Journal of Economic Growth and Entrepreneurship JEGE
Spatial and entrepreneurial development studies laboratory

Year : 2023 Vol.6 No.2 pp:26-35

Financial leverage is a quantitative technique for evaluating the financial performance of economic institutions: a case study of a sample of economic institutions.

Benkabou Zouaoui [1], Dahmani meriem[2].

[1] *University of Sidi Bel Abbes, (Algeria) ,benka_z@yahoo.fr*
[2] *University of Continuing Education, (Algeria), meriem.dahmaniufc@gmail.com.*

ARTICLE INFO

Article history:
Received:14/04/2023
Accepted:24/05/2023
Online:27/05/2023

Keywords:
financial leverage
financial performance
evaluating the performance of Algerian economic institutions.
JEL Code:G32

ABSTRACT

Good financial performance is the goal that the economic institution seeks to achieve. This performance can be evaluated based on the financial leverage technique. In this context, our research came to address the problem of to what extent this can be adopted as a tool for evaluating the financial performance of economic institutions of all kinds. the study is divided into two main parts. In the first part of our research, the descriptive approach is followed. In the second part, which represents the applied study, we adopt the case study method. Accordingly, our study aims to try to prove the effectiveness of this criterion, its simplicity, and the possibility of its application in a sample of Algerian economic institutions. In the end, we come to the inevitability of applying this criterion, because on its basis it is possible to assess the ability of Algerian institutions to grow and continue.
Keywords: financial leverage, financial performance, evaluating the performance of Algerian economic institutions.

1. Introduction.

Achieving good financial performance of economic institutions, especially productivity, is considered a source of self-sufficiency and well-being for society. That is the primary goal that the economic and financial legislator seeks to achieve at the macro level, management of the institution, and its financial management at the micro level. Especially since the latter is the main way to fight unemployment,meet the needs of the economy, strengthen the balance of the trade balance, and then strengthen the surpluses achieved by the balance of payments.All of this stems from certain financial stability achieved by this institution stemming from successful financial management and management.

The management of the successful financial function at the level of the economic institution is the focus of its management, and the way to its continuity and growth, which is based on the effective financial management of the institution’s resources and uses. Financial management is considered a financial, economic, real, accurate, and detailed study of the various past, present, and future cases that the institution's finances may have. It is a set of accounting and financial means through which the decision can be made about the real situation of the institution. This is based on the ratios of financial evaluation (financial analysis), studying costs and choosing investments, then researching financing methods as well as paying external financing dues, all of this is based on making sound decisions at the level of the institution’s management. There are several means and ways of estimating the methods for evaluating the effectiveness of these decisions.

as long as the financial management aims mainly at the good employment of the financing resources of the institution, it seeks to achieve the effect of good leverage of the invested capital, whether it is self- or in the form of debt.Based on the financial leverage achieved by the institution, the decision to finance it and participate in its capital will be determined. This will ensure high financial performance. In this context, we raise the problem of our

* Corresponding Author : Benkabou Zouaoui

intervention, which is:

What is meant by financial leverage, and to what extent can it be adopted as a tool for evaluating the financial performance of economic institutions of all kinds?

This problem includes two sub-problems:

- How does it evaluate economic performance based on financial leverage?
- At the level of the studied economic institutions, can the financial leverage criterion faithfully depict the effectiveness of their financial performance?

To answer this problem and its sub-problems, we propose the following two hypotheses:

- Financial leverage evaluates the economic performance of enterprises by comparing profitability and cost of capital.
- Algerian economic institutions can not adopt the financial leverage standard to evaluate their financial performance, because other financial standards are simpler to apply.

Study Approach:

To answer the problem raised and the proposed hypotheses, we followed the descriptive approach in the first section of our research because it is the most appropriate for collecting and describing information. While in the second section, which represents the applied study, we adopted the case study method because it is the most appropriate in presenting the theoretical concepts that we touched on previously on the ground.

Objectives and importance of the study:

Despite the extensive theoretical academic study of the issue of financial leverage, this topic is still not adopted in reality as a technique for evaluating institutions. From this point our topic derives its importance, so it aims to:

- Highlight the components of financial leverage.
- Simplifying how to calculate the effect of financial leverage
- Applying the financial leverage technique to Algerian economic institutions and evaluating their financial performance on its basis.

