The Effect of Investment and Financial Leverage on Firm Value: Evidence from The Casablanca Stock Exchange

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ABSTRACT

The objective of this research work is to study the impact of financial decisions, notably leverage and the influence of investments on firm value. In this respect, we conduct an econometric analysis using panel data on the basis of a sample of 3 Moroccan real estate companies listed on the Casablanca Stock Exchange during the period 2019-2022. The results show that leverage has a significant negative impact on firm value in long-run, while investment has a positive long-term impact on firm value. The empirical results also show that other factors can have an impact on enterprise value.

Keywords: Firm Value, Investment, Financial Leverage, Panel Data.

ÖZ

Bu araştırma çalışmasının amacı, finansal kararların, özellikle kaldıraç ve yatırımların firma değeri üzerindeki etkisini incelemektir. Bu bağlamda, 2019-2022 döneminde Kazablanka Menkul Kıymetler Borsası'nda işlem gören Faslı 3 şirketten oluşan bir örneklem temelinde panel veriler kullanılarak ekonometrik bir analiz gerçekleştiriyoruz. Sonuçlar, kaldıracın firma değeri üzerinde uzun vadede önemli bir negatif etkiye sahip olduğunu, yatırımın ise firma değeri üzerinde uzun vadede pozitif bir etkiye sahip olduğunu göstermektedir. Ampirik sonuçlar ayrıca diğer faktörlerin de firma değeri üzerinde etkili olabileceğini göstermektedir.

Anahtar Kelimeler: Firma Değeri, Yatırımlar, Finansal Kaldıraç, Panel Veri.

DEDICATION

I dedicate this work to my very dear parents, with all my feelings of love, respect, recognition and gratitude, for all the efforts they have made to ensure our education and make sure we lack nothing.

This work is also dedicated to my best friends for their help, encouragement, assistance and support.

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Chapter 1

INTRODUCTION

1.1 Brief Overview

Firm value is a key metric in finance, enabling to assess a company's overall performance and value, irrespective of its financial structure. In fact, firm value is also used to calculate financial ratios, which are widely used to measure a company's financial performance and compare it to other companies in the same sector or of the same size. Firm value offers several advantages as a measure of financial performance. Firstly, it is a more stable measure, as it is less influenced by stock market fluctuations. In fact, variations in share value can be significant, particularly during periods of volatility, whereas enterprise value is less volatile and better reflects the company's long-term performance. In addition, firm value is a useful measure for comparing the performance of different companies, as it allows factors such as company size and sector of activity to be taken into account.

A firm's main objective is to increase the wealth of its shareholders. In simple terms, to maximize the firm's value. Managers who are responsible for generating more revenue resources and increasing the company's profitability, they are faced with two important decisions: investment and financing. The right choice of financing sources and investment is crucial because of its impact on firm value. Ross, Westerfield, Jaffe, and Jordan reveal that the goal of financial management is to identify investments and financing plans that favorably impact the value of the firm (2015, p.11). In addition,

prudent usage of financial leverage as a source of financing and selecting the types of assets to invest can significantly impact a corporate's value.

Thus, Managers seek to monitor all market changes and develop various ways of adapting to negative impacts by using many operational activities in order to maintain the firm market position in conditions of fierce competition. Investment is one of those activities which is carried out for the full development of the company.

An investment is a thing or asset that is acquired with the intention of making money or increasing in value over time (Hayes, 2023). It can be applied to any scheme that generates income in the future. This includes the purchase of bonds, stocks or real estate, among others. Investment decisions relate to stocks and bonds and involve a variety of tasks such as market analysis, portfolio theory, and security analysis (Brigham & Houston, 2013, pp. 5–6). One of the main elements that influence a company's profitability, efficiency and risk tolerance is its investment portfolio (Usta, 2012). Due to their significant impact on the company's growth and risk, investments require careful consideration in corporate management.

Considering that the investments firms set up have an impact on value maximization, firms also recognize the importance of financing decisions, and how and in what way these decisions affect company value. Firms usually use leverage by issuing bonds or taking out loans as a type of financing in order to finance the purchase of inventory, expand their operations and also to launch new projects.

