Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.7, No.24, 2016

The relevance of financial structure in WACC's determination

Carmelo Intrisano* Giovanni Palomba ** Anna Paola Micheli *** Anna Maria Calce****
*Carmelo Intrisano, Professor of Corporate Finance, University of Cassino and Southern Lazio, Italy.
**Giovanni Palomba, Professor of Corporate Finance, University La Sapienza, Rome, Italy.
*** Anna Paola Micheli, PhD and Research Fellow, University of Cassino and Southern Lazio, Italy.
****Anna Maria Calce, PhD Student, University of Cassino and Southern Lazio, Italy.

Abstract.
This paper aims to demonstrate the importance of financial structure in determination of cost of capital. The research idea starts from the observation that in the literature there isn't a shared opinion on the identification of the financial structure, in particular on the weights to estimate cost of capital. Our model suggests the use of different average financial structures or different best financial structures considering the companies objectives and their sector. This model is based on data of companies listed in the European markets, but it can be also used to determine the weights of cost of capital in unlisted companies.

Keywords: financial structure, cost of capital, weighted average cost of capital, WACC, value.

Introduction.
The Weighted Average Cost of Capital (WACC) is the discounted rate for calculating a firm's value. It is computed from respective costs of debt and equity and their relative proportion in the financial structure. It reflects the overall costs of combined debt and equity capital used to finance business operations or acquisitions. It is the basis of determining the discounted rate for the Discounted Cash Flow business valuation method. The WACC can also be viewed in the investor's point of view as an opportunity cost of its capital. When a stockholder chooses to invest in a business, he renounces to other investment opportunities with equal risk profile. Thus, emerges the need to determine the cost of capital in a reliable way. Otherwise, the firm's value will be affected by the results of the evaluation. The WACC reflects the cost of capital of all the financial sources proportionately weighted. In formulas, it could be represented as:

$$WACC = \frac{E}{E+D} \times r_e + \frac{D}{E+D} \times r_d \times (1-t)$$

where:

E is the portion of equity invested in the firm;

D is the portion of debt capital invested in the firm;

r_e is the cost of equity;

r_d is the cost of debt;

t is the corporate tax rate.

Hence, the financial structure as the composition of financial sources, is essential to the correct determination of cost of capital.

The paper is organized as follows: section 1 refers to a review of the literature on the argument. Then, in section 2, we focus on the analysis of the financial structure and report the methodology's description and the variables chosen. The panel is composed of 2.807 firms listed on the European financial markets. The elaboration concerns the period 2005 – 2014. However, it should be specified that in the analysis we don't consider the financial sector because its capital structure is influenced by a specific normative. Section 3 contains the elaboration of the analysis and the representation of the results. Finally, section 4 shows the conclusion reached by the analysis.

1. Literature.

There is a lot literature focused on the financial structure. Since the Modigliani and Miller's study in 1958, a large number of studies have followed. Modigliani and Miller affirm that in an efficient market, characterized by the absence of taxes, bankruptcy costs and information asymmetries, the financial structure does not affect its

value. However, the conditions on which the study is based are not found in the real markets. Afterwards, the Authors introduce some extensions to the model, represented substantially by tax benefits granted to the companies that get into debt: in other words, companies that choose to obtain financing can deduct the financial costs from taxable income, unlike to what happens to the dividends paid to shareholders that are normally not deductible. As the Authors affirm, the capital debt in the company could increase the firm's value in proportion to the present value of the tax savings that the company obtain from debt. So, firms might find convenient to reduce the equity and increase the debt capital; however, this greater use of debt capital produces negative effects that are higher financial costs and greater risk of default. In the long term, the greater costs as considered above will cancel the tax benefits. The continuous search for balancing the tax advantages with the increase in costs will lead to the definition of an optimal structure. This will be defined as the level of debt in which the marginal benefits and the marginal costs are equal. These considerations are the bases of the *Trade – off Theory*: Myers in 1977 introduces the concept of debt overhang that is the result of unexploited investment opportunities. Other theories are related to the branch of research called *Pecking Order Theory:* according to this theory, when firms choose their financial sources, they have an order of preference. In this optical, Myers e Majluf (1984) affirm that firms prefer to finance their investment resorting firstly to the self-financing, after to the debt capital and ultimately by issuing new share.

