



Small and medium-sized entrepreneurship: monitoring last decade's performance



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For a decade, we have been systematically monitoring the sectoral performance of small and medium-sized enterprises (SMEs), from the pre-crisis period up to date and we have recorded their turbulence caused by the deep recession, as well as their efforts towards stabilisation and recovery. By applying the SMEs sectoral assessment, this year's annual report confirms that **the positive performance of small and medium sized entrepreneurship is retained**, as revealed by the analysis of the financial statements based on **a sample of over 16 thousand small and medium-sized corporates** from all sectors of economic activity in 2016.

The positive momentum that we recorded for the first time in 2015 carries over into 2016, given that the majority of sectors that we identify as strong performers maintain their strong position with many more sectors joining them for the first time. **As a result the average cross-sector rating is "a-" matching the average rating in 2015 and 2007**. As a consequence the BIC Index – the general index of overall sectoral performance – rose to 43 points from 40.5 in 2015, recording improvement in all dimensions (efficiency, liquidity and capital structure).

At this point, we would like to make two qualifications regarding our findings. First, we are well aware of the survivorship-bias that has probably affected our results, as the weakest corporates are eliminated from our sample and only the ones with the best balance sheet structure and management skills survive. Second, the requirements for the publication of financial statements are being relaxed which again may skew the sample towards the high quality end of the Greek corporate spectrum.

Among **the top performers in 2016** were tourism-related sectors, such as water transport (i.e. passenger ferries) (50) and food and beverage service (56), while real estate (68) retains a positive performance for yet another year. On the other hand, **low performers** included leisure-related sectors, such as arts and entertainment (R) and mass media (59+60), as well as consumer goods, such as manufacture of furniture (31) and apparel (14), trade of vehicles (45) and tobacco industry (12).

The retained positive performance of SMEs continues showing optimistic signs. However, since the macroeconomic environment is still in the stage of stabilisation, we remain alert as to whether this positive momentum will continue on to our next annual report.

1. Purpose of the study – key findings
2. Presentation of BIC Index results
3. BIC Rating System
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1. Purpose of the study – key findings

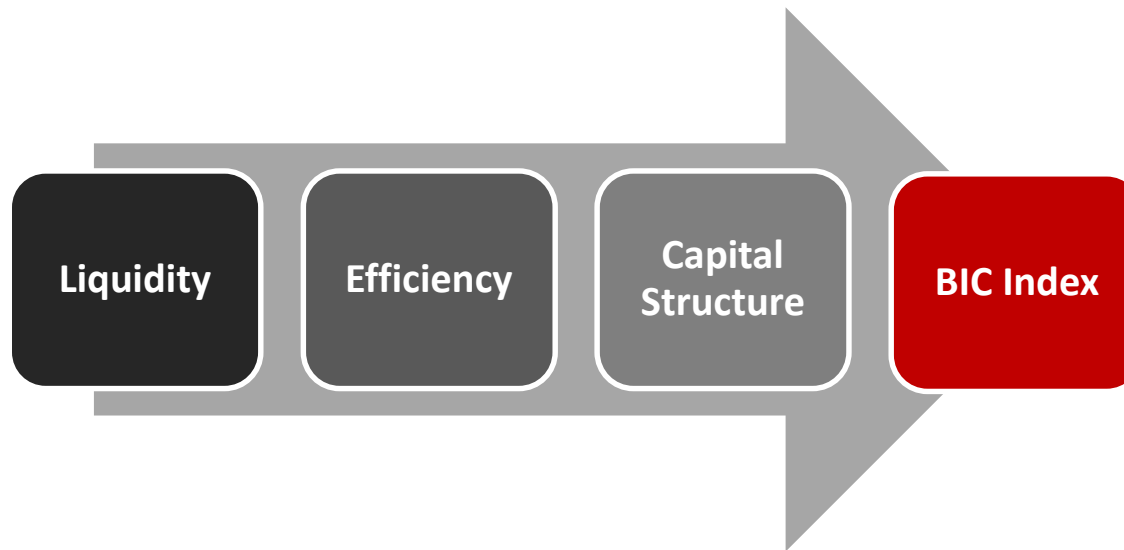
The purpose of this study is to **update**:

- **the BIC Index and**

- **the BIC Rating System**

- in order to assess the sectoral performance, *regarding Small and Medium Enterprises (SMEs)* for 2016.

The **BIC Index** is the main analytical tool used to carry out analysis and ranking of business sectors, with emphasis on SMEs. Initially, the performance of each sector of economic activity is evaluated along three axes, which summarize the **key dimensions of measuring** entrepreneurial activity, namely **liquidity**, **efficiency** and **capital structure**.



Thereafter – in order to facilitate the drawing of robust conclusions – these three dimensions are used to **compile an overall sectoral performance index** which we call the **Best in Class (BIC) Index**.

Based on the score of each sector in the BIC Index, we are able to assess and rank the performance of the 50 most essential sectors of the Greek economy from 2007 to 2016.

Note: the methodologies adopted for calculating the BIC Index and the BIC Rating System are presented in the sections of appendices 4a and 4b respectively.

The BIC Index allows us to rank the performance of sectors of economic activity from the strongest to the weakest **separately** for each year from 2007 to 2016.

In order to move on to a **longitudinal analysis** of the development of sectoral performance throughout the period 2007-2016, we have developed a rating system of sectoral performance – the **BIC Rating System**.

According to this system, each sector is ranked on a 12-grade rating scale. **Any improvement or decline in the BIC Index score of each sector from year to year is reflected by a corresponding upgrade or downgrade of the specific sector.**

BIC Rating System

Score range	Score	Rating	BIC Index Performance
≥40	≥63	a+	outperformers
	[51-63)	a	
	[40-51)	a-	
36-40	[39-40)	b+	good performers
	[37-39)	b	
	[36-37)	b-	
32-36	[35-36)	c+	medium performers
	[33-35)	c	
	[32-33)	c-	
<32	[24-32)	d+	underperformers
	[16-24)	d	
	<16	d-	

The sectors with the strongest performance, 2016	
50	Water transport
B	Mining and quarrying
32	Other manufacturing
27	Manufacture of electrical equipment
68	Real estate activities
M	Professional, scientific and technical activities
25	Manufacture of fabricated metal products, except machinery and equipment
26	Manufacture of computer, electronic and optical products
56	Food and beverage service activities
33	Repair and installation of machinery and equipment

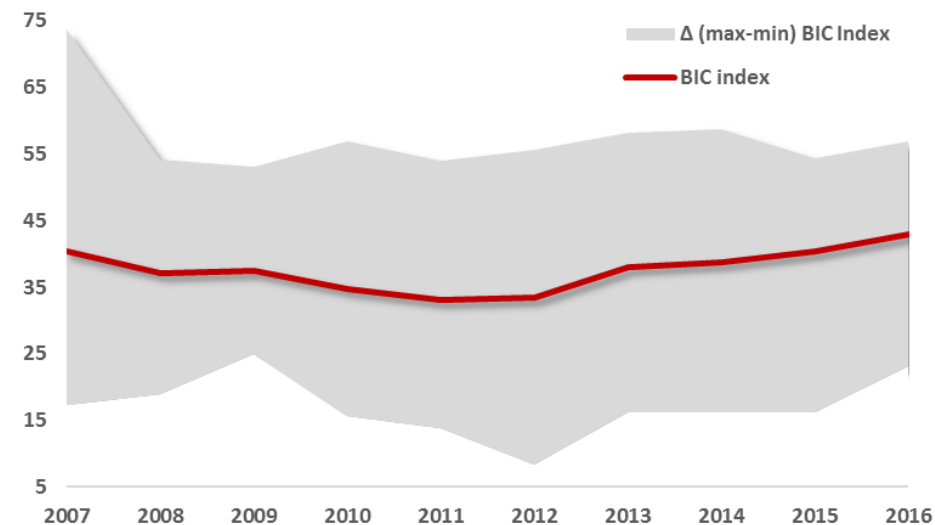
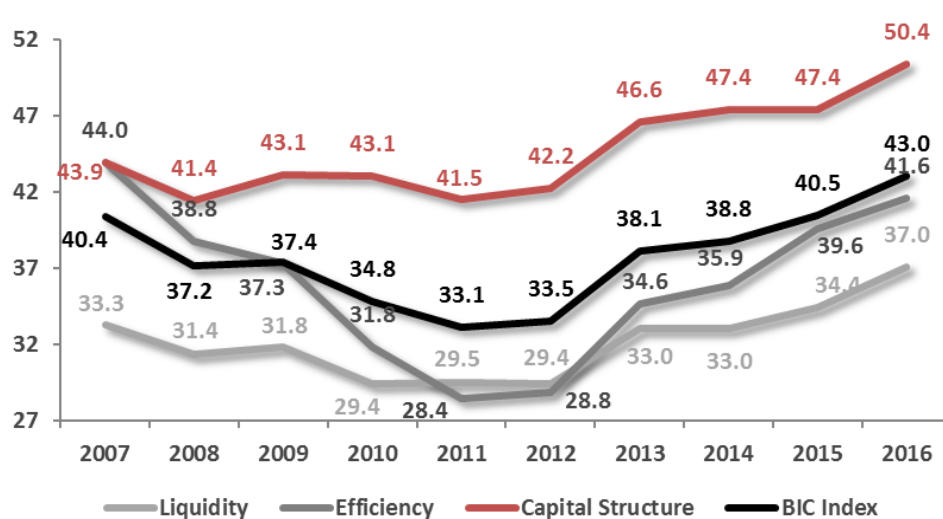
- Sectors related to tourism, such as water transport (50) and food and beverage service activities (56) were among the highest performers in 2016.
- For yet another year, real estate (68) retained positive performance.
- Moreover, manufacturing sectors related to equipment, such as manufacture of electrical equipment (27), computers and electronic products (26), repairing and installation of equipment (33) and manufacture of metal products (25) have a positive performance.
- Finally, mining and quarrying (B) not only recovered but picked up its performance. As a result, it presently ranks second based on the BIC Index score.

The sectors with the weakest performance, 2016

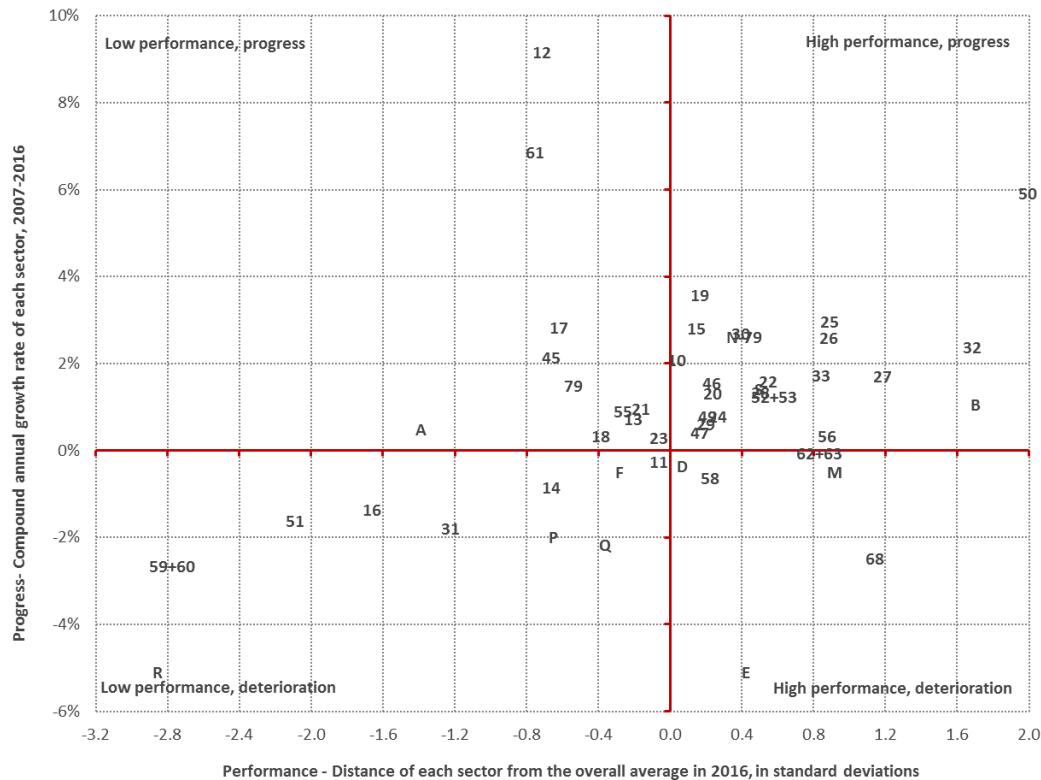
R	Arts, entertainment and recreation
59+60	Motion picture, video and television programme production, sound recording and music publishing activities. Programming and broadcasting activities
51	Air transport
16	Manufacture of wood and of products of wood and cork, except furniture
A	Agriculture, forestry and fishing
31	Manufacture of furniture
61	Telecommunications
12	Manufacture of tobacco products
45	Trade and repair of motor vehicles and motorcycles
14	Manufacture of wearing apparel

- For another year, sectors of leisure, such as arts and entertainment (R) and mass media (59+60) are among the lowest performers.
- Respectively, low performance continues for the wood processing sectors, in particular for the wood industry (16) and the manufacture of furniture (31).
- The performance of the agricultural sector (A) and the tobacco industry (12) remains low.
- The decline of air transport (51) performance, especially as far as efficiency and capital structure are concerned, drove the average sector's performance among the ten lowest positions.
- Despite the fact that liquidity and efficiency have improved, whereas only capital structure has declined, telecommunications (61) ranked among the lowest positions. This is mainly due to the strong performance of other sectors.
- Finally, cyclical sectors related to consumer expenditure, i.e. manufacture of apparel (14) and trade of vehicles (45) showed low to average performance.