To answer this problematic issue, we divided our work into two parts:

1. General concepts about financial leverage and its role in evaluating the financial performance of economic institutions.
2. Financial leverage and evaluation of financial performance at the level of a group of economic institutions.

I. General concepts about financial leverage and its role in evaluating the financial performance of economic institutions.

The financial function is concerned with studying and making financial decisions that seek to maximize the wealth of the enterprise based on collecting the necessary funds to cover their needs, and then employing them as it should be to achieve good financial performance by gaining positive financial leverage.This function is based on financial management, which mainly aims to: (Meunier Rocher, 2007, pp. 137-140) [1]

Provide liquidity: To ensure the high financial performance of the economic institution, it is the responsibility of the financial function to provide liquidity at the lowest costs to cover financing needs, whether it is related to short, medium, or long-term financing.

Achieve profitability: The financial function is responsible for regulating the use of the collected resources so that positive results can be achieved for the company and thus maximizing its profits and shareholder distributions, thus ensuring continuity and growth. This is based on a set of functions summarized in the following: (Barreau, 2004, pp. 220-223) [2]

1. Planning and estimation: This is done by drawing up a working map that brings together the various financing (and even rationing) capabilities available, as well as the size of the projects that are desired to be completed (or expected to be completed). (Forget, 2005, p. 98) [3]

2. Decision-making: Based on the outcome of the previous stage, the financial manager takes the appropriate decision that can achieve the highest profitability according to the available capabilities, therefore, reducing the greatest possible risk associated with investing in this project.
3. Implementation of the decision: realizing the studied project on the ground and searching for the best opportunities to ensure the effective launch of the project.
4. Follow-up and control: By tracking the progress of the project, stage by stage, until obtaining results. This is done through an accurate report of the size of the deviations it is going through, as well as the results of profits and losses so that we can estimate the effectiveness of the institution's decisions based on the financial leverage it has achieves. (Gaugain & Crambert, 2004, p. 250) [4]

Definition of financial leverage.

When carrying out its projects, the Foundation relies on a range of financing sources to ensure the continuous liquidity of its assets. These sources of financing may be internal, based on private capital and the results achieved by the institution. It can also be in the form of borrowings for which the bank is the main financier (external financing sources are numerous and varied, it may be bank financing (traditional financing through bank mediation), and it may also be through subscription at the level of organized secondary markets (stock exchanges and their role in mobilizing public savings. As long as the institution usually resorts to external financing, which is characterized by high costs compared to internal financing, it must employ these funds with greater rationality to achieve positive returns through which it pays off the debt and its burdens, and achieves margins to guarantee its financial solidity and the desired financial performance.

Financial leverage means the ability of self-financing sources (private capital in particular) and external financing sources represented in debt to raise the financial profitability of the institution by achieving significant margins that constitute the difference between results and capital costs that contributed to creating these results. Based on leverage, the efficiency of the institution is determined in the management of its permanent resources (long-term resources) precisely because it is more costly for it compared to its short-term counterpart, and this is always to achieve the required financial performance whether from directors, the owners, and even the regulatory bodies at the macro level. As for the permanent resources, they constitute the upper part of the institution's resources at the level of the functional budget, and as we have seen previously, they consist of two main parts:

- ✓ Private resources
- ✓ Debt and borrowings

The principle of leverage tries to study the extent to which the institution can achieve good financial performance through its control over its resources, and its ability to manage liquidity at the lowest cost and manage it in a way that guarantees the strongest results. also considering how it relates to its debts.since it is in its interest that it has small debts relative to its resources, and as soon as these debts (D) exceed the private capital (K), the institution will face difficulties in repaying these debts.this basis, the decision to finance the latter is determined or not, therefore the scope of the risks associated with it, and the extent to which funders and suppliers are able to recover their money employed at its level. (Chrissos & Gillet, 2012, p. 64) [5]

1. The mathematical formula for the leverage effect:

The effect of leverage attempts to study the effectiveness of financing within the framework of the general financial independence of the institution. This autonomy is in a proportion that can take a range of forms: (Bobinaite, 2015, p. 34) [6]

Total liabilities/ Total equity

Total equity/Total liabilities

Debt/liabilities and equity

This percentage must not exceed the value of one, meaning that it is in the interest of both the institution and the bank that lends it to not be (1>D/K). In the opposite case, the total risks that the institution bears can be borne by the lenders, financiers, suppliers, and parties. All this refers to a certain general financial performance.

