

Analysis of the determinants of investment decisions within Algerian firms: A logistic regression model approach

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Abstract:

This article aims to analyze the determining factors of investment within Algerian enterprises through an empirical study conducted on a sample of 75 companies representative of the national economic fabric. This study, which relies on the logistic regression model to estimate the relationships between dependent and independent variables, reveals nuanced results that enrich the existing literature.

The findings of this research confirm the multidimensional nature of investment decisions, demonstrating that investment is positively and significantly impacted by organizational factors (size and governance), financial factors (company performance), and economic factors (demand growth).

Keywords: Investment; Decision-making; Investment determinants; Algerian firms; Logistic regression.

Jel Classification Codes : G11 ; G31 ; G32

ملخص:

يهدف هذا المقال إلى تحليل العوامل المحددة للاستثمار في الشركات الجزائرية من خلال دراسة تجريبية أجريت على عينة من 75 شركة تمثل النسيج الاقتصادي الوطني. تستند هذه الدراسة إلى نموذج الانحدار اللوجستي لتقدير العلاقات بين المتغيرات المستقلة والتابعة، وتكشف عن نتائج متوازنة تؤثر الأدبيات الموجودة.

تؤكد نتائج هذا البحث الطبيعة متعددة الأبعاد لقرار الاستثمار، من خلال إظهار أن الاستثمار يتأثر بشكل إيجابي وملحوظ بالعوامل التنظيمية (حجم الشركة ونمط الحوكمة)، والمالية (نتيجة الشركة) والاقتصادية (نمو الطلب).

الكلمات المفتاح : الاستثمار ؛ اتخاذ القرار ؛ محددات الاستثمار ؛ الشركات الجزائرية ؛ الانحدار اللوجستي .

تصنيف JEL : G11 ؛ G31 ؛ G32

I. Introduction:

Investment is a fundamental, essential, and indispensable economic operation (Bolusset, 2007), it constitutes an essential lever for economic growth and business competitiveness (Taverdet-Popiolek, 2006). Moreover, the investment decision undoubtedly stands out as one of the most important strategic decisions, both on the macroeconomic and microeconomic levels. This represents a significant challenge and generally requires substantial sums to be committed, relevant analyses to be conducted beforehand, and risks to be taken. Indeed, the current value of the company is only the result of investment decisions made in the past (Chrissos & Gillet, 2012), and its future is determined by the decisions made in the present.

The decision to invest has long-term repercussions on the company's productivity, its innovation capacity, and its capital consumption (Lepage, Couderc, & Perrier, 2014), but also on its profitability, performance, and growth, which involves both internal stakeholders (managers, employees, shareholders, or owners) and external stakeholders (funders, suppliers, etc.). It is thus considered the most important of financial decisions, as it allows the company to both manage its economic rents more effectively and generate other resources for it (Chareaux, 2014).

The importance of this decision has sparked growing interest from researchers, and there is abundant literature on this subject, stemming from various theories, from traditional neoclassical models to more recent behavioural approaches (Charreaux, 2000). These studies have shown that it is indeed a multi-criteria process taking into account numerous economic and financial factors, but also social, environmental, and regulatory ones (Bialowolski & Weziak-Bialowolska, 2014). However, the complex interaction between these different factors or determinants of investment and their relative impact on investment decisions remain active research topics.

Thus, the main question constituting the subject of this research is formulated as follows:
What are the factors impacting investment decision-making within Algerian companies?

This study primarily aims to systematically analyse the factors influencing investment decision-making, based on logistic regression of data collected through a survey conducted among businesses. To do this, we structured our research into four areas, the first of which consists of a literature review to formulate research hypotheses and determine measurement variables. The second outlines the methodological approach adopted, while the third presents the results obtained. The fourth and final axis offers a critical discussion of these results by comparing them with previous works.

II. Literature Review :

Numerous studies have addressed the issue of investment behaviour, with the first ones appearing in the 80s, particularly focussing on two factors, called "profit accelerators," namely: production demand and the outcome, in the sense that the company invests as long as external demand is growing and as long as its profit is high. Other factors have gradually emerged, such as financial constraints and the risk associated with investment, given that the latter is irreversible. Before addressing the issue of the determinants of investment decisions, it is necessary to explain the concept of investment and its different forms.

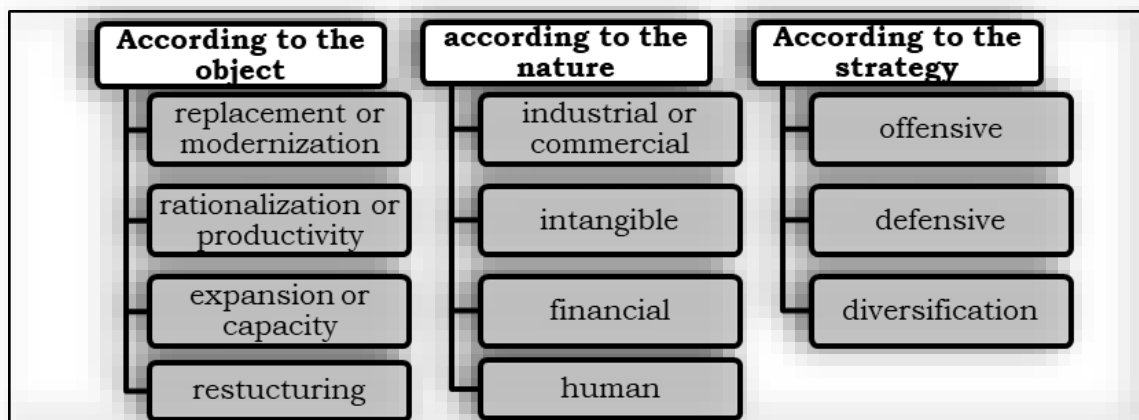
II.1. Taxonomic analysis of investment:

From an accounting perspective, investment is any asset, movable or immovable, tangible or intangible, acquired or created by the company, intended to remain permanently in the same form within the company (Taverdet-Popiolek, 2006). Moreover, we find this definition in the International Accounting Standards (IAS), in the Algerian Financial Accounting System (SCF), and practically in all national accounting plans. However, these accounting definitions only focus on balance sheet investments and ignore all other investments related to human capital and relational capital.

In economics and finance, investment is an immediate expenditure undertaken in the hope of generating future income and benefits (Houdayer, 1993), what distinguishes it from an expense is that the expected profit must be realised not over a single fiscal year, but over several years (Thauvron, 2003). It is thus an economic decision consisting of committing financial, material, or

human resources to the acquisition or production of a tangible, intangible, or financial asset (Piros & Pinto, 2013). Moreover, investment is part of a value creation logic; it should not be considered as a simple purchasing operation and must therefore be distinguished from financial investment (Houdayer, 1993). The company can undertake several types of investments that can be classified by their object, their nature, or according to the adopted strategy, as shown in figure N°1.

Figure N°1: The different forms of investment



Source: Produced by the authors based on several readings

According to the purpose of the investment, we can distinguish at least four main forms, the most frequent of which is the replacement or modernisation investment of depreciated or worn-out assets in order to maintain the company's production capacity (Chareaux, 2014). Moreover, the lifespan of some investments is very short and they become obsolete, requiring modernisation. When the company considers increasing its production or distribution capacity or venturing into another activity, it makes an expansion or capacity investment. Conversely, when it aims to rectify its technical, financial, or commercial situation, while focussing on a single area or undergoing a change, it makes a restructuring investment. Finally, rationalisation or productivity investment is made when the company seeks to improve production techniques (Taverdet-Popiolek, 2006), reduce product costs, enhance the quality of its goods and/or services, or increase their quantity. It can also be about complying with new standards (Piros & Pinto, 2013).

The second classification of investments focusses on their nature by distinguishing four types. First, industrial or commercial investment, including the acquisition or production of physical or tangible assets (industrial facilities, land, buildings, etc.) which are accounted for in intangible assets, according to IAS 16. Intangible investment includes all intangible assets as specified by IAS 38 (software, patents, licenses, etc.) and constitutes the structural capital of the company. In order to improve its financial result, the company makes financial investments by acquiring equity stakes (purchasing shares) or acquiring bonds. These three types of investment are recorded in non-current assets at the top of the balance sheet, unlike human investment such as improving the quality of staff (training and skills updates) and increasing headcount or recruiting talent that forms the company's human capital, but are considered from an accounting perspective as mere expenses.

The third classification concerns the company's strategy. This can be offensive by making a growth investment (Taverdet-Popiolek, 2006) in order to acquire new market shares (absorption or acquisition of a competitor), or it can be defensive in seeking protection of a considered outlet (Chareaux, 2014) to thus maintain its competitive position. Finally, it can also opt for a diversification investment or a conglomerate growth allowing it to operate in multiple sectors of activity.

II.2. The determinants of investment decision:

Traditional financial theories have overlooked psychological, cognitive, and emotional factors and their impact on investment decisions (Charreaux, 2000). Factors that are only taken into account with the advent of the behavioural approach paradigm. However, despite the progress made by investment theories compared to other classical theories regarding the analysis of the determinants of corporate investment, these theories nevertheless remain fragmented and do not provide a comprehensive framework for understanding corporate investment behaviour (Zerbo & Hien, 2019).

Economic factors related to the company and its financial conditions play a crucial role in investment decision-making and undoubtedly represent the most influential determinants. Thus, starting from the idea that companies are primarily motivated by profit maximisation, achieving a high result would encourage them to invest more (Epaulard, 2001). Conversely, companies with low profitability and less cash flow, generally small-sized companies, invest less (Rosenwald, 2001). In some cases, even if the company expresses a desire to invest, it is often constrained by several factors, such as size (implying a lack of financial resources), difficulty accessing external financing, the cost of capital, etc. In this sense, the results of Naboulet & Raspiller's (2006) work on the investment behaviour of 4,877 French companies over an 11-year period showed that low self-financing and high levels of debt limit investment. Conversely, large companies invest more. For companies that heavily rely on external financing, the cost of investment financing is generally higher, which hinders the latter (Zerbo & Hien, 2019). In light of what has been said, we are led to propose the following two hypotheses:

- ☞ **Hypothesis 1:** The company's profit or profitability positively and significantly influences investment decision-making.
- ☞ **Hypothesis 2:** The size of the company positively and significantly influences investment decision-making.