- The domestic small and medium-sized entrepreneurship seems to have overcome the very low performance during deep recession in 2011-2012 and continues to improve. However, the 2016 sectoral performance (as reflected by the sectoral BIC score) is much more concentrated around the mean than during the pre-crisis period.
- The SMEs that survived the crisis seem to have improved their capital structure and enhanced their liquidity.
- However, the gradually increased efficiency, which is linked to business profitability, is still lagging behind the average 2007 level.



- 68% of sectors improved average performance in 2016 compared to 2007, as reflected by their BIC Index scores.
- 46% of sectors exceeded average performance and at the same time improved during the period of 2007-2016.
- Water transport (50), other manufacturing (32) and mining and quarrying (B) combined high performance and score improvement.
- On the other hand, the sectors of mass media (59+60) and arts and entertainment (R) continue having very low performance, and at the same time their score deteriorated significantly in 2016 compared to 2007.
- The BIC Index score of water supply etc. (E) declined significantly in 2016, which is its lowest performance since the index was introduced.
- Finally, despite their low performance in 2016, tobacco industry (12) and telecommunications (61) recorded the highest improvement compared to 2007.



BIC Rating System 2007-2016: average score in 2016 retained pre-crisis level



Sectors	BIC Rating									
	2007	2008	2009	2010	2011	2012	2013	2015	2016	
50	c	d	c+	d+	c	e-	d+	e-	a	
B	e-	e-	c+	d+	c-	e-	e-	d+	a	
32	e-	e-	e-	e-	e-	b+	e-	a	a	
27	e-	e-	e-	e-	e-	e-	e-	e-	a	
68	e+	e-	a	e-	e-	c+	e-	e-	e-	
M	a	e-	e-	e-	b	b-	e-	e-	e-	
25	b	b	b	b	c+	b+	e-	e-	e-	
26	b+	b+	e-	d+	d-	d	d	b-	e-	
56	e-	b+	e-	b	b-	b	e-	e-	e-	
33	e-	e-	e-	e-	e-	e-	e-	a	e-	
62+63	e-	e-	e-	b-	b+	e-	e-	e-	e-	
52+53	e-	e-	e-	e-	d+	c-	b	e-	e-	
22	e-	b	b+	b-	c	c	b	e-	e-	
28	e-	b	b	c	b	c+	b	b	e-	
5	e-	c+	e-	d+	c	c	e-	e-	e-	
E	e+	a	a	a	a	a	a	e-	e-	
N-79	b-	b	b	b-	c	c+	e-	e-	e-	
30	b-	b	c	c+	c-	d+	c	e-	e-	
24	e-	b-	d+	c+	c-	d	b	e-	e-	
20	b+	b	b	b	c	b-	b+	e-	e-	
46	b	b-	b-	c	c	b-	e-	e-	e-	
58	e-	e-	e-	b	d+	d+	e-	e-	e-	
49	e-	b	b	b	b-	c+	e-	e-	e-	
29	e-	b	b-	b	d+	d	e-	e-	e-	
47	e-	b+	b	c+	b-	b	e-	e-	e-	
19	c-	d+	c+	c	d+	c	b	e-	e-	
15	c	d+	d+	d+	d+	d+	c	d+	e-	
D	e-	e-	b-	e-	b	b	e-	e-	e-	
10	c+	b-	b-	b-	c+	b-	b+	e-	e-	
23	e-	b	b-	c+	d+	d+	c	c	e-	
11	e-	b+	b	b-	b-	e-	e-	e-	e-	
21	b	b	b	c	d+	b	b	e-	e-	
13	b+	c	c-	d+	d+	d+	c+	b	e-	
55	b	c	d+	d+	d+	d+	c	e-	e-	
F	e-	b+	b+	c+	d+	c-	b-	e-	e-	
Q	e-	e-	e-	e-	b+	e-	e-	b-	e-	
18	b+	b	b	d+	d+	c-	b+	e-	e-	
79	c	d+	d+	d+	d+	d+	b	b+	b+	
17	d+	d+	d+	d+	d+	d+	c	b	b	
P	e-	e-	e-	e-	b+	e-	e-	e-	b	
14	e-	b+	b+	c	c-	b-	b	e-	b	
45	d+	d+	d+	d+	d+	d	d+	b+	b	
12	d	d+	b	c-	d+	c+	d	c	b	
61	d	d	d+	d+	b+	e-	e-	c+	b	
31	e-	b	b-	d+	d+	d	c-	c	c	
A	d+	d	d+	c	c-	d+	c	c	c	
16	c+	c-	c	d+	d	d-	d	d	d+	
51	c	d	d+	d+	b+	d+	e-	c	d+	
59+60	d+	d+	d+	d-	d-	d-	d	d	d	
R	b	c+	c	d+	d	d	d	d	d	
Average	e-	b	b	c	c	c	b	e-	e-	

The average score of the 50 sectors retained the 2007 “a-” rating in 2016.

*Ranking of sectors based on 2016 data

BIC Rating System: mapping of sectors based on their performance, 2016



Turnover: €469 mn
 Net earnings before interest, taxes, depreciation and amortization expenses: €28 mn
 Net losses before taxes: €-40 mn
 Equity: €516 mn
 Total liabilities: €690 mn
 Net debt: €608 mn
 Interest expenses: €25 mn

•16, 51, 59+60, R

Turnover: €42.6 bn
 Net earnings before interest, taxes, depreciation and amortization expenses: €4.2 bn
 Net profit before taxes: €2 bn
 Equity: €28.9 bn
 Total liabilities: €33.4 bn
 Net debt: €27.3 bn
 Interest expenses: €900 mn

•50, B, 32, 27, 68, M, 25, 26, 56, 33, 62+63, 52+53, 22, 28, S, E, N-79, 30, 24, 20, 46, 58, 49, 29, 47, 19, 15, D, 10, 23, 11, 21, 13, 55, F, Q, 18

Underperformers
 (4 sectors, 8%)

Outperformers
 (37 sectors, 74%)

Medium performers
 (2 sectors, 4%)

Good performers
 (7 sectors, 14%)

•31, A

•79, 17, P, 14, 45, 12, 61

Turnover: €952 mn
 Net earnings before interest, taxes, depreciation and amortization expenses: €79 mn
 Net profit before taxes: €6 mn
 Equity: €564 mn
 Total liabilities: €967 mn
 Net debt: €885 mn
 Interest expenses: €30 mn

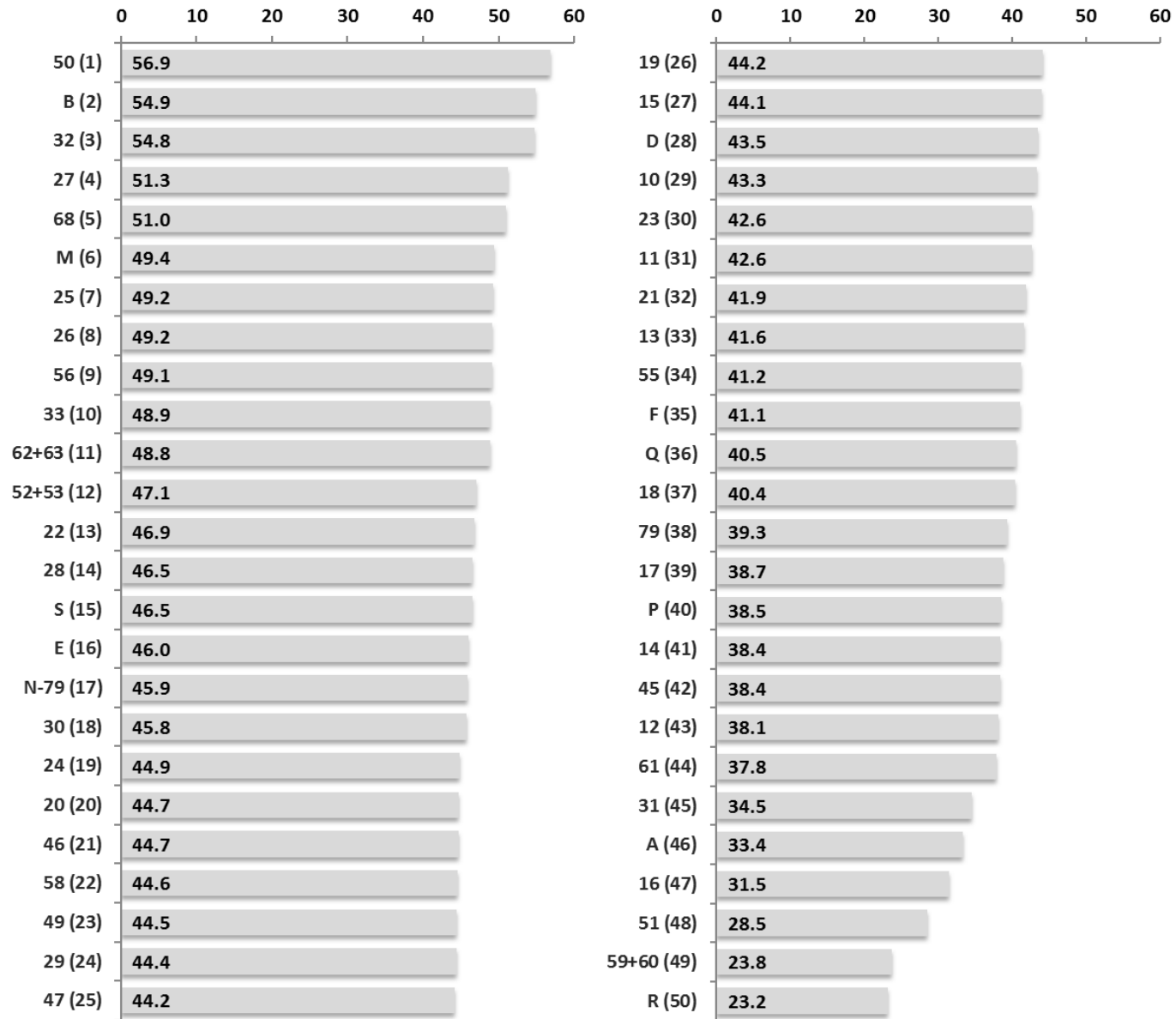
Turnover: €3.8 bn
 Net earnings before interest, taxes, depreciation and amortization expenses: €262 mn
 Net profit before taxes: €110 mn
 Equity: €1.6 bn
 Total liabilities: €2.5 bn
 Net debt: €2.1 bn
 Interest expenses: €76 mn

Note: the figures are the sums of sectors per performance based on the sample of enterprises in 2016

- In 2016, the average rating of small and medium-sized entrepreneurship remained at the level of 2007, i.e. it was rated “a-” again.
- Almost 2/3 of sectors (33 out of 50) retained the same rating in 2016 as in 2015, while 24% of the sectors were upgraded.
- 74% of the sectors were characterised as “outperformers”, since 33 sectors achieved an “a-” rating and 4 sectors were rated “a” in 2016.
- The important developments regarding sector ratings in 2016 are summarised below:
 - mining and quarrying (B) was upgraded from the low rating “d+” in 2015 to “a”, achieving the best rating during the decade under consideration.
 - leather industry (15) was upgraded from “d+” in 2015 and manufacture of other non-metallic mineral products (23) from “c” to “a-”.
 - on the other hand, manufacture of apparel (14) and education (P) was downgraded from high rating “a-” in 2015 to “b” in 2016.
 - finally, air transport (51) was further downgraded from already low rating “c” in 2015 to “d+” in 2016.

2. Presentation of BIC Index results

BIC Index: ranking and scores, 2016



*In brackets the ranking of sectors and in the histograms their scores

BIC Index: examination of the scores and rankings of the individual dimensions, 2016



