

PERFORMANCE AND SUSTAINABILITY IN MANUFACTURING SECTOR FROM ROMANIA

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Abstract: *Performance became a very important topic especially when it comes into discussion the idea of sustainability. If we think to the value added and the level of employees, an important sector for our society and economy is the Manufacturing because it provides a high value added to GDP (gross domestic product) and also provides a high amount of work places at European level and also in Romania. The main goal of this paper is to analyse the performance of the largest enterprises from Romania that are part from the Manufacturing sector. This very large enterprises could be trend setters in their subindustries for the small and medium ones. The paper is composed from three parts. In the first part it is analysed the literature developed by specialist in the domain of sustainability and financial performance. The second part is an overview of the evolution of Manufacturing sector in the past years and the last one comes to underline the performances of this sector by analysing the evolution of specific indicators regarding the sustainability and performance of enterprise. In conclusion's side there are made some suggestions about the importance of this sector for Romania's economy and also for a sustainable development.*

Key words: *performance, financial sustainability, sustainable development, manufacturing sector*

JEL Classification codes: D24, L25, L60, O10

1. INTRODUCTION

Knowing that performance is very related to sustainability of enterprises this paper aims to give a better view about the performance of Manufacturing sector in Romania. This sector in Romania also at European level is among the biggest and most important ones. It gives the highest number of jobs and also has a considerable value added to the economies. In addition it is a sector that could have a very big sustainability impact at economic, social and environmental level if we think to the all the processes implied. All this convinced me to take a better analysis to it and to see in terms of performance how it works. Being a very big sector with many enterprises I considered in my analysis only the very large enterprises with a number of employees higher than 1000. These very large enterprises could set the trend for the medium and small ones in the sub-industries they activate. For determining the performance I took into consideration some financial indicators, the level of exports and foreign direct investments brought for the Romania's economy.

In this paper there are used for the analysis statistical indicators like percentage variation, indexes, average values and standard deviation and the observation and comparison method.

2. LITERATURE REVIEW

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Sustainable development is a very important issue among the business leaders around the globe and also for organizations and institutions. The definition of sustainable development is to meet the needs of the present without compromising the ability of future generations to meet their own needs (Hutton et al., 2007; WBCSD (World Business Council for Sustainable Development), 1987, 2002). With time passing by, sustainability actions were a very important factor in attaining economic goals and to generate wealth (Garriga & Mele, 2004). Many researchers wrote on this topic and there is a big amount of studies who prove that there is a direct connection between sustainability actions and enterprise's performance (Orlitzky et al.'s, 2003). Business leaders have to find the balance between sustaining the society, gaining big profits and fulfilling their obligations to shareholders and sustaining the planet, society and business (O'Brien, 1999). In addition to this it can be said that business leaders who will stay focused on social problems will neglect their main goal, the maximization of profit, and if they stay focused on profit than all the society will suffer and also the next generations. Enterprises should understand the sustainability dimensions in order to be able to maintain the balance between profit and sustainable development issues.

In the last years researchers and people involved in the enterprises' world are more and more concerned on the role business play in the society (Salzmann et al., 2005). Theoretical studies tried to explain the relationship between financial performance and social and environmental performance. A good link between all of these could be corporate social responsibility actions developed by enterprises. Science people who study social corporate responsibility found evidence between the relationship of social and environmental and financial performance, a stronger bound being found between social performance and financial performance (Bullinger et al., 1999; Carroll, 1999). Business leaders are not so convinced about the benefits so still need aggregate results in order to let themselves convinced to use sustainable business decisions (Webb et al., 2008). The literature in the sustainability' domain shows there is significant and positive relationship between corporate social performance and profitability (Margolis and Walsh, 2001; Ciliberti et al., 2008) so this could be one more argument to develop more responsible actions.

If we think in terms of financial evolution of a firm, performance is summed by different indicators like profit margins, value added, solvability ratio, liquidity ratio, cost per employee, productivity, total assets, operating return, cash-flow, ROA (return on assets) and ROE (return on equity). A greater value of ROA and ROE indicate greater value creation. ROA for firms and ROE for investors and stockholders are the most important ratios in measuring performance of a firm.