Mathematically: The leverage effect is calculated through the following formula

Capital => K

Debt => D

Economic capital => K+D

The Economic outcome =>(K+D) t_e

Loan cost => Di

The economic outcome after annuity payment =>(K+D) t_e-Di=K t_e + D(th-i)

Net outcome =>(1-O) [K_e +D(t_e i)]

RF=> Profitability Ratio.

$$RF=R/K \leftrightarrow RF=(1\text{-}O)[t_e+\frac{D}{K(t_e\text{-}i)})] \qquad (1)$$

$$=\underbrace{(1\text{-}O)t_e}_{A}+\underbrace{\frac{(1\text{-}O)D}{K}(t_e\text{-}i)}_{B} \qquad (2)$$

D/K => financial leverage

B => leverage effect ratio(Elf)

2. Evaluation of the institution's financial performance in terms of its leverage effect:

Based on financial leverage, the financial manager can evaluate the financial performance of his organization based on the cases that have the effect of leverage. (Laux, 2010, p. 16) [7]

The first case: is where the economic profitability (**t_e**) is greater or equal to the interest rate (**i**) that contributed to achieving it.

t_e –i > 0 ↔ t_e < i : The effect of positive leverage and the institution employs its financial resources and its debts in particular as it should, in this case, it is financially sound and the financial performance it achieves is good.

te – i = 0 ↔ t_e = i : Non-existent financial leverage, and in this case, financial profitability denotes economic profitability after paying taxes, and the institution is less financially stable than in the previous case.

The second case: is where the economic profitability is less than the interest rate that contributed to achieving it.

t_e –i < 0 ↔ t_e <i :The effect of negative financial leverage, the institution does not manage its financial resources and its debts in particular, as it should. The institution is financially unstable. This financial situation bears three cases:

RF > 0 ↔ A – B > 0 ↔ A>B: In this case, despite the negative effect of financial leverage, the financial return is positive, but it means that the institution achieves unstable financial performance.

RF = 0 ↔ A – B = 0 ↔ A = B: here, the profitability of the institution is non-existent. The institution falters financially, and its financial stability is at risk. (Haomin, 2020, p. 464) [8]

RF < 0 ↔ A – B< 0 ↔ A<B: In this case, the negative leverage makes the financial profitability negative, the financial management of the institution is a failure, and its financial stability is also deteriorating. (Corbel, 2015, p. 94) [9]

II. Financial leverage and evaluation of financial performance at the level of a group of economic institutions.

In this part of our research, we will address the applied study of all theoretical concepts that we discussed in the first section, as we will highlight a group of economic institutions (four institutions) that are very popular in the

Algerian market as a study sample.Its main headquarters are located at the Wilaya of Sidi Bel Abbes, and to make the study sample richer, two public and two private institutions were selected. Only productive institutions were selected for the study sample because the effect of financial leverage as a technique for evaluating their financial performance appears clear.We are trying to evaluate their financial performance based on the leverage that it achieves. The sample includes institutions with significant national activity, and some of them go for export. This makes them an excellent sample that represents the rest of the active institutions in the same market. Some of them achieved a loss, so we can finally conclude that the financial leverage technique is very important in financial management, which Algerian banks eliminate from studying loan files and evaluating institutions requesting financing. It can depict, with high accuracy, the financial position of the institutions and the extent of their financial stability, which is the source of their ability to fulfill their obligations. (Delahaye & Barreau, 2016, p. 223) [10]

The study period: consisted of four years*2016-2017-2018-2019*which represents the last period in which the institutions under study provided us with the latest financial statements that they achieved. On this basis, we will conduct a case study of our research; thus, our study will be the most recent.

