b a c h

Bank for the Accounts of Companies Harmonized

OUTLOOK
6

High profitability activities

a review on the concepts of profitability

(October 2018)

Abstract

Outlook #6, entitled "High profitability activities: a review on the concepts of profitability", uses BACH data from 11 European countries (Austria, Belgium, Czech Republic, Germany, Spain, France, Italy, Luxembourg, Poland, Portugal and Slovakia) to analyse European non-financial activities' profitability. This outlook focuses on identifying the activities with high return on equity and knowing their distribution by country and sector. Furthermore, other concepts of profitability are analysed, such as return on assets and the net operating margin. The comparison of the high profitability activities according to each one of the profitability ratios highlights the factors that favour profitability across countries and economic sectors.

Disclaimer

This analysis is based exclusively on BACH data. Therefore, the evidence provided reflects the different national samples used to calculate BACH data and might differ from other sources. More information regarding methodological limitations and national sample specificities can be found on the BACH website. The opinions of the authors of this document do not necessarily reflect those of the national central banks to which they belong or those of the ECCBSO

FOREWORD

The European Committee of Central Balance-Sheet Data Offices (ECCBSO) is an informal body whose members consist of experts either from the Central Balance-Sheet Data Offices belonging to or associated with the National Central Banks of the European Community, or from National Statistical Institutes.

The Bank for the Accounts of Companies Harmonized Working Group (BACH WG) is one of ECCBSO's Working Groups. It was created within the foundation of developing and improving a European statistical database: the BACH database.

The BACH database provides comparable aggregated data (both economic and financial) based on the annual accounts of non-financial incorporated companies from European countries. Freely available, BACH includes data from 12 countries: Austria, Belgium, Czech Republic, Denmark, Germany, Spain, France, Italy, Poland, Portugal, Slovakia, and Luxembourg

We sincerely hope you can benefit from this analysis and we invite you to visit the BACH database and explore it as much as possible by making your own analysis. Do not hesitate to share your results with the BACH WG.

Executive summary

Outlook#6 analyses European high profitability activities for 11 countries participating in BACH database. The purpose of this study is to identify the most profitable activities among BACH countries, using return on equity. This ratio depends on several factors: the operational profitability, the technology level of the activity, the funding structure, and other features as countries' tax and legal framework.

To study the factors behind the high profitability activities, return on equity was replaced by return on assets and the net operating margin and the resulting differences analysed. The results show that the identification of the high profitability activities depends on the profitability ratio used. Austria aggregated the largest proportion of activities with high return on equity. Czech Republic and Poland improved their share in the high profitability activities when return on assets was used; Belgium and Portugal stood in a higher rank using the net operating margin than using other profitability measures.

Profitability is also related to the firms' economic sector. Activities in the Primary and Secondary Sectors generated, in general, higher revenues by unit of assets employed, while the Tertiary Sector could benefit more from the operating margins and the financial leverage to improve the shareholders' profitability.

INTRODUCTION

By the end of 2016, return on equity remained under its value in 2006 in most of the European countries covered in the BACH database. The financial crisis and the subsequent events affected firms' activity and funding decisions across countries and economic sectors, with a negative impact over profitability.[1]

To increase European firms' profitability, it is relevant that economic agents know which activities are more or less profitable. High profitability activities are the ones that will most likely provide higher returns to those who invest in them; on the other hand, low profitability activities may be in risk of losing attraction and investment. As profitability is influenced by many factors, such as the profit margins, the technological characteristics of the industries, the countries' legal and tax framework and the firms' funding decisions, it is also important to know which of those factors favour profitability in some countries and sectors over the others.

Outlook#6 analyses non-financial activities according to their level of profitability. The purpose is to locate *high profitability activities*, i.e., activities within the 25% highest values for a given profitability ratio. The distribution of those activities across countries and economic sectors is also carried on.

The concepts of probability are further analysed, by comparing the results for three alternative measures of profitability. The identification of high profitability activities depends on the perspective adopted – the shareholders' profit (return on equity), the firms' resources (return on assets) or the firms' profit margins (net operating margin). The factors that favour profitability in some activities over the remaining stand out from the differences observed in the results for alternative profitability measures.

Section 1 starts by defining high profitability activities. Using return on equity as a measure of profitability, European high profitability activities are identified and disaggregated by country and economic sector. In section 2, return on assets and the net operating margin are used to define high profitability activities alternatively to return on equity, focusing on the dissimilarities that arise between these ratios. Section 3 concludes this analysis. Annexes 1 to 4 provide additional detailed data for this study.

[1] Outlook#4 *European non-financial corporations from 2007 to 2014* analyses the decrease in return on equity in European countries during the last decade, highlighting the relevance of the 2008-2009 financial crisis for this evolution.

1. HIGH PROFITABILITY ACTIVITIES

Profitability is the relation between the profits obtained by firms with their activity within a time period (usually a year) and the resources used in that activity. Therefore, it measures the return that firms can generate by monetary unit of the funds invested in its activity.

Firms' profitability depends on *individual factors*, such as the firms' characteristics, investment and funding decisions. *External factors* also have an influence on the profitability. It is *sector-dependent*, as some activities demand larger amounts of assets than others, the profits depend on the price of the inputs and degree of competition, etc., and *country-dependent*, with the fiscal and legal framework having an impact on profits. The cost of debt, which results both from individual funding decisions and the countries' positioning in the financial markets, also impacts on the firms' profits.

The profitability of non-financial corporations is, therefore, very heterogeneous. Focusing on the external factors of profitability, the purpose of this Outlook is to analyse the distribution by country and economic sector of low, intermediate and high profitability activities. Special attention is given to high profitability activities, in particular their distribution across countries.

BACH database contains several ratios that measure profitability. In this Outlook, the main analysis is carried out using **return on equity (ROE)**. This ratio measures the profitability from the shareholders' perspective, indicating the profit or loss of the year for each monetary unit invested by the shareholders.

Data description and methodology

This analysis was prepared with the variable samples available in the BACH database[2] for 11 countries: Austria, Belgium, Czech Republic, Germany, Spain, France, Italy, Poland, Portugal, Slovakia, and Luxembourg.[3] The weighted means for ratio *R38 return on equity* and size class *0 – All sizes* were collected. All observations with 3 or less firms were deleted.

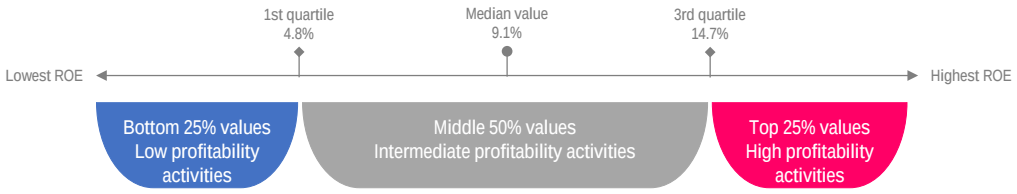
The information concerns the most recent year available, corresponding to 2016 in most cases. Holdings and Head Offices (NACE divisions K642 and M701) along with NACE sections O, T, U were excluded. The activities considered in this Outlook correspond to NACE divisions or, when they are not available for all countries, NACE sections, adding up to 59 activities. The data used in this Outlook corresponds to a sample of 616 pooled observations by country and sector of activity for return on equity's weighted means. [4]

All the pooled observations were ordered from the lowest to the highest values, regardless of country or economic sector, as represented in Figure 1. *High profitability activities* are the 25% top values,

[2] Data collected in September 2018.
[3] Denmark was excluded from the analysis as the weighted means for the profitability ratios used in this Outlook were not available.
[4] Table 4 in Annex 1 provides the complete list of activities available by country and most recent year.

corresponding, in this sample, to activities presenting a return on equity equal to or above 14.7%. The 25% bottom values in this sample show a return on equity equal to or under 4.8%, corresponding to *low profitability activities*. *Intermediate profitability activities* are those that stand between the 25% bottom and top values.

Figure 1 – Profitability classes calculated with return on equity (ROE)



Identifying high profitability activities

The distribution of low, intermediate and high profitability activities varied considerably across countries, highlighting the relevance of country-related factors that influence the return obtained by the shareholders (Chart 1)[5].

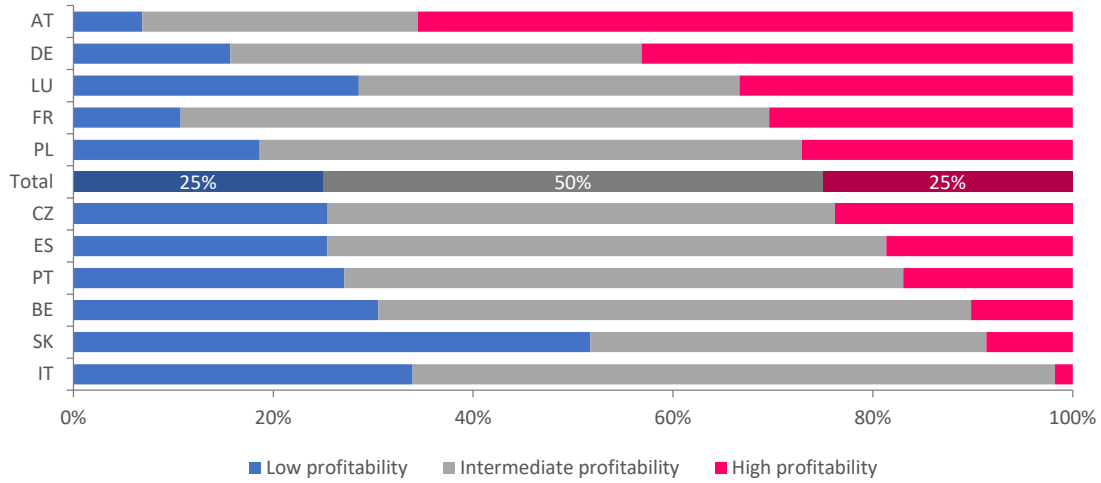
High profitability activities were more frequent in Austria (66% of the activities observed in this country[6]). Germany, Luxembourg, France and Poland also presented a proportion of high profitability activities above 25%. These five countries accounted for two thirds of the high profitability activities in the sample. On the other hand, the prevalence of low profitability activities in these countries was, in general, below the one observed for the total sample.