In the following sections of the paper it will be presented the evolution of manufacturing sector from Romania and some metrics that will allow to have a better view about the performance of this sector and its implications.

3. OVERVIEW ON THE MANUFACTURING SECTOR

Manufacturing sector includes all the processes needed in changing raw materials or of some components in products especially using industrial machines at a high scale. It can be said Manufacturing plays a major role at European level and also in the Romania economy having important levels of contribution to GDP and employment exceeding other individual sectors. The Manufacturing sector is one of the main sectors of NACE (National Association of Corrosion Engineers) Code (Section C). At European level one from ten enterprises was classified as manufacturing. European Commission reports that this sector provides 20% of the employment (30 million direct employees) of Europe and also 21% of its GDP. In 2014 its gross value added to the European economy was 15.1% declining from 18% in 2000 but still

it had an important value of 1760 billion of euro. It is an important sector because it provides around 80% of Europe's exports, 80% for financing the total expenses of private sector with research and development. It can be said it is a powerful sector for growth. Over the years this sector registered a decline in production which was due to the process of deindustrialization. The numbers show the deindustrialization was more powerful on employment than in production and it could be due to the technological progress people being replaced with machines. During the years the value of manufacturing production increased from 1,53 trillion in 2000 to 1,7 trillion in 2013 in current prices. If we look to employment in this period there are more 3,8 million jobs lost in this sector since the beginning of crisis.

Manufacturing sector includes 24 subsectors and as examples there is manufacturing of food, manufacturing of basic metals, computers, machinery and equipment, rubber and plastic products, repair and installation of machinery and equipment. As European Union reports the largest EU-28 subsectors in 2013 in terms of value added and employment were food manufacturing, the manufacture of fabricated metal products and the manufacture of machinery and equipment.

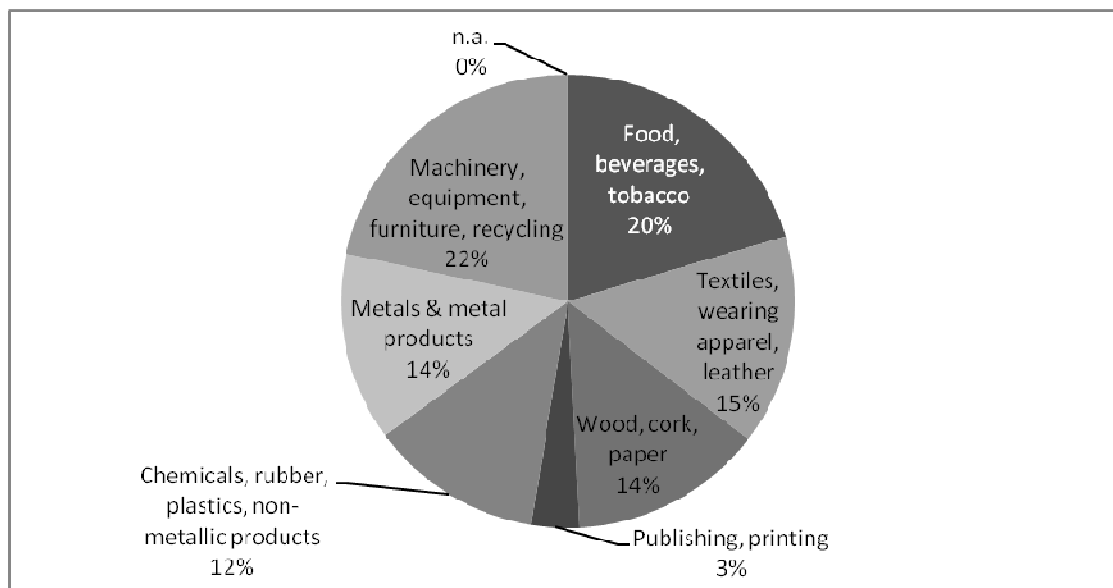
All the 24 subsectors are very diverse. They have different sorts of activities with relatively low apparent labour productivity and average personnel costs, such as the manufacture of textiles, wearing apparel, leather products and furniture, with other activities that have considerably higher values for the same indicators, such as tobacco manufacturing, the processing of coke and petroleum and the manufacture of basic pharmaceutical products and pharmaceutical preparations.