It should be noted that the company does not solely serve the interests of the employer (profit-seeking) as advocated by the classical conception. It must also aim to satisfy all other stakeholders, although their interests are interdependent (Zerbo & Hien, 2019). Thus, the investment decision does not solely depend on the will of the leader or the entrepreneur, but it is impacted by the ownership structure and the governance mode of the company. A small-sized company, generally owned and managed by an independent entrepreneur with greater flexibility and decision-making power, even stronger than in some large companies (Torres, 1999), operates differently from a better-structured company, adopting managerial management and where the decision-making process is slower. Therefore, the investment decision is strongly linked to the notion of "managerial latitude" which depends on the governance system (of the organisation) and corresponds to the freedom of choice that the leader has in terms of proposing, implementing, and managing investments (Charreaux, 2000). Thus, two other hypotheses should be highlighted:

- ☞ **Hypothesis 3:** The ownership structure positively and significantly influences investment decision-making
- ☞ **Hypothesis 4:** The mode of governance positively and significantly influences investment decision-making

Among the external factors impacting the investment decision, the prospect or growth of demand, generally expressed by upward revenue forecasts, is the most influential. This plays a driving role, particularly in capacity or expansion investments (Naboulet & Raspiller, 2006). Indeed, until the late 80s, the existence of a relationship between demand growth and investment was the most conclusive result of numerous studies. This relationship is known as the accelerator and is expressed by a technical link « invest to produce more » (Epaulard, 2001). The sector of activity is another external variable that is not without importance and significantly impacts the investment decision. Indeed, in some sectors, investments are not only necessary but mandatory. This is the case for investments related to hygiene and safety, compliance with environmental standards (anti-pollution, anti-noise), and adherence to specific standards (Taverdet-Popiolek, 2006). Other sectors (pharmaceutical and biotechnologies) constantly require innovations and therefore more intense investments in R&D (Josien & Landrieux-Karto, 2013). In the industrial sector, importance is given to tangible investments that allow for reaching critical mass and reducing costs, while the service sector prioritises investments that improve service quality and customer relations (Garrette & al, 2019). Finally, it would be more interesting to supplement with two other hypotheses:

- ☞ **Hypothesis 5:** The growth in demand significantly and positively impacts the investment decision
- ☞ **Hypothesis 6:** The sector of activity positively and significantly impacts the investment decision.

III. Research methodology :

This methodological section outlines the approach followed: measurement and operationalisation of variables, data collection protocol and sample characterisation, empirical data processing, and specification of the chosen model.

III.1. Measurements and operationalisation of research variables:

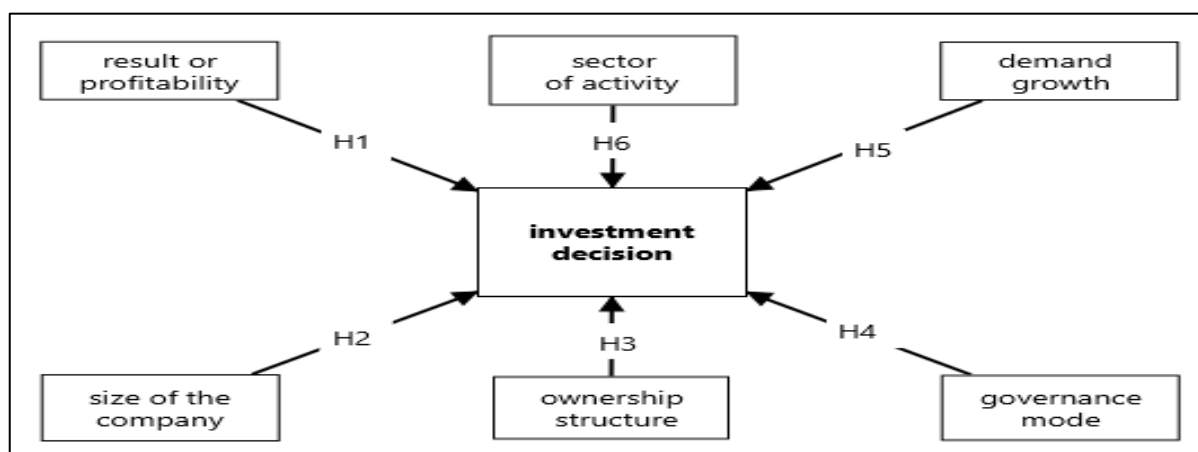
The dependent research variable investment (INVEST) is dichotomous, taking the value of 1 if the company has made an investment in the last three years, otherwise 0. This variable allowed us to detect companies that have made investments and determine the influential factors.

Based on the literature addressing this subject, we have retained six independent variables, the first two of which are related to the economic aspect and the financial health of the company. The variable related to the company's performance (RESULT) is qualitative and includes the following values: Negative = 1; Null = 2; Medium = 3 and High = 4. Regarding the size of the company (SIZE), we referred to the Algerian classification of companies, based solely on the number of employees, we identified four categories, namely: 1 for micro-enterprises; 2 for small enterprises; 3 for medium-sized enterprises; and 4 for large enterprises.

Regarding the governance of the company, we have retained two variables. Concerning the ownership structure (OWN_STRU), we focused on the legal status of the company since it informs us about the company's ownership by a single individual (in the case of sole proprietorships and EURLs) or the composition of the capital in social shares or stocks. This variable is qualitative and takes the following values: 1 if it is a sole proprietorship or a limited liability company (EURL); 2 for SNC; 3 for SARL; and 4 for SPA. For the management mode, the governance variable (GOV_MOD) is qualitative and takes two values: 1 if the company is managed by a general management or a board of directors (managerial management) and 2 if it is managed by the owner or the entrepreneur (entrepreneurial management).