The remaining countries were in the opposite situation. Less than one out of four activities observed in those countries exhibited high profitability. Also, low profitability activities were more frequent in these countries than high profitability activities. In particular, half of Slovakian observations exhibited low profitability, while in Italy only 2% of the activities showed a return on equity above 14.7%.

[5] As previously mentioned, all results presented in this study relate to the most recent year available in the BACH database for each combination of country/sector of activity (2016, in most cases). Data also available within BACH database regarding previous years (from 2006 onward) were also tested using the same methodology, leading, overall, to similar conclusions. The analysis of multiple profitability indicators, country- and activity-wise, reveals a number of characteristics of European non-financial activities which seem to be structural (in spite of minor differences which can be spotted when using other reference periods for this analysis).

[6] The proportion of high profitability activities in Austria is influenced by a selection bias, i.e. the Austrian BACH sample is a subset of the population (around 42% of all non-financial corporations) and the selected financial statements for the sample tend to have a bias towards "good companies".

Chart 1 – Distribution of the profitability classes by country (2016*)



** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of high profitability activities.

An analysis by sector show a greater prevalence of high profitability activities among Services than the Primary and Secondary Sectors, illustrating how profitability is influenced by the firms' economic activity. The greater frequency of high profitability activities in the Tertiary Sector was observable in most of the countries under analysis.

The Tertiary sector represented 48% of the activities considered in the sample[7], this distribution being similar across the several countries, with the exception of Luxembourg (Table 1). The Tertiary sector comprised the majority of the observations when only high profitability activities were considered. Although the share of services among high profitability activities varied considerably across countries, they represented the majority of the high profitability activities in all countries except Belgium (33%), France (35%) and Czech Republic (36%). All the Italian high profitability activities were within the Tertiary sector, while in Portugal and Slovakia this sector accounted for 80% of high profitability activities.

[7] From the 59 activities considered in this Outlook, 31 were included in the Primary and Secondary Sectors, and 28 in the Tertiary Sector. As the definition of Primary, Secondary and Tertiary Sectors is not unanimous, the classification adopted in this Outlook was chosen as to divide the sample in similar parts, allowing an easier interpretation of the results. In this context, Tertiary Sector and Services are referred to as synonyms.

Table 1 – Distribution of the activities by sector (2016*)

	All activities		High profitability activities	
	Primary & Secondary Sectors	Tertiary Sector	Primary & Secondary Sectors	Tertiary Sector
Austria	52%	48%	47%	53%
Germany	55%	45%	45%	55%
Luxembourg	38%	62%	43%	57%
France	55%	45%	65%	35%
Poland	53%	47%	44%	56%
Czech Republic	53%	47%	64%	36%
Spain	53%	47%	45%	55%
Portugal	53%	47%	20%	80%
Belgium	53%	47%	67%	33%
Slovakia	52%	48%	20%	80%
Italy	55%	45%	0%	100%
Total	**52%**	**48%**	**47%**	**53%**

** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Countries ordered from the highest to the lowest proportion of high profitability activities.
Primary & Secondary Sectors comprise Agriculture and mining, Manufacturing, Electricity, Water and waste and Construction (NACE sections A to F). Tertiary Sector corresponds to services (NACE sections G to S, except K, O, T and U).

Following these results, high profitability activities were more frequent among the Tertiary Sector than in the Primary and Secondary Sectors (Chart 2). In this sample, 27% of services activities showed high profitability, while this proportion stood at 23% for the Primary and Secondary sectors.

The proportion of high profitability activities by economic sector showed sharper differences when disaggregated by country. Services presented in general a higher proportion of high profitability activities than the Primary and Secondary sectors, being the differential between the two more relevant in Portugal (23pp), Germany (16pp), Austria and Slovakia (11pp). In Portugal, 29% of the activities in the Tertiary Sector presented high profitability, while this proportion was 6% for the Primary and Secondary Sectors.

Luxembourg, France, Czech Republic and Belgium stood in the opposite situation, the Primary and Secondary Sectors presenting a higher proportion of high profitability activities than the Tertiary Sector.

Chart 2 – Percentage of high profitability activities by sector (2016*)

** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of high profitability activities. Primary & Secondary Sectors comprise Agriculture and mining, Manufacturing, Electricity, Water and waste and Construction (NACE sections A to F). Tertiary Sector corresponds to services (NACE sections G to S, except K, O, T and U).

The proportion of observations presenting high profitability was larger among *Information services* (73%), *Veterinary activities* (56%), *Computer programming* and *Legal and accounting activities* (both with 55%). Yet, it would be inaccurate to assume that all activities related with services led to higher levels of return. *Land transport* and *Real estate* activities showed no observations among the high profitability activities. On the other hand, in the Primary and Secondary Sectors, some activities exhibited a high frequency of observations with high profitability, such as the manufacture of *Rubber and plastic products* (55%), *Pharmaceutics* and *Other transport equipment* (both with 50%). Chart 9 in Annex 2 provides further detail on high profitability observations by sector of activity.

2. COMPARING DIFFERENT MEASURES OF PROFITABILITY

There are several measures of profitability, depending on the perspective adopted. BACH database provides 10 profitability ratios, as presented in Annex 3. The combination of profitability ratios can be useful for a better understanding of the factors that determine firms' profitability. In this section, this analysis is carried on by comparing the profitability classes obtained for alternative profitability ratios.

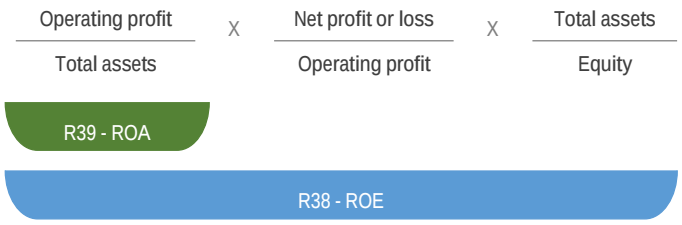
Return on equity measures profitability from the owners' perspective, as it measures the profits obtained by the shareholders. Following the decomposition of return on equity, this ratio can be related to other measures of profitability, such as return on assets (ROA) and the net operating margin (NOM).

Return on assets

Return on assets (ROA) measures the operating profit obtained by monetary unit of assets employed by the firms. This ratio analyses the overall profitability of the firms, irrespective of the assets' funding structure; therefore, it is a measure of profitability in the perspective of firms' resources.

To understand the relation between return on assets and return on equity, Figure 2 illustrates that the former comprises the operational components of return on equity.

Figure 2 – Relation between return on equity (ROE) and return on assets (ROA)



Return on assets differs from return on equity by the effect of two components[8]:

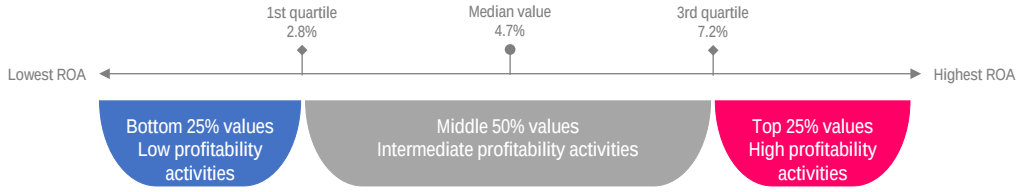
- **Net profit or loss over operating profit** measures the effect of non-operating profit (financial and extraordinary income/expenses, interest and taxes) on firms' net profit. This ratio quantifies the percentage of operating profit that turned into net profit or loss. Comparing two observations with the same return on assets and keeping everything else constant, the one with a highest net profit over operating profit presents the highest return on equity;
- **Total assets over equity** measures the financial leverage effect. This ratio quantifies the number of times total assets increased with the use of debt. Comparing two observations with the same return

[8] Annex 3 provides additional information on the definitions adopted in this decomposition.

on assets and keeping everything else constant, the one with the highest financial leverage presents the highest return on equity.

Following the methodology described in the previous section, activities were classified into low, intermediate and high profitability according to their return on assets (Figure 3). In this sample, activities presenting a return on assets equal to or above 7.2% are among the 25% top values, being *high profitability activities*. Activities with a return on assets equal to or below 2.8% are *low profitability activities*.

Figure 3 – Profitability classes calculated with return on assets (ROA)



It is important to notice that the same activity may be classified in different profitability classes, using alternatively return on equity or return on assets. To analyse the differences that arise from the use of return on assets instead of return on equity, Table 2 provides the transition matrix from the ROA profitability classes to the ROE profitability classes.

The differences that arise from the use of return on assets instead of return on equity are considerable. One third of the observations have different classifications, using alternatively return on equity or return on assets. In this sample, 10% of the observations were labelled as high profitability activities when return on equity was considered, but intermediate or low profitability activities according to their return on assets. Either non-operating profit, financial leverage or both effects, as described in Figure 2, exhibited a more favourable impact for these activities than for most of the remaining ones.

Table 2 – Transition matrix from ROA profitability classes to ROE profitability classes (2016*)

		ROE			
		Low profitability	Intermediate profitability	High profitability	Total
ROA	Low profitability	18%	6%	1%	25%
	Intermediate profitability	7%	35%	9%	50%
	High profitability	0.3%	9%	15%	25%
	Total	25%	50%	25%	100%

** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Blue cells – activities with the same ROA and ROE profitability class. Yellow cells – activities with higher ROE profitability class. Orange cells – activities with higher ROA profitability class.

An in-depth analysis of the activities with different profitability classifications (i.e., observations in the yellow and orange cells of the transition matrix) highlights the differences across countries (Chart 3).