As European Union (EU) Commission reports among the five largest EU Member States, Germany contributed more than 25% of the EU-28's value added in 2013. In value added terms, Germany was the largest EU Member State in 18 of the 24 manufacturing subsectors in 2013. Italy registered the best values in three (the textiles, wearing apparel, and leather and related products manufacturing subsectors). The manufacture of beverages and for the manufacture of tobacco products was the best performance from the United Kingdom and France recorded the highest level of added value for the manufacture of other transport equipment.

If we look to the size of the enterprise, the data from European Commission shows that the large enterprises (employing 250 or more persons) are around 15700 large enterprises contributed just over half (55.5 %) of the manufacturing sector's value added and they employed 40.0 % of the manufacturing workforce. Among the manufacturing subsectors in 2013, five were dominated by large enterprises. These five subsectors were all activities that reported apparent labor productivity and average personnel costs above the non-financial business economy averages, namely: the manufacture of tobacco products, coke and refined petroleum products, motor vehicles, trailers and semi-trailers, basic pharmaceutical products and pharmaceutical preparations and other transport equipment.

In Romania the Manufacturing sector includes 102072 active enterprises from small to very large as it shows from the data of ORBIS database. From the whole amount of active enterprises in Romania, this sector represents 8,83% from total. In our country most of the enterprises have below 50 employees and there are registered in total only 1526 active enterprises that have a number above 250 employees at national level.

If we have an overview of the Manufacturing sector by a small analysis we find that the sub-industry Machinery, equipment, furniture and recycling industry is the biggest among all having 22% of the enterprises from this sector in Romania, followed by Food, beverage and tobacco with 20% and the smallest industry is Publishing and printing with only 3% of all enterprises from Manufacturing sector as you can see from the graph no.1 below.



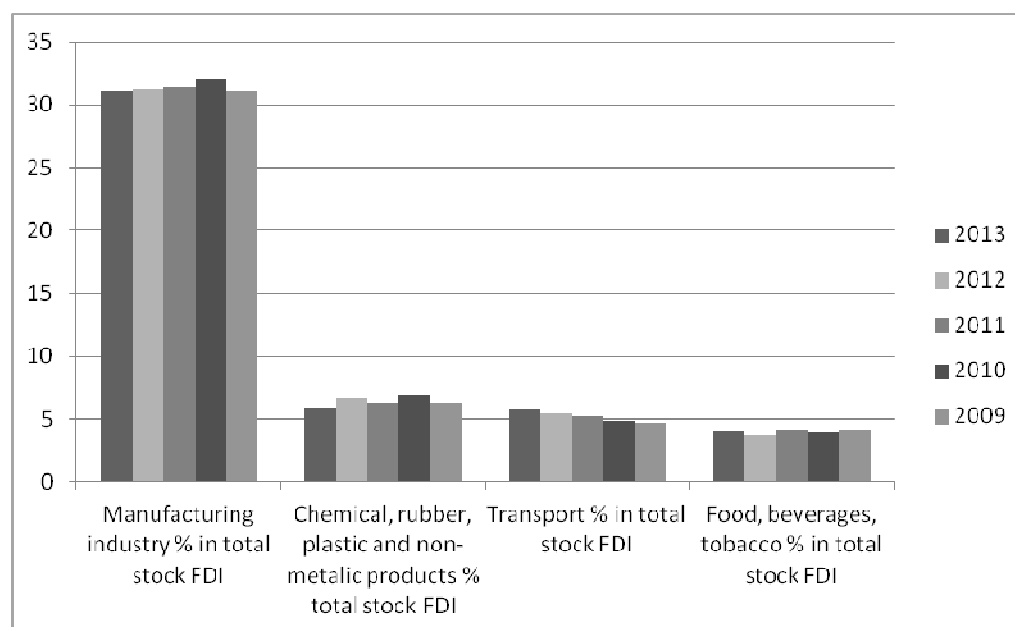
Graph no.1 Manufacturing sector enterprise's distribution in Romania, 2014

