC (larger share of firms with “low” FC), with some exceptions basically BE and PL.

On the other hand, most of the micro firms (SZ1) have higher financial costs, particularly in IT and PL. Surprisingly in FR, HR and TR the micro firms have better financing conditions (FC much lower). In PT there are marginal differences by size.

4. STATISTICAL DISTRIBUTION

4.1. CHANGE IN TIME, 2000-2016

Graph 4. Median of financing cost by country (*) from 2000 to 2016

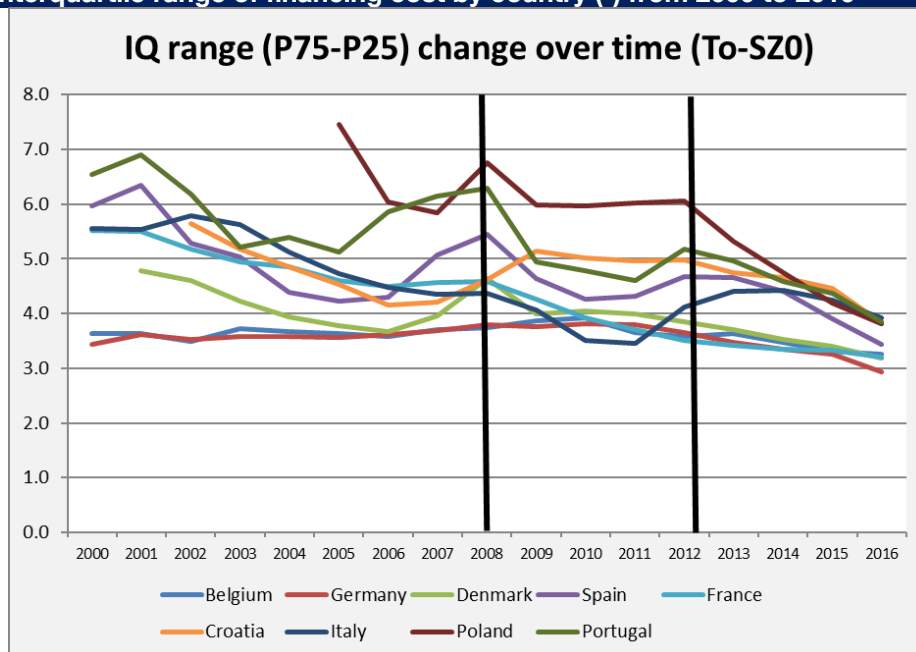


(*) NOTE: data from TR has been excluded to adjust the figures to the graphic scale

Better financing conditions since the beginning of the crisis in 2008. The descending trend have tightened the FC median in recent years, and especially in 2016 because of the improvement in FC conditions in Poland and Croatia

In euro area countries from 2012 the interest rates decrease as a result of BCE monetary policy.

Graph 5. Interquartile range of financing cost by country (*) from 2000 to 2016



(*) NOTE: data from TR has been excluded to adjust the figures to the graphic scale

The descending trend affects the whole distribution. Since 2008 the interquartile range remains quite stable (between 3% and 5 %) for the euro area countries and even for Croatia.

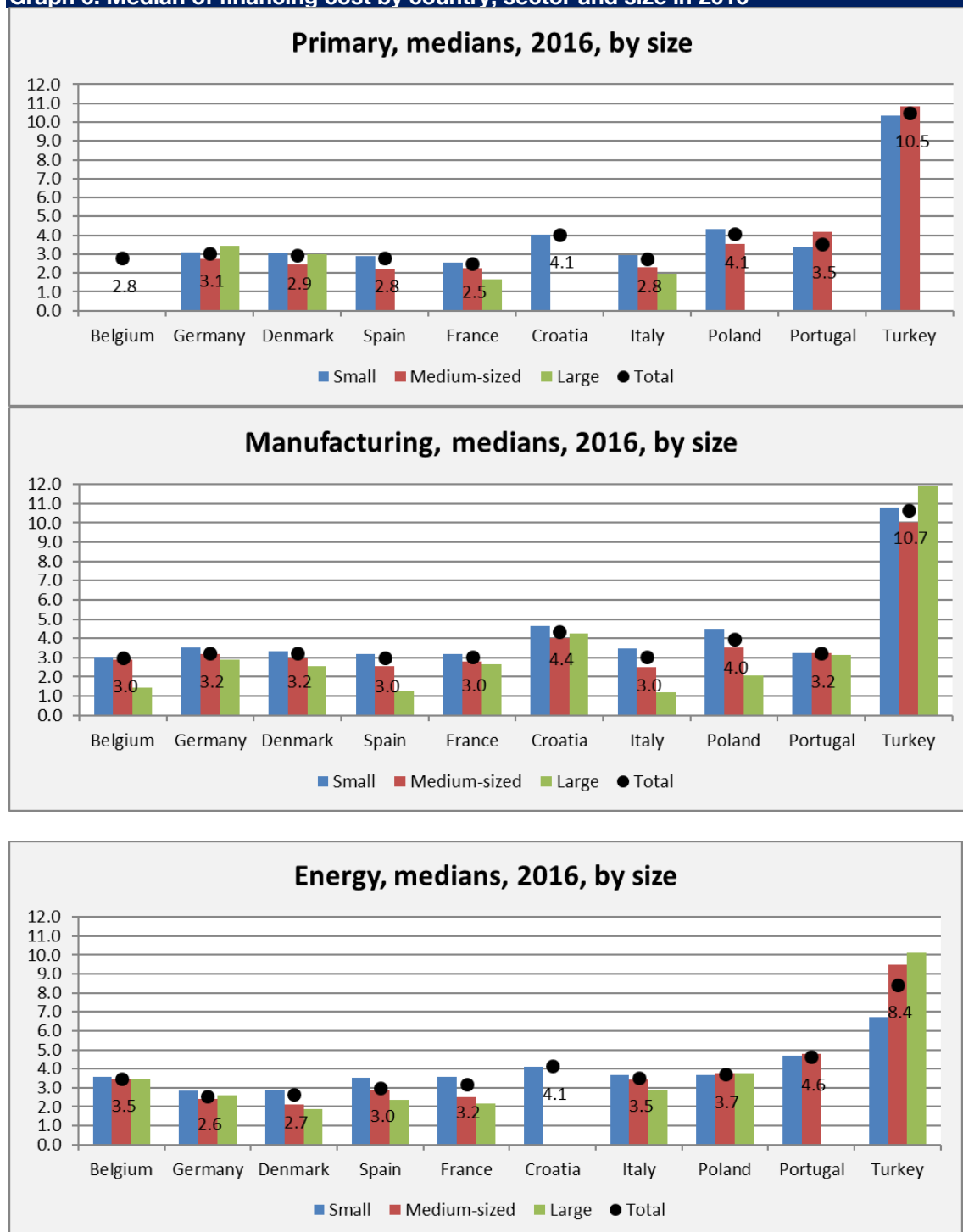
In recent years the IQ range is lower (between 3% and 4 %), especially as it has said because of the improvement in FC conditions in Poland and Croatia