Research methodology: Represented in the case study method, the inductive method. This is based on the descriptive approach that describes the financial statements and on which the effect of financial leverage is calculated. Then, the stage of analyzing the results is to judge the nature of the financial performance of the study sample institutions.

The first institution is the public, it is an ancient institution in Algeria, a veteran of the two eras: the socialist and the capitalist, and it is considered the oldest in its field of activity.it is engaged in the production of electronics and household electrical products. It has gone through many financial crises, but it is still steadfast to this day. Despite the intense competition in this sector, it is still steadfast. The Corporation has always expanded its scope of activity to monopolize in the last five years the field of renewable energy in Algeria to become the leader in the panels producing solar electric energy production. Its financial statements are given as follows:

Table N° 1: Evolution of the financial variables of institution No. 01.

	2016	**2017**	**2018**	**2019**
Long term debt	1481273989.10	2143271284.10	3473273989.10	5081742371.31
capital K	8322000000	83220000000	8322000000	8322000000
Total exploitation surplus	-156995673.24	-108228419.47	-585648004.84	-273627223.31
Net outcome	-102413518.19	-167239046.54	-412396367.37	-295137195.95

Source: Provided information about the institution, balance sheet 2016, 2017, 2018, 2019.

Knowing that the average interest rate imposed by Algerian banks is equivalent to 6%, and the tax rate on corporate profits is equivalent to 0.25. Therefore, from the previous table, we conclude the following table:

Table N° 2: Estimating the effect of financial leverage for institution No. 01

	2016	2017	2018	2019
D/K	0.177	0.025	0.417	0.610
Te	0.016-	0.001-	0.049-	0.020-
te-i	0.076-	0.061-	0.109-	0.08-
Elf	0.01-	0.001-	0.034-	0.036-

Source: Prepared by the researcher based on the information provided about the institution, balance sheet 2016, 2017, 2018, 2019.

The second institution of the study sample is a private one.Its field of activity is broad, its turnover is significant because it operates in a very sensitive sector in the Algerian economy the construction industry.

Table N°3: Evolution of the financial variables of institution No. 02.

	2016	2017	2018	2019
Long term debt	144323665.00	167612680.00	399318444.71	416749435.91
capital K	122080000.00	122080000.00	122080000.00	122080000.00
Total exploitation surplus	24968282.23	37469720.17	73195937.00	84365649.00
Net outcome	2067293.50	3593007.89	10273220.12	18595430.00

Source: Provided information about the institution, balance sheet 2016, 2017, 2018, 2019..

From the above table, we extract the following table:

Table N°4: Estimating the effect of financial leverage for institution No. 02

2019	2018	2017	2016	
3.41	3.27	1.37	1.18	D/K
0.156	0.140	0.129	0.093	Te
0.096	0.08	0.069	0.033	te-i
0.245	0.196	0.070	0.029	Elf

Source: Prepared by the researcher based on the information provided about the institution, balance sheet 2016, 2017, 2018, 2019.

The third institution of the study sample is also private. It works in the sector of producing sanitation materials and agricultural irrigation devices. The institution is very popular in its area of activity, both at the national and even the African level.

Table N°5: Evolution of the financial variables of institution No. 03.

	2016	2017	2018	2019
Long term debt	188654200	493654272	81154272	426723562
capital K	1500000000	1500000000	1500000000	1500000000
Total exploitation surplus	112834250	886885547	889969921	1044678426
Net outcome	768575200	562935195	577727082	650613912

Source: Provided information about the institution, balance sheet 2016, 2017, 2018, 2019.

Under the same previous conditions of the interest rate and the tax rate on corporate profits, from the previous table, we extract the following table:

Table N°6: Estimating the effect of financial leverage for institution No. 03

	2016	2017	2018	2019
D/K	0.12	0.32	0.054	0.28
Te	0.066	0.44	0.56	0.54
te-i	0.06	0.38	0.50	0.48
Elf	0.005	0.091	0.020	0.1

Source: Prepared by the researcher based on the information provided about the institution, balance sheet 2016, 2017, 2018, 2019.