Source: own work, data from ORBIS database, 2015

Going deeper with the analysis to the financial side of these enterprises in the case of operating revenue, the sub-industry Machinery, equipment, furniture and recycling has the second position (49 enterprises) in terms of number of enterprises with an operating revenue more than 50000 thousands euros. The Food, beverage and tobacco's sub-industry is on the top with 61 enterprises in total that register more than 50000 thousands euros of operating revenue with the specification that only for the Food sector there are 48 enterprises. Considering the categories "Less than 10,000 euros", "From 10,000 to 20,000 euros" and "From 20,000 to 50,000" also in these sections this industry is on top, the other being very far from it in terms of operating revenue. If we summarize being the second as the number of enterprises in the manufacturing sector and also the first one as operating revenue we can conclude that it could be one of the most performing sub-industry from the Manufacturing sector.

Going ahead with the analysis it can be noticed from data that 56,6% enterprises from Manufacturing sector registered operating revenue less than 10000 thousands euro and only 0,26% registered revenue above 50000 thousands euros (266 enterprises). This shows that there are a large number of small enterprises and a short number of large and very large enterprises if we take into account the criteria of revenue. Also if we analyse enterprises by the number of employees we will get a similar result.

For Romania's case this sector brought the biggest amount of foreign direct investments from all sectors, the amount being beyond 31% from total in 2008-2013 from the whole stock of foreign direct investments (FDI) as it is showed in the Annual Reports of NBR (National Bank of Romania). As we can see from the graph no.2 also here Food, beverage and tobacco has a top place but being situated after Chemical, rubber, plastic and non-metallic products which has the highest amount of FDI even if as a percentage of enterprises in Manufacturing industry, this sub-industry is one of the smallest. This shows that it has a better performance than others subsectors. Seeing this more intensive activity of Chemical, rubber, plastic and non-metallic products it is necessary a deeper analysis in order to determine if it impacts in a negative way the sustainable development by their production actions.



Graph no.2 The evolution of stock FDI in Manufacturing sector for Romania (2009-2013)

Source: own work, NBR data from Annual Foreign Direct Investment reports (2010-2014)

In terms of competitiveness (export/import) Manufacturing industry has also the most important contribution on exports but also on imports giving in the end a positive net export which shows that the active enterprises from this sector have a higher level of competitiveness comparing with the others industries in Romania. Even if during the years the share of total exports decreased with 23.9% comparing 2013 with 2009 due to the crisis and the risk implied, still it has a high level of 60.8% (2013) from the whole amount of exports of Romania's economy. The trend seems to go again to an ascendant side thinking that it increased comparing 2013 with 2012 with 4.6%. In the case of subdivisions of manufacturing industry the subsector Transports has the best performance in terms of exports, 24% for 2013, and the worst performance goes for Food, beverage and tobacco (1.3% for 2013). This entitles us to say that this sub-industry has a low degree of performance regarding external competitiveness and a more internal oriented production. Although Manufacturing industry had some oscillations, the number of greenfield industries during the crisis increased with 40.5% as NBR's data show.

4. PERFORMANCE OF THE LARGEST MANUFACTURING ENTERPRISES IN ROMANIA

Further the analysis is concentrated on the very large enterprises from Manufacturing sector because they give the highest contribution to our economy and they can set the trend for the medium and small ones. In Romania there are 101 very large enterprises in the Manufacturing sector and they have more than 1000 employees in 2013 from ORBIS database' data. If it is analysed the distribution of industries inside of the chosen enterprises for observation, in Romania's case the Machinery sub-industry is the dominant in terms of enterprises number having 57 enterprises from all the 101 enterprises, more than a half from the whole number. The second place is for the Textile, wearing apparel, leather sub-industry with a number of 14 enterprises, and the third place with 12 enterprises goes too Food, beverage, tobacco subindustry. In the next lines there will be analysed some key financial