4.2. COMPARISON OF MEDIAN VALUE, BY SECTOR AND SIZE, 2016

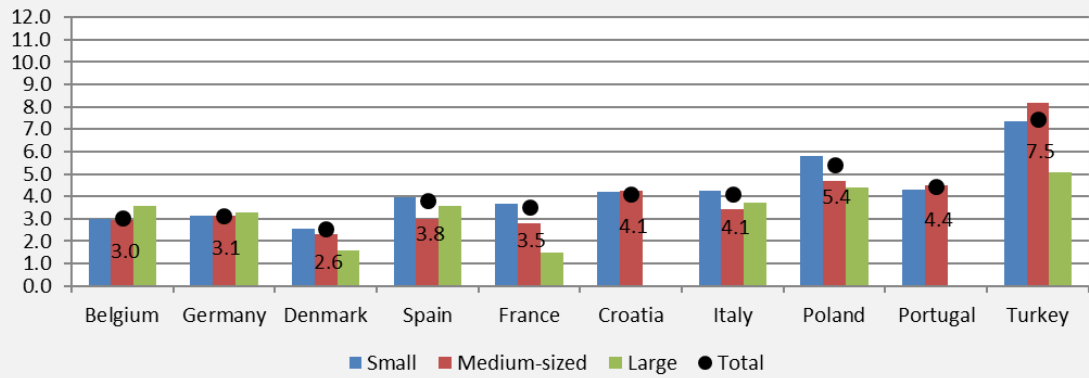
In Manufacturing, biggest firms seem to benefit better FC conditions.

The relationship seems less obvious in other sectors, but in general, energy and construction are the sectors with a slightly higher financing cost.

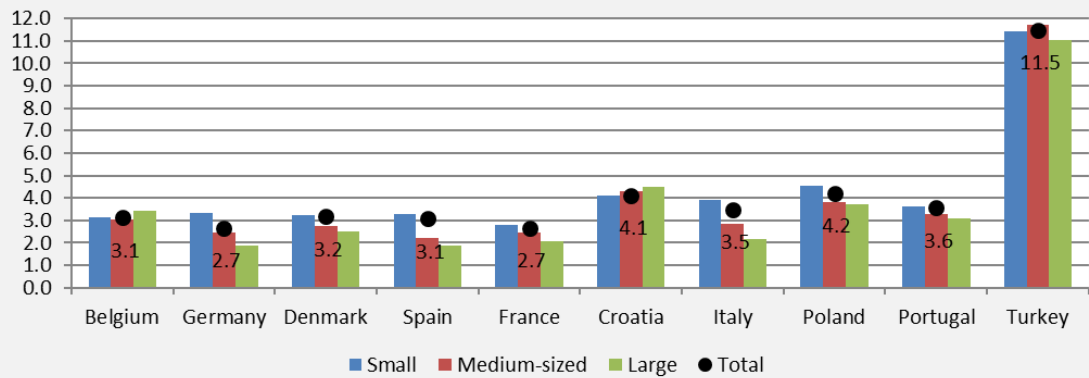
Graph 6. Median of financing cost by country, sector and size in 2016



Construction, medians, 2016, by size



Trade, medians, 2016, by size



Other services, medians, 2016, by size