Various authors have focused their work paper on the identification of the weights to be assigned to reach an optimal financial structure. Damodaran (1994) computes the WACC by considering the weights expressed as book values instead of market value. It is demonstrated that if on assume that the market value of debt is the same of debt's book value, then the financial structure that minimizes the WACC is the same that maximizes the share price. The optimal capital structure, according Fernandez (2002), should respect at the same time the three conditions as exposed below:

a) maximize the firm's value;
b) maximize the share price;
c) minimize the WACC.

There is a lot of uncertainty about the weights that must be used in the WACC's determination. The commonly used methods includes the use of accounting values, of a target financial structure normally considered as optimal structure and the use of an industry average structure based on the assumption that it is optimal. These methods are often criticized in particular regarding the methodology based on accounting value (Baker et al. (2011)) and they are influenced by accounting conventions; further, they don't consider the future evolution of earnings and cash flows. However, they have as advantages the immediate availability and ease compute, they suffer lower volatility respect market value. The use of weights expressed in market value is considered a better solution than using accounting values. The rate which investors ask for is benchmarked to the market value, but the compute is more complex respecting that of the accounting values. This aspect is further complicated when the company is not listed. Sweeney, Warga e Winters (1997) show that despite the financial theory is focused on the use of market value, most of the works use the book value. This is mainly due to the difficulty in finding information available for bond issues. In fact, most corporate debt is traded on non-regulated markets (Over The Counter) rather than on the Stock Exchange. Normally, the firm has the objective of maximize the value for its shareholders and sometimes the value created is higher than the book value: this can be easily observed watching the value of the price/book value ratio that often assumes values higher than 1. Damodaran (2012) argues that some financial directors encourage the use of book values considering it a more conservative approach respect the use of market value: equity market value, indeed, tends to be higher than equity book value (if the equity book value is lower than the market value this can determine a lower WACC and so an overestimation of the firm's value). Bruner, Eades, Harris e Higgins (1998) identify in their investigation that the 59% of the firms uses market value weights, the 15% uses the book value weights and the 19% shows uncertainty about the value of weights to be used in (data are not available for the remaining 7%). Bancel e Mittoo (2014) conduct a survey on 356 evaluation of financial expert form 10 European Countries: they show that, despite the consensus is about the use of leverage expressed in market values, only 46% abides this recommendation, the 34% uses a Gearing ratio expressed in accounting value and the 31% uses an average industry Gearing. The Authors underline that the use of book value is widely diffused because this value is easily available and because it is a proxy less distorted than other measures. Koller, Goedhart e Welles (2010) show that for determination of cost of capital it must be considered target weights instead of current weights because at a given point, the current financial structure could not reflect the expected value on a going concern basis. The Authors identify three steps to establish the target capital structure: 1) estimate the current financial structure based on market value; 2) review the comparable financial structures; 3) analyze the management approach to financing investments and the reflex on the industry structure. This method have a limitation for the emerging markets in which the number of firms in a sector is limited. However, this problem is overcome by using the financial structure observed in

consolidated market, assuming that soon or later the emerging market's firms will adapt their financial structure to that of the sector they operate in. Hatfield, Cheng e Davidson (1994) evidence that the relation between firm's leverage and industry's leverage is not important for the market: this results to be in line with the assumption of Modigliani & Miller (1958). Flannery and Rangan (2006) claim that firms must have a target financial structure and that their returns to leverage ratio is about 30%. Roshan (2009) and Bancel and Mittoo (2002) show that the use of market value weights in valuation is limited. However there is still no consensus unanimous about the optimal financial structure to use.