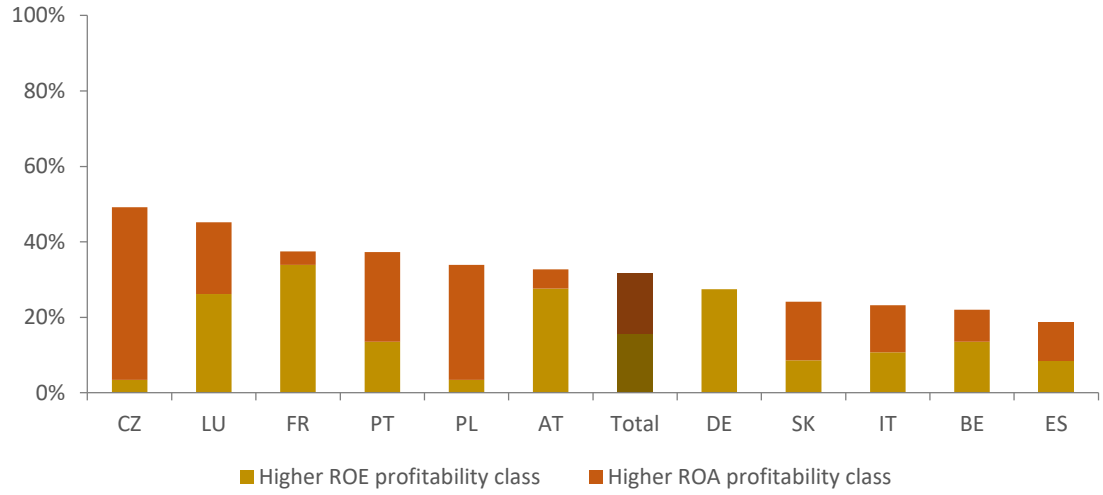
Nearly half of Czech activities exhibited different profitability classes using alternatively return on equity or return on assets, most of those activities standing at a higher class when using return on assets than when using return on equity. The same can be observed for Polish activities: nearly one third stood at a higher class when return on assets was used. This relates to the fact that the non-operating profit and the financial leverage effects disfavour the firms operating in these countries in relation to the firms in the remaining countries. [9]

France, Germany, Austria and Luxembourg stood in the opposite situation: more than one quarter of the activities in these countries exhibited a higher profitability class when return on equity was used instead of return on assets. The better relative position of these countries, when return on equity was used, was related to more favourable non-operating profit and financial leverage effects over return on equity than for the remaining countries.

It is also noticeable the overlap between the profitability classes for both ratios in Spain, Belgium, Italy and Slovakia. More than three out of four activities in these countries shared the same profitability class using either return on assets or return on equity.

Annex 4 provides the transition matrices from ROA to ROE profitability classes by country and sector.

Chart 3 – Percentage of activities in different ROE and ROA profitability classes (2016*)



** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of activities with different profitability classes.

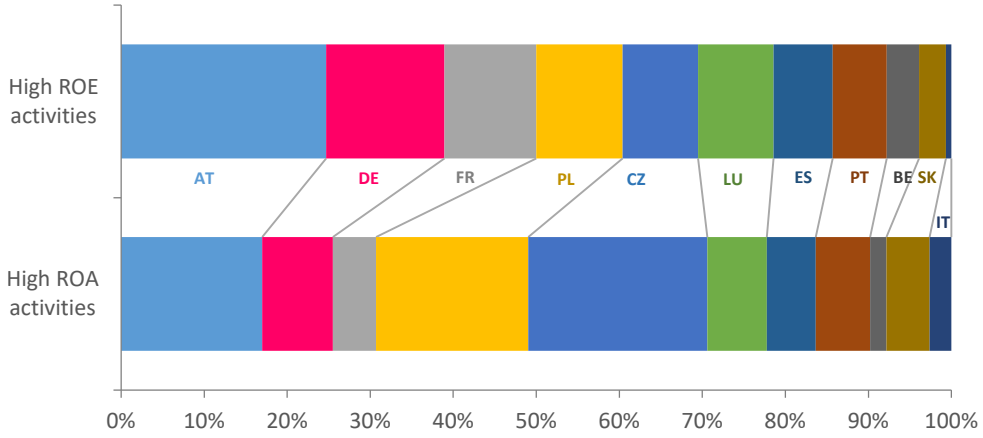
[9] Czech and Polish firms are, on average, less leveraged than their European counterparts. This affects the return on equity negatively, *ceteris paribus*. See Outlook 4 for an analysis of the funding structure by country.

From this follows that the relative position of the countries in the profitability classes may change according to the profitability ratio used, depending on the factors that most favour the firms' profitability in each country over the firms in the remaining countries. In particular, the distribution of high profitability activities by country changes significantly when return on equity is replaced by return on assets (Chart 4).

Both ratios show a concentration of high profitability activities. The top 5 countries account for two thirds of high profitability activities, considering either return on equity or return on assets. However, the relative position of the countries changed when return on assets was used. Czech Republic and Poland exhibited the highest shares of high profitability activities when return on assets was considered, while also presenting the greatest differential when comparing this distribution with the one based on ROE. Austria, Germany and France, on the other hand, showed the largest decrease in the share of high profitability activities when return on equity was replaced by return on assets, as firms in those countries were more favoured by the non-operating profit and financial leverage effects. The remaining countries exhibited shares in the high profitability activities below 10% for either return on assets and return on equity, the differentials between both ratios standing below 2pp.

Chart 9 in Annex 2 provides additional information on the distribution of profitability classes using return on assets by country.

Chart 4 – Distribution of high profitability activities by country (2016*)

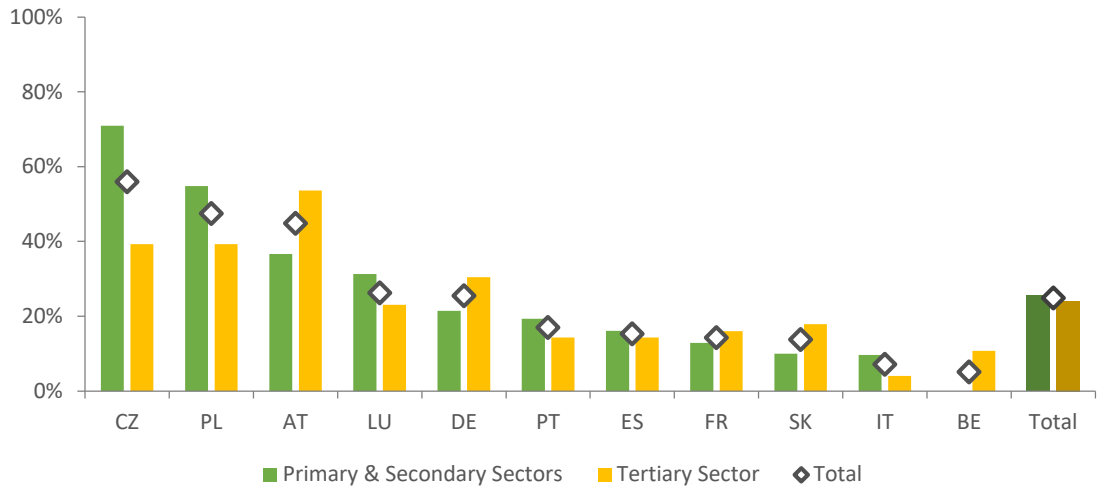


** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest share in the high ROE activities.

An analysis by sector shows that the proportion of high profitability activities by economic sector changed when return on assets was considered (Chart 5). In this case, high profitability activities were more frequent in the Primary and Secondary Sectors (26% of the observations) than in the Tertiary Sector (24% of the observations). This illustrates that, in general terms, non-operating profits and financial leverage favoured services over Primary and Secondary Sectors activities. This largely results from the differences registered for Czech Republic and Poland, where the proportion of high profitability activities in the Primary and Secondary Sectors stood at 71% and 55%, respectively.

However, these findings were not consistent across all countries. In Austria, Germany, France, Slovakia and Belgium, high profitability activities were more frequent in the Tertiary Sector than in the Primary and Secondary Sectors. In particular, 54% of services activities in Austria were high profitability activities, 17pp above the percentage observed in the Primary and Secondary Sectors.

Chart 5 – Percentage of high profitability activities by sector, using return on assets (ROA) (2016*)



** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of high profitability activities. Primary & Secondary Sectors comprise Agriculture and mining, Manufacturing, Electricity, Water and waste and Construction (NACE sections A to F). Tertiary Sector corresponds to services (NACE sections G to S, except K, O, T and U).

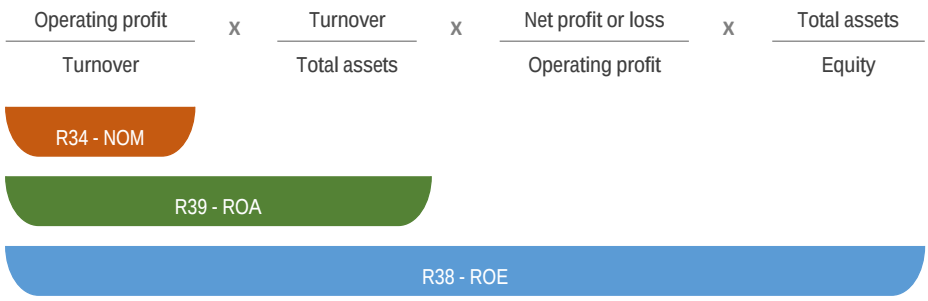
In the Primary and Secondary Sectors, activities with high return on assets are more frequent in the manufacture of *Leather products* (78% of the observations), *Pharmaceutics* (70%), *Machinery and equipment* (64%) and *Tobacco products* (57%). *Construction of buildings* and *Civil engineering*, on the other hand, presented no high profitability activities. Despite the Tertiary Sector presented a lower proportion of activities with high return on assets, more than half of *Veterinary* and *Information services* activities exhibited high profitability. Chart 10 in Annex 2 provides further detail.

Net operating margin

The **net operating margin (NOM)** measures the operating profit obtained by monetary unit of turnover; it is commonly referred to as 'turnover profitability'. As it relates the firms' revenues with the associated profits, it provides an analysis of profitability from the profit margins' perspective.

The net operating margin is a component of both return on assets and return on equity, as illustrated by Figure 4.