Sectors 2016	BIC Index		Liquidity		Efficiency		Capital Structure		Sectors 2016	BIC Index		Liquidity		Efficiency		Capital Structure	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank		Score	Rank	Score	Rank	Score	Rank	Score	Rank
50	56.9	1	↑ 55.5	1	↑ 69.6	2	↓ 45.6	34	19	44.2	26	↓ 32.0	39	↓ 40.8	29	↑ 59.8	10
B	54.9	2	↑ 45.1	9	↓ 45.8	17	↑ 73.8	1	15	44.1	27	↑ 51.5	2	↓ 33.0	43	↓ 47.7	32
32	54.8	3	↑ 46.9	6	↑ 50.5	6	↑ 66.9	3	D	43.5	28	↓ 30.7	40	↑ 75.8	1	↓ 24.0	49
27	51.3	4	↑ 45.7	8	↓ 39.5	31	↑ 68.6	2	10	43.3	29	↓ 35.3	29	↓ 39.2	34	↓ 55.4	19
68	51.0	5	↑ 51.2	3	↑ 57.7	3	↓ 44.1	35	23	42.6	30	↑ 38.5	20	↓ 36.7	37	↓ 52.7	25
M	49.4	6	↑ 47.9	5	↑ 46.6	13	↓ 53.8	20	11	42.6	31	↓ 33.3	33	↑ 47.0	11	↓ 47.5	33
25	49.2	7	↑ 44.7	10	↓ 40.7	30	↑ 62.3	6	21	41.9	32	↑ 37.8	22	↓ 46.5	14	↓ 41.4	42
26	49.2	8	↑ 45.9	7	↑ 48.7	9	↓ 53.0	22	13	41.6	33	↓ 33.6	32	↓ 30.6	45	↑ 60.6	8
56	49.1	9	↓ 37.7	24	↑ 49.6	7	↑ 60.1	9	55	41.2	34	↓ 33.1	34	↑ 49.5	8	↓ 41.1	43
33	48.9	10	↓ 27.7	43	↑ 56.7	4	↑ 62.3	5	F	41.1	35	↓ 35.0	30	↓ 35.3	40	↓ 52.9	23
62+63	48.8	11	↑ 44.6	11	↑ 50.7	5	↓ 51.2	28	Q	40.5	36	↓ 26.7	45	↓ 46.1	15	↓ 48.8	31
52+53	47.1	12	↑ 43.9	12	↓ 43.5	19	↓ 53.8	21	18	40.4	37	↓ 32.5	37	↓ 35.8	38	↓ 52.8	24
22	46.9	13	↓ 38.9	19	↓ 42.2	23	↑ 59.4	12	79	39.3	38	↑ 37.7	23	↓ 42.8	20	↓ 37.4	46
28	46.5	14	↓ 36.3	28	↑ 47.9	10	↓ 55.5	17	17	38.7	39	↓ 30.0	41	↓ 42.1	24	↓ 44.1	36
S	46.5	15	↓ 40.6	17	↓ 39.5	32	↑ 59.5	11	P	38.5	40	↓ 27.4	44	↓ 45.9	16	↓ 42.3	39
E	46.0	16	↓ 43.2	14	↓ 39.3	33	↓ 55.5	18	14	38.4	41	↑ 38.3	21	↓ 33.3	42	↓ 43.7	37
N-79	45.9	17	↓ 32.7	36	↓ 42.8	21	↑ 62.3	7	45	38.4	42	↓ 32.3	38	↓ 34.0	41	↓ 49.1	30
30	45.8	18	↑ 49.1	4	↓ 37.2	36	↓ 51.0	29	12	38.1	43	↓ 24.5	47	↓ 31.9	44	↓ 57.9	14
24	44.9	19	↓ 41.7	15	↓ 27.3	48	↑ 65.6	4	61	37.8	44	↑ 41.1	16	↓ 41.0	28	↓ 31.3	48
20	44.7	20	↓ 36.9	25	↓ 45.4	18	↓ 51.8	26	31	34.5	45	↓ 28.7	42	↓ 41.9	25	↓ 32.9	47
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58	44.6	22	↑ 43.4	13	↑ 46.9	12	↓ 43.4	38	16	31.5	47	↓ 24.1	48	↓ 28.4	47	↓ 42.0	40
49	44.5	23	↓ 36.3	27	↓ 39.1	35	↑ 58.1	13	51	28.5	48	↓ 26.1	46	↓ 17.6	49	↓ 41.7	41
29	44.4	24	↓ 34.9	31	↓ 42.7	22	↓ 55.7	16	59+60	23.8	49	↓ 20.3	50	↓ 35.7	39	↓ 15.3	50
47	44.2	25	↓ 39.9	18	↓ 41.4	26	↓ 51.2	27	R	23.2	50	↓ 21.4	49	↓ 8.8	50	↓ 39.3	44

• The green colour indicates the sectors whose scores are above the median score of every dimension among the sectors, in contrast with the red colour, which indicates scores below the median score.

• The arrow indicates the intensity of the direction of each sector relative to the median score of the corresponding dimension.

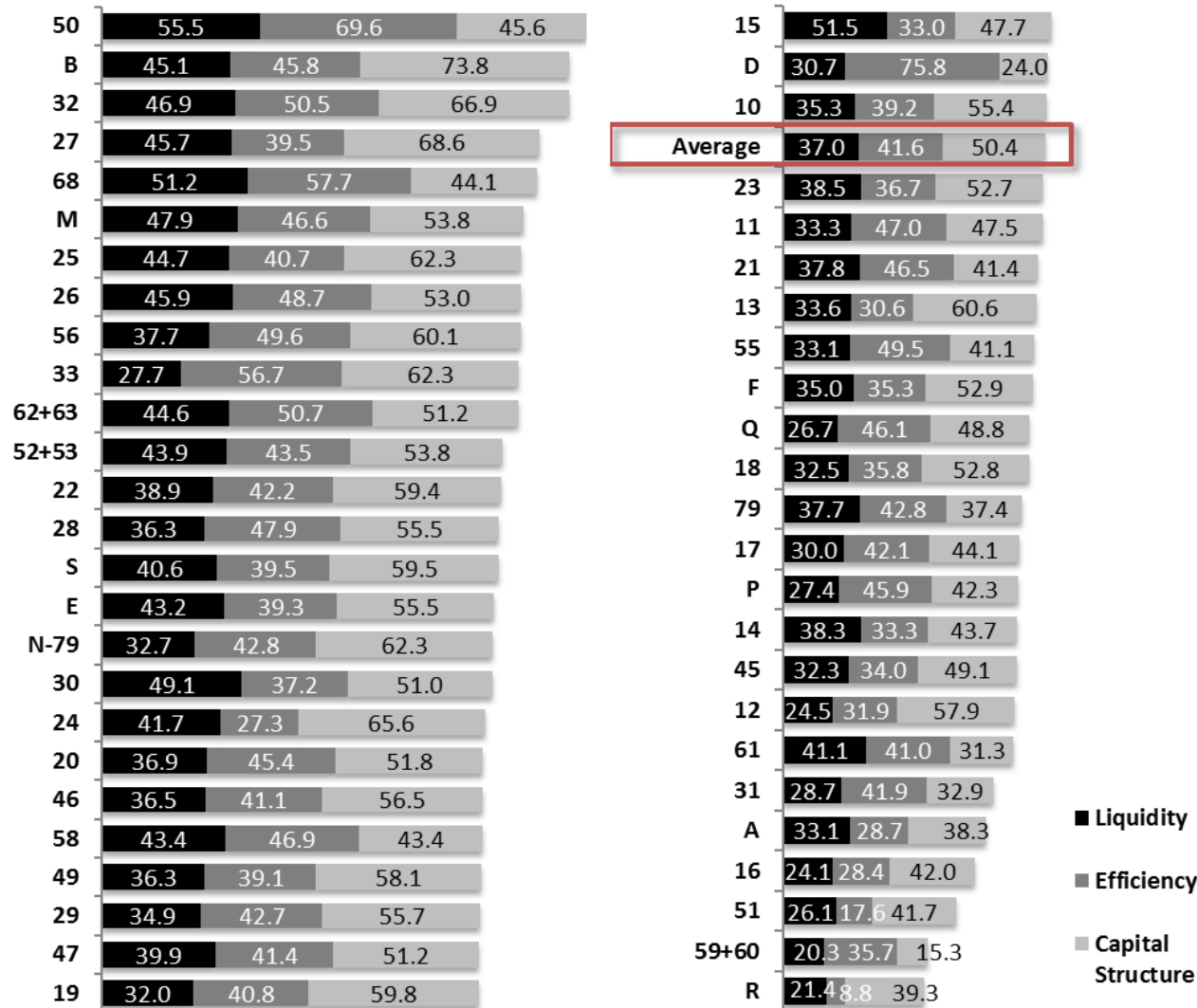
• ↑ score ≥ 75% of score range

• ↗ 50% ≤ score < 75%

• ↘ 25% ≤ score < 50%

• ↓ score < 25%

BIC Index: Structure of the final score per sector, 2016



*The BIC Index is the average result of the scores of each dimension

The sectors with the strongest performance, 2016	
50	Water transport
B	Mining and quarrying
32	Other manufacturing
27	Manufacture of electrical equipment
68	Real estate activities
M	Professional, scientific and technical activities
25	Manufacture of fabricated metal products, except machinery and equipment
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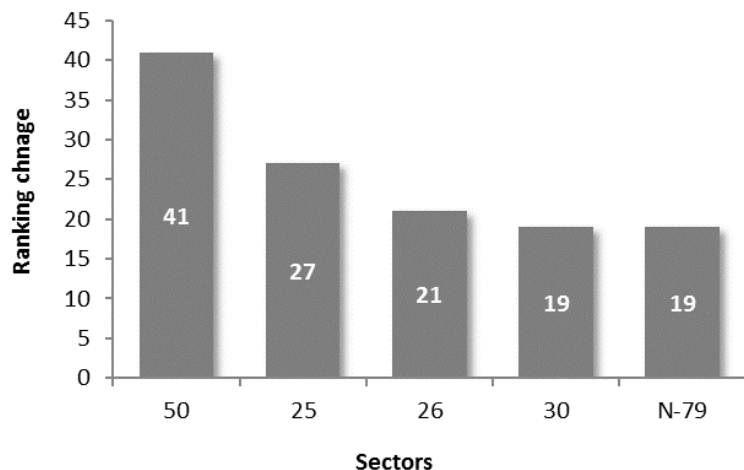
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- Moreover, manufacturing sectors related to equipment, such as manufacture of electrical equipment (27), computers and electronic products (26), repairing and installation of equipment (33) and manufacture of metal products (25) have a positive performance.
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The sectors with the weakest performance, 2016

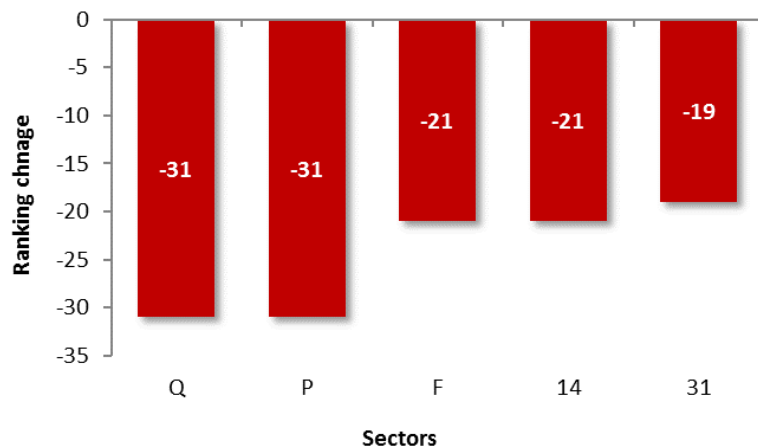
R	Arts, entertainment and recreation
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- The performance of the agricultural sector (A) and the tobacco industry (12) remains low.
- The decline of air transport (51) performance, especially as far as efficiency and capital structure are concerned, drove the average sector's performance among the ten lowest positions.
- Despite the fact that liquidity and efficiency have improved, whereas only capital structure has declined, telecommunications (61) ranked among the lowest positions. This is mainly due to the strong performance of other sectors.
- Finally, cyclical sectors related to consumer expenditure, i.e. manufacture of apparel (14) and trade of vehicles (45) showed low to average performance.

Sectors with the 5 largest positive cumulative changes in the BIC Index ranking, 2007-2016



Sectors with the 5 largest negative cumulative changes in the BIC Index ranking, 2007-2016



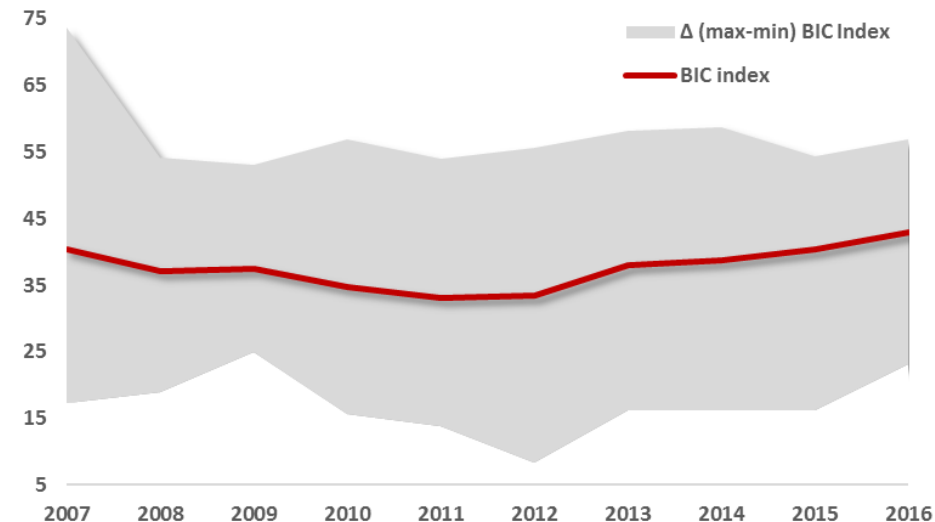
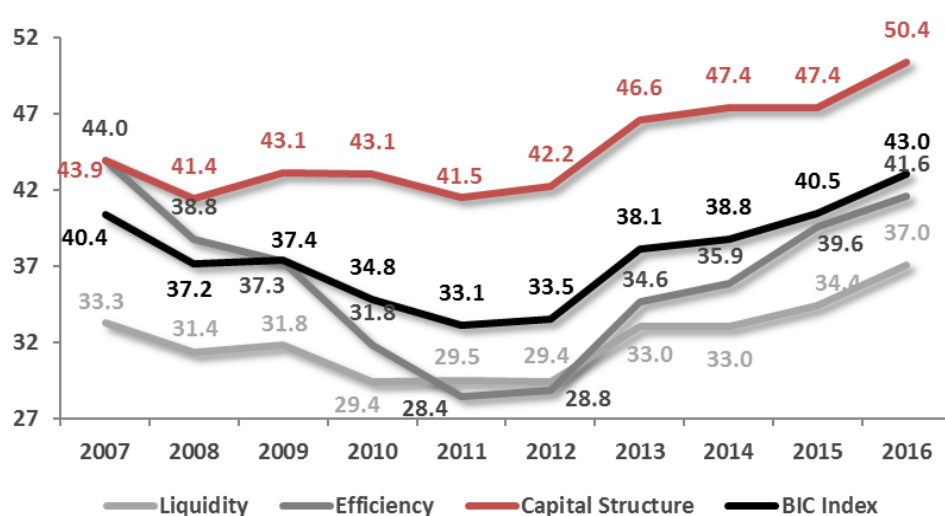
Rising sectors

The sectors of water transport (50), manufacture of metal products (25), manufacture of other transport equipment (30) and administrative and support services excluding travel agencies (N-79) continue improving their performance compared to 2007. Furthermore, the sector of computer and electronic equipment manufacture (26) showed a more positive performance.