Year of publication	Authors	Work paper	Foundings
1994	Damodaran	Damodaran on Valuation. New York: John Wiley and Sons.	Compute the WACC by considering the weights expressed as book values instead of market value.
1997	Sweeney, Warga e Winters	The Market Value of Debt, Market versus Book Value of Debt, and Returns to Assets	Prevalent use of book values.
1998	Bruner, Eades, Harris e Higgins	Best Practices in Estimating the Cost of Capital: Survey and Synthesis. Financial Practice and Education, 14-28.	59% use market value; 15% use book value; 19% are uncertain; 7% not available.
2002	Bancel & Mittoo	The Determinants of Capital Structure Choice: A Survey of European Firms	The use of market value is limited.
2006	Flannery & Rangan	Partial Adjustment toward Target Capital Structures. Journal of Financial Economics, 79(3), 469–506.	Firms must have a target structure.
2009	Roshan	Capital Structure and Ownership Structure: A Review of Literature	The use of market value is limited.
2010	Koller, Goedhart e Welles	Valuation: Measuring and Managing the Value of Companies, 5th edition. Hoboken, New Jersey: JohnWiley & Sons, Inc.	Target weights must be considered instead of current weights.
2011	Baker et al;	Benchmarks as Limits to Arbitrage: Understanding the Low-Volatility Anomaly	Accounting values are inadequate because they are historic value.
2012	Damodaran	Investment Valuation. New York: John Wiley and Sons.	Some financial directors encourage the use of accounting values.
2014	Bancel & Mittoo	The Gap between Theory and Practice of Firm Valuation: Survey of European Valuation Experts.	46% use market values; 34% uses a Gearing ratio expressed in accounting value and the 31% uses an average industry Gearing.

The wide practices use the book value to determine the weights of equity and debt given the difficulty in estimating the market values. In this paper we suggest the use of an average financial structure and a best financial structure that can be considered a benchmark financial structure for the relative sector.

2. Data and methodology.

Data are collected using Datastream. They refer to a panel of data, composed of 2.807 firms, selected from the following financial markets: United Kingdom, Sweden, the Netherlands, Luxembourg, Ireland, Greece, Germany, France, Finland, Denmark, Belgium, Austria and Italy. Using the Ateco 2007 Classification, we

identify the following sectorial clusters; as observed in the table some codes have been grouped: the grouping has been required to have an adequate sectorial numerousness.

Table 1 Sectorial clusters.

ATECO	Description	Number of firms
1-10-11-12	Agricolture, Foodindustry, Beverage, Tobacco	88
5-6-7-8-9	Mining industry	80
13-14-15	Textile, Clothing, Leather and Footwear	49
16-17-18	Wood, Paper	43
19	Oil	771
20	Chemistry	55
21	Pharmaceutical	96
22	Plastics and rubber	35
23-24	Glass and cement	45
25	Metallurgical and steel	31
26	Electronic and electrical	51
27	Electronic and electrical	32
28	Electronic and electrical	46
29-30	Vehicles, ships, planes	27
31-32	Furniture, Other industrial residuals	65
33 37 38 39 55 56 69 71 72 74 75 77 78 79 80 81 85 90 91 92 93 94 95 96	Machinery repairs, Management wastecollection, Service food and accomodation, Professional activities in general, Operating and management consulting holding, Architects and engineers, Other professional activities, Rental in general, Placement agency, Tour operator, Surveillance activity, Various services to person, Instruction, Artistic and recreational activities, Cultural activities, Bet, Sport activities, Other activities-service to person.	493
35	Energy production	24
36 38 39	Management waste collection	14
41-42-43	Construction building in general	58
45-46-47	Wholesale and retail trail vehicles and other	140
49-50-51-52-53	Transport	42
55	Service food and accomodation	9
56-79	Service food and accomodation, tour operator	22
58	Publishing group	28
59-60	Cinema and radio	30
61	Telecommunications	46
62-63	Production software, Computer services	63
68	Real Estate	21