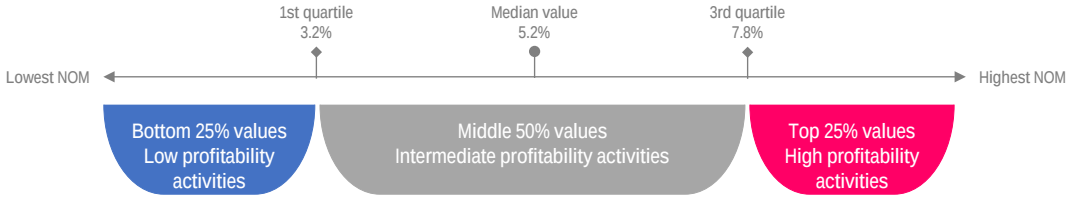
Figure 4 – Relation between return on equity (ROE), return on assets (ROA) and net operating margin (NOM)



The net operating margin differs from return on assets by the effect of **asset turnover**. This ratio measures the firms' efficiency in using assets to generate income, by quantifying the turnover generated by monetary unit of assets employed. This ratio is sectorial dependent, as some activities demand more assets than others.

As for return on equity and return on assets, the profitability classes based on the net operating margin are defined in Figure 5. In this sample, *high profitability activities* exhibited a net operating margin equal to or above 7.8%. The observations with a net operating margin equal to or below 3.2% were *low profitability activities*.

Figure 5 – Profitability classes calculated with the net operating margin (NOM)



Although both the net operating margin and the return on assets provide an operational measure of profitability, the relative position of the activities concerning one of these ratios may differ. In fact, one third of the activities in this sample were in different profitability classes considering either the net operating margin or return on assets (Table 3). In particular, 10% of the observations were high profitability activities when the net operating margin was considered, but low or intermediate profitability activities when return on assets was used. These activities exhibited high operating margins, but demanded larger amounts of assets to obtain a monetary unit of turnover than most of the remaining activities.

Table 3 – Transition matrix from NOM profitability classes to ROA profitability classes (2016*)

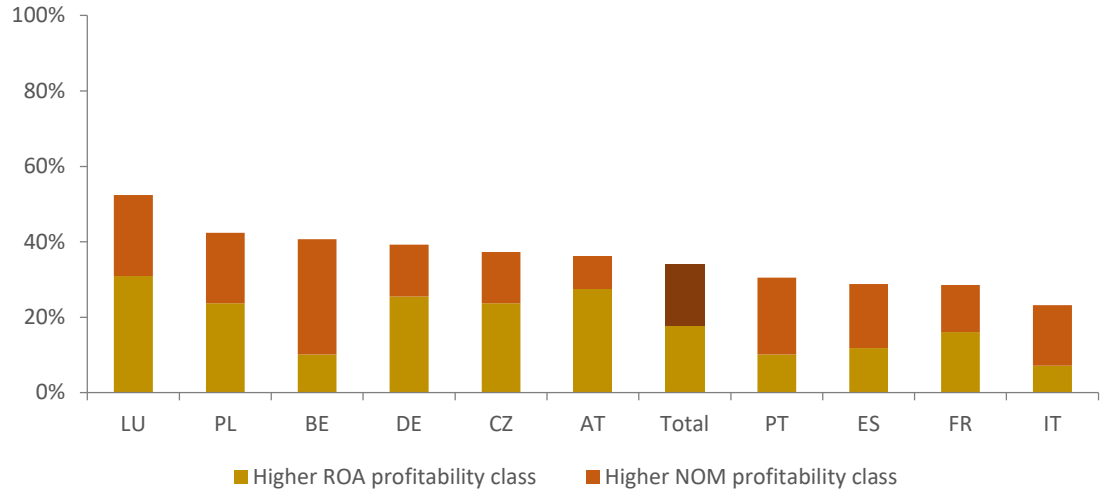
		ROA			
		Low profitability	Intermediate profitability	High profitability	Total
NOM	Low profitability	16%	8%	0.2%	25%
	Intermediate profitability	7%	34%	9%	50%
	High profitability	2%	8%	16%	25%
	Total	25%	50%	25%	100%

** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Blue cells – activities with the same ROA and NOM profitability class. Yellow cells – activities with higher ROA profitability class. Orange cells – activities with higher NOM profitability class.

The proportion of observations with different profitability classes, according to the net operating margin or return on assets (orange and yellow cells in the transition matrix), varied across countries (Chart 6). Luxembourg was the country where asset turnover impacted more in the activities' profitability class. More than half of the observations in that country exhibited a different profitability class when net operating margin was considered, alternatively to the return on assets distribution. For most of those activities, the relative position concerning return on assets benefited from a relatively higher asset turnover. The same could be perceived for Austria, Germany, Poland and Czech Republic, where the proportion of activities with a higher ROA profitability class stood above 20%.

The proportion of changes to a higher profitability class, when the operating margin was used instead of return on assets, was higher in Belgium (three out of four changes) and Portugal (two out of three changes).

Chart 6 – Percentage of activities in different ROA and NOM profitability classes (2016*)



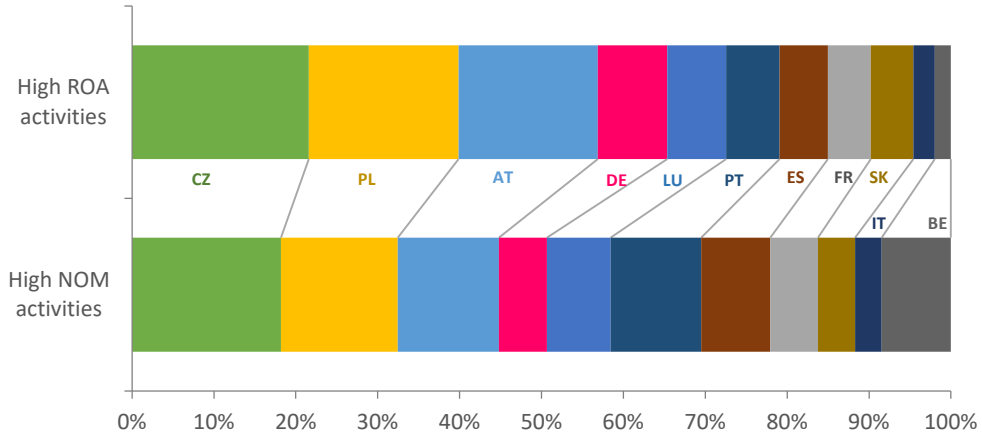
** The most recent year was used when data for 2016 was not available. See Table X in Annex.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of activities with different profitability classes.

In line with these findings, the proportion of Belgian and Portuguese observations among high profitability activities was 6pp and 5pp higher when the net operating margin was used instead of the return on assets (Chart 7). The relatively lower position these countries exhibited for return on assets and return on equity arises, in some extent, from the fact that firms' asset turnover was in general lower in Belgium and Portugal than for their European counterparts.[10]

The asset turnover effect was more favourable among Czech, Polish, Austrian and German firms than in the remaining countries. The share of these countries among high profitability activities was 3pp to 5pp higher when return on assets was used instead of the net operating margin.

Chart 10 in Annex 2 provides additional information on the distribution of profitability classes using the net operating margin by country.

Chart 7 – Distribution of high profitability activities by country (2016*)



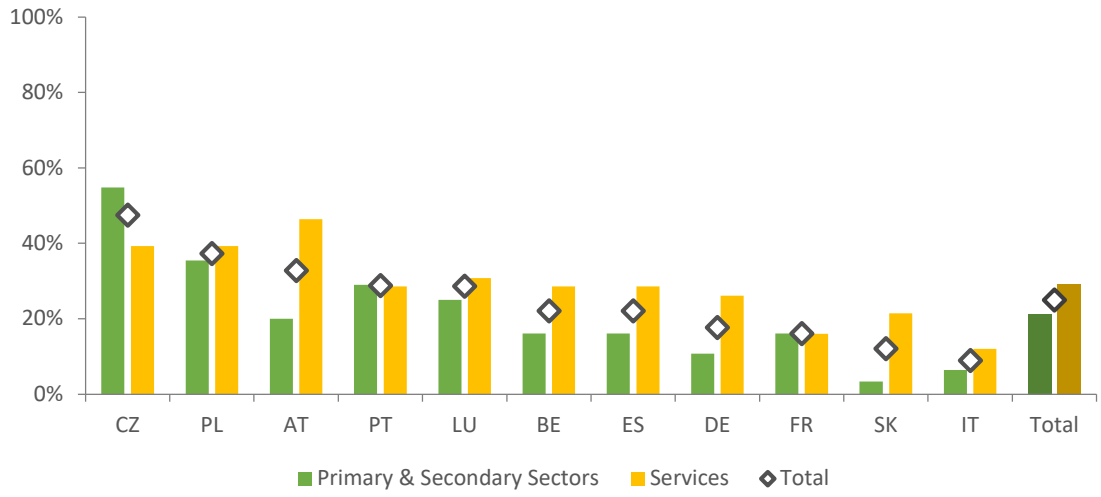
** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest share in the high ROE activities.

Whenever the profitability analysis focuses only on the operating profit margin, high profitability activities are substantially more frequent among Services activities than in the Primary and Secondary sectors. In this sample, 29% of Services activities exhibited high profitability, this proportion standing at 21% for the Primary and Secondary sectors (Chart 8). This proportion was more balanced when the same methodology was implemented using return on assets (Chart 5). The operating margins favour, in general, Services' operating profitability, while in the Primary and Secondary sectors operating profitability is, in general, favoured by the asset turnover effect, i.e., by the higher amounts of turnover the firms in these sectors obtain by monetary unit of assets.

[10] Belgium and Portugal were among the European countries with the lowest asset turnover throughout the last decade, this fact being observable in most of the economic activity sectors. Outlook 4 provides an analysis of asset turnover by country and sector.

Only Czech Republic and France exhibited a different pattern. The latter showed a percentage of high profitability activities slightly higher among the Primary and Secondary sectors than in the Services sector. In Czech Republic, the differential was substantially higher (16pp), with high profitability activities representing more than half of the observations in the Primary and Secondary sectors.