The fourth institution is public. Operating in the mechanical production sector of agricultural equipment. It underwent a restructuring process, and at present, it is working in partnership with a Spanish partner who is very specialized in its field of activity.

Table N°7: Evolution of the financial variables of institution No. 04

	2016	2017	2018	2019
Long term debt	231734090.74	258930996.35	291384266.77	303459367.00
capital K	2379440000.00	2379440000.00	2379440000.00	2379440000.00
Total exploitation surplus	876397497.88	180431399.57 -	298074333.66	378695865.86
Net outcome	423551209.45	275943992.86	137792784.77	297685783.00

Source: Provided information about the institution, balance sheet 2016, 2017, 2018, 2019.

From the above table, we extract the following table:

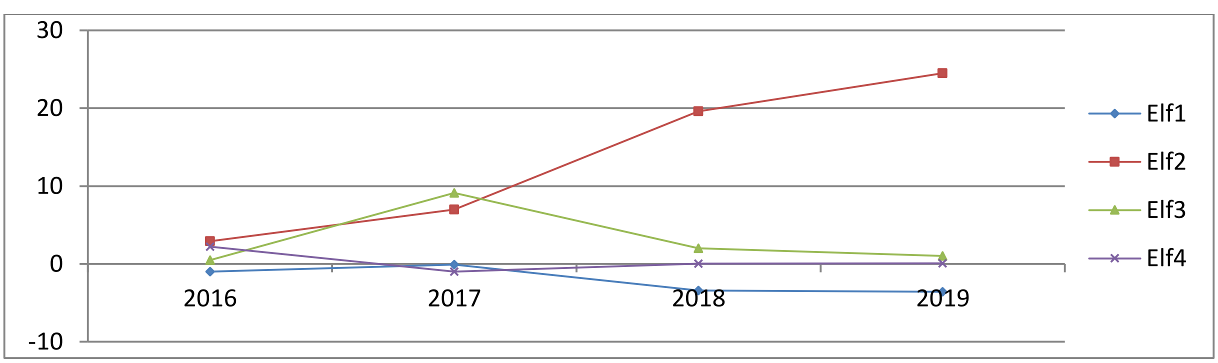
Table N°8: Estimating the effect of financial leverage for institution No. 04

	2016	2017	2018	2019
D/K	0.097	0.108	0.122	0.127
Te	0.368	0.069-	0.111	0.141
te-i	0.308	0.129-	0.051	0.081
Elf	0.022	0.010-	0.004	0.007

Source: Prepared by the researcher based on the information provided about the institution, balance sheet 2016, 2017, 2018, 2019.

Therefore, the effect of the financial leverage achieved by the four institutions representing the study sample over the four years of the study period is collected by the following curve (the values are converted into percentages):

Graph No. 01: The financial leverage of the study sample institutions.



Source: Prepared by the researcher based on the financial statements of the study sample institutions, balance sheet 2016, 2017, 2018, 2019.

Through the graphs, we notice:

- Institution No. 1 has negative financial leverage, meaning that the economic profitability it achieves cannot cover the cost of borrowing. This reflects the misuse of the financial resources in its possession, whether internal or external; therefore, the institution's financial performance throughout the study period is poor.
- Institution No. 2 achieves positive and increasing financial leverage regularly throughout the study period. This institution is considered the strongest institution in the study sample in terms of solidity and financial performance. Its financial management is sound and successful.
- Institution No. 3 achieved positive financial leverage. From the perspective of successful financial management, this is a good thing. However, despite the positive leverage, it fluctuated to reach its highest value in 2017, only to return after that to decline during the following two years. The institution is also financially unstable.
- Institution No. 4 Its financial leverage fluctuates between positive and negative. Its financial management is sometimes acceptable or faltering. The institution is financially unstable. Based on the financial leverage that the institution achieves, it must review the performance of its financial management.

Conclusion.