69-71-74	Professional activities in general, Architects and engineers, Other professional activities	48
70	Operating and management consulting holding	39
72	Architects and engineers	3
73	Advertising	36
75	Other professional activities	1
77	Rental in general	14
78	Placement agency	29
80	Surveillance activity	9
81	Various services to person	1
82	Various services to person	44
86-87-88	Health	46
90-91-94-96	Artistic and recreational activities, Cultural activities, Other activities, service to person	4
92	Bet	16
93	Sport activities	13
Total		**2.807**

The financial structure has been calculate as the Total Shareholders Equity to Total Asset (net to Accounts Payables) ratio. We compute the financial structure as follow:

- if Total Shareholders Equity is lower than zero, we compute the financial structure as zero;
- if Total Shareholders Equity is greater than zero, financial structure is equal to the Total Shareholders Equity to Total Asset (net to Accounts Payables) ratio.

In this way, we compute the incidence of net assets to total funding sources. From the 1's complement of the ratio calculated, we can get the ratio representative of the debt incidence. Before the analysis, we compute the descriptive statistics to determine what position indicator is better. Below we show the main statistics for the different sectors. We refer, in particular, to mean, median, standard deviation, standard error, skewness, kurtosis and variance. After choosing the position indicator, we calculate tertiles corresponding, respectively, to the best, average and worst levels. We compute the tertiles as follow:

- the first tertile, called best, concerns the firms whit higher values for the Total Shareholders Equity to Total Asset (net to Accounts Payables) ratio;
- the second tertile, called average, refers to the firms whit average values for the Total Shareholders Equity to Total Asset (net to Accounts Payables) ratio;
- the third tertile, called worst, pertains to the firms whit lower values for the Total Shareholders Equity to Total Asset (net to Accounts Payables) ratio.

Considering data for all sectors indistinctly, we can also define a total benchmark financial structure.

3. Analysis.

We report, in the table below, the descriptive statistics for the sectors we consider.

Table 2. Descriptive statistics.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mean	0,497063	0,508629	0,519884	0,502573	0,504795	0,521525	0,522728	0,520298	0,519790	0,521438
Median	0,485058	0,491856	0,508158	0,486294	0,504999	0,523331	0,517373	0,524462	0,529671	0,521569
Standard Deviation	0,239066	0,237260	0,229592	0,234464	0,233160	0,227132	0,228093	0,229721	0,237299	0,238662
Standard Error	0,004716	0,004612	0,004417	0,004488	0,004469	0,004347	0,004356	0,004405	0,004544	0,004586
Skewness	0,044126	0,009397	0,067065	0,109905	-0,035219	-0,093789	-0,126558	-0,151733	-0,214543	-0,163498
Kurtosis	-0,471924	-0,446153	-0,447756	-0,534422	-0,446567	-0,398768	-0,395873	-0,370742	-0,373096	-0,397914
Variance	0,057152	0,056292	0,052712	0,054973	0,054364	0,051589	0,052026	0,052772	0,056311	0,056959

As we can see from the table above, the distribution of data shows a low variability as demonstrated by the values of variance and standard deviation. Data distribution is quite symmetric: table, indeed, shows a skewness value next to zero and similar values for mean and median. The negative kurtosis value means that the distribution is platykurtic (more flat than a normal distribution). So, we can choose the mean as a good position indicator for the distribution. In the next tables, the benchmark for financial structure is reported relating to the various sectors.

Table 3 shows that the best benchmark for firms which exert activity in the sectors of Agricolture, Foodindustry, Beverage and Tobacco is represented by a Total Shareholders Equity incidence of 58% or more. Conversely, the debt incidence should be less than 42%.

Table 3. Benchmark financial structure for sectors 1-10-11-12.