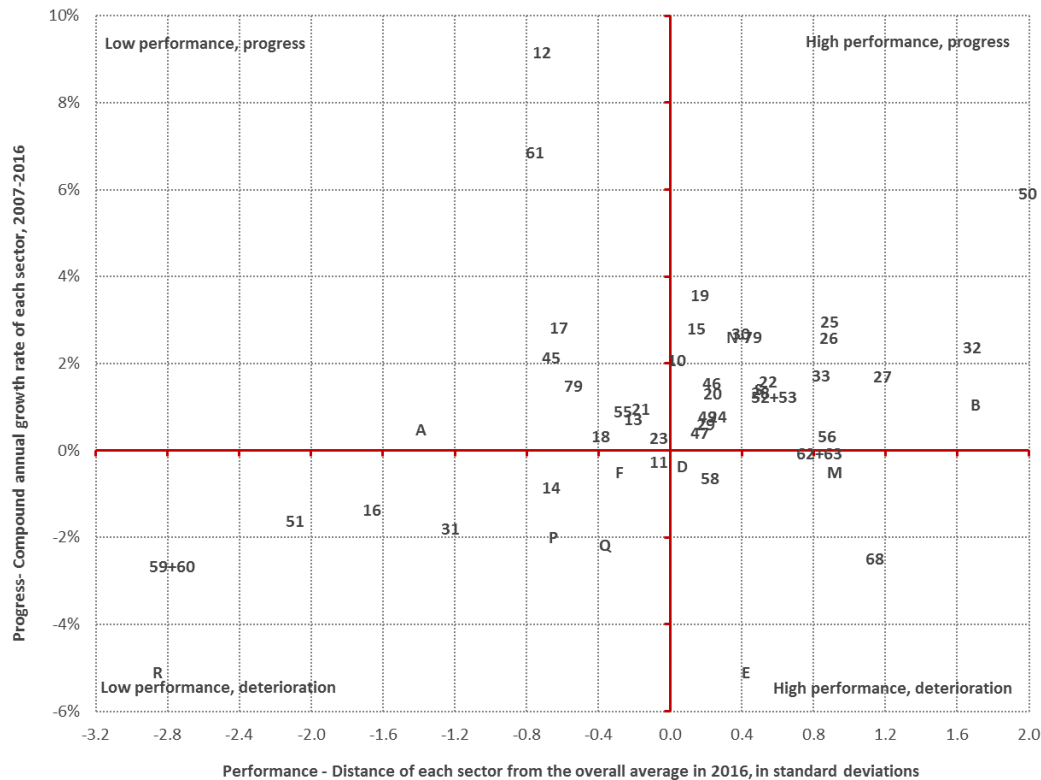
Declining sectors

The sectors of health (Q) and education (P) showed lower performance compared to 2007, especially in terms of efficiency. Despite the fact that the average score of the construction sector (F) declined compared to 2007, capital structure improved. Respectively, improved liquidity of apparel manufacture (14) was not enough to counterbalance the lowest performance regarding efficiency and capital structure. Finally, the average score of furniture manufacture (31) has been squeezed but its efficiency managed to reach the 2007 level.

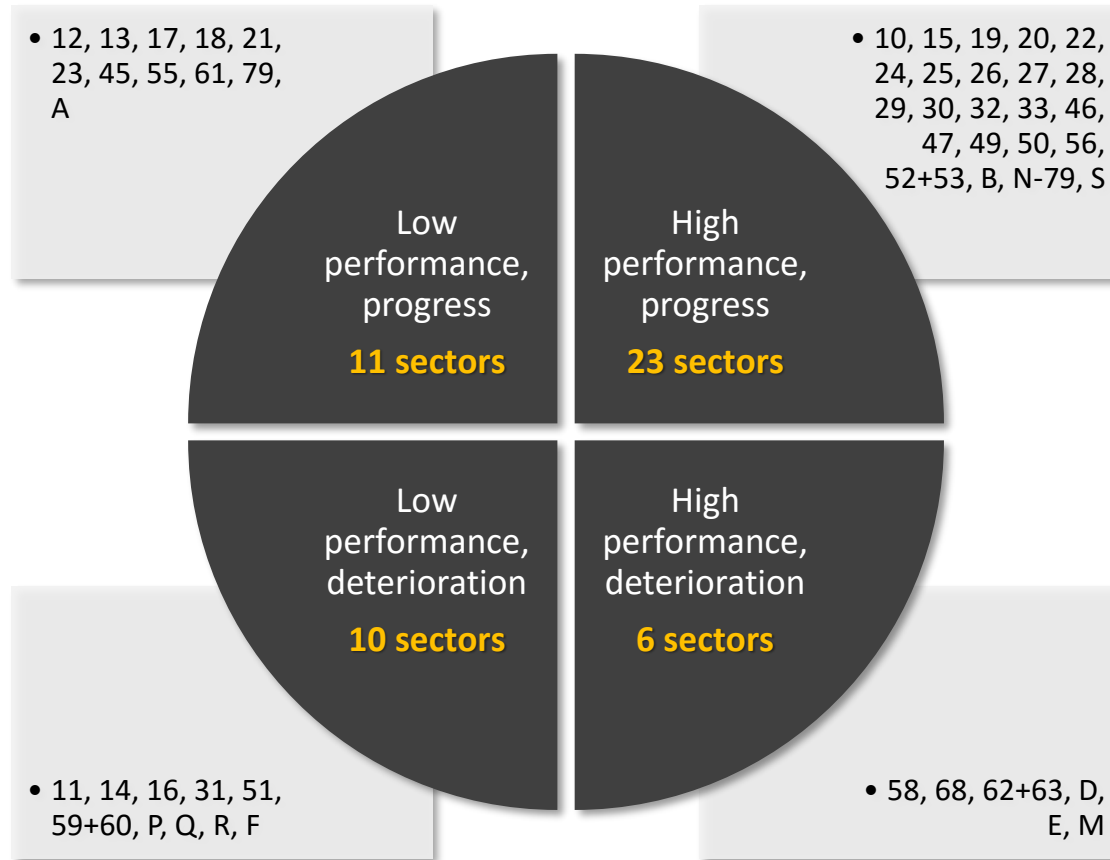
- The domestic small and medium-sized entrepreneurship seems to have overcome the very low performance during deep recession in 2011-2012 and continues to improve. However, the 2016 sectoral performance (as reflected by the sectoral BIC score) is much more concentrated around the mean than during the pre-crisis period.
- The SMEs that survived the crisis seem to have improved their capital structure and enhanced their liquidity.
- However, the gradually increased efficiency, which is linked to business profitability, is still lagging behind the average 2007 level.



- 68% of sectors improved average performance in 2016 compared to 2007, as reflected by their BIC Index scores.
- 46% of sectors exceeded average performance and at the same time improved during the period of 2007-2016.
- Water transport (50), other manufacturing (32) and mining and quarrying (B) combined high performance and score improvement.
- On the other hand, the sectors of mass media (59+60) and arts and entertainment (R) continue having very low performance, and at the same time their score deteriorated significantly in 2016 compared to 2007.
- The BIC Index score of water supply etc. (E) declined significantly in 2016, which is its lowest performance since the index was introduced.
- Finally, despite their low performance in 2016, tobacco industry (12) and telecommunications (61) recorded the highest improvement compared to 2007.



BIC Index: Mapping of sectors based on their performance, 2007-2016



3. BIC Rating System

BIC Rating System: mapping of sectors based on their performance, 2016



Turnover: €469 mn
 Net earnings before interest, taxes, depreciation and amortization expenses: €28 mn
 Net losses before taxes: €-40 mn
 Equity: €516 mn
 Total liabilities: €690 mn
 Net debt: €608 mn
 Interest expenses: €25 mn

•16, 51, 59+60, R

Turnover: €42.6 bn
 Net earnings before interest, taxes, depreciation and amortization expenses: €4.2 bn
 Net profit before taxes: €2 bn
 Equity: €28.9 bn
 Total liabilities: €33.4 bn
 Net debt: €27.3 bn
 Interest expenses: €900 mn

•50, B, 32, 27, 68, M, 25, 26, 56, 33, 62+63, 52+53, 22, 28, S, E, N-79, 30, 24, 20, 46, 58, 49, 29, 47, 19, 15, D, 10, 23, 11, 21, 13, 55, F, Q, 18

Underperformers
 (4 sectors, 8%)

Outperformers
 (37 sectors, 74%)

Medium performers
 (2 sectors, 4%)

Good performers
 (7 sectors, 14%)

•31, A

•79, 17, P, 14, 45, 12, 61

Turnover: €952 mn
 Net earnings before interest, taxes, depreciation and amortization expenses: €79 mn
 Net profit before taxes: €6 mn
 Equity: €564 mn
 Total liabilities: €967 mn
 Net debt: €885 mn
 Interest expenses: €30 mn

Turnover: €3.8 bn
 Net earnings before interest, taxes, depreciation and amortization expenses: €262 mn
 Net profit before taxes: €110 mn
 Equity: €1.6 bn
 Total liabilities: €2.5 bn
 Net debt: €2.1 bn
 Interest expenses: €76 mn

Note: the figures are the sums of sectors per performance based on the sample of enterprises in 2016

Classification of sectors per year based on the BIC Rating System



Rating	2007			2008			2009			2010			2011			2012			2013			2014			2015			2016			Rating
a+	E	68																													a+
a	M			E			E	68		E			E			E			E			50	E	68	33	32		50	B	32	a
a-	B	Q	62+63	M	62+63	68	Q	62+63	M	68	M	27	68	33	27	33	62+63	27	29	61	51	56	29	62+63	E	62+63	68	68	M	25	a-
	56	58	P	Q	B	27	32	P	33	D	33	32	32			Q	11	50	56	62+63	33	32	M	27	24	29	N-79	26	56	33	
	D	32	27	P	58	32	27	S	56	Q	P	52+53				P	61	B	27	68	58	20	33	46	50	27	25	62+63	52+53	22	
	11	F	47	52+53	D	33	58	52+53	26							P	M	D	25	22	P	M	20	F	M	20	F	28	S	E	
	52+53	29	33													32	Q	11	47	28	11	D	46	47	D	46	47	N-79	30	24	
	24	14	23													S	47	25	58	19	F	49	30	56	49	30	56	20	46	58	
	49	28	S													46	N-79	B	10	N-79	49	19	52+53	P	19	52+53	P	49	29	47	
22	31														49			B	21					11	18	14	19	15	D		
																								22	10	21	10	23	11		
																								58	S	55	21	13	55		
																											F	Q	18		
b+	20	18	26	14	26	47	22	F	14				61	62+63	51	32	25		10	18	20	52+53	14		45	79		79			b+
	13			F	11	56							P	Q																	
b	46	21	55	21	25	49	25	47	49	49	56	25	M	D	28	56	21	D	52+53	24	22	S	55	23	28	17	13	17	P	14	b
	25	R		30	31	N-79	11	20	12	29	20	58				47			19	79	28	61	13	79				45	12	61	
				20	28	29	28	21	18										14	21		30									
				22	23	18	N-79																								
b-	N-79	30		24	46	10	D	29	31	62+63	N-79	22	56	47	11	M	14	46	F			51	12	15	Q	26					b-
						10	23	46				10	11		49			20	10												
c+	10	16		S	R		B	50	19	23	47	24	10	25		12	28	68	13			17	45	Q	61						c+
						30	F								N-79	49															
c	79	15	50	55	13		R	30	16	14	21	46	46	N-79	50	22	19	S	30	23	17	31			12	23	51	31	A		c
	51						19	28	A	19	28	A	20	22	S				15	A	55				A	31					
c-	19			16			13			12			14	A	24	F	18	52+53	31												c-
												B	30																		
d+	A	45	59+60	15	79	45	55	17	24	18	B	17	15	31	F	30	79	51	50	45		A	D	18	B	15		16	51		d+
	17			17	59+60	19	A	79	51	51	S	16	18	21	52+53	A	55	58													
				12			45	15	61	79	13	31	12	55	19	17	15	13													
							59+60			15	55	26	79	23	17	23															
d	61	12		50	A	51							16	R		31	45	24	12	R	26	R	24	26	R	16	59+60	59+60	R		d
			61															29	26	R	16	59+60									
d-							59+60			59+60	26		59+60	16																	d-