Chart 8 – Percentage of high profitability activities by sector (NOM) (2016*)



** The most recent year was used when data for 2016 was not available. See Table 4 in Anne 1x.*
Legend: AT - Austria; BE - Belgium; CZ - Czech Republic; DE - Germany; ES - Spain; FR - France; IT - Italy; LU – Luxembourg; PL - Poland; PT - Portugal; SK - Slovakia. Countries ordered from the highest to the lowest proportion of high profitability activities. Primary & Secondary Sectors comprise Agriculture and mining, Manufacturing, Electricity, Water and waste and Construction (NACE sections A to F). Tertiary Sector corresponds to services (NACE sections G to S, except K, O, T and U).

In the Tertiary Sector, several activities presented high net operating margins in more than half of the observations: *Telecommunications* (70%), *Real estate* (64%) and *Legal and accounting services* and *Computer programming* (both with 55%). None of the observations in *Trade* (NACE section G) and *Marketing and advertising services* presented high profitability when the net operating margin was considered.

Although the Primary and Secondary Sectors showed an overall lower proportion of activities with net operating margins, some industries stood out for the large share of high profitability activities: the manufacture of *Pharmaceutics* (90%), *Tobacco* (71%) and *Beverages* (60%).

Profitability and financial leverage

The decomposition of return on equity, as presented in Figures 2 and 4, states that, keeping everything else constant, a higher financial leverage leads to a higher profitability. This means that when two activities with similar return on assets are compared, the one with the highest financial leverage will present the highest return on equity. This does not mean, however, that financial leverage and profitability are positively correlated for all observations. The dependencies between these two ratios are not accounted for in this decomposition, in particular the fact that most of debt instruments bear associated costs that reduce profits. Therefore, financial leverage will positively impact profitability only if the return obtained by monetary unit of debt exceeds its cost.

Defining *high financial leverage activities* as the top 25% values observed for the financial leverage ratio (R11) in the sample, *low financial leverage activities* as the bottom 25% values in the sample, and *intermediate financial leverage activities* as the ones whose values stand between the top and bottom figures of the distribution, Table 4 presents the transition matrix between financial leverage classes and ROE profitability classes.

The overlap between the classes for these two ratios is relatively low: less than half of the observations share the same class when these ratios are considered. Also, high financial leverage activities are twice more frequent both in low profitability activities (8 out of 25) and high profitability activities (9 out of 25) than in the intermediate profitability class (8 out of 50).

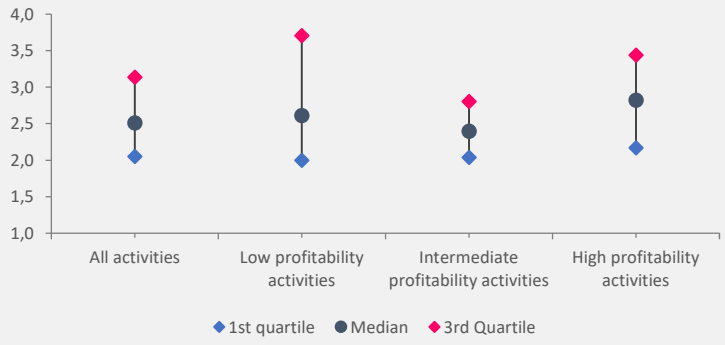
Table 4 – Transition matrix from financial leverage classes to ROE profitability classes (2016)*

	ROE			
	Low profitability	Intermediate profitability	High profitability	Total
Low financial leverage	7%	13%	5%	25%
Intermediate financial leverage	10%	29%	11%	50%
High financial leverage	8%	8%	9%	25%
Total	25%	50%	25%	100%

** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Blue cells – activities with the same financial leverage and ROE profitability class. Yellow cells – activities with higher ROE profitability class. Orange cells – activities with higher financial leverage class.

Data from the sample show a tendentially higher financial leverage among low and high profitability activities than in the intermediate profitability activities, pointing to a U-shaped relation rather than a positive correlation between these two ratios (Chart 9). Also, it is possible to observe that some activities show low profitability despite displaying high financial leverage. Low profitability activities are more heterogeneous concerning financial leverage and present the largest proportion of extreme values for this ratio (the largest 3rd quartile and the lowest 1st quartile).

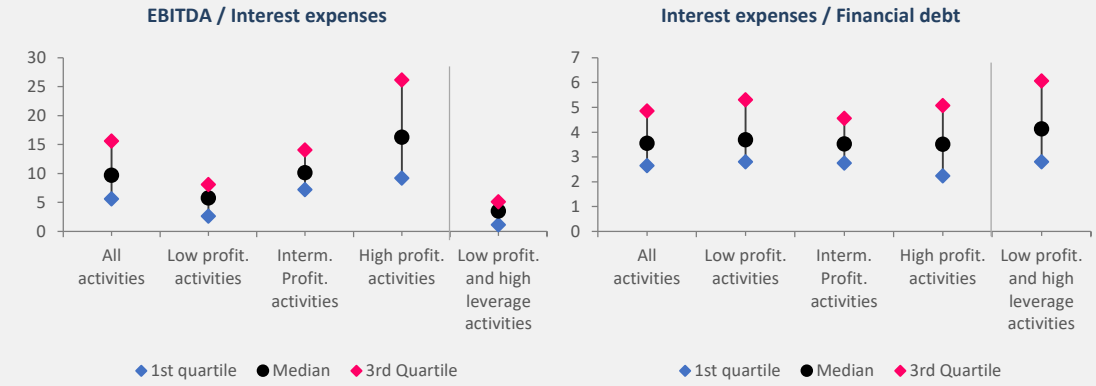
Chart 9 – Financial leverage ratio by ROE profitability class (2016)*



** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*

Debt will only have a positive impact on profits if the operating profitability covers the interest expenses; otherwise, the impact may be negative. High profitability activities show high financial leverage, but also generate a larger amount of EBITDA per unit of interest expenses (Chart 10). The median high profitability activity generated 16 euros of EBITDA per euro of interest expenses. On the other hand, low profitability activities generated, in general, low EBITDA per unit of interest expenses. Focusing on low profitability activities that present high financial leverage, this fact is clearer: those activities present a poor operating performance, as the EBITDA obtained per euro of interest expenses is very low compared to other activities. The negative relation between return on equity and EBITDA / interest expenses does not seem to be related to the financing conditions, as the interest paid by euro of financial debt show a similar distribution across profitability classes, but rather to the operating performance of the firms.

Chart 10 –EBITDA over interest expenses and interest expenses over financial debt by ROE profitability class (2016)*



** The most recent year was used when data for 2016 was not available. See Table 4 in Annex 1.*
Notes: EBITDA over interest expenses corresponds to ratio R22 in the BACH database. Interest expenses (I10) / Financial debt (L1 + L2 + L31).

Relating financial leverage and profitability is not straightforward. Though the decomposition of return on equity points to a positive impact of the use of debt over shareholders' profitability, it is important to notice that this proposition holds only if operating profitability is sufficient to cover the interest expenses. Therefore, high financial leverage may be associated either to activities with good operating performance, leading to higher profitability to the shareholders, or to activities with poor operating performance, leading to over-indebtedness and a lower return on equity.

3. FINAL REMARKS

Some patterns can be found in the distribution of high profitability activities across European countries. However, different conclusions may arise from the use of alternative profitability ratios. Profitability depends on many factors whose effects differ from country to country and sector to sector.

From the shareholders' perspective, high profitability activities were concentrated in five countries – Austria, Germany, Luxembourg, France and Poland, with two thirds of the observations. The first four countries benefited more from the non-operating profits and the financial leverage effects, as their share in the high profitability activities was lower if an operational perspective was adopted.

Focusing on the operational profitability, Czech Republic and Poland are the countries with the largest proportion of activities with high return on assets. Also, the relative position of Belgium and Portugal in the distribution of high profitability activities was more favourable concerning the net operating margin than for the remaining profitability ratios. This illustrates the relevance of the operating margin in Portuguese and Belgian firms' profitability compared to other countries.

The factors that favour firms' profitability also differ by economic sector, though some heterogeneity could be perceived within each sector. In general, the Tertiary Sector benefits more from the operating margins and the financial leverage effect, while activities in the Primary and Secondary Sectors are able to obtain, in general, higher revenues by unit of assets employed. From the shareholders' perspective, services showed a larger proportion of activities with a high return on equity.

ANNEX 1 – SAMPLE DESCRIPTION

Table 4 – Last year available by country and activity

Activities	Last year available										
	AT	BE	CZ	DE	ES	FR	IT	PL	PT	SK	LU
A - Agric&Fish	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
B - Mining	2016	2015	2014	2015	2016	2016	2016	2016	2016	2013	*n.a.*
C10 - Food prod.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C11 - Beverages	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C12 - Tobacco	*n.a.*	2015	2014	*n.a.*	2016	2016	2016	2016	2016	*n.a.*	*n.a.*
C13 - Textiles	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C14 - Wearing apparel	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C15 - Leather	2016	2015	2014	*n.a.*	2016	2016	2016	2016	2016	2013	*n.a.*
C16 - Wood&Cork	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C17 - Paper	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C18 - Print&Record	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C19 - Coke&Petroleum	2016	2015	2014	*n.a.*	2016	2016	2016	2016	2016	2013	*n.a.*
C20 - Chemicals	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C21 - Pharmaceutics	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C22 - Rubber&Plastic	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C23 - Othr. mineral pr.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C24 - Basic metals	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C25 - Metal pr.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C26 - Comput&Eletron	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C27 - Eletrical	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C28 - Machinery	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C29 - Motor vehicles	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C30 - Other transp.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C31 - Furniture	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	*n.a.*
C32 - Other manuf.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
C33 - Repair&Instal	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
D - Eletricity	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
E - Water&Waste	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
F41 - Construction	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
F42 - Civil engin.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
F43 - Special. constr.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
G45 - Repair vehicl.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
G46 - Wholesale	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
G47 - Retail trade	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
H49 - Land transport	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
H50 - Water transport	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
H51 - Air transport	2016	2015	2014	*n.a.*	2016	*n.a.*	2016	2016	2016	2013	*n.a.*
H52 - Wharehousing	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
H53 - Postal&Courr.	2016	2015	2014	*n.a.*	2016	*n.a.*	2016	2016	2016	2013	2015
I - Accom&Food	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
J58 - Publishing	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
J59 - Video&TV	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
J60 - Broadcasting	2016	2015	2014	*n.a.*	2016	2016	2016	2016	2016	2013	2015
J61 - Telecommunic.	2016	2015	2014	2016	2016	*n.a.*	2016	2016	2016	2013	2015
J62 - Computer progr.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
J63 - Information serv.	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
L - Real estate	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
M69 - Legal&Account	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
M702 - Management	2016	2015	2014	2016	2016	2016	*n.a.*	2016	2016	2013	2015
M71 - Archit&Engeneer	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
M72 - Scient. research	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
M73 - Advert&Market	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
M74 - Other	2016	2015	2014	*n.a.*	2016	2016	2016	2016	2016	2013	2015
M75 - Veterinary	2016	2015	2014	*n.a.*	2016	2016	2016	2016	2016	2013	*n.a.*
N - Administ&Support	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
P - Education	2016	2015	2014	2016	2016	2016	*n.a.*	2016	2016	2013	2015
Q - Health&Soc.work	2016	2015	2014	2016	2016	2016	*n.a.*	2016	2016	2013	2015
R - Arts&Entretain	2016	2015	2014	2015	2016	2016	2016	2016	2016	2013	2015
S - Other services	2016	2015	2014	2016	2016	2016	2016	2016	2016	2013	2015
Nr. observations	58	59	59	51	59	56	56	59	59	58	42