Benchmark	Financial structure value
worst	<0,40)
average	[0,40-0,58)
best	[0,58-1]

For firms of the sectors Mining industry, as reported in Table 4, the benchmark financial structure is 77% or more for Total Shareholders Equity while debt capital should be minor than 23%.

Table 4. Benchmark financial structure for sectors 5-6-7-8-9.

Benchmark	Financial structure value
worst	<0,56)
average	[0,56-0,77)
best	[0,77-1]

For the sectors of Textile, Clothing, Leather and Footwear we individuate a benchmark financial structure composed of Total Shareholders Equity for the 65% or more and of debt for 35% or less.

Table 5. Benchmark financial structure for sectors 13-14-15.

Benchmark	Financial structure value
worst	<0,46)
average	[0,46-0,65)
best	[0,65-1]

Firms active in Wood and Paper's sector should choice a financial structure composed for 54% or more by Total Shareholders Equity and by 46% or less by debt capital (Table 6).

Table 6. Benchmark financial structure for sectors 16-17-18.

Benchmark	Financial structure value
worst	<0,43)
average	[0,43-0,54)
best	[0,54-1]

The best benchmark financial structure for firms which exert activity in the sector of Oil regard a 64% Total Shareholders Equity and 36% debt capital (Table 7).

Table 7. Benchmark financial structure for sector 19.

Benchmark	Financial structure value
worst	<0,45)
average	[0,45-0,64)
best	[0,64-1]

Tabel 8 shows that the Chemistry sector requires a financial structure composed of equity for 59% and of debt for 41%.

Table 8. Benchmark financial structure for sector 20.

Benchmark	Financial structure value
worst	<0,45)
average	[0,45-0,59)
best	[0,59-1]

Firms active in the Pharmaceutical sectors should have equity for 75% or more and debt capital for 25% (Table 9).

Table 9. Benchmark financial structure for sector 21.

Benchmark	Financial structure value
worst	<0,56)
average	[0,56-0,75)
best	[0,75-1]

As shown in Table 10, the Plastics and rubber sector requires a financial structure which is composed of equity for 64% or more and of debt capital for the remaining 36%.

Table 10. Benchmark financial structure for sector 22.

Benchmark	Financial structure value
worst	<0,42)
average	[0,42-0,64)
best	[0,64-1]

For the sectors of Glass and cement, the identified financial structure is composed of 52% or more equity and of 48% or less debt (Table 11).

Table 11. Benchmark financial structure for sectors 23-24.

Benchmark	Financial structure value
worst	<0,44)
average	[0,44-0,52)
best	[0,52-1]

Metallurgical and steel sector requires equity for 55% and debt for the remaining 45% (Table 12).

Table 12. Benchmark financial structure for sector 25.

Benchmark	Financial structure value
worst	<0,37)
average	[0,37-0,55)
best	[0,55-1]

Firms which exert Electronic and electrical activity (regarding computer production) should have 66% or more equity and 34% debt capital (Table 13).

Table 13. Benchmark financial structure for sector 26.

Benchmark	Financial structure value
worst	<0,52)
average	[0,52-0,66)
best	[0,66-1]

Electronic and electrical activity regarding manufacture of electrical appliances and equipment for home not electric require a benchmark financial structure composed of equity for 59% and of debt for 41% (Table 14)

Table 14. Benchmark financial structure for sector 27.

Benchmark	Financial structure value
worst	<0,51)
average	[0,51-0,59)
best	[0,59-1]

For the Electronic and electrical activity, relative to manufacture of machinery and equipment, we compute a financial structure composed of 53% equity and for the remaining 47% of debt (Table 15).

Table 15. Benchmark financial structure for sector 28.

Benchmark	Financial structure value
worst	<0,43)
average	[0,43-0,53)
best	[0,53-1]

Firms active in the vehicles, ships and planes sectors should be financed for 42% by equity capital and for 58% by debt (Table 16).

Table 16. Benchmark financial structure for sectors 29-30.