Mapping of the performance of sectors per year based on the BIC Rating System



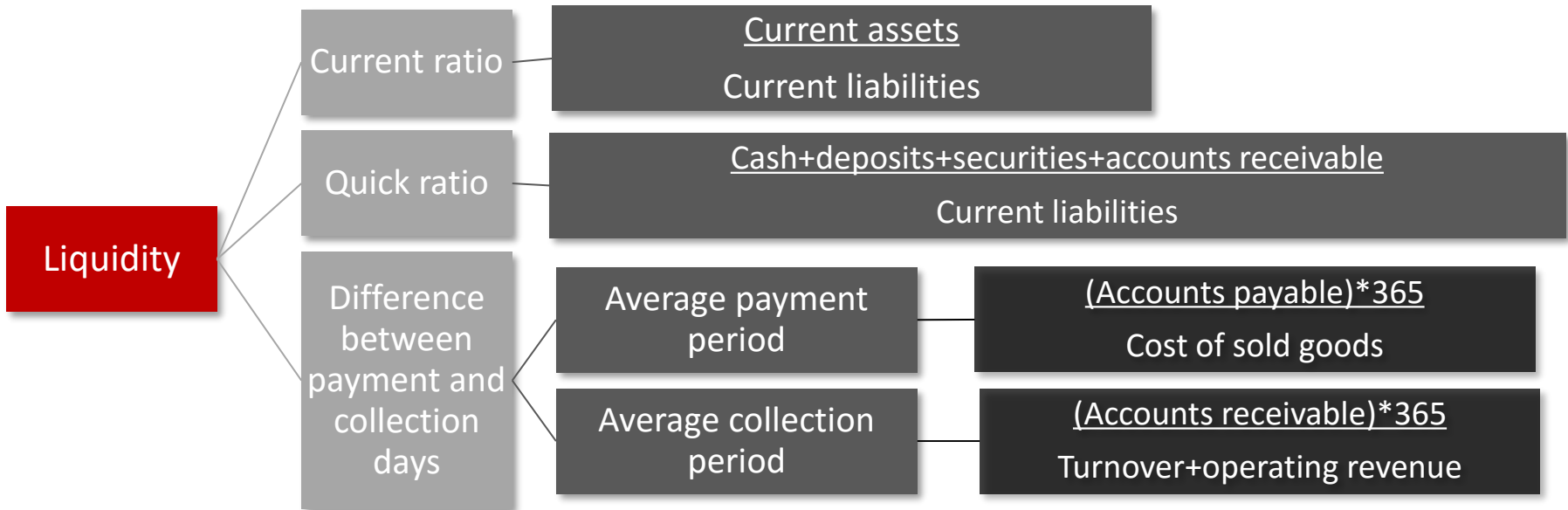
Sectors	BIC Index Score										07-16	BIC Rating									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
50	33.9	23.6	35.1	25.3	33.5	41.6	30.0	58.7	46.9	56.9	~	c	d	c+	d+	c	e-	d+	a	e-	e
B	49.9	45.2	35.3	30.0	32.5	40.1	40.0	40.5	31.4	54.9	~	e-	e-	c+	d+	c-	e-	e-	e-	d+	e
32	44.3	42.9	43.5	42.4	40.5	39.6	41.6	46.6	53.0	54.8	~	e-	e-	e-	e-	e-	b+	e-	e-	e	e
27	44.0	45.1	43.0	44.3	42.2	44.6	45.6	45.7	45.5	51.3	~	e-	e-	e-	e-	e-	e-	e-	e-	e-	e
68	63.9	46.1	51.8	50.2	49.5	35.5	42.6	52.7	49.4	51.0	~	e+	e-	e	e-	e-	c+	e-	a	e-	e-
M	51.7	48.8	43.9	44.9	38.8	36.6	42.1	45.9	45.2	49.4	~	a	e-	e-	e-	b	b-	e-	e-	e-	e-
25	37.8	38.9	38.8	38.2	35.4	39.1	40.9	42.7	45.5	49.2	~	b	b	b	b	c+	b+	e-	e-	e-	e-
26	39.0	39.8	40.1	26.0	13.7	19.7	20.9	19.1	36.2	49.2	~	b+	b+	e-	e-	d+	d-	d	d	b-	e-
56	47.6	39.0	41.9	38.3	36.9	38.7	46.4	50.5	43.0	49.1	~	e-	b+	e-	b	b-	b	e-	e-	e-	e-
33	41.9	40.8	43.1	42.6	42.2	49.9	46.2	43.8	54.3	48.9	~	e-	e-	e-	e-	e-	e-	e-	e-	a	e-
62+63	49.1	48.6	44.6	36.9	39.7	48.4	46.4	47.9	49.4	48.8	~	e-	e-	e-	b-	b+	e-	e-	e-	e-	e-
52+53	42.1	42.3	40.4	40.8	31.0	32.1	38.7	39.7	42.9	47.1	~	e-	e-	e-	e-	d+	c-	c	b+	e-	e-
22	40.7	38.1	39.5	36.5	33.3	35.0	38.6	42.5	41.8	46.9	~	e-	b	b+	b-	c	c	b	e-	e-	e-
28	41.3	38.1	37.8	33.7	37.1	35.6	37.7	42.0	39.0	46.5	~	e-	b	b	c	b	c+	b	e-	b	e-
5	41.0	35.4	42.6	29.5	33.1	33.2	41.5	39.0	40.4	46.5	~	e-	c+	e-	e-	d+	c	c	b	b	e-
E	73.7	54.1	53.1	56.9	54.1	55.7	58.3	54.1	49.5	46.0	~	e+	a	e	a	a	a	a	a	e-	e-
N-79	36.4	38.4	37.0	36.9	33.6	35.2	40.1	40.9	47.5	45.9	~	b-	b	b	b-	c	c+	e-	e-	e-	e-
30	36.1	38.8	33.9	35.2	32.0	31.9	34.9	37.3	43.1	45.8	~	b-	b-	c	c+	c-	d+	c	b	e-	e-
24	41.9	37.0	31.4	35.5	32.6	22.1	38.6	21.2	48.5	44.9	~	e-	b	d+	c+	c-	d	b	d	e-	e-
20	39.7	38.3	38.5	37.3	33.4	36.5	39.0	44.5	44.8	44.7	~	b+	b	b	b	c	b-	b+	e-	e-	e-
46	38.9	36.5	36.1	33.9	34.4	36.6	40.8	42.9	44.0	44.7	~	b	b-	b-	c	c	b-	e-	e-	e-	e-
58	47.3	44.0	41.9	37.2	24.8	29.0	42.1	41.6	40.9	44.6	~	e-	e-	e-	b	d+	d+	e-	e-	e-	e-
49	41.5	38.8	38.5	38.7	36.1	35.0	40.0	40.5	43.7	44.5	~	e-	b	b	b	b-	c+	e-	e-	e-	e-
29	42.1	38.1	36.8	38.1	27.4	21.8	50.9	50.0	47.8	44.4	~	e-	b	b-	b	d+	d	e-	e-	e-	e-
47	42.6	39.8	38.7	35.6	36.9	37.7	41.4	42.0	43.9	44.2	~	e-	b+	b	c+	b-	b	e-	e-	e-	e-
19	32.2	27.8	35.0	33.9	30.4	34.7	38.3	41.4	43.0	44.2	~	c-	d+	c+	c	d+	c	b	e-	e-	e-
15	34.3	31.8	28.2	28.2	31.7	27.0	34.3	36.3	29.5	44.1	~	c	d+	d+	d+	d+	d+	c	b-	d+	e-
D	44.9	41.2	37.0	44.2	38.7	38.6	41.9	27.7	44.1	43.5	~	e-	e-	b-	e-	b	b	e-	d+	e-	e-
10	36.0	36.2	36.2	36.4	35.7	36.3	39.9	40.9	41.7	43.3	~	c+	b-	b-	b-	c+	b-	b+	e-	e-	e-
23	41.5	37.9	36.2	35.7	29.8	24.5	34.8	37.9	34.6	42.6	~	e-	b	b-	c+	d+	d+	c	b	c	e-
11	43.6	39.5	38.5	36.4	36.2	41.7	41.6	41.9	42.1	42.6	~	e-	b+	b	b-	b-	e-	e-	e-	e-	e-
21	38.4	38.9	37.7	34.6	31.3	38.6	39.0	40.3	41.6	41.9	~	b	b	b	c	d+	b	b	e-	e-	e-
13	39.0	33.4	32.6	28.8	24.4	25.8	36.0	37.6	37.4	41.6	~	b+	c	c-	d+	d+	d+	c+	b	b	e-
55	38.0	33.9	32.0	28.0	30.5	29.2	33.4	38.5	40.2	41.2	~	b	c	d+	d+	d+	d+	c	b	e-	e-
F	42.9	39.7	39.3	35.1	31.6	32.6	36.2	41.2	44.5	41.1	~	e-	b+	b+	c+	d+	c-	b-	e-	e-	e-
Q	49.4	46.0	47.5	42.0	39.1	43.1	41.6	35.2	36.3	40.5	~	e-	e-	e-	e-	b+	e-	e-	c+	b-	e-
18	39.2	37.7	37.1	31.5	31.5	32.4	39.1	25.0	42.0	40.4	~	b+	b	b	d+	d+	c-	b+	d+	e-	e-
79	34.4	31.5	30.2	29.4	30.4	31.1	37.8	37.5	39.7	39.3	~	c	d+	d+	d+	d+	d+	b	b	b+	b+
17	30.1	29.0	31.9	30.0	28.6	27.6	34.7	35.6	38.3	38.7	~	d+	d+	d+	d+	d+	d+	c	c+	b	b
P	46.2	44.2	43.3	41.0	39.1	40.8	42.1	42.3	42.5	38.5	~	e-	e-	e-	e-	b+	e-	e-	e-	e-	b
14	41.5	39.9	39.2	34.9	32.9	36.6	37.5	39.6	41.8	38.4	~	e-	b+	b+	c	c-	b-	b	b+	e-	b
45	31.8	29.6	28.9	25.8	24.1	23.1	28.5	35.5	40.0	38.4	~	d+	d+	d+	d+	d+	d	d+	c+	b+	b
12	17.3	26.9	38.2	32.4	30.9	35.9	22.7	36.3	34.8	38.1	~	d	d+	b	c-	d+	c+	d	b-	c	b
61	20.8	18.9	25.4	24.7	39.9	40.7	49.8	37.8	35.1	37.8	~	d	d	d+	d+	b+	e-	e-	b	c+	b
31	40.7	38.8	36.6	28.5	31.6	23.3	32.2	34.8	33.3	34.5	~	e-	b	b-	b-	d+	d+	d	c	c	c
A	32.0	23.4	30.2	33.1	32.9	30.3	33.6	31.6	33.6	33.4	~	d+	d	d+	c	c-	d+	c	d+	c	c
16	35.6	32.9	33.0	29.4	20.6	8.3	16.7	16.8	17.6	31.5	~	c+	c-	c	d+	d	d-	d	d	d	d+
51	33.0	20.5	30.2	29.6	39.1	30.9	49.4	36.7	34.5	28.5	~	c	d	d+	d+	b+	d+	e-	b-	c	d+
59+60	30.3	27.8	24.9	15.6	14.2	11.2	16.2	16.2	16.3	23.8	~	d	d+	d+	d-	d-	d-	d	d	d	d
R	37.1	35.4	34.5	25.0	17.1	19.0	22.3	21.5	21.5	23.2	~	b	c+	c	d+	d	d	d	d	d	d
Average	40.4	37.2	37.4	34.8	33.1	33.5	38.1	38.8	40.5	43.0	~	e-	b	b	c	c	c	b	b	e-	e-