The financial leverage technique is one of the simple financial techniques through which the financial performance of economic institutions of all kinds can be evaluated. Thus, evaluating its solidity and financial stability, especially as it compares the cost of capital and the revenues that the institution earned from employing that cost. Through this technique, lending financial institutions can assess the level of financial rationality by evaluating the level of financial performance of borrowing institutions, to determine the basis of the decision to grant financing or not. (Gu , 2008, pp. 223-231) [11]

Testing the validity of hypotheses:

After a thorough study of our subject, we came to the following:

The first hypothesis: Financial leverage evaluates the economic performance of enterprises by comparing profitability and the cost of capital. A valid hypothesis with the addition of the elements of financial independence and the tax rate.

The second hypothesis: Algerian economic institutions cannot adopt the financial leverage standard to evaluate their economic performance, because other financial standards are simpler to apply. The hypothesis is wrong, as the leverage technique is feasible and easy to apply for the studied Algerian economic institutions, based on which their financial performance of them is measured.

Through our study, we reached a set of results:

- Financial leverage is one of the dynamic financial management techniques that can be attained by following the evolution of profits and losses achieved by economic institutions.
- Financial leverage is a technique that compares costs and results, thus enabling accurate estimation of profits.
- Financial leverage is a principle that focuses on comparing economic profitability and the interest rate and thus gives the institution a greater possibility to invest the money of others as it should.
- This technique allows, as we have noted in the previous graph, to calculate the rates of growth or decline achieved by the institutions.
- Financial leverage is a method that collects the most important financial costs that can be consumed by the results achieved by the institution, represented in the interest rate and the tax on corporate profits. Thus, this method enables directing the institution's borrowing policy and its relationship with the tax administration.
- This method enables an assessment of the ability of the enterprise to bear the tax and interest rate.
- The financial leverage technique assesses the financial independence of the studied institutions by including the relationship between debt and capital while calculating the effect of financial leverage.

Through our study, we see that:

- Lending institutions must accurately calculate all the costs associated with the decision to grant financing before accepting a loan.

- Educate the borrower on the most accurate costs associated with obtaining financing so that he can calculate his revenues accurately in advance.
- The necessity of approving the study of financing files for the most prolonged possible period, as three years do not adequately depict the ability to fulfill obligations to borrowers.
- The adoption of the financial leverage technique in estimating the ability of borrowers to repay, as it evaluates their ability to create value and profits.
- Financial leverage must be included during the financial diagnosis process for projects of the study sample institutions.Because it combines the cost of capital, economic profitability, and financial revenue. Therefore, this financial technique enables an accurate estimate of the amount of the actual revenue earned.

References:

[1] Meunier Rocher, B. (2007). *le Diagnostic Financière* (éd. 2eme edition). Paris, France: Organisation.

[2] Barreau, J. (2004). *Gestion Financiere* (éd. 13 eme Edition). Paris, France: Dunod.

[3] Forget, J. (2005). *Gestion de Trésorerie «Optimiser la Gestion Financière del'entreprise a court terme.* Paris, France: Organisation.

[4] Gaugain, M., & Crambert, R. (2004). *Gestion de La Trésorerie.* Paris, France: Economica.

[5] Chrissos, J., & Gillet, R. (2012). *Décision d'investissement* (éd. 63-64). Paris, France: Pearson Education.

[6] Bobinaite, V. (2015). Financial Leverage and its Determinants in Companies Producing Electricity from Wind Resources in Latvia. *Economics and Business*(27), p. 34.

[7] Laux, J. (2010, April). Topics In FinancePart III—Leverage. (C. College, Éd.) *American Journal of Business Education, 03*(04), pp. 13-19.

[8] Haomin, C. (2020). The Impact of Financial Leverage on Firm Performance –Based on the Moderating Role of Operating Leverage. *Advances in Economics, Business and Management Research, 159*, p. 464.

[9] Corbel, J.-C. (2015). *Management de projet : Fondamentaux-Méthodes-Outils.* Paris, France: Organisation.

[10] Delahaye, J., & Barreau, J. (2016). *Gestion financière, DECF Epreuve 4 (Manuel et applications).* Paris, France: Dunod.

[11] Gu , F. (2008). Discussion of ‗The Value-Relevance of Changes in Financial Leverage Beyond Growth in Assets and GAAP Earnings. *Journal of Accounting, Auditing & Finance, 23*(2), pp. 223-231.