Benchmark	Financial structure value
worst	<0,30)
average	[0,30-0,42)
best	[0,42-1]

The Furniture and other industrial residuals sectors expect a financial structure composed of 58% equity and 42% debt (Table 17).

Table 17. Benchmark financial structure for sectors 31-32.

Benchmark	Financial structure value
Worst	<0,45)
Average	[0,45-0,58)
Best	[0,58-1]

For the aggregated sectors represented by Machinery repairs, Management wastecollection, Service food and accomodation, Professional activities in general, Operating and management consulting holding, Architects and engineers, Other professional activities, Rental in general, Placement agency, Tour operator, Surveillance activity, Various services to person, Instruction, Artistic and recreational activities, Cultural activities, Bet, Sport activities, Other activities-service to person we compute a financial structure constituted for 57% by equity and for 43% by debt capital (Table 18).

Table 18. Benchmark financial structure for sectors 33-37-38-39-55-56-69-71-72-74-75-77-78-79-80-81-85-90-91-92-93-94-95-96.

Benchmark	Financial structure value
worst	<0,39)
average	[0,39-0,57)
best	[0,57-1]

The results of the analysis for the Energy production sector indicate a best financial structure whit 42% of equity capital and 58% of debt (Table 19).

Table 19. Benchmark financial structure for sector 35.

Benchmark	Financial structure value
worst	<0,30)
average	[0,30-0,42)
best	[0,42-1]

For the Management waste collection sector, the analysis has shown a benchmark financial structure of 52% equity and 48% debt (Table 20).

Table 20. Benchmark financial structure for sectors 36-38-39.

Benchmark	Financial structure value
Worst	<0,22)
average	[0,22-0,52)
Best	[0,52-1]

Firms which activity can be catalogued in the sector of Construction building in general have a financial structure represented by equity for 44% or more and by debt for 56% (Table 21).

Table 21. Benchmark financial structure for sectors 41-42-43.

Benchmark	Financial structure value
worst	<0,29)
average	[0,29-0,44)
best	[0,44-1]

For the sectors of Wholesale and retail trail vehicles and other, equity should represent 55% or more of the benchmark financial structure while debt should be 45% or less (Table 22).

Table 22. Benchmark financial structure for sector 45-46-47.

Benchmark	Financial structure value
worst	<0,41)
average	[0,41-0,55)
Best	[0,55-1]

Transport sector has a benchmark financial structure composed by 43% of equity and for the remaining 57% by debt (Table 23).

Table 23. Benchmark financial structure for sectors 49-50-51-52-53.

Benchmark	Financial structure value
worst	<0,30)
average	[0,30-0,43)
best	[0,43-1]

Service food and accommodation sectors' firms should have a financial structure composed of 58% equity and 42% of debt (Table 24).

Table 24. Benchmark financial structure for sector 55.

Benchmark	Financial structure value
worst	<0,46)
average	[0,46-0,58)
best	[0,58-1]

For firms of the sectors of Service food and accommodation and tour operator, the benchmark financial structure is composed for 50% or more by equity and for 50% or less by debt capital (Table 25).

Table 25. Benchmark financial structure for sector 56-79.

Benchmark	Financial structure value
worst	<0,31)
average	[0,31-0,50)
best	[0,50-1]

Publishing group sector requires a financial structure represented by equity for 55% or more and by debt for 45% or less (Table 26).

Table 26. Benchmark financial structure for sector 58.

Benchmark	Financial structure value
worst	<0,31)
average	[0,31-0,55)
best	[0,55-1]

Cinema and radio sector shows a benchmark financial structure whit 53% of equity and 47% of debt (Table 27).

Table 27. Benchmark financial structure for sectors 59-60.

Benchmark	Financial structure value
worst	<0,38)
average	[0,38-0,53)
best	[0,53-1]

The analysis for the telecommunications sector indicates a financial structure composed for 54% by equity and for the remaining 46% or less by debt capital (Table 28).