*Ranking of sectors based on 2016 data

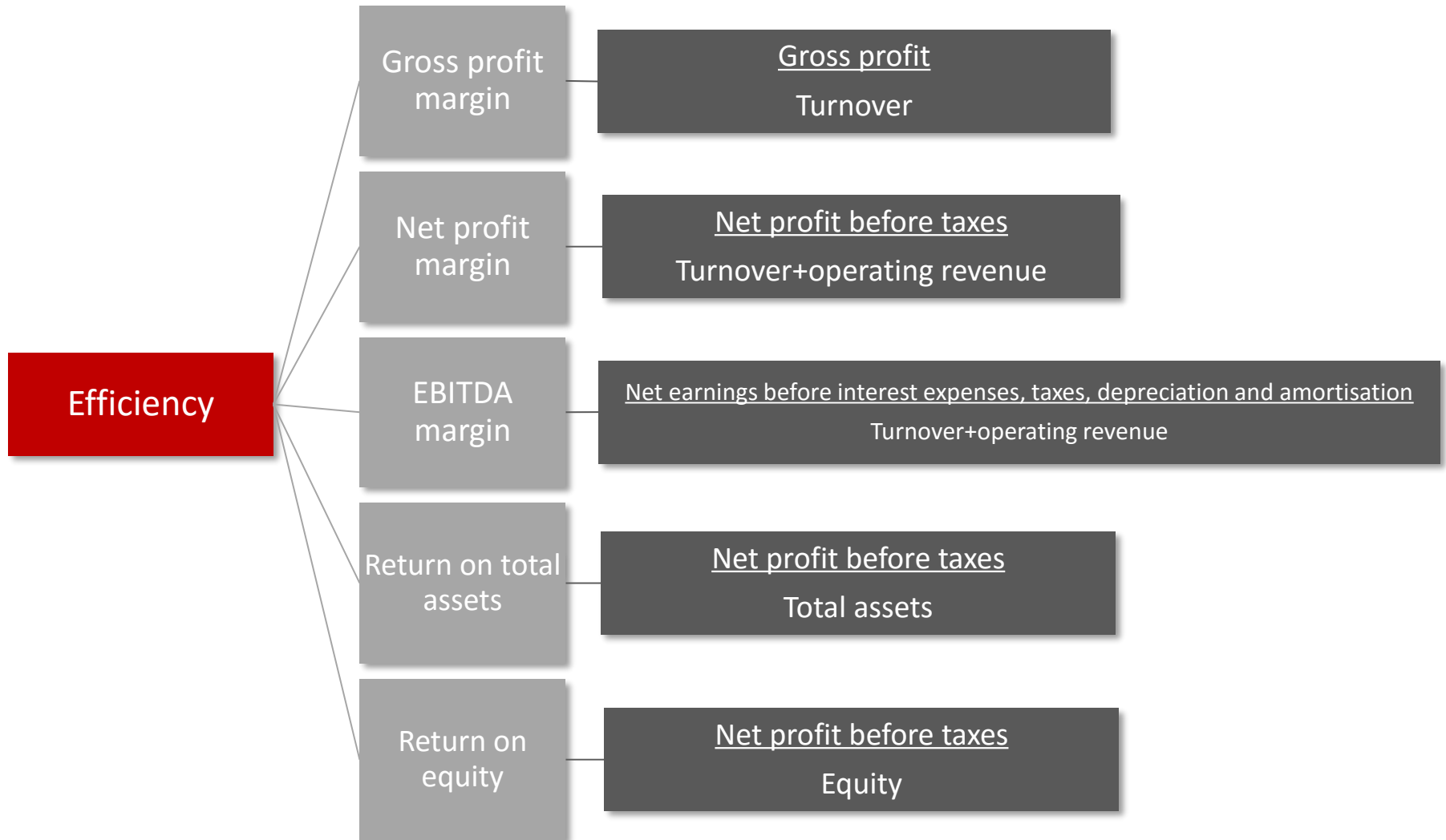
4. Appendices

4a. Methodology of calculating BIC Index

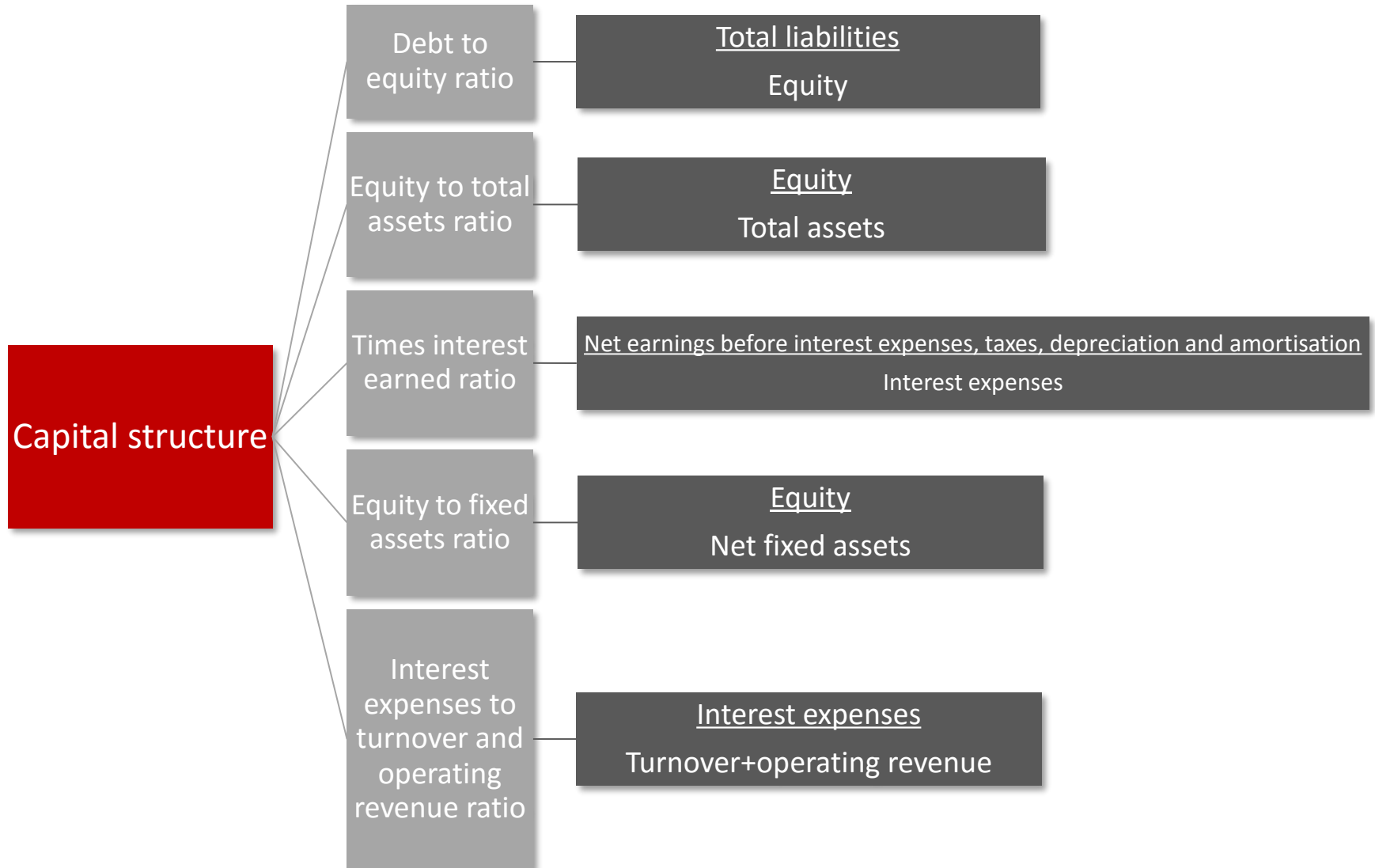
Total **Liquidity** of SMEs of each sector is given by the following ratios:



The overall measure of the **Efficiency** of each sector is given by:



The basic **Capital Structure** ratios we use are the following:



Each of these variables has a **different range**, as well as **different units of measurement**; e.g. some variables count the number of days, some are expressed as percentages and so on.

In order to be able to initially **compare and synthesize** these variables, for the three key dimensions of liquidity, efficiency and capital structure and then the BIC Index, **all variables should be converted to a common base**.

Standardization of variables examined:

When **the rise of a variable value is a positive development**, the standardization formula is:

$$p_i = \frac{I_i - I_{min}}{I_{max} - I_{min}} \times 100$$

Where, ***p_i***: the variable value of sector *i* after the standardization;

I_i: the variable value of sector *i* before the standardization;

I_{min}: the variable value of the sector with the weakest performance of all examined sectors;

I_{max}: the variable value of the sector with the strongest performance of all examined sectors.

When **the decline of a variable value is a positive development**, the standardization formula is:

$$p_i = \frac{I_{max} - I_i}{I_{max} - I_{min}} \times 100 \quad \rightarrow$$

The common range of variables is: **0-100**.

Crucial to the construction of the index is the **choice of the base period**, namely the period used to calculate the maximum (I_{max}) and minimum (I_{min}) value.

- **Financial ratios:** min-max standardisation: 2006
- Source of financial data: ICAP DATA.

Overall, we examine **50 sectors** and the number of the **sample** of SAs and LTDs ranges from **16.2 thousand to 23.5 thousand** during 2007-2016.

Weights of examined ratios and variables per dimension for the calculation of the BIC Index



The final **BIC Index** is calculated as follows:

<p>Liquidity (33.3%)</p>	<ul style="list-style-type: none"> • Current ratio.....33.3% • Quick ratio.....33.3% • Difference between payment and collection days.....33.3%
<p>Efficiency (33.3%)</p>	<ul style="list-style-type: none"> • Gross profit margin.....20% • Net profit margin.....20% • EBITDA margin.....20% • Return on total assets.....20% • Return on equity.....20%
<p>Capital structure (33.3%)</p>	<ul style="list-style-type: none"> • Debt to equity ratio.....20% • Equity to total assets ratio.....20% • Equity to fixed assets.....20% • Times interest earned ratio.....20% • Interest expenses to turnover and operating revenue ratio.....20%

- Source of data: ICAP DATA.
- *Processing of enterprise sample*: we excluded enterprises that:
 - had no available financial data;
 - reported negative equity;
 - had no data available on the number of personnel;
 - showed no turnover;
 - had no available data for the cost of goods sold.
- Given the emphasis on **SMEs***, we selected the enterprises that met the following criteria:
 - the number of employees does not exceed 250 persons; while
 - their turnover does not exceed €50 million.

* In line with the definition of SMEs given by the European Commission (Commission Recommendation 2003/361/EC).

- We examine **all sectors** of economic activity, according to the **STAKOD'08** (=NACE rev. 2) classification, except for the following:
 - **K**: Financial and insurance activities
 - **O**: Public administration and defense; compulsory social security
 - **T**: Activities of households as employers; undifferentiated goods – and services – producing activities of households for own use
 - **U**: Activities of extraterritorial organizations and bodies

The examined sectors of the domestic economy and presentation of the samples of SMEs, 2007-2016 (a)



Codes	STAKOD'08 (=NACE rev. 2)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
A	Agriculture, forestry and fishing	249	289	280	254	261	223	233	246	231	235
B	Mining and quarrying	89	111	108	94	85	73	83	83	70	64
10	Manufacture of food products	1,014	1,044	1,035	984	991	931	951	994	923	920
11	Manufacture of beverages	177	180	180	168	165	160	154	159	151	162
12	Manufacture of tobacco products	12	9	10	9	10	9	9	9	8	8
13	Manufacture of textiles	166	166	165	157	138	120	114	116	99	98
14	Manufacture of wearing apparel	301	297	284	261	248	213	206	204	184	183
15	Manufacture of leather and related products	49	49	43	42	43	37	38	39	37	36
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	121	123	121	103	92	80	78	83	75	72
17	Manufacture of paper and paper products	140	144	144	141	142	138	124	128	121	122
18	Printing and reproduction of recorded media	218	226	214	196	182	156	151	163	161	157
19	Manufacture of coke and refined petroleum products	28	26	26	28	26	27	24	24	26	24
20	Manufacture of chemicals and chemical products	221	223	231	224	224	213	203	206	191	204
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	51	52	51	49	56	48	44	47	44	48
22	Manufacture of rubber and plastic products	276	275	279	264	243	226	235	232	202	196
23	Manufacture of other non-metallic mineral products	478	473	464	415	387	334	332	325	278	239
24	Manufacture of basic metals	69	71	69	67	65	58	56	55	43	41
25	Manufacture of fabricated metal products, except machinery and equipment	535	537	521	481	463	417	411	415	383	356
26	Manufacture of computer, electronic and optical products	63	63	62	61	59	53	58	61	60	57
27	Manufacture of electrical equipment	141	142	147	137	130	122	114	121	118	112
28	Manufacture of machinery and equipment n.e.c.	220	222	218	208	193	196	184	183	177	182
29	Manufacture of motor vehicles, trailers and semi-trailers	35	35	37	35	30	25	20	27	18	21
30	Manufacture of other transport equipment	31	30	30	27	29	23	22	18	19	20
31	Manufacture of furniture	225	213	213	189	159	131	121	123	109	109
32	Other manufacturing	148	147	150	138	135	122	118	115	108	116
33	Repair and installation of machinery and equipment	58	58	52	42	57	50	52	57	72	76

Data extraction period: 2007-2014: May of each year, 2015-2016: October of each year

The examined sectors of the domestic economy and presentation of the samples of SMEs, 2007-2016 (b)



Codes	STAKOD'08 (=NACE rev. 2)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
D	Electricity, gas, steam and air conditioning supply	110	121	150	168	208	205	285	359	241	231
E	Water supply; sewerage, waste management and remediation activities	68	83	89	84	87	94	104	122	110	113
F	Construction	1,664	1,706	1,693	1,496	1,398	1,091	1,112	1,185	1,027	1,066
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	835	825	801	705	683	583	552	553	543	498
46	Wholesale trade, except of motor vehicles and motorcycles	5,281	5,380	5,344	4,908	5,135	4,605	4,517	4,664	4,519	4,213
47	Retail trade, except of motor vehicles and motorcycles	1,350	1,348	1,328	1,158	1,194	1,044	984	1,062	1,059	1,047
49	Land transport and transport via pipelines	198	198	192	182	194	207	228	267	221	228
50	Water transport	24	25	21	17	20	18	17	14	10	7
51	Air transport	13	13	17	17	13	13	13	13	8	9
52+53	Warehousing and postal and courier activities	464	464	456	435	465	410	405	471	358	361
55	Accommodation	2,985	2,989	3,012	2,763	2,579	2,187	2,122	2,220	1,689	1,513
56	Food and beverage service activities	542	551	534	480	461	324	316	358	389	303
58	Publishing activities	226	244	237	197	202	166	167	174	149	132
59+60	Motion picture, video and television programme production, sound recording and music publishing activities. Programming and broadcasting activities	226	221	218	188	184	135	136	145	98	77
61	Telecommunications	39	43	46	39	37	37	38	46	38	37
62+63	Computer programming, consultancy and related activities. Information service activities	470	490	488	451	476	426	426	464	385	355
68	Real estate activities	596	612	609	574	574	394	413	516	272	291
M	Professional, scientific and technical activities	1,275	1,323	1,334	1,219	1,308	1,098	1,060	1,223	876	834
N-79	Administrative and support service activities excluding travel agency, tour operator and other reservation service and related activities	467	482	453	402	420	385	399	412	320	297
79	Travel agency, tour operator and other reservation service and related activities	366	365	339	295	313	280	293	310	226	185
P	Education	199	202	206	185	193	186	166	179	141	119
Q	Human health and social work activities	349	385	399	386	433	353	380	415	355	345
R	Arts, entertainment and recreation	103	114	116	106	93	57	74	82	68	74
S	Other service activities	79	79	73	62	84	72	68	62	52	48
Total		23,044	23,468	23,289	21,291	21,367	18,555	18,410	19,549	17,062	16,241

* 09 (mining support service activities) is excluded from B, and 94 (activities of membership organisations) from S – no available data from ICAP DATA

4b. Methodology of calculating BIC Rating System

BIC Rating System*: distribution characteristics of the BIC Index scores 2007-2012

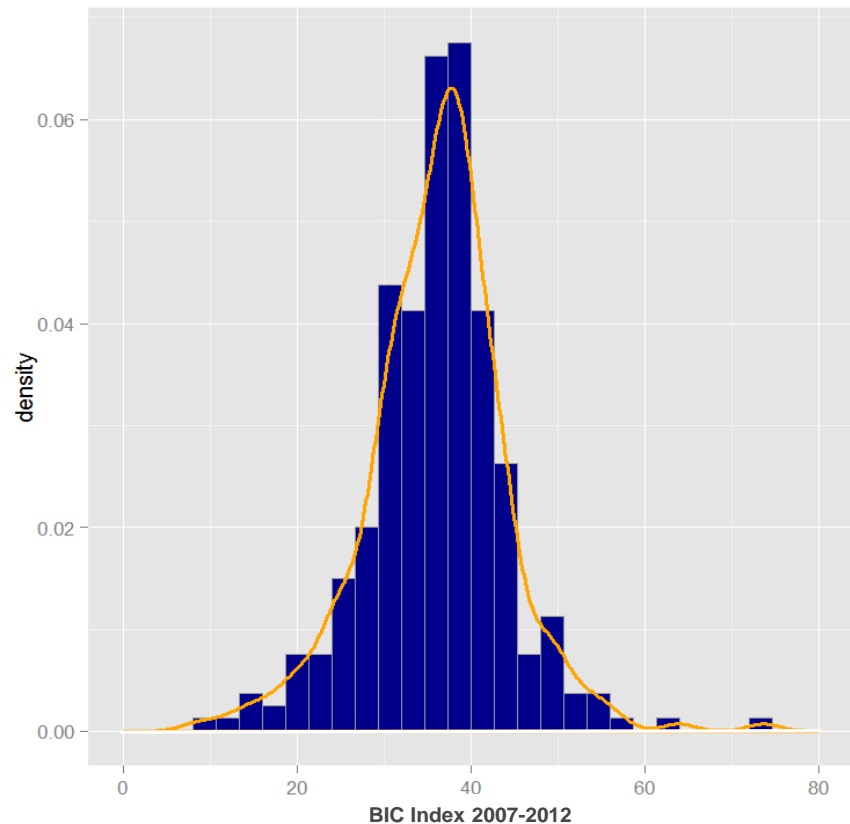


As shown in the histogram, the distribution of all scores of the BIC Index (50 sectors, 2007-2012) is almost symmetrical. It has an average of 36.07, a median of 36.52, a standard deviation of 8.04. The maximum value is 73.66 and the minimum is 8.34 units.