Finally, we retained two external variables that are related to the sector of activity and the growth of demand. The variable related to the sector of activity (SECT_ACT) is coded according to the company's activity (1 = industry; 2 = services; 3 = BHTP; and 4 = commerce). For the growth in demand (DEMAND), we took into consideration the revenue forecasts (Decrease= 1; Stagnation= 2; Increase = 3; and Strong = 4). The relationship between these independent variables and the dependent variable highlights the conceptual model of our research, as shown in figure N°2.

Figure N°2: Relationships between variables and conceptual model of the research



Source: Produced by the authors

III.2. Data collection method and presentation of the study sample:

The primary data for the study were collected through a survey conducted among a sample of Algerian companies during the period from May to July 2025, using a questionnaire administered directly to managers or sent by email. Given the nature of some of our independent variables, which relate to company characteristics, specifically size, sector of activity, and legal status, we opted for stratified random sampling method in order to include all the categories of these variables. Thus, out of a total of 380 questionnaires, we received 90 responses, of which 85 were deemed complete. However, for reliability reasons, we eliminated certain companies with fewer than 5 employees and those that were recently established. In the end, the sample of our study consists of 75 companies with the following characteristics:

Table N°1: Presentation of the survey sample

Company characteristics	Frequency	Percentage
Company size	Micro	28
	Small	23
	Medium	16
	Large	8
Sector of activity	Industry	15
	Services	15
	BHTP	19
	Commerce	26
Legal status	EURL or individually	11
	SNC	10
	SARL	33
	SPA	21

Source: Data processing using SPSS software

The structural characteristics of the study sample as presented in Table N°1 above show a predominance of small-sized enterprises, with a rate of over 62% (cumulative rate of micro-enterprises and small enterprises), while it records a low presence of medium and large enterprises, with rates of 21.3% and 10.7%, respectively. This reflects the structure of the Algerian economic fabric, which is mainly composed of small-sized enterprises.

The distribution of companies according to their legal status presents the same characteristics, with high proportions of “SARL” and “SPA”, compared to “SNC” and “EURL”. Moreover, this distribution is better balanced regarding the sector of activity, although the commercial sector slightly dominates the other three sectors (25.3% for BHTP, 20% for the industrial and service sectors).

III.3. Data analysis method and research model:

Given the dichotomous (binary) nature of our dependent variable (investment), we opted for the logistic regression model, which is part of a family of statistical models called generalised linear models (Harris, 2021), but with a specialised form of regression, formulated to predict and explain a categorical variable (Hair & al, 2019). This method has the advantage of not requiring constraints on the normality of the distributions of the variables (Legrand & Bories, 2007) since, on the one hand, the relationships between the independent variables and the dependent variable are not necessarily linear and, on the other hand, the explanatory variables are not necessarily of a continuous nature. Logistic regression is generally classified among classification methods, aiming to determine the probability of an individual belonging to a group or category (Hair & al, 2019; Legrand & Bories, 2007), but unlike these methods such as discriminant analysis, in this method, group membership is probably known. For Pétry (2009), the estimation of the binary logistic regression model is written as follows:

$$\ln\left(\frac{P(y = 1)}{1 - P(y = 1)}\right) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} \dots$$

From this formula, our model takes the following form:

$$\ln\left(\frac{P(\text{INVEST} = 1)}{1 - P(\text{INVEST} = 1)}\right) = \text{Intercept} + \beta_1 \text{RESULT} + \beta_2 \text{SIZE} + \beta_3 \text{OWN}_{\text{STRU}} + \beta_4 \text{GOV} + \beta_5 \text{DEMAND} + \beta_6 \text{SECT}_{\text{ACT}}$$

To test this model, we proceeded in several stages. In the first phase, we focused on descriptive statistics, conducted using SPSS, to get an overview of the results. In a second step, we estimated the collinearity of the independent variables by particularly focussing on the variance inflation factor (VIF) to ensure that no variable is perfectly correlated with the other explanatory variables. The logistic regression is then conducted using the Smart-Pls software, in a third step, before validating this model and testing its robustness through the calculation of the log-likelihood, pseudo R², and ROC curve, in the final step.

IV. Research findings:

This section, primarily dedicated to the presentation of research results, will first outline the descriptive statistics before applying the binary logistic regression method and will then verify the reliability of the research model.

IV.1. Presentation of descriptive statistics:

Descriptive statistics, presented in Table N°2 below, allow us to observe the correlation, on an individual basis, of the explanatory variables with the variable to be explained, and consequently, to have an overview of the two groups of companies, namely those that have made an investment and those that have not.