Table 5 – Number or observations by last year available

Year	Nr. obs	%
2016	396	64%
2015	103	17%
2014	59	10%
2013	58	9%
Total	616	100%

ANNEX 2 –PROFITABILITY CLASSES

Chart 9 – Distribution of the profitability classes calculated using return on assets, by country (2016*)

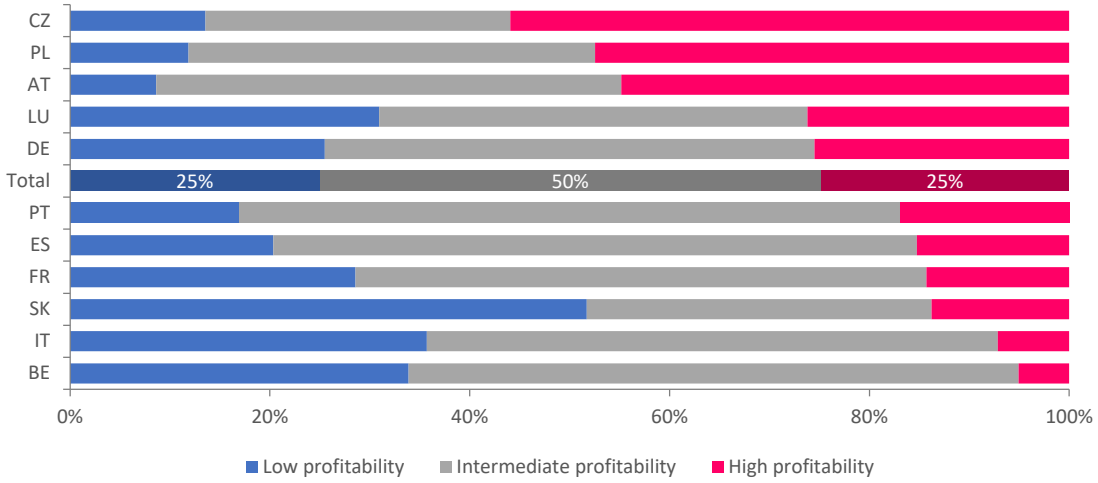


Chart 10 – Distribution of the profitability classes calculated using the net operating margin, by country (2016*)

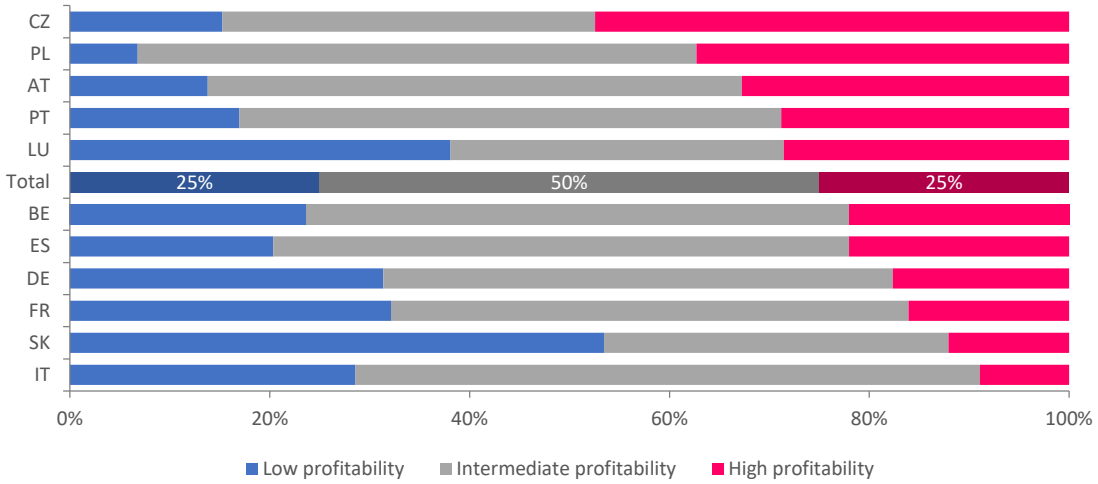


Chart 11 – Distribution of the profitability classes calculated using return on equity, by activity (2016*)

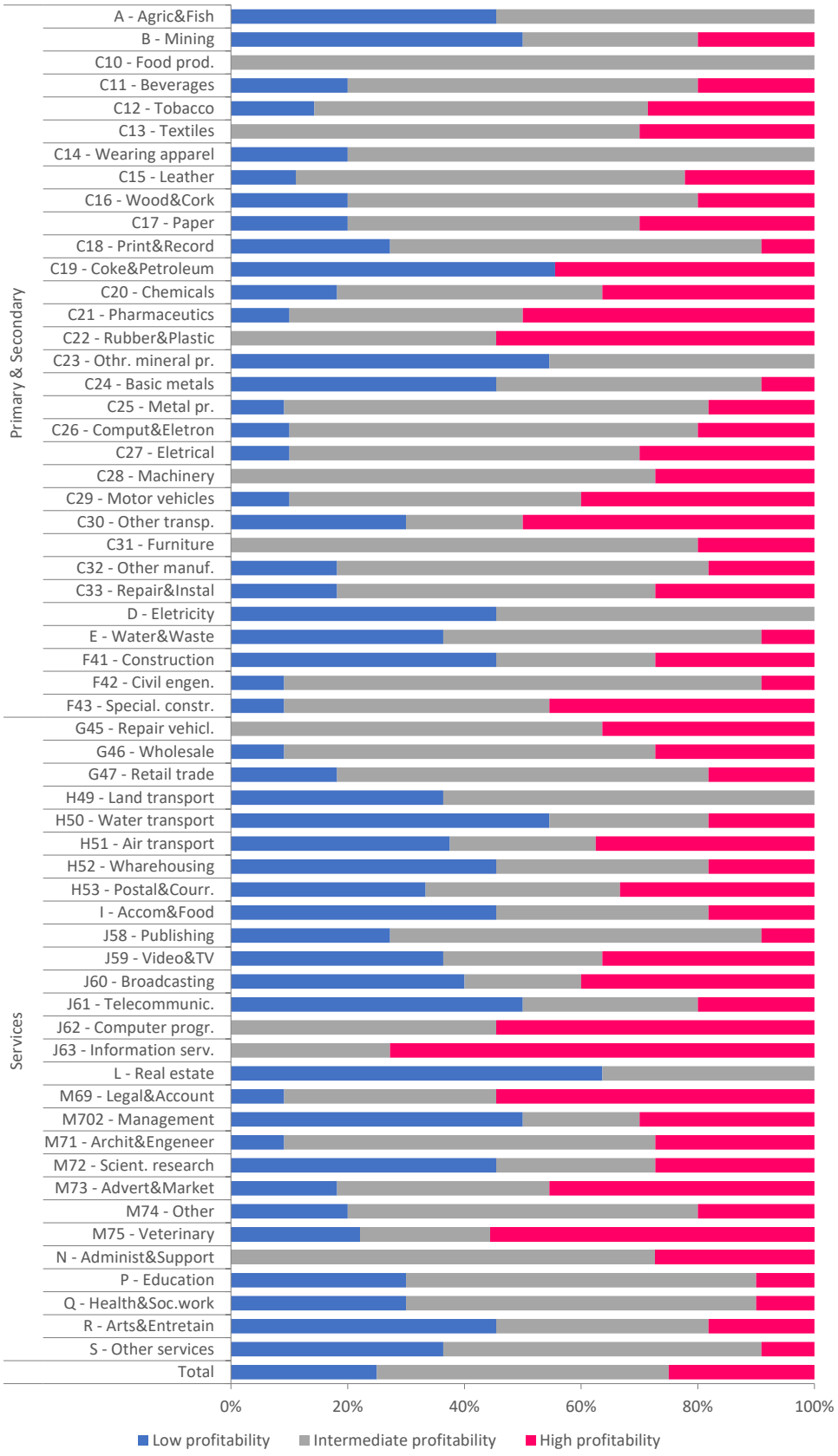


Chart 12 – Distribution of the profitability classes calculated using return on assets, by activity (2016*)