A financial ratio, known as the leverage ratio, is calculated by dividing a company's total liabilities by its equity. In other words, the leverage ratio is one of several

financial indicators that show how indebted a company is in relation to various other accounts on its balance sheet, income statement or cash flow statement. It also shows the type of financing (equity or debt) used for the company's activities and assets. A common tool used by both companies and banks to assess the financial health of a company is the leverage ratio. To finance their operations, companies use a mix of equity and debt. Thus, knowing the amount of debt held by a company is useful in assessing whether it can repay its debts as they fall due, or find itself in a situation of insolvency. Financial Leverage refers to how much of debt a firm can use for its financing issues which resulted from a cash flow for short-term debt or a need for additional capital to finance investments (Myers, 1984). In general, the aim of financial leverage is to develop the profitability without using equity or selling assets. It enables to avoid giving up ownership stakes in the company. It also facilitates to access more expensive investment options that need more than the amount of upfront capital.

1.2 Research Gap

A considerable body of literature has emerged in an effort to understand the structure, functioning and potential of financial markets in the developing countries of Asia, Latin America and Eastern Europe. Most studies have focused on these countries to assess their financial markets. Naturally, the results have always varied. For this reason, the primary objective of this study is to examine the scenario of the Casablanca Stock Exchange. Empirical studies examining the impact of investment and financial leverage on firm value for the Casablanca stock market are rare. However, Morocco is considered one of Africa's most important developing financial centers, and studying investment and financial leverage behavior in its stock market would be of great benefit.

The real estate sector plays a major role in the Moroccan economy, contributing 6.8% of gross domestic product (GDP), it is also a major provider of employment, generating around one million jobs annually. Public policies have made an effective contribution to promoting the sector, notably through housing programs offering tax and financial incentives. The Moroccan real estate sector has been able to achieve sustained levels of growth in recent years, enabling this strategic sector to position itself among the top key sectors of the Moroccan economy. Since the previous studies of investment and financial leverage and their effects on company's value in Morocco didn't focus on that sector, this research will highlight the case of real estate sector.

1.3 Aim of the Study

The following study aims to investigate and analyze the relationship between financial leverage and firm value for Moroccan real estate companies and the relationship between investment and firm value. The current literature and its findings will be extremely interesting and helpful not only for real estate managers who need to know how financial leverage and investment decisions affect financial performance, but also for investors who can gain insight into whether a company's management is using its capital prudently.

More specifically, this study aims to test the following hypothesis:

H1: Investment has a positive significant effect on firm value.

H2: Financial leverage has a negative significant effect on firm value.

1.4 Structure of the Study

The first part of the research introduced the purpose of the analysis. The remaining parts will be structured in four chapters. The first will be devoted to the literature review which will highlight the finding of the previous studies. The second part

presents the methodology and data sources used to carry out the work. To this end, we will adopt a methodology based on panel data analysis. The third chapter will be devoted for the results obtained from the case study of real estate companies in Morocco. The last part draws a general conclusion.

Chapter 2

LITERATURE REVIEW

2.1 Determinants of Firm Value

Financial theory has emphasized a number of goals for a company, including cost reduction, growth in market share and sustainability of the company. Recently, however, the primary objective maximizing shareholder wealth and thus shareholder value has been emphasized more strongly. To achieve this goal, companies must make a number of financial decisions, including financing and investment decisions. When making financing decisions, the company usually has to consider a combination of financial resources, including loans, capital contributions and corporate funds. It is therefore necessary to determine the ideal financial structure that reduces the cost of capital and increases the value of the company. Today, however, company value is determined by expressing both the result of the measures taken and the financial market participants' assessment of this result. This is no longer a simple process. By assessing the importance of the financial decisions, a company has to make, the estimation of company value focuses on the issue of performance. These decisions must support the achievement of the main objective of any company, which is to create value by maximizing value.