Descriptive statistics of the BIC Index scores of 50 sectors for 2007-2012

Descriptive Statistics	
N	300
mean	36.07
median	36.52
maximum	73.66
minimum	8.34
std. deviation	8.04
skewness	0.07
kurtosis	2.36

Histogram and kernel distribution of the scores of BIC Index of 50 sectors for 2007-2012



* The methodology adopted is based on a similar methodology presented by Khramov V. and Lee J.R. (2013), The Economic Performance Index (EPI): an Intuitive Indicator for Assessing a Country's Economic Performance Dynamics in an Historical Perspective, IMF Working Paper WP/13/214, October 2013.

In our approach, we divide the distribution into four (4) groups (quartiles) and create a rating system, **where the implemented score thresholds are close to the distribution of the BIC Index scores 2007-2012.**

	Percentile		BIC Index Score	Implemented score threshold
Top 25%	>75	Above	40.401	40
Next 25%	50	Above	36.499	36
Next 25%	25	Above	31.643	32
Bottom 25%	<25	all below		

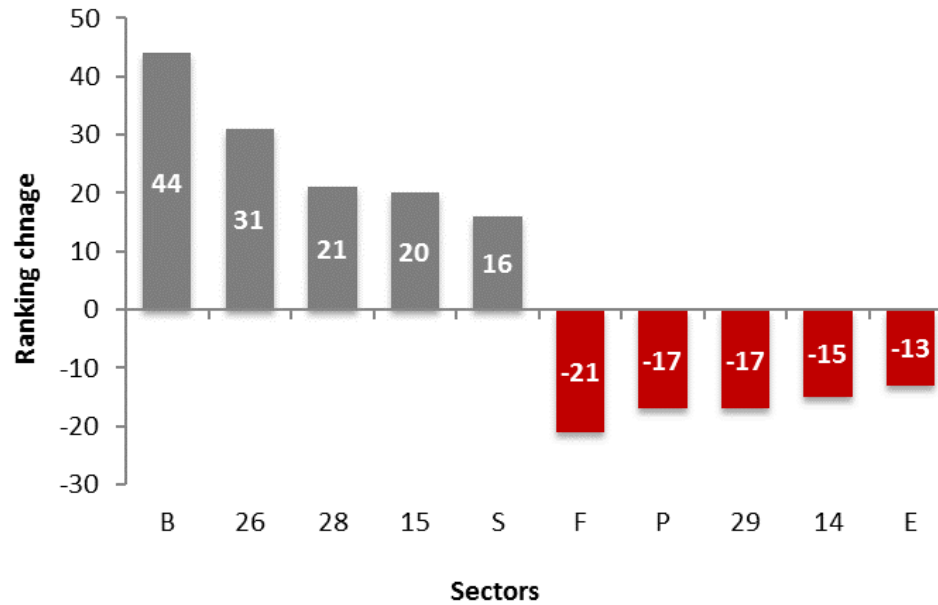
In accordance with the implemented thresholds for the BIC Index scores, we have created **three (3) individual categories for each quartile**, the intervals of which are **symmetrical around the median**. Therefore, based on this approach, we present the following rating system, which is based on the BIC Index scores 2007-2012.

BIC Rating System

Score range	Score	Rating	BIC Index Performance
≥40	≥63	a+	outperformers
	[51-63)	a	
	[40-51)	a-	
36-40	[39-40)	b+	good performers
	[37-39)	b	
	[36-37)	b-	
32-36	[35-36)	c+	medium performers
	[33-35)	c	
	[32-33)	c-	
<32	[24-32)	d+	underperformers
	[16-24)	d	
	<16	d-	

4c. Additional presentation of results, 2016

The sectors with the 5 largest positive and negative changes in the BIC Index ranking between 2015-2016

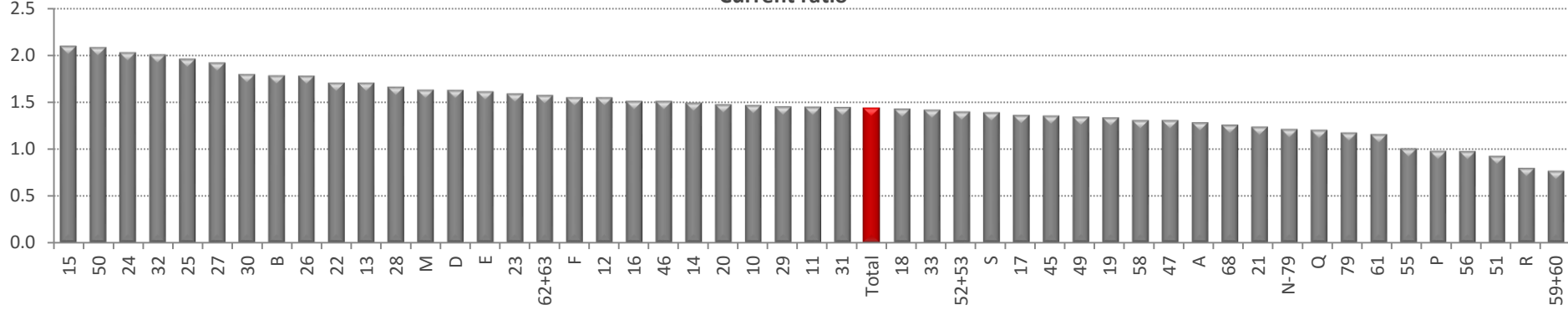


Liquidity, 2016

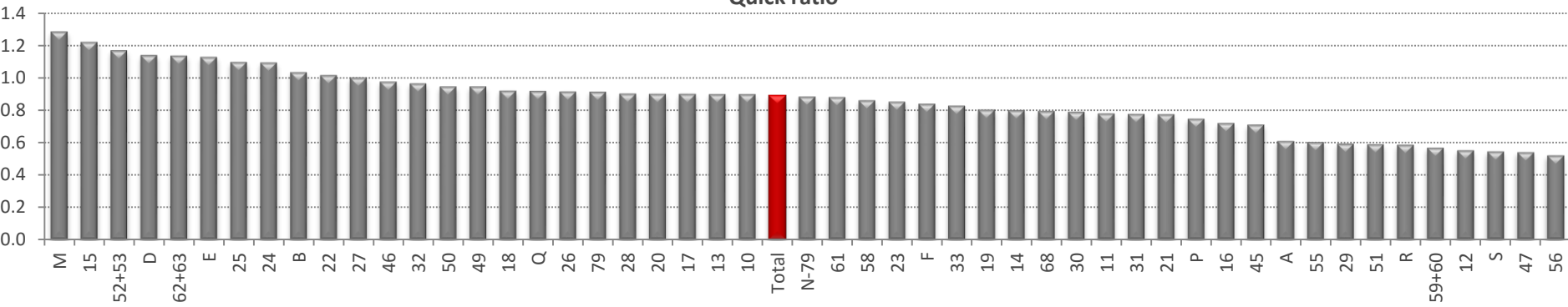
Performance of examined ratios per sector



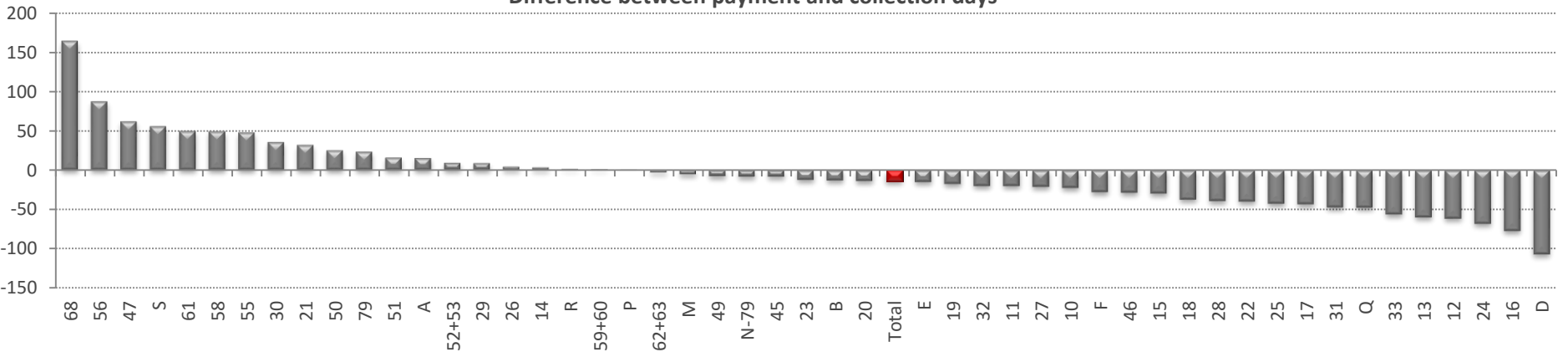
Current ratio



Quick ratio

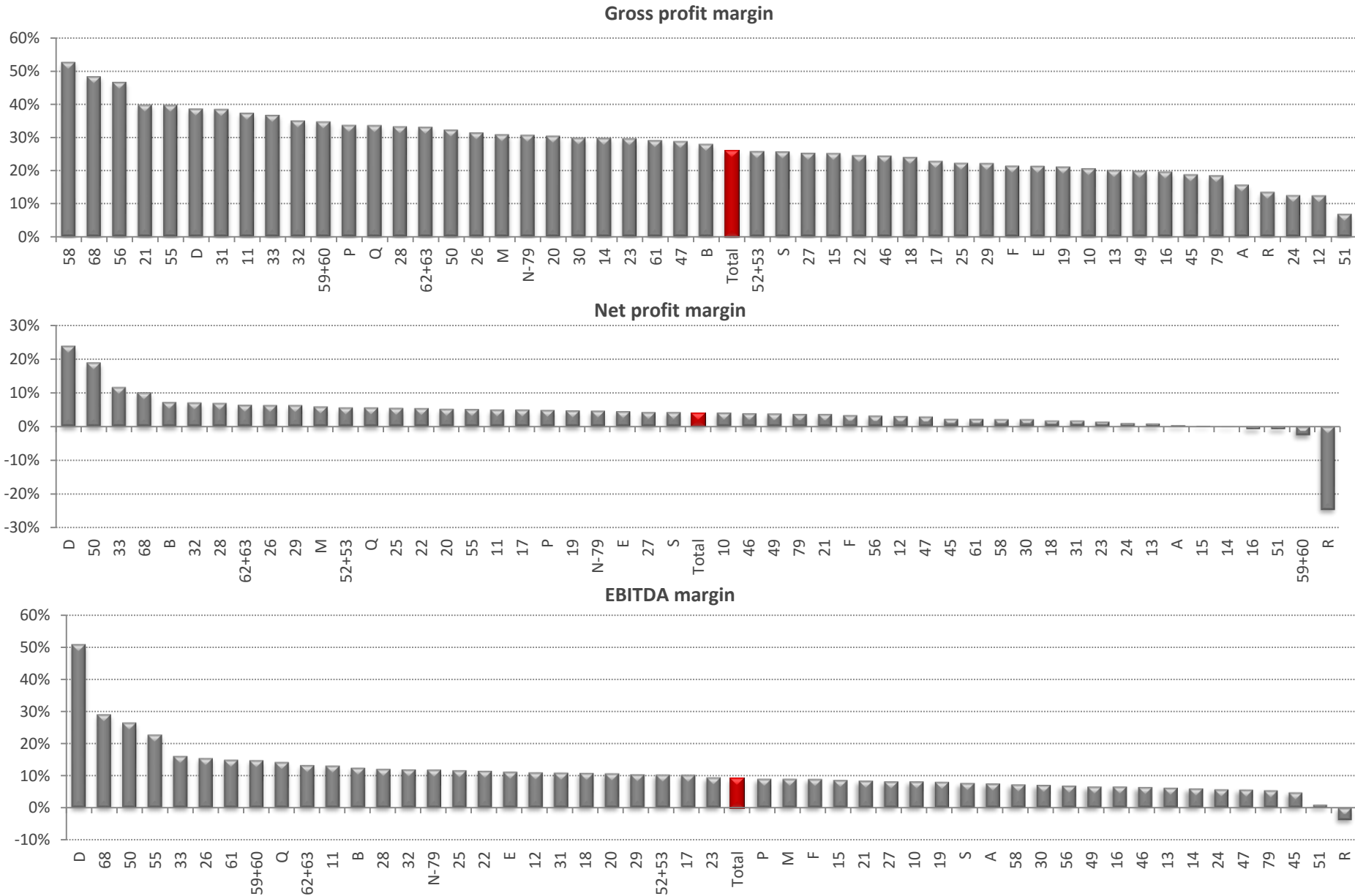


Difference between payment and collection days



Efficiency, 2016

Performance of examined ratios per sector (a)