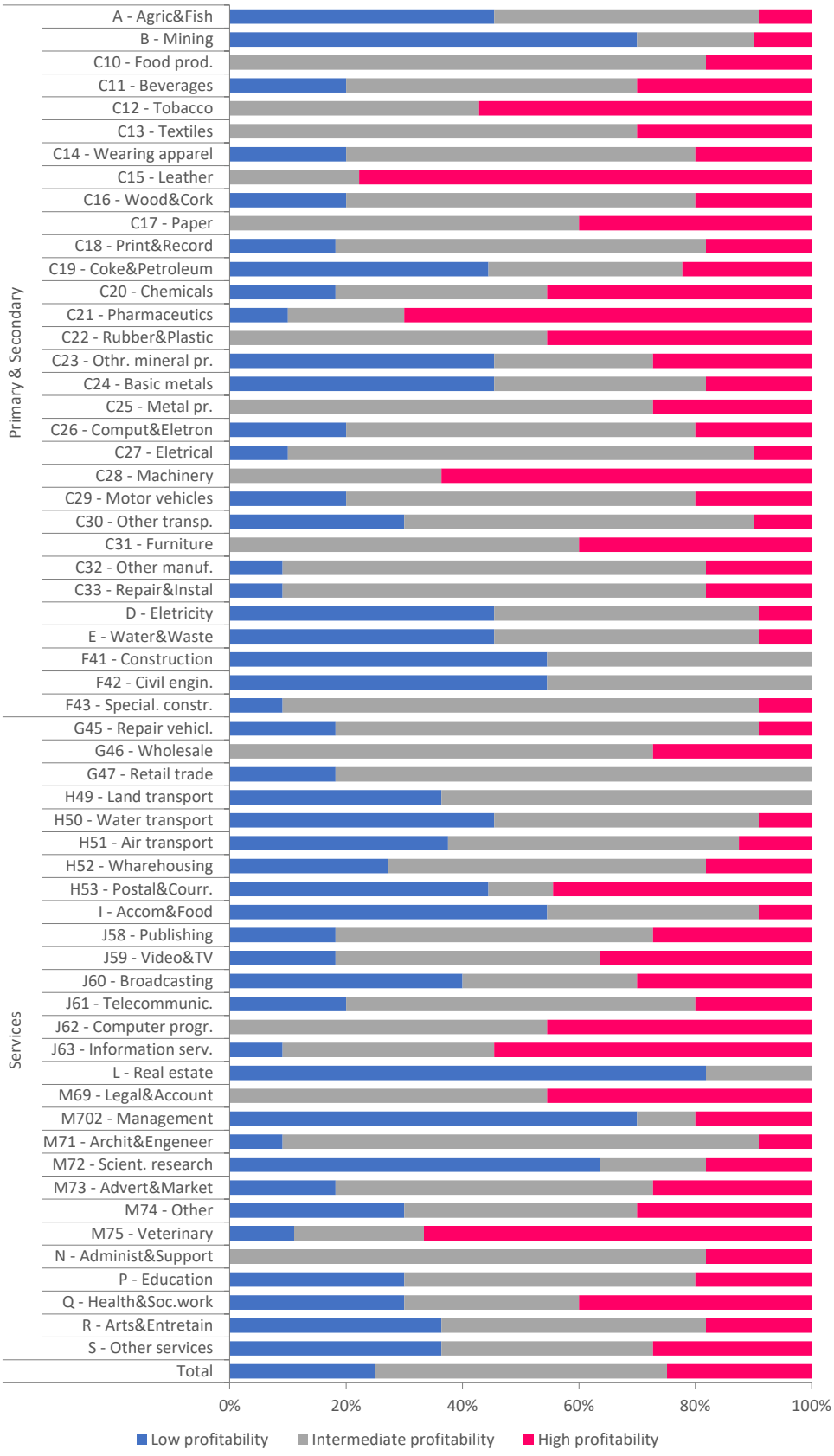
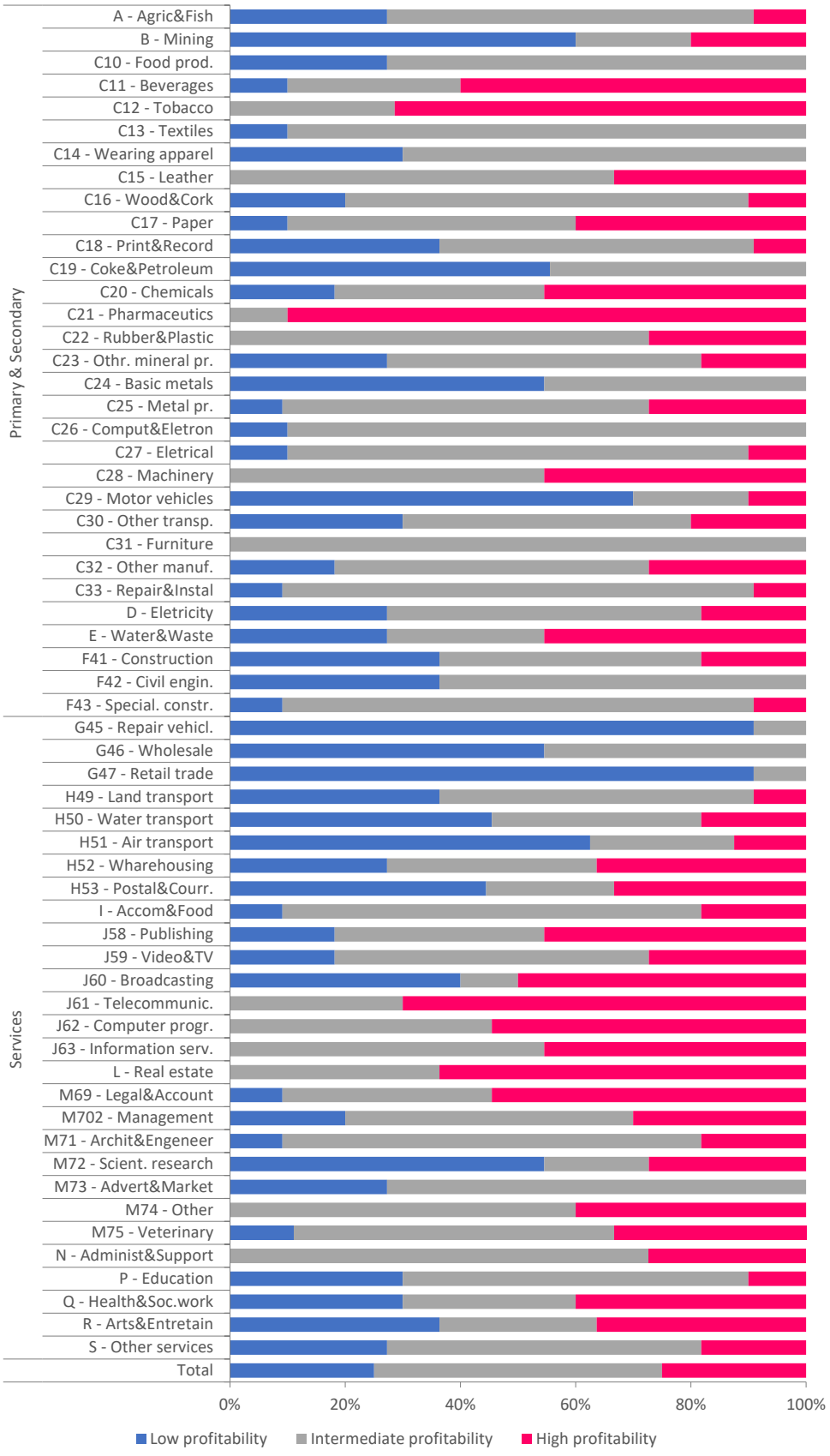


Chart 13 – Distribution of the profitability classes calculated using the net operating margin, by activity (2016*)



ANNEX 3- PROFITABILITY RATIOS AVAILABLE ON BACH DATABASE

Table 6 - Profitability ratios available on BACH database

Code	Profitability ratio	Composition	
R31	Gross value added/Net turnover	Numerator	I1+I2+I3+I41-I5-I6-I81
		Denominator	I1
R32	Gross operating margin [Gross operating profit / Net turnover]	Numerator	I1+I2+I3+I41-I5-I6-I7-I81
		Denominator	I1
R33	EBITDA margin [EBITDA/Net turnover]	Numerator	I1+I2+I3+I41+I42-I5-I6-I7-I81-I83
		Denominator	I1
R34	Net operating margin [Net operating profit/Net turnover]	Numerator	I1+I2+I3+I41-I5-I6-I7-I81-I82-I85-I9
		Denominator	I1
R35	EBIT/Net turnover	Numerator	I1+I2+I3+I4-I5-I6-I7-I8-I9
		Denominator	I1
R36	EBT/Net turnover	Numerator	I1+I2+I3+I4-I5-I6-I7-I8-I9-I10
		Denominator	I1
R37	Net financial income/Net turnover	Numerator	I42-I83-I10
		Denominator	I1
R38	Return on equity [Net profit or loss / Equity]	Numerator	It3
		Denominator	E
R39	Return on assets [Net operating profit/Total assets]	Numerator	I1+I2+I3+I41-I5-I6-I7-I81-I82-I85-I9
		Denominator	A
R310	EBT/Total equity	Numerator	It3+I11
		Denominator	E

ANNEX 4 - TRANSITION MATRIX FROM ROA TO ROE PROFITABILITY CLASSES, BY COUNTRY AND SECTOR

Austria

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	5.17%	3.45%	0.00%	8.62%
Intermediate profitability	1.72%	20.69%	24.14%	46.55%
High profitability	0.00%	3.45%	41.38%	44.83%
Total	6.90%	27.59%	65.52%	100.00%

Same class (blue cells)	67.24%
Different class, of which:	32.76%
Higher ROE class (yellow cells)	27.59%
Higher ROA class (orange cells)	5.17%

Belgium

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	23.73%	6.78%	3.39%	33.90%
Intermediate profitability	6.78%	50.85%	3.39%	61.02%
High profitability	0.00%	1.69%	3.39%	5.08%
Total	30.51%	59.32%	10.17%	100.00%

Same class (blue cells)	77.97%
Different class, of which:	22.03%
Higher ROE class (yellow cells)	13.56%
Higher ROA class (orange cells)	8.47%

Czech Republic

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	11.86%	1.69%	0.00%	13.56%
Intermediate profitability	11.86%	16.95%	1.69%	30.51%
High profitability	1.69%	32.20%	22.03%	55.93%
Total	25.42%	50.85%	23.73%	100.00%

Same class (blue cells)	50.85%
Different class, of which:	49.15%
Higher ROE class (yellow cells)	3.39%
Higher ROA class (orange cells)	45.76%