Table N°2 : Descriptive statistics

Independent variables	Investment realized	Modalities of independent variables			
		Negative	Null	Medium	High
Company result	No	0 (0,0%)	16 (94,1%)	14 (56,0%)	6 (18,2%)
	Yes	0 (0,0%)	1 (5,9%)	11 (44,0%)	27 (81,8%)
Company size		Micro	Small	Medium	Large
	No	25 (89,3%)	11 (47,8%)	0 (0,0%)	0 (0,0%)
	Yes	3 (10,7%)	12 (52,2%)	16 (100,0%)	8 (100,0%)
Ownership structure		EURL	SNC	SARL	SPA
	No	8 (73,7%)	8 (80,0%)	18 (54,5%)	2 (2,5%)
	Yes	3 (27,3%)	2 (20,0%)	15 (45,5%)	19 (90,5%)
Governance mode		Managerial		Entrepreneurial	
	No	32	62,7%	4	16,7%
	Yes	19	37,3%	20	83,3%
Sector of activity		Industry	Services	BHTP	Commerce
	No	1 (6,7%)	13 (86,7%)	9 (47,4%)	13 (50,0%)
	Yes	14 (93,3%)	2 (13,3%)	10 (52,6%)	13 (50,0%)

		Decrease	Stagnation	Increase	Strong
Demand growth	No	0 (0,0%)	17 (100,0%)	14 (60,9%)	5 (14,3%)
	Yes	0 (0,0%)	0 (0,0%)	9 (39,1%)	30 (85,7%)

Source: Produced by the authors based on the research results under SPSS

The results of these statistics reveal the explanatory factors of the investment decision. Thus, we observe that the majority of companies with high results and half of those with average results have made investments over the past three years, unlike other companies with negative or zero results. Regarding the size of the companies, we observe that all large and medium-sized companies have made investments, which is not the case for small companies, which are considered a transitional form, with a mixed score (52.2% for Yes and 47.8% for No), while micro-enterprises show the opposite result.

The analysis according to the ownership structure indicates that individual enterprises, generally adopting a logic of asset protection, and partnerships (SNC) are less inclined towards investment, unlike capital companies (90.5% of SPAs). For SARL, the results are not conclusive since both groups show almost equal scores, which is not surprising given that the SARL is an intermediate form. Regarding the mode of governance, we notice that there are more owner-managed companies (entrepreneurial management) belonging to the group of invested companies than companies managed by a board of directors or a general management, with scores of 83.3% and 37.3%, respectively.

The sectoral analysis allowed us to understand that almost all industrial companies made investments, unlike companies belonging to the service sector. The construction and public works sector and the commerce sector show almost similar results, but they remain insignificant since only half of the companies belonging to these two sectors have made investments. Regarding the growth in demand, the results indicate that only companies anticipating strong or increasing demand made investments.

IV.2. Multicollinearity test :

Before applying the binary logistic regression method, it is imperative to verify the absence of multicollinearity (strong linear relationship) between the independent variables. This is a condition of the model because a high level of multicollinearity can significantly affect the coefficients in logistic regression, and consequently, reduce the impact of independent variables on the dependent variable.

However, there are no collinearity diagnostics provided directly by logistic regression programs, but this can be obtained using multiple regression models (Hair & al, 2019). To do this, it is necessary to check the variance inflation factors (VIF) which must be less than 5 (Tranmer, Vanchugova, & Elliot, 2024) and the tolerance values which must be greater than 0.2 (Senaviratna & Cooray, 2019). However, some studies tolerate VIFs greater than 5, with a maximum threshold of 10. The collinearity test, conducted on SPSS, is presented in the table below:

Table N°3 : Collinearity statistics

Model	Bêta	T Student	Sig.	Collinearity statistics	
				Tolerance	VIF
(Intercept)		-5,794	,000		
RESULT	,197	2,226	,029	,554	1,805
SIZE	,384	3,526	,001	,368	2,719
OWN_STRU	,066	,798	,428	,645	1,550

GOV_MOD	,275	3,662	,000	,774	1,291
DEMAND	,221	2,334	,023	,486	2,056
SECT_ACT	-,065	-,735	,465	,552	1,813

Source: Produced by the authors based on the research results under SPSS

Thus, the results show that all the variables have a variance inflation factor of less than 5 and a tolerance value greater than 0.2, which means that the linear relationships between the independent variables are not strong. To better ensure the absence of multicollinearity, it is possible to use another approach, namely the verification of binary correlations between independent variables (Hair & al, 2019). The correlation results are presented in Table N°4.

Table N°4: Binary correlations of independent variables

	DEMAND	SECT_ACT	GOV_MOD	OWN_STRU	RESULT	SIZE
DEMAND	1,000	-,117	-,298	-,090	-,186	-,439
SECT_ACT	-,117	1,000	-,253	,310	-,371	,460
GOV_MOD	-,298	-,253	1,000	-,037	-,018	,022
OWN_STRU	-,090	,310	-,037	1,000	-,149	-,180
RESULT	-,186	-,371	-,018	-,149	1,000	-,394
SIZE	-,439	,460	,022	-,180	-,394	1,000