The objective of maximizing firm value is rooted in corporate finance theory, and more specifically in the neoclassical theory of the firm (financial microeconomics) and its developments (signal theory, agency theory and transaction cost theory). For instance,

signal theory is based on the fact that information is unevenly shared or asymmetrical, with a company's managers having more information than its financial backers. This information can be received through the company's share price, financing decisions and investment activities (Brigham & Houston, 2013). Due to the information asymmetry between investors and management, investors may over- or undervalue the company. This knowledge asymmetry therefore affects the value of the company.

Furthermore, changes in company value can be caused by a number of factors, including asset efficiency, liquidity, profitability, debt, company size, investment and others. Some of these factors affect company value, but various studies show contradictory results (Endri & Fathony, 2020). In this study, we'll be looking at the investment effect and the financial leverage effect.

2.2 The Effect of Investment on Firm Value

A company can be defined as an economic entity made up of various production factors (capital, human resources, raw materials) producing goods and services for one or more markets. As such, investment is a fundamental act for the company, since it determines its future development and mobilizes a great deal of energy in terms of time, skills and resources (human and financial). In this case, investment appears to be the real driver of value creation, characterized by the profitability/risk ratio. The theoretical pivot of any study of investment choice processes is the principle of maximizing corporate value, i.e., shareholder wealth. The investment decision is an essential component of company management, insofar as today's choices will determine what the company will be tomorrow. It is thus one of the four major decisions facing a company, alongside financing, cash management and financial analysis.

According to Harjito and Martono (2013), a company's investment decision is crucial for its value, as it influences the financial resources used for investments, the type of investments, the investment returns and the investment risks. It is also confirmed by Efni (2017), Soumaya (2015) and Susanti et al. (2019) that investment decisions are the reason for the improvement of company value.

In addition, Iturriaga and Sanz (2001) and Davies et al. (2005) came to the same conclusion that companies with large investment opportunities have a bright outlook for the future and these opportunities effect positively on company's stock price. Thus, the greater investment opportunities, the greater firm value.

Research conducted by various scholars (Suartawan and Yasa, 2016; Resti et al., 2019; SyamsudinI et al., 2020; Suardana et al., 2020; Mumpuni and Indrastuti, 2021; Agustin and Anwar, 2022) reveals that investments have a beneficial effect on firm value. In contrast, Attarie et al. (2018), Komala et al. (2019), and Amaliyah and Herwiyanti (2020) discovered that investment did not impact firm value.

2.3 The Effect of Financial Leverage on Firm Value

Alongside the question of investment, that of financing is just as important. Because a company's life cycle (creation, development, maturity, decline) generates a number of needs, it must have sufficient financial resources at the right moment to meet its deadlines and ensure its sustainable development. More specifically, a company faces two major strategic financial challenges: financing its investments (long-term perspective) and financing its day-to-day business (short-term perspective). These two issues are closely intertwined, as they jointly determine the company's long-term

viability. From the types of financing, the study will focus on external financing and specially debt.

The results of numerous studies on the relationship between financial leverage and company value are inconsistent. Financial leverage is defined by Horne (2002) as the change in capital structure caused by an increase or decrease in the ratio of debt to equity. Myers (2002) states that a company that is highly leveraged can increase its profitability due to tax savings. In addition, a number of scholars, including Pandey and Sahu (2017) and Gill and Obradovich (2013), have argued that firms should benefit from the net effect of tax savings, as a more leveraged capital structure does not lead to a material increase in financial risk.

However, Noghondari & Noghondari (2017) believe that financial leverage is a difficult issue that managers may face when making decisions, as higher leverage can increase financial risks and lead to a higher cost of capital. Increasing a company's debt load is akin to putting a dagger in the steering wheel of a car. The dagger pointing at your chest may encourage you to drive more carefully, but you still run the risk of being stabbed if someone runs you over even though you are careful (Brigham & Houston, 2013, pp. 440_441). That is to say, even if managers are behaving carefully with shareholders' money, firm can go bankrupt because of an unexpected event like war, recession or earthquake. Wherefore, shareholders have to decide the size of the dagger that force managers to identify the optimal capital structure. Other studies conducted by Mohammad Kazem et al. (2013) for pharmaceutical companies listed in Iran and Gryčováand Steklá (2015) for agriculture industry, came with the conclusion that there is a negative relationship between financial leverage and firm value.