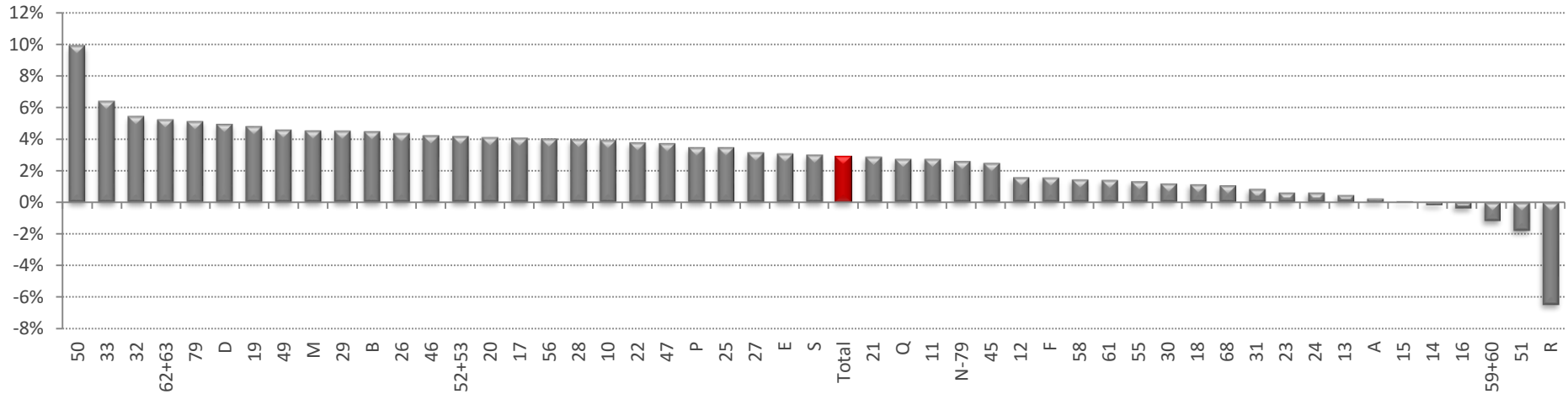


Efficiency, 2016

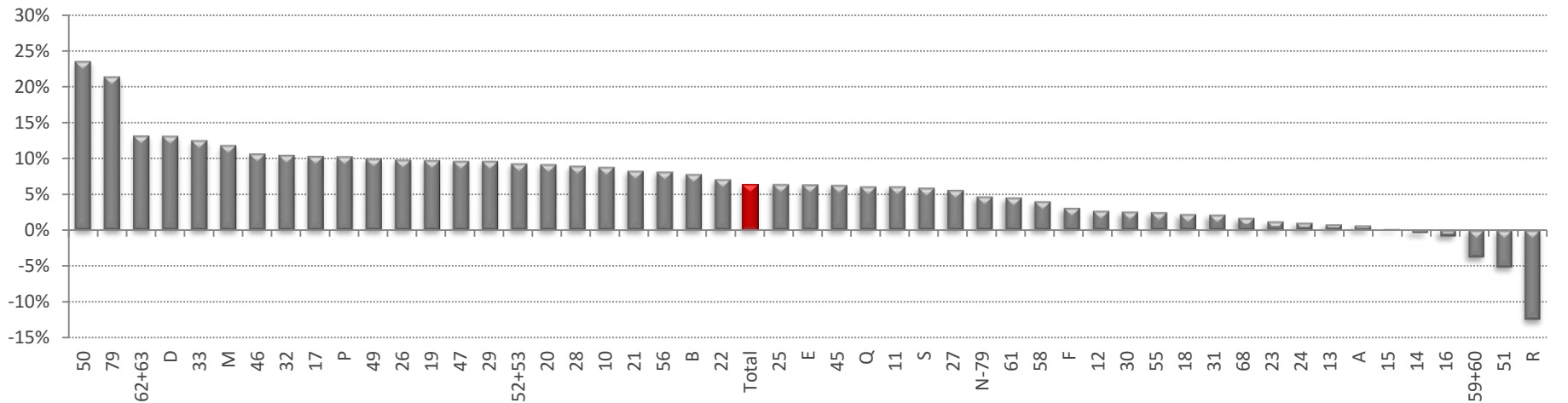
Performance of examined ratios per sector (b)



Return on total assets



Return on equity

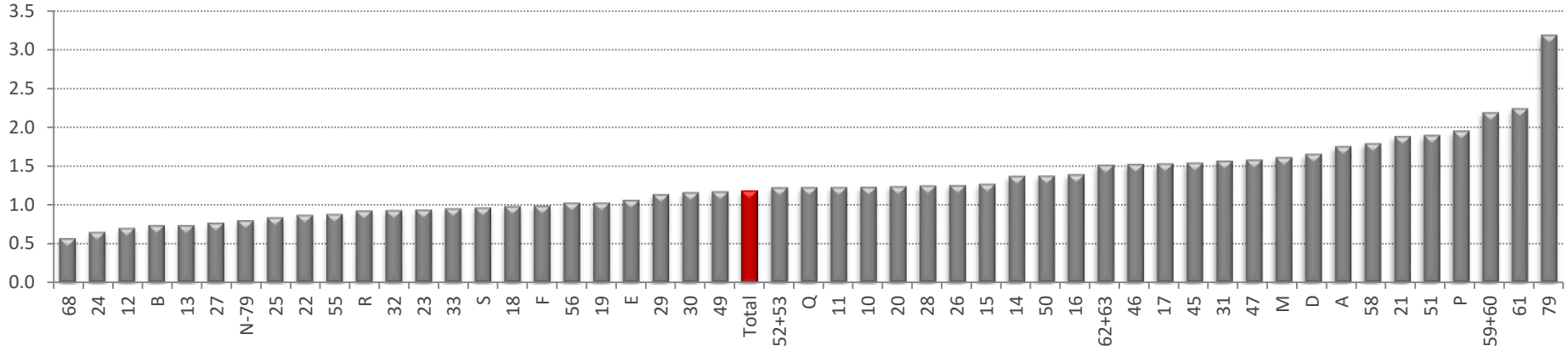


Capital structure, 2016

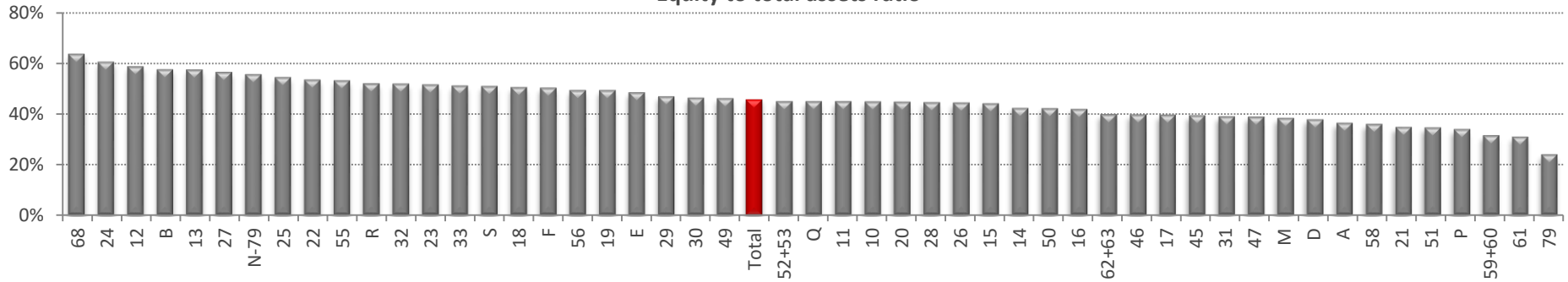
Performance of examined ratios per sector (a)



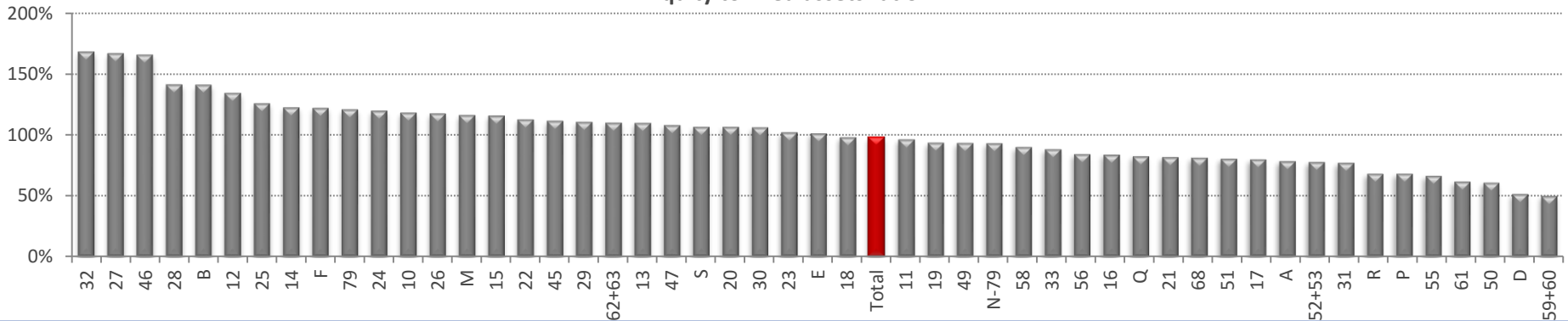
Debt to equity ratio



Equity to total assets ratio

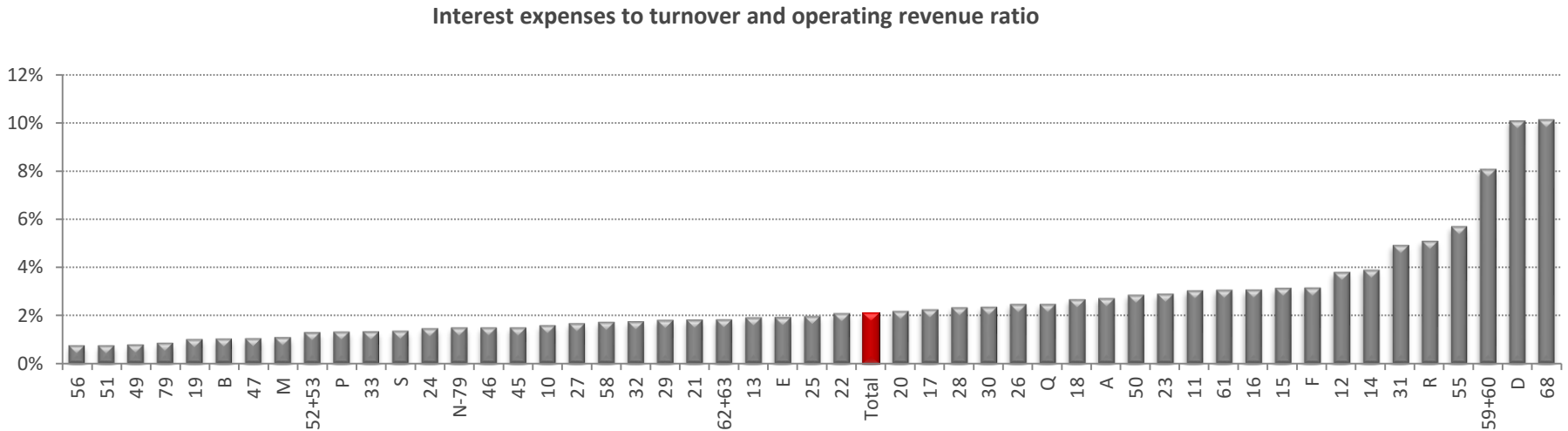
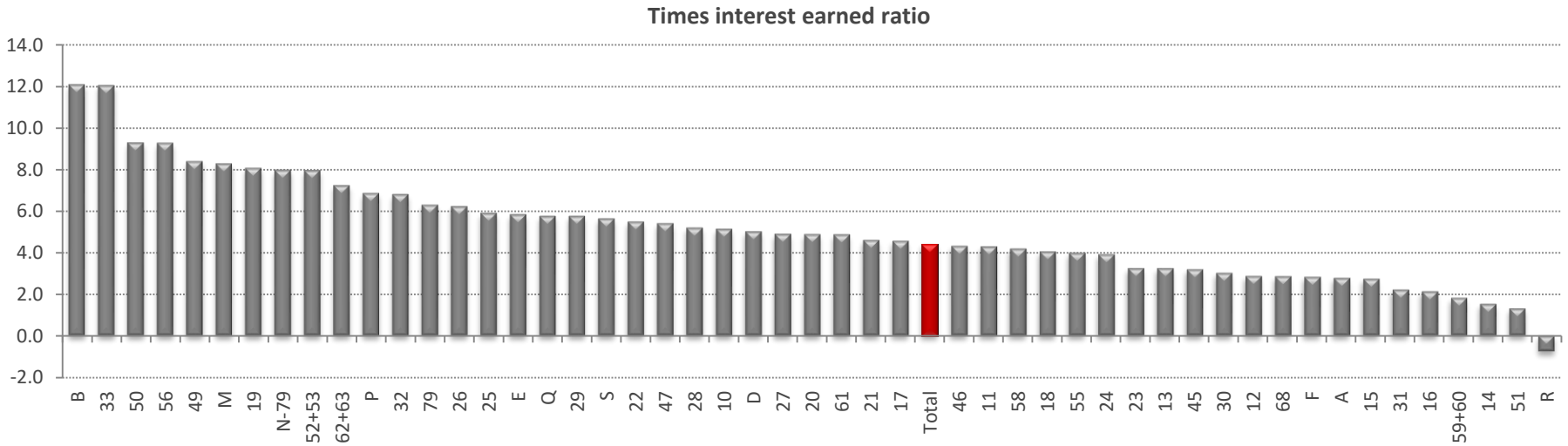


Equity to fixed assets ratio



Capital structure, 2016

Performance of examined ratios per sector (b)



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