Table 28. Benchmark financial structure for sector 61.

Benchmark	Financial structure value
worst	<0,33)
average	[0,33-0,54)
best	[0,54-1]

Production software and computer services sectors have a financial structure represented by 69% equity and 31% debt (Table 29).

Table 29. Benchmark financial structure for sectors 62-63.

Benchmark	Financial structure value
worst	<0,50)
average	[0,50-0,69)
best	[0,69-1]

The Real estate sector shows a financial structure composed of 45% or more by equity and for the remaining 55% by debt (Table 30).

Table 30. Benchmark financial structure for sector 68.

Benchmark	Financial structure value
worst	<0,32)
average	[0,32-0,45)
best	[0,45-1]

Professional activities in general, architects and engineers, other professional activities indicate a financial structure composed of 53% equity and debt for 47% (Table 31).

Table 31. Benchmark financial structure for sectors 69-71-74.

Benchmark	Financial structure value
worst	<0,35)
average	[0,35-0,53)
best	[0,53-1]

Firms active in Operating and management consulting holding sector have 60% or more equity and 40% or less debt (Table 32).

Table 32. Benchmark financial structure for sector 70.

Benchmark	Financial structure value
worst	<0,42)
average	[0,42-0,60)
best	[0,60-1]

Architects and engineers firms have a financial structure whit 72% equity and 28% or less debt capital (Table 33).

Table 33. Benchmark financial structure for sector 72.

Benchmark	Financial structure value
worst	<0,65)
average	[0,65-0,72)
best	[0,72-1]

Advertising sector requires a benchmark financial structure composed of 63% of equity and for the remaining of debt (Table 34).

Table 34. Benchmark financial structure for sector 73.

Benchmark	Financial structure value
worst	<0,47)
average	[0,47-0,63)
best	[0,63-1]

For the other professional activities sector we don't indicate a benchmark financial structure because the low numerosity of the sector prevents the correct determination of the financial structure weights (Table 35).

Table 35. Benchmark financial structure for sector 75.

Benchmark	Financial structure value
worst	-
average	-
best	-

Rental in general requires a financial structure which should be composed in the same percentage (50%) of equity and debt capital (Table 36).

Table 36. Benchmark financial structure for sector 77.

Benchmark	Financial structure value
worst	<0,35)
average	[0,35-0,50)
best	[0,50-1]

Firms which exert activity in the Placement agency sector have a financial structure represented by equity for 54% or more and by debt for 46% or less (Table 37).

Table 37. Benchmark financial structure for sector 78.

Benchmark	Financial structure value
worst	<0,43)
average	[0,43-0,54)
best	[0,54-1]

Surveillance activity sector has financial structure weights represented respectively by 57% or more equity and 43% or less debt (Table 38).

Table 38. Benchmark financial structure for sector 80.

Benchmark	Financial structure value
worst	<0,32)
average	[0,32-0,57)
best	[0,57-1]

For the sector of various services to person (regarding service operations for buildings and landscape) we don't indicate a financial structure because of the low numerosity of the firms (Table 39).

Table 39. Benchmark financial structure for sector 81.

Benchmark	Financial structure value
worst	-
average	-
best	-

For the Various services to person sector (relative to support activities for the functions of office and other support services for businesses) we found a financial structure represented by 49% or more by equity and 51% or less by debt (Table 40).

Table 40. Benchmark financial structure for sector 82.

Benchmark	Financial structure value
worst	<0,32)
average	[0,32-0,49)
best	[0,49-1]

Health sector requires 65% equity and 35% debt (Table 41).

Table 41. Benchmark financial structure for sectors 86-87-88.

Benchmark	Financial structure value
worst	<0,41)
average	[0,41-0,65)
best	[0,65-1]

For he following sectors Artistic and recreational activities, Cultural activities, Other activities, service to person the analysis indicates a financial structure whit 34% equity and 66% debt capital (Table 42).