Studies conducted before 2013 have shown both positive and negative effects of debt on the value of a company. A 2016 study by Akhtar et al. examining how debt affects the value of a company shows a positive correlation between financial leverage and the value of a company. According to the study by Adenugba et al. (2016), which used a sample of Nigerian companies to determine the impact of financial leverage on company value, there is no correlation between financial leverage and company value.

The aim of the study by Ibrahim (2020) is to determine how financial leverage influences company value. The study uses specific companies that were listed on the Nigerian Stock Exchange between 2014 and 2018. To test the hypothesis, the researcher uses a panel data analysis. Loan to Value (LVR) ratio is used as an independent variable to measure financial leverage while Tobin's Q ratio is used as a dependent variable to measure firm value. The study shows that there is a negative causal relationship between financial leverage and Tobin's Q.

Some of the firms listed on the Indonesia Stock Exchange were the subject of another study (Lestari et al., 2020). The impact of a firm's size, profitability, and leverage (proxy: debt-equity ratio) on the firm's value (as indicated by the P/BV ratio) was the study's focus. The findings indicated that a firm's value is significantly and negatively impacted by leverage. The authors did note, however, that the average annual leverage value was rather large and fluctuated. When capital and debt were equal, a favorable ratio was reached.

The paper by Jao et al. (2020) investigated the impact of financial leverage, foreign ownership, and earning perseverance on the reputation and value of non-financial

enterprises listed on the Indonesia Stock Exchange. One of the findings was that financial leverage does not have a significant impact on the company's value.

Chapter 3

DATA & METHODOLOGY

3.1 Data Selection

The sample of this research is based on the data of all real estate Moroccan corporations listed in Casablanca Stock Exchange. The research depended on the Balance Sheet of the real estate companies. Data from the annual reports will be collected over the period of four years (from 2019 to 2022). The collected data focused into the following variables: firm value, Intangibles, Long Term Investments, firm size, total debt, equity and Property/Plant/Equipment.

The database that we are going to use in our study can be downloaded through the following link: www.investing.com. The downloaded database will be the main source for our research. Moreover, analysis in this research is accomplished by statistical analysis software named EViews and Stata.

3.2 Variable Selection

In specifying statistical models, we need to define the dependent variables and the explanatory variables. A dependent variable is the variable that we seek to predict, describe, or explain.

Whereas explanatory variables, also called independent variables, are those that explain the dependent variable. For our model, we aim to explain the Firm Value as well as its relationship to investments and financial leverage.

3.2.1 Dependent Variable

Enterprise value is the dependent variable in this research model. To measure it, the enterprise value (EV) is used. It is a measure of the total value of a company. It represents not only the value of equity, but the total market value. In the company's balance sheet, it is calculated by adding the market capitalization and the market value of debt less all cash and cash equivalents. (EV = Common Shares + Preferred Shares + Market Value of Debt + Noncontrolling Interest – Cash and Equivalents). According to Hunt (2011), enterprise value is a more accurate indicator of the actual value of a company.

3.2.2 Independent Variables

The explanatory variables used in our study are: long term investments, Firm size, financial leverage, Intangibles and Property/Plant/Equipment.

Leverage in finance refers to the use of debt to increase shareholder profits. It is calculated using the ratio of total debt to total equity. If this ration is high, that means the company’s operations have been financed with more debt.