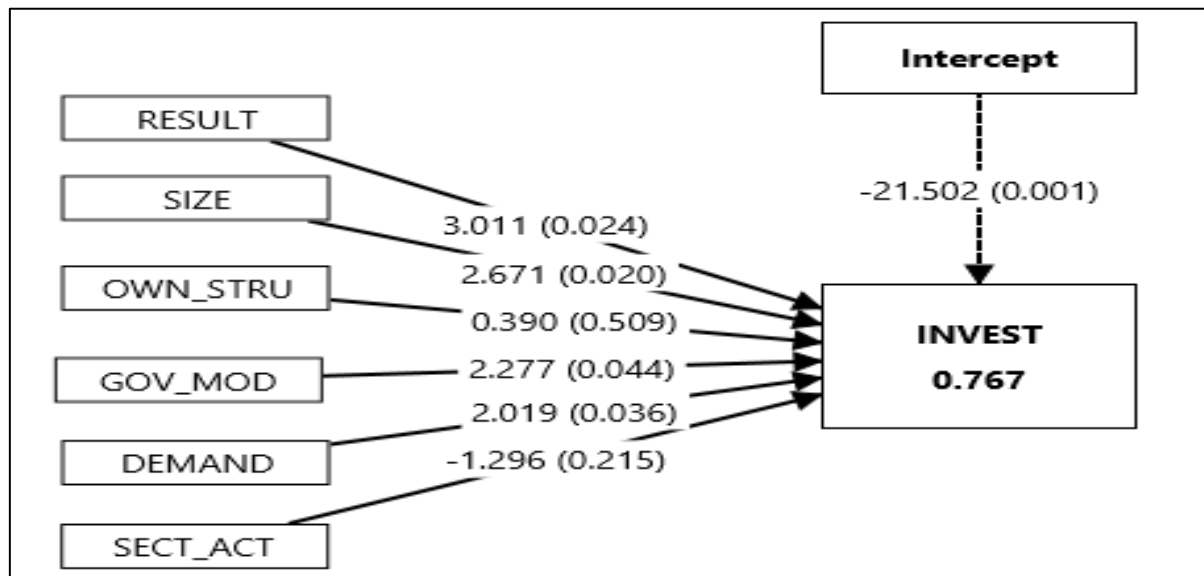
Source: Produced by the authors based on the research results under SPSS

The results, as presented in Table No. 4, show that all binary correlations are less than 0.5, thus confirming the absence of multicollinearity issues verified through VIFs and tolerance values.

IV.3. Estimation of the logistic regression model:

The results of the logistic regression, performed on the Smart-PLs software, are presented in figure N°4 and indicate the levels of simultaneous associations of the explanatory variables with the variable to be explained. Certainly, it is possible to include all the input variables, but this can dilute the true associations or identify fallacious associations and lead to large errors (Ranganathan, Pramesh , & Aggarwal, 2017). Thus, it is recommended to retain only the variables whose association is significant at the 5% threshold.

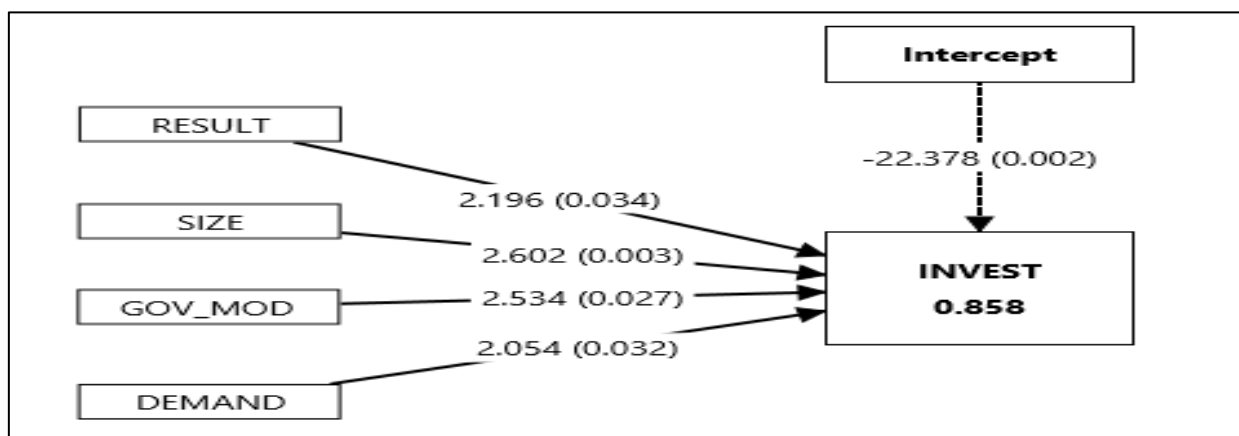
Figure N°3 : Logistic regression



Source: Produced by the authors based on the research results under SmartPLS4.2

The results presented in the figure above show that the variables OWN_STRU (B= 0.390 and P=0.509) and SECT_ACT (B= -1.296 and P=0.215) are not significant as they are less than 1.96. Thus, it is appropriate to estimate the model by eliminating these two variables, which gives us the following results: Figure N°4: Model estimation after elimination of non-significant variables

Figure N°4: Model estimation after elimination of non-significant variables



Source: Produced by the authors based on the research results under SmartPLS4.2

The results provided by Figure N°4, the details of which are presented in Table N°5, indicate that all the variables retained in the model are significant. The final model of our research is presented as follows:

$$\ln \left(\frac{P(\text{INVEST} = 1)}{1 - P(\text{INVEST} = 1)} \right) = -22,378 + 2,196 \text{ RESULTAT} + 2,602 \text{ SIZE} + 2,534 \text{ GOV_MOD} + 2,054 \text{ DEMAND}$$

TableN°5: Estimation of the logistic regression model

	B	SE	Z statistic	Wald	P value	Exp(Coefficient)
Intercept	-22.378	7.078	-3.161	9.995	0.002	0.000
RESULT	2.196	1.034	2.124	4.513	0.034	8.987
SIZE	2.602	0.867	3.002	9.010	0.003	13.491
GOV_MOD	2.534	1.145	2.214	4.900	0.027	12.605
DEMAND	2.054	0.959	2.142	4.587	0.032	7.799
		Log-likelihood	Deviance	AIC	BIC	
Null model		-51.926	103.852	105.852	108.170	
Estimated model		-12.100	24.201	38.201	54.423	
Pseudo-R²	Cox et Snell		Nagelkerke		McFadden	
	0.643		0.858		0.744	

Source: Produced by the authors based on the research results under SmartPLS4.2

The results presented in Table No. 5 show that the model has an excellent fit quality. Indeed, the analysis of Pseudo R-squared, particularly McFadden's, which is best suited for logistic regression (Rakotomalala, 2011), indicates that the model explains 76.7% of the variance, thus implying its high predictive quality and, consequently, a strong contribution from the independent variables in explaining the dependent variable. Also, the difference of 39,826 between the log-likelihood of the estimated model and that of the null model indicates that the explanatory variables bring substantial improvements to the explanation of data variability.