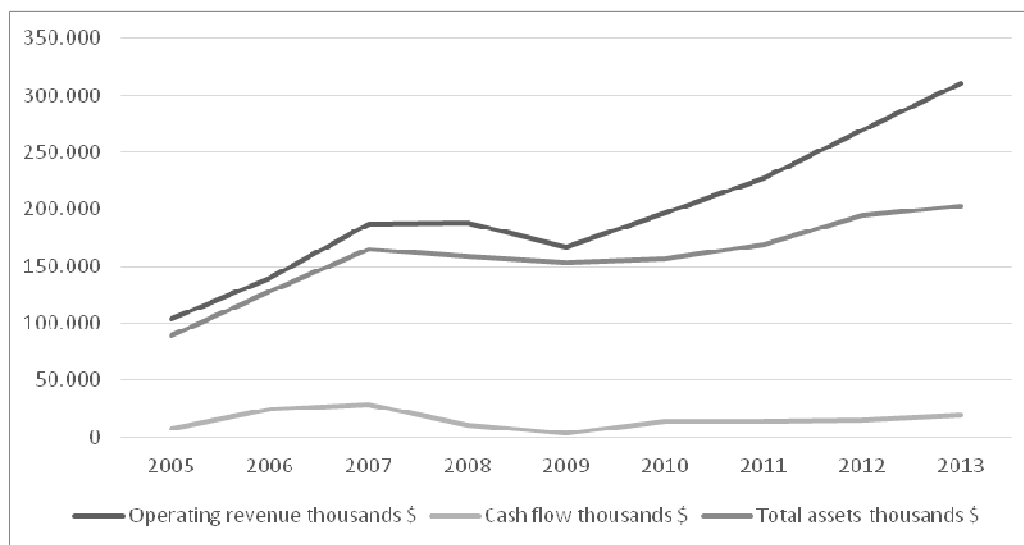
indicators who provide information about performance of the sector, performance being very well connected with sustainability.

The first indicator is operating revenue which represents the income that an enterprise daily obtains from business operations. It gives information about the performance of a business especially since fading enterprises often sell underperforming stores or assets making the income statement look more attractive than might otherwise be. Thinking to this category, the enterprise with the highest operating revenue from the studied enterprises is Automobile-Dacia SA and also it has the biggest number of employees, 14002. It operates in Machinery sub-industry. On the opposite the smallest amount of operating revenue for the year of 2013 it is obtained by Valkes Srl (11422 th dollars). It doesn't have the smallest number of employees, having 1556 employees, and it operates also in the Machinery sub-industry. The second and third place regarding best performance in terms of operating revenue is held by Rompetrol Rafinarie (3936348 th dollars) and then Ford Romania (1497687 thousand (th) dollars). The average level for operating revenue is 308368 th dollars which is 18,41 times smaller than the best performance. This difference is evidenced also by the standard deviation value which is 696238 th dollars. Standard deviation value is a measure of the dispersion of a set of data from its mean which in our case has a big value. The more spread apart the data, the higher the deviation. This shows that among the studied enterprises there are very big oscillations regarding operating revenue going from very performing enterprises to not very performing but still performing enterprises.

A number of 80 enterprises from 101 registered in 2013 an operating revenue higher than 50000 thousand dollars, 26 of them being from Manufacture of motor vehicles, trailers and semi-trailers subindustry. Seventeen of these enterprises registered an operating revenue between 20000 and 50000 thousand dollars and the winning sub-industry here being Manufacture of wearing apparel sub-industry. The others four registered operating revenue bellow 20000 thousands but higher than 10000 thousand dollars. From this data we can say that the subindustry of Machinery brings an important contribution in creating value added to the Romanian economy. This high amount of money would not have been possible without a growing productivity at the enterprise' level during the years and of the improvement of other financial indicators analysed bellow. If we look at the graph no.3 we can see the evolution of operating revenue was affected by the crisis registering a decrease starting with 2007 until 2010, then it started to recover and to have an ascendant trend.