All variables mentioned above are shown in Table 1:

Table 1: Variables used in the study

Variable type	**Sub variable**	**Variable name**	**Variable definition**	**Variable description**
Dependent variable	Y	FV	Firm value	Enterprise value
Independent variable	X_1	Lg_invest	Long term investments	Long term investments
Independent variable	X_2	Fs	Firm size	Firm size

Independent variable	X_3	Fl	Financial leverage	Total debt/ Total equity
Independent variable	X_4	intang	Intangibles	Intangibles
Independent variable	X_5	prop	Property/Plant/ Equipment	Property, Plant, Equipment

3.3 Model

In order to test the impact of investment and financial leverage on firm value, the study will use panel data analysis and the research takes the model as follows:

$fv = \alpha + b_1\ lg\_invest + + b_2\ fs + b_3\ fl + b_4\ intang + b_5\ prop + \mu$

Where:

Fv: firm value

Lg_invest: long term investment

Fs: firm size

Fl: financial leverage

Intang: intangibles

prop: property, plant and equipment

α: Constant

b_1, b_2, b_3, b_4, b_5: the parameter to be estimated

μ: error term

3.3.1 Panel Unit Root Test: Second Generation

A unit root test is a method used to investigate whether the autoregressive structure of time series affects the mean and variance when they change over time. In empirical panel data analysis, the unit root test is an important component to investigate. It has already been used in a number of financial and economic studies. Furthermore, it is generally known that unit root tests, when it comes to distinguishing between

stationary and non-stationary series, which are the focus of this study, generally have low significance with small sample sizes. In order to contribute more to the validity of unit root tests, this study increased the frequency of the data by converting the data from annual to monthly. This was done over a period of four years using EViews.

There are two generations of tests in the panel unit roots structure. The main assumption of the first generation of tests — the Fisher test, the Levin, Lin and Chu test (2002) and the Im, Pesaran and Shin test (2003)— - is the independence of the units in the cross-section. The aim of the second generation of panel unit root tests is to eliminate the cross-sectional dependence error of the first-generation test. The heterogeneity assumption serves as the basis for the second-generation panel unit roots tests. As a result, the panels are diverse and the series lack a consistent autoregressive (AR) structure. The studies by Bai and Ng (2001, 2004), Moon and Perron (2004), Phillips and Sul (2003), Pesaran (2003) and Choi (2002) belong to the second generation of panel unit roots tests. The Pesaran test was used in this study.

The Pesaran Tests

A strategy to address the problem of cross-sectional dependencies is presented by Pesaran (2003). He considers a one-factor model in which the residuals have unequal loading factors. Pesaran (2003) uses a model that augments the standard Dickey-Fuller or augmented Dickey-Fuller regressions with the initial differences of each series and the cross-sectional mean of the lagged levels to address the problem of cross-sectional dependence. The regression used for company (j) is described as follows if the residuals are not serially correlated:

$$\Delta y(jt) = \alpha(j) + \eta(j)\bar{}y(jt-1) + c(j)\bar{} y(t-1) + d(j)\,\Delta y(t) + v(jt) \qquad (1)$$

Where $\bar{y}$ (t-1) = (1/N) $\sum_{j=1}^{N} y(jt-1)$ and $\Delta\ \bar{y}$ (t) = = (1/N) $\sum_{j=1}^{N} y(jt)$. Let us consider the following: CA is the individual cross-sectionally augmented ADF statistic used by the Pesaran test; t(j)(N, T) is the t-statistic of the OLS estimate of η (j). The abbreviated form, CA*, is used to eliminate the excessive influence of extreme outcomes resulting from small sample sizes. The aim is to produce an extended version of the t-bar test of the IPS based on the average of the statistics for the CA or the CA* (or for the cross-sectionally extended IPS, the CI and CI* given).CI = (1/N) $\sum_{j=1}^{N} tj(N,\ T)$ and CI* = (1/N) $\sum_{j=1}^{N} t(j) * (N,\ T)$.

Where the truncated CA statistic is defined as:

$$\text{t (j)*(N, T)} = \begin{cases} A1 & si\ \ t(j)(N,T) \leq A1 \\ t\ (j)(N,T) & si\ \ A\,1 <\ t(j)(N,T) <\ A2 \\ A2 & si\ \ t(j)(N,T) \geq A2 \end{cases} \qquad (2)$$

The probability which is in the interval [A1; A2] is near to one, with A1 and A2 are fixed constants. Pesaran (2003) proved that in a model with only intercept, the corresponding simulated values are -6.19 and 2.61 respectively.