Germany

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	15.69%	9.80%	0.00%	25.49%
Intermediate profitability	0.00%	31.37%	17.65%	49.02%
High profitability	0.00%	0.00%	25.49%	25.49%
Total	15.69%	41.18%	43.14%	100.00%

Same class (blue cells)	72.55%
Different class, of which:	27.45%
Higher ROE class (yellow cells)	27.45%
Higher ROA class (orange cells)	0.00%

Spain

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	18.64%	1.69%	0.00%	20.34%
Intermediate profitability	6.78%	50.85%	6.78%	64.41%
High profitability	0.00%	3.39%	11.86%	15.25%
Total	25.42%	55.93%	18.64%	100.00%

Same class (blue cells)	81.36%
Different class, of which:	18.64%
Higher ROE class (yellow cells)	8.47%
Higher ROA class (orange cells)	10.17%

France

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	10.71%	14.29%	3.57%	28.57%
Intermediate profitability	0.00%	41.07%	16.07%	57.14%
High profitability	0.00%	3.57%	10.71%	14.29%
Total	10.71%	58.93%	30.36%	100.00%

Same class (blue cells)	62.50%
Different class, of which:	37.50%
Higher ROE class (yellow cells)	33.93%
Higher ROA class (orange cells)	3.57%

Italy

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	25.00%	10.71%	0.00%	35.71%
Intermediate profitability	7.14%	50.00%	0.00%	57.14%
High profitability	1.79%	3.57%	1.79%	7.14%
Total	33.93%	64.29%	1.79%	100.00%

Same class (blue cells)	76.79%
Different class, of which:	23.21%
Higher ROE class (yellow cells)	10.71%
Higher ROA class (orange cells)	12.50%

Luxembourg

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	19.05%	9.52%	2.38%	30.95%
Intermediate profitability	9.52%	19.05%	14.29%	42.86%
High profitability	0.00%	9.52%	16.67%	26.19%
Total	28.57%	38.10%	33.33%	100.00%

Same class (blue cells)	54.76%
Different class, of which:	45.24%
Higher ROE class (yellow cells)	26.19%
Higher ROA class (orange cells)	19.05%

Poland

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	10.17%	1.69%	0.00%	11.86%
Intermediate profitability	8.47%	30.51%	1.69%	40.68%
High profitability	0.00%	22.03%	25.42%	47.46%
Total	18.64%	54.24%	27.12%	100.00%

Same class (blue cells)	66.10%
Different class, of which:	33.90%
Higher ROE class (yellow cells)	3.39%
Higher ROA class (orange cells)	30.51%

Portugal

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	13.56%	3.39%	0.00%	16.95%
Intermediate profitability	13.56%	42.37%	10.17%	66.10%
High profitability	0.00%	10.17%	6.78%	16.95%
Total	27.12%	55.93%	16.95%	100.00%

Same class (blue cells)	62.71%
Different class, of which:	37.29%
Higher ROE class (yellow cells)	13.56%
Higher ROA class (orange cells)	23.73%

Slovakia

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	44.83%	5.17%	1.72%	51.72%
Intermediate profitability	6.90%	25.86%	1.72%	34.48%
High profitability	0.00%	8.62%	5.17%	13.79%
Total	51.72%	39.66%	8.62%	100.00%

Same class (blue cells)	75.86%
Different class, of which:	24.14%
Higher ROE class (yellow cells)	8.62%
Higher ROA class (orange cells)	15.52%

Primary & Secondary Sectors

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	15.58%	4.98%	1.25%	21.81%
Intermediate profitability	5.61%	38.94%	8.10%	52.65%
High profitability	0.31%	11.84%	13.40%	25.55%
Total	21.50%	55.76%	22.74%	100.00%

Same class (blue cells)	67.91%
Different class, of which:	32.09%
Higher ROE class (yellow cells)	14.33%
Higher ROA class (orange cells)	17.76%

Tertiary Sector

ROA \ ROE	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	20,68%	7,12%	0,68%	28,47%
Intermediate profitability	7,80%	30,51%	9,15%	47,46%
High profitability	0,34%	6,10%	17,63%	24,07%
Total	28,81%	43,73%	27,46%	100,00%

Same class (blue cells)	68,81%
Different class, of which:	31,19%
Higher ROE class (yellow cells)	16,95%
Higher ROA class (orange cells)	14,24%

ANNEX 5 - TRANSITION MATRIX FROM NOM TO ROA PROFITABILITY CLASSES, BY COUNTRY AND SECTOR

Austria

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	5,17%	8,62%	0,00%	13,79%
Intermediate profitability	1,72%	32,76%	18,97%	53,45%
High profitability	1,72%	5,17%	25,86%	32,76%
Total	8,62%	46,55%	44,83%	100,00%

Same class (blue cells)	63,79%
Different class, of which:	36,21%
Higher ROA class (yellow cells)	27,59%
Higher NOM class (orange cells)	8,62%

Belgium

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	13,56%	10,17%	0,00%	23,73%
Intermediate profitability	13,56%	40,68%	0,00%	54,24%
High profitability	6,78%	10,17%	5,08%	22,03%
Total	33,90%	61,02%	5,08%	100,00%

Same class (blue cells)	59,32%
Different class, of which:	40,68%
Higher ROA class (yellow cells)	10,17%
Higher NOM class (orange cells)	30,51%

Czech Republic

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	11,86%	3,39%	0,00%	15,25%
Intermediate profitability	1,69%	15,25%	20,34%	37,29%
High profitability	0,00%	11,86%	35,59%	47,46%
Total	13,56%	30,51%	55,93%	100,00%

Same class (blue cells)	62,71%
Different class, of which:	37,29%
Higher ROA class (yellow cells)	23,73%
Higher NOM class (orange cells)	13,56%

Germany

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	19,61%	9,80%	1,96%	31,37%
Intermediate profitability	5,88%	31,37%	13,73%	50,98%
High profitability	0,00%	7,84%	9,80%	17,65%
Total	25,49%	49,02%	25,49%	100,00%

Same class (blue cells)	60,78%
Different class, of which:	39,22%
Higher ROA class (yellow cells)	25,49%
Higher NOM class (orange cells)	13,73%

Spain

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	13,56%	6,78%	0,00%	20,34%
Intermediate profitability	5,08%	47,46%	5,08%	57,63%
High profitability	1,69%	10,17%	10,17%	22,03%
Total	20,34%	64,41%	15,25%	100,00%

Same class (blue cells)	71,19%
Different class, of which:	28,81%
Higher ROA class (yellow cells)	11,86%
Higher NOM class (orange cells)	16,95%

France

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	19,64%	12,50%	0,00%	32,14%
Intermediate profitability	7,14%	41,07%	3,57%	51,79%
High profitability	1,79%	3,57%	10,71%	16,07%
Total	28,57%	57,14%	14,29%	100,00%

Same class (blue cells)	71,43%
Different class, of which:	28,57%
Higher ROA class (yellow cells)	16,07%
Higher NOM class (orange cells)	12,50%

Italy

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	23,21%	5,36%	0,00%	28,57%
Intermediate profitability	12,50%	48,21%	1,79%	62,50%
High profitability	0,00%	3,57%	5,36%	8,93%
Total	35,71%	57,14%	7,14%	100,00%

Same class (blue cells)	76,79%
Different class, of which:	23,21%
Higher ROA class (yellow cells)	7,14%
Higher NOM class (orange cells)	16,07%

Luxembourg

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	19,05%	19,05%	0,00%	38,10%
Intermediate profitability	7,14%	14,29%	11,90%	33,33%
High profitability	4,76%	9,52%	14,29%	28,57%
Total	30,95%	42,86%	26,19%	100,00%

Same class (blue cells)	47,62%
Different class, of which:	52,38%
Higher ROA class (yellow cells)	30,95%
Higher NOM class (orange cells)	21,43%

Poland

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	3,39%	3,39%	0,00%	6,78%
Intermediate profitability	8,47%	27,12%	20,34%	55,93%
High profitability	0,00%	10,17%	27,12%	37,29%
Total	11,86%	40,68%	47,46%	100,00%

Same class (blue cells)	57,63%
Different class, of which:	42,37%
Higher ROA class (yellow cells)	23,73%
Higher NOM class (orange cells)	18,64%

Portugal

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	8,47%	8,47%	0,00%	16,95%
Intermediate profitability	6,78%	45,76%	1,69%	54,24%
High profitability	1,69%	11,86%	15,25%	28,81%
Total	16,95%	66,10%	16,95%	100,00%

Same class (blue cells)	69,49%
Different class, of which:	30,51%
Higher ROA class (yellow cells)	10,17%
Higher NOM class (orange cells)	20,34%

Slovakia

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	44,83%	8,62%	0,00%	53,45%
Intermediate profitability	6,90%	24,14%	3,45%	34,48%
High profitability	0,00%	1,72%	10,34%	12,07%
Total	51,72%	34,48%	13,79%	100,00%

Same class (blue cells)	79,31%
Different class, of which:	20,69%
Higher ROA class (yellow cells)	12,07%
Higher NOM class (orange cells)	8,62%

Primary & Secondary Sectors

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	14,95%	7,17%	0,00%	22,12%
Intermediate profitability	5,92%	39,88%	10,90%	56,70%
High profitability	0,93%	5,61%	14,64%	21,18%
Total	21,81%	52,65%	25,55%	100,00%

Same class (blue cells)	69,47%
Different class, of which:	30,53%
Higher ROA class (yellow cells)	18,07%
Higher NOM class (orange cells)	12,46%

Tertiary Sector

NOM \ ROA	Low profitability	Intermediate profitability	High profitability	Total
Low profitability	17,97%	9,83%	0,34%	28,14%
Intermediate profitability	8,14%	27,46%	7,12%	42,71%
High profitability	2,37%	10,17%	16,61%	29,15%
Total	28,47%	47,46%	24,07%	100,00%

Same class (blue cells)	62,03%
Different class, of which:	37,97%
Higher ROA class (yellow cells)	17,29%
Higher NOM class (orange cells)	20,68%

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