In terms of the cash flow indicator for 2013, which shows to the investors and creditors the capacity to generate in the future cash flow, capacity to pay their financial obligations and dividends, the top looks different. The evolution of cash-flow is critical to understand an enterprise's fundamental statement. It is one of the indicators investors and creditors should look at because it gives information about an enterprise capacity to produce cash. Taking into account the evolution of this indicator the first in performance is still Automobile Dacia but the second is Continental Automotive Products and the third is Holzindustrie Schweighofer SRL. Here the worst performance goes to Rompetrol being positioned on the 100th place and to Arcelormittal Galati SA which is on the 101th place. The medium value is 19173 thousand dollars and the standard deviation is 41467 thousand dollars. This shows a big spread between the two which can say that analysed enterprise are very diverse from this point of view and the liquidity differs very much between enterprises. Also in the graph no.3 the evolution of this indicator between 2005-2013 is marked by a peak in 2007 and after this moment, as for the operating revenues, it is synchronized with the crisis going down. Starting with 2010 this sector started to recover and to improve his activities and became more liquid. In 2013 the average level of cash flow for this sector is higher form the one in 2007 which shows that the performance of it improved.

Total assets indicator is the one who show the economic value that an enterprise owns or controls with the expectation that it will provide future benefit. They can generate cash flow. For total assets the top looks the same like in the case of operating revenue for the first three: Automobile Dacia (2240021 th dollars), Rompetrol Rafinarie (2117408 th dollars), Ford Romania (1147296 th dollars) but for the worst performance it is different Salamandra Plus SRL (5812 th dollars) and the last position goes to Valkes SRL (2420 th dollars). The lowest value of total assets is 925times lower than the best performance. The average value for total assets is 201064 th dollars which shows also an important difference between the best performance and the worst performance. The standard deviation in this case is 347724 thousand dollars. Standard deviation measures how concentrated data are from the mean and in this case the value shows they are not very close to the mean. We could say that the enterprises from this part of the sector even if they have a high number of employees and they are very large, their performance are very different. But on an average size we can see from the graph no. 3 that the total assets have the same evolution as the cash flow being also affected by the crisis. We can interpret that during the crisis some enterprises started to sell some of their assets in order to grow their immediate liquidity and to manage to face their costs.



Graph no.3 The annual evolution of the average value of operating revenue, cash flow, total assets, 2005-2013

Source: own work, data from ORBIS database

In the following pages there will be analysed some profitability ratios for a better understanding of performance evolution on manufacturing sector. For the year 2013 of this sub-category, it will be analysed the current ratio. It shows an enterprise's ability to pay-short term obligations and it is calculated by dividing the current assets by current liabilities. The higher the ratio, the more liquid the enterprise is. In our case the first place is held by Ikos-Conf SA which has a very high current ratio of 9.84, second place is held by Holzindustrie Schweighofer SRL which has a current ratio of 4.34 and the third place is taken by Azomures SA which has a current ratio of 4.19. The last place goes to Dar Draxlmaier Automotive SRL with a current ratio of 0.2 and the 100th place to Prevent Automotive Romania SRL with the value of 0.29. Even so we can say this section of enterprises has a good ability for paying their short-term obligations, only 30 enterprises having values bellow 1. The average for this

indicator is 1.51 and the standard deviation 1.16 which shows a good liquidity of the very large enterprises from the manufacturing industry. Good liquidity is a good premise for a good performance. Between 2005-2013 it has relatively a plane evolution with no oscillations during the crisis as we can see from the graph no.4. This shows the Manufacturing industry has a good liquidity and a good ability to pay its short term obligations.