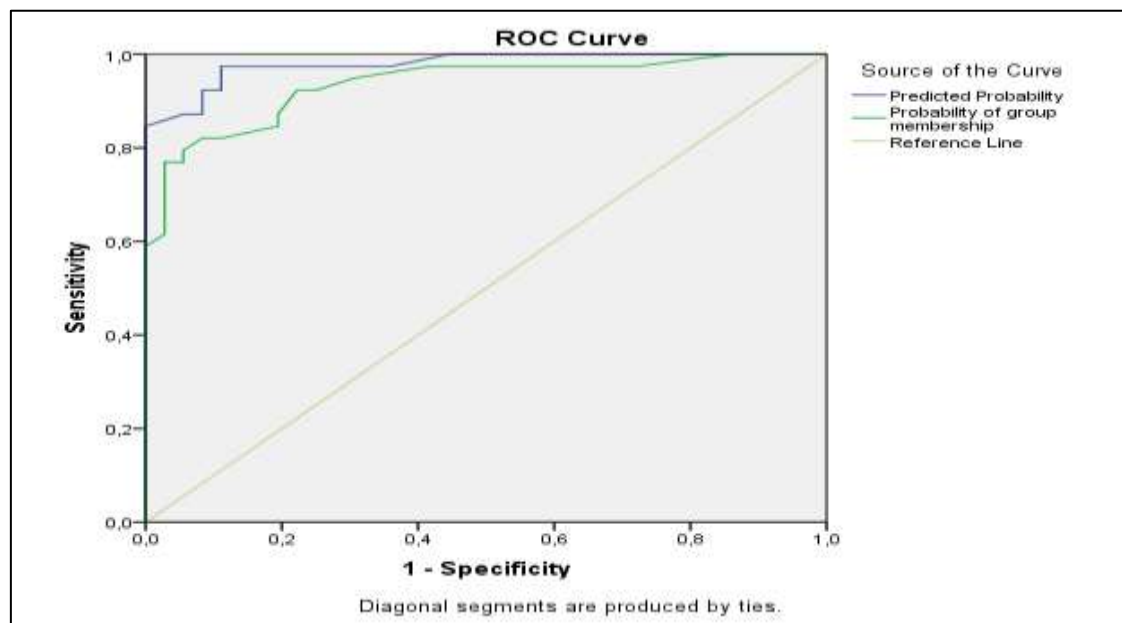
For Hair & al (2019), the focus should be on the classification matrix «confusion matrix», which explains to what extent the actual results are predicted by the model and to what extent the predictions actually work.

Table N°6 : Confusion matrix (classification)

	Predicted value = 0.0	Predicted value = 1.0	Percentage of correct reponses
INVEST = 0.0	32	4	88.889
INVEST = 1.0	1	38	97.436
Overall percentage			93,3%

Source: Produced by the authors based on the research results under SmartPLS4.2

The ROC curve graphically represents the sensitivity (correctly predicted values) and specificity (incorrectly predicted values) of the test (Pétry, 2009). In other words, it allows for the relationship between the true positive rate (TPR) and the false positive rate (FPR) to be plotted on a scatter plot (Rakotomalala, 2011). Thus, the ROC curve of the research model is presented in figure N°5.

Figure N°5 : The ROC curve

Source: Produced by the authors based on the research results under SPSS

This ROC curve allows us to verify the discriminant reliability and perhaps numerically characterise the area under the curve called the «AUC criterion». This expresses the probability of placing a positive individual before a negative one (Rakotomalala, 2011). As shown in the table below, the area under the curve is greater than 0.9, indicating exceptional discriminatory reliability.

Table N°6: The AUC criterion and the area under the ROC curve

Test Result Variable(s)	Area	Std. Error ^a	Asymptotic Sig. ^b	Asymptotic 95% Confidence Interval	
				Lower Bound	Upper Bound
Predicted Probability	,979	,013	,000	,953	1,000
Probability of group membership	,936	,028	,000	,881	,990

Source: Produced by the authors based on the research results under SPSS

V. Discussion of results :

The results of this research allow us to identify the determinants of investment decisions within companies and to determine the importance of each factor. Among the six variables initially considered, only four of them turn out to be statistically significant and have a positive effect on investment. The other two variables, related to the sector of activity and the ownership structure, have no impact.

V.1. The determining factors of business investment:

The company's result (RESULT), with a coefficient of 2.196 ($p = 0.034$), significantly and positively impacts investment, allowing for the validation of the first hypothesis. Financially successful companies with positive results, indicating past success and high cash flows, invest the most. This result has been widely discussed in economic literature, notably in signal theory and the accelerator effect. These results corroborate those of Naboulet & Raspiller (2006), who analysed the investment behaviour of French companies, and those of Pacheco (2017), whose work focused on 2456 Portuguese SMEs.