Table 42. Benchmark financial structure for sectors 90-91-94-96.

Benchmark	Financial structure value
worst	<0,27)
average	[0,27-0,34)
best	[0,34-1]

The analysis for the bet sector indicates the following weights: 65% or more equity and 35% or less debt (Table 43).

Table 43. Benchmark financial structure for sector 92.

Benchmark	Financial structure value
worst	<0,44)
average	[0,44-0,65)
best	[0,65-1]

Sport activities sector has a benchmark financial structure with 43% equity and 57% debt (Table 44).

Table 44. Benchmark financial structure for sector 93.

Benchmark	Financial structure value
worst	<0,28)
average	[0,28-0,43)
best	[0,43-1]

Finally, we compute the total benchmark for all the sector indistinctly considered. We found that firms should have a financial structure which require an incidence of equity capital for 60% or more and, conversely, a debt incidence rate of 40% or less (Table 45).

Table 45. Total benchmark financial structure.

Benchmark	Financial structure value
worst	<0,42)
average	[0,42-0,60)
best	[0,60-1]

4. Conclusion.

This paper investigates the importance of financial structure in the cost of capital's determination. So, starting from data of 2.807 listed companies grouped by 42 sectors, we define their benchmark financial structure expressed in terms of equity and debt. The model can be also used to determine the weights of cost of capital in unlisted companies (when the company has a target). In this way, to compute its own cost of capital, a firm should have a financial structure as similar as possible to the specific sector. Further progress of this work could be represented by the investigation of the actions that influence the financial structure and extend the analysis for the sectors which haven't significant numerosity.

References.

Bancel, F., & Mittoo U. R. (2002). The Determinants of Capital Structure Choice: A Survey of European Firms, *Electronic Journal 33.*

Bancel, F., & Mittoo, U. R. (2014). The Gap between Theory and Practice of Firm Valuation: Survey of European Valuation Experts.

Baker et al (2011). Benchmarks as Limits to Arbitrage: Understanding the Low-Volatility Anomaly. *Financial Analysts Journal, vol. 67 Number 1.*

Bruner, R., Eades, K., Harris, R., & Higgins, R. (1998). Best Practices in Estimating the Cost of Capital: Survey and Synthesis. *Financial Practice and Education*, 14-28.

Damodaran, A. (1994). *Damodaran on Valuation*. New York: John Wiley and Sons.

Damodaran, A. (2012). *Investment Valuation.* New York: John Wiley and Sons.

Flannery, M., & Rangan, K. (2006). Partial Adjustment toward Target Capital Structures. *Journal of Financial Economics, 79(3)*, 469–506.

Koller, T., Goedhart, M., & Wessels, D. (2010). *Valuation: Measuring and Managing the Value of Companies, 5th edition.* Hoboken, New Jersey: JohnWiley & Sons, Inc.

Merton, M., & Modigliani F., (1963). "Corporate Income Taxes and the Cost of Capital: A Correction", in American Economic Review, vol. 3, n. 53, pp. 433-443.

Modigliani, F., Merton M., (1958) "The Cost of Capital, Corporate Finance, and the Theory of Investment", in American Economic Review, vol. 3, n. 48, pp. 261-297.

Myers, S. (1977). "Determinants of Corporate Borrowing". Journal of Financial Economics. 5 pp. 147–175.

Myers, S. C., & Majluf, N. J., (1984). "Corporate Financing and Investment Decision When Firms Have Information That Investors Do Not Have", in Journal of Financial Economics, vol. 13, nº 2, pp. 187-221.

Roshan, B. (2009). Capital Structure and Ownership Structure: A Review of Literature. *The Journal of Online Education, New York, January 2009*.

Sweeney, R. J., Warga, A. D., & Winters D. (1997). The Market Value of Debt, Market versus Book Value of Debt, and Returns to Assets. *Financial Management, vol.26.*