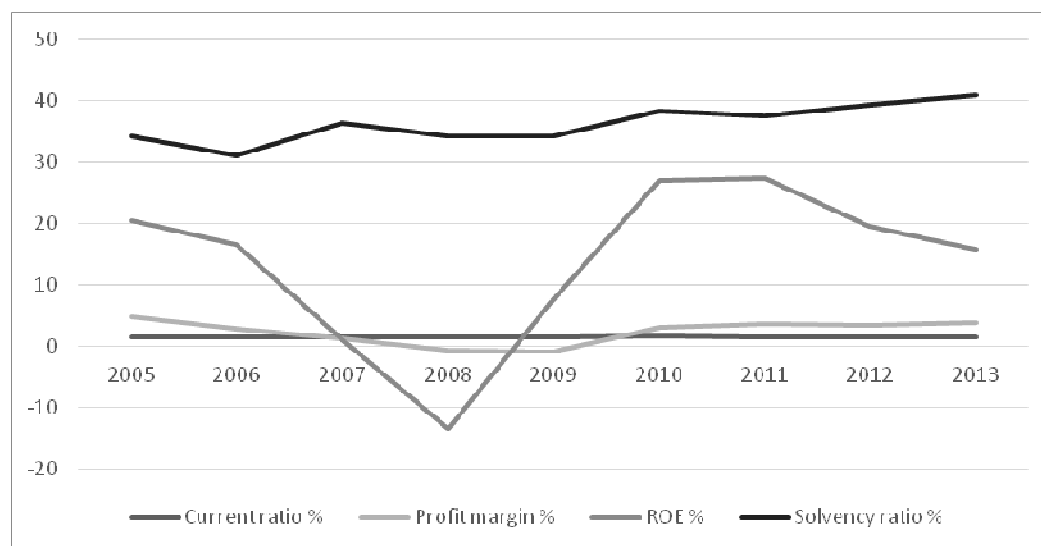
Going ahead with the performance analysis, solvency ratio is another metrics used. It measures an enterprise ability to face its debt and other obligations. It shows if an enterprise's cash-flow can be enough to meet its long-term liabilities. It gives information about an enterprise financial health in the context of their obligations. If an enterprise has low values of solvency ratio the probability to default it will be very high. For the very large enterprises form manufacturing sector this rate in 2013 had an average of 40.88% with and standard deviation below the average value. The first three best performers were: Ikos-Conf SA (94.48%), Azomures SA (84.05%), Holzindustrie Schweighofer SRL (81.68%). Only four of the enterprises had a negative solvency ratio. As we can see from the graph bellow the solvency ratio during the crisis period registered a decrease and beginning with the 2011 it started to be ascending again which is a positive sign for the performance of these enterprises. Solvency ratio as we can notice from the graph no.4 had ups and downs during 2005-2013 but not with an high amplitude. The lowest point was registered in 2006 (31%) and then in 2009 (34%) which is also correlated with the lowest point of cash flow. It shows that the enterprises from this sector are good in paying long term liabilities because the solvency ratio values were above 20% which mean the enterprises on average were financial healthy. The evolution of this ratio was kind of stable during the analysed years and since 2011 it started to have an increase. The evolution is due also to the nature of the subindustries of this sector that are not so volatile.

Another indicator of performance of a firm is profit margin which is a ratio who shows profitability of an enterprise as net incomes divided by revenues in the analysed case. It is called also return on sales ratio. It shows how much out of every dollar of sales a company actually keeps in earnings. From an enterprise perspective an increasing earnings it doesn't mean that its profit margin is improving. If the enterprise registers increasing costs more than sales it will lead in the end to a lower profit margin. Also a lower profit margin rate can indicate price strategy or the impact competition has on margins. This ratio can be used by investors and creditors to see how effectively an enterprise can convert sales into income. It also shows how well an enterprise manages its expanses comparing to net sales. The higher the value, the better. The 101 enterprises registered on average positive profit margins of 3,67% with a standard deviation of 3.14% which is very close to the average. This shows that among our enterprises the profit performance is not oscillating very much. The best performance in terms of profit margins is registered by European Food SA (35.1%), the second place Continetal Automotive Products (24.7%), the third place goes to Holzindustrie Schweighofer SRL (23.10%). The last place is held by Societatea comerciala intretinere si reparatii locomotive si utilaje - C.F.R. IRLU SA (-35.59%) and the 100th place goes to Societatea comerciala de reparatii locomotive C.F.R. -S.C.R.L. Brasov SA (-34.1%) The negative margins could be due to large increases of raw materials, labor costs, disruptive new technology and macroeconomic developments like recession. It can be seen from the graph no. 4 the impact of the crisis on the profit margins of these enterprises and even if they were big and a big amount of them with strong performances, the crisis affected especially the ones from construction sector and also machinery. During the years 2007-2010 the manufacturing sector registred negative average profit margins which means that some enterprises there was a decline in performance and profitability levels. Since 2010 a slow increase of the average value started to show and it remain constant during the past years. Starting with 2010 the

increase of profit margin compared to the other years signals an improvement in both operational efficiency and profitability.