The size of the company is the most determining factor, with a coefficient of 2.602 ($p = 0.003$) and an Odds Ratio (OR) of 13.491, which means that an increase of one unit in size multiplies the probability of investing by 13 times. Moreover, descriptive statistics (see table N°2) show that all the medium and large-sized companies surveyed have made investments, thus confirming the second research hypothesis. This is explained by the fact that the structural effect or critical size provides advantages to companies in terms of economies of scale, access to financing, and financial capacity, which allows them to invest more. Conversely, financial constraints and informational asymmetry, which characterise small-sized businesses, limit their investments. Thus, our results align with the observations highlighted by numerous studies, notably those by Epaulard (2001), Zerbo & Hien (2019), and Naboulet & Raspiller (2006) in the case of French companies, as well as Amoah's (2022) study, which asserts that large companies must invest more to maintain a higher level of operation. However, the results of Munawaroh & Munandar (2024) show that the size of the company does not directly impact the investment decision, but it moderates the impact of other factors such as the company's performance and profitability.

The company's governance is the second influencing factor, its impact on investment is almost equivalent to that of size, with a coefficient of 2.534 ($p = 0.27$) and an OR of 12.605. That said, the decision-making process is more flexible in entrepreneurial companies and, conversely, it is very slow in managerial companies, which validates the fourth hypothesis. The entrepreneur, having exclusive decision-making power, tends to take more risks, as confirmed by numerous studies, particularly those focussing on the behaviour of the leader. Thus, our results align with certain studies, such as (Hidayat & Hartono, 2022; Mulyadi, Widyastuti, & Zulkifli, 2023; Husnah, Nurdin, & Kasim, 2023) that have examined the behaviour of Indonesian investors, those of Che Hassan & al (2024) who focused on Malaysian investors in the fintech sector, or even the study by Dogra, Kaushal, & Kalia (2023) on a sample of 481 companies from northern India.

Although it has a less significant effect than the other factors ($\beta = 2.054$; $p = 0.032$), market demand remains a stimulus for investment. In other words, the stronger the demand, the more incentivised companies are to increase their productive capacities, which confirms the fifth hypothesis of our research. In this regard, these results converge with those obtained by Phan & Nguyen (2020) regarding the behaviour of large Vietnamese firms and with those of Fatin & al (2019) who studied the behaviour of 180 companies in Malaysia. Their survey shows that demand, studied from market data (prices, demand, supply), as well as regulatory aspects and international trade policy (import, export, and production agreements with neighbouring countries like China), significantly influence business investment.

V.2. The non-significant factors and rejected hypotheses:

Contrary to theoretical predictions and our expectations, the analysis reveals that the ownership structure ($\beta = 0.390$, $p = 0.509$) does not have an effect on the investment decision. Although this variable has a coefficient with a positive sign, its value remains statistically insignificant at the 5% threshold. Moreover, the examination of descriptive statistics suggests only a differentiation between individual enterprises that stand out from corporate structures, however, this distinction does not translate into conclusive results regarding other legal statuses, which leads us to reject the third research hypothesis.

Similarly, the sector of activity ($\beta = -1.296$, $p = 0.215$) has no statistically detectable impact on the investment decision, despite the apparent sectoral disparities indicated by the descriptive analysis, particularly between industrial activity and services (see table N°2). Therefore, this lack of statistical significance invalidates the sixth hypothesis formulated in this research.

These empirical results diverge substantially from the conclusions provided by previous studies, notably those of Naboulet & Raspiller (2006) and Azhar (2019), which highlighted positive and significant relationships between these variables and business investment. This contradiction implies the existence of conceptual specificities unique to the Algerian economic environment, requiring further in-depth investigations.

VI. Conclusion:

This research provides significant insights into the factors influencing business investment in the Algerian context. The results obtained confirm that the investment decision of companies is positively and significantly impacted by market conditions or demand growth (external factor) and internal structural factors, namely: the size, governance quality, and performance of the company. Thus, the study validates a multidimensional approach to investment decision-making, integrating organisational capabilities, financial performance, and market signals, while emphasising the crucial importance of organisational characteristics.

The logistic regression model estimated in this research demonstrates remarkable statistical robustness, with a McFadden pseudo- R^2 of 74.4% and a classification accuracy of 93.3%. These indicators, reinforced by the absence of multicollinearity, verified by VIFs less than 5 and tolerance values (> 0.2), attest to a high predictive capacity.

Nevertheless, this research presents several methodological and contextual limitations that circumscribe the scope of its results. First, the limited sample size (75 companies) could affect the generalisation of the results, particularly for the under-represented subcategories of companies such as medium and large enterprises. Secondly, the measurement of certain variables remains perfectible. Indeed, the growth in demand, assessed solely through revenue forecasts and governance, measured dichotomously, reducing the complexity of this important aspect, can introduce measurement biases. Finally, the Algerian context, characterised by an economy in transition and a developing financial system, limits the transferability of the results to other economic environments.

These limitations open up other promising avenues for research. Thus, replicating the study on a larger sample would allow for a deeper and more refined analysis. Also, further exploration of the non-significant variable (ownership structure), the adoption of another measure for the ownership structure variable, and the integration of other explanatory variables would enrich the model and, consequently, reveal more conclusive results.

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