The last indicator analysed is Return on equity (ROE). It is an indicator that measures how many dollars of profit an enterprise generates with each dollar of shareholder's equity.

It is calculated by dividing net income to shareholders' equity. It is a measure of efficiency and shows the ability of an enterprise to generate profit without needing as much capital. It also gives information on the ability of management deploying the shareholder's capital. But some more interpretation is required. If the value of equity from the side of shareholders goes down, ROE goes up. Also a high level of debt can boost ROE because the more debt an enterprise has, the less shareholder's equity has (as a percentage of total assets.) In this study case it had an average of 15.22% and a standard deviation of 48.46%. This shows a big difference between data and a less homogeneity. European Food SA (151.38%) has the first place from the observed enterprises, the second place Valkes SRL (116,36%) and the third place goes to Takata Sibiu SRL (83.97%). The worst performance is held by Continental Automotive Systems SRL (-20,54%). As it is showed in the graph bellow this ratio registered a very high decrease starting with 2006, the lowest value being registered for the year of 2008 (-13%) and then it started to recover becoming positive again in 2009 then increasing until 2010 and from 2011 it started to decrease again. This low values mean that enterprises on average are not so efficient in using the money from shareholders to generate profits and grow the enterprise.



Graph no.4 The average evolution of current ratio, profit margin, solvency ratio, ROE and cash flow/ operating revenue ratio, 2005-2013

Source: own work, ORBIS database's data

All these metrics show a dispersed performance, some enterprises have high performance and others at a point could be good or even low. Still the balance is inclined to the ones with good performance. On average the manufacturing sector had a good evolution if we take into account the challenges that came from the crisis period. Thinking of this, these 101 enterprises can set a good trend for the others from the manufacturing sector and why not from the whole Romania's economy shifting them up.

5. CONCLUSIONS

From all the data presented above it could be said that this sector is very important for the value added created on GDP and also for the work places it could offer. Also it generated the most important amount of foreign direct investments during the last years which is very important for our national economy in terms of economic growth and competitiveness. Still in Romania's case the cost with labour force is very low at an average per year of 11000 dollars in 2013 and the minimum value is at 4000 dollars per year per employee and the maximum is 28000 per year. From the point of social sustainability it is not a good aspect and managers should pay more attention on employee's satisfaction. In terms of financial performance and financial sustainability this sector shows an increasing performance during the years starting with 2011 and for a sustainable development it is a positive aspect. The key financial indicators on average registered satisfactory values. If we think in terms of financial sustainability the very large companies from Manufacturing sector registered an improving degree of financial performance starting with 2009 in terms of solvency, cash-flow, profit margin and ROE. Also the sector registered a high performance among all the sectors of Romania's economy in attracting foreign direct investments and also in being competitive by having the highest level of exports keeping a positive net export during the last years.

The Manufacturing sector is one with highest potential for Romania's economy and for growth and the industrial policies should be developed in such a way to increase the value added collected from this sector and to have the appropriate legal framework. This sector has to face also according to Trasca, D.L (2015), the main risks of economic relaunch as the access to funding in the context of a dry landscape of funding, the new tax and regulation system, the accumulation of arrears that could generate problems of liquidity in market and of economic growth restrain, continuous decrease of employees number and social responsibility mobilization. Also it should be paid attention to the damages that these enterprises could produce to the environment and to the society as a hole being a sector very intensive in production processes. In this sense for the Romania's case there was made a study by Popescu, E, Popescu, M., Mănoiu, M.L. (2012) which shows for a particular case in Pitesti that the level of pollution of the industrial plant is low and that the air around it is clean which is a good sign for the future of sustainable production processes.

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