The asymptotic null distributions of all CA (or CA*) statistics are comparable and independent of the factor loadings. However, the fact that they depend on the same component makes them related. Therefore, an average of the CA statistics can be calculated. However, these CI or CI* statistics are not captured by the traditional central limit theorems. Pesaran shows that the modified form of the CI statistic has an asymptotic null distribution that is free of nuisance parameters, even if it is not normal. He proposes simulated critical values for CI and CI* for different sample sizes. Pesaran also uses Fisher-type tests based on comprehensive individual CI statistics proposed by Maddala and Wu (1999) or Choi (2001). These statistics do not have a standard

distribution for the reasons mentioned above. Finally, serially correlated residuals can easily be included in this technique. The relevant individual CA statistics for an AR(p) error specification are derived via an extended cross-sectional/time series regression of order q:

$$\Delta y(jt) = \alpha(j) + \eta(j)\, y(jt-1) \bar{+} c(j)\, y(t-1) + \sum_{l=0}^{q} d(jl) \Delta \bar{y}(t-l) + \sum_{j=0}^{q} b(jl)\, \Delta y(j, t-l) + \mu(jt) \quad (3)$$

3.3.2 ARDL Model

The effect of a debt and an investment made today in a firm will be clear in the future periods. As a result, ARDL model was used in this research as a cointegration method in order to analyze the lagged values. Pesaran, Shin and Smith (1995) and Pesaran and Shin (1997) introduced the ARDL model. Pesaran, Shin, and Smith (1995) introduced the ARDL method to assess the usefulness of autoregressive distributed lag models for analysing long-run relationships when some of the key variables are stationary at level and the remaining variables are stationary in first difference (a mixture of I (0) and I (1)). The reason for this is that long-run relationships are the focus of attention in both empirical and theoretical studies.

The primary equation is based on the research of Paseran and Shin (1997) and the basic ARDL (p; q) model as follows:

$$Y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^{p} \theta_i Y(t-i) + B'X_t + \sum_{i=0}^{q-1} B_i'' \Delta X(t-i) + u_t \quad (4)$$

$$\Delta X_t = P_1 \Delta X(t-1) + P_2 \Delta X(t-2) + L + P_i \Delta X(t-i) + \varepsilon_t \quad (5)$$

where X_t denotes the K-dimensional I (1) variables that have no common cointegration. The vector autoregressive process in ΔX_t is stable when ε_t and u_t, which are serially correlated disturbances with zero mean and constant variance, are combined with covariance and P_i, which are k*k coefficient matrices.

Chapter 4

EMPIRICAL RESULTS

4.1 Descriptive and Summary Statistics

Table 2: Descriptive statistics

	FV	LG_INVEST	FS	FL	INTANG	PROP
Mean	5.29E+09	70464167	1.43E+10	0.697500	1.86E+08	4.02E+08
Median	3.64E+09	13745139	1.31E+10	0.713692	6464838	5.21E+08
Maximum	1.16E+10	6.64E+08	2.85E+10	0.942269	6046E+08	6.67E+08
Minimum	1.86E+09	-60818738	7.15E+09	0.443681	653439.8	69966887
Std. Dev	2.68E+09	1.17E+08	5.67E+09	0.137383	2.60E+08	2.44E+08
Skewness	0.777807	2.814337	0.530198	0.148742	0.779265	-0.361267
Kurtosis	1.962278	12.41713	2.129157	1.746827	1.706955	1.343476
Jarque-Bera	20.98083	722.1860	11.29684	9.953631	24.60589	19.59676
Probability	0.000028	0.000000	0.003523	0.006896	0.000005	0.000056
Sum	7.62E+11	1.01E+10	2.06E+12	100.4400	2.67E+10	5.79E+10
Sum. Sq. Dev	1.03E+21	1.95E+18	4.59E+21	2.698995	9.68E+18	8.54E+18
Observations	144	144	144	144	144	144

Note: FV represents firm value; LG_INVEST represents long term investment; FS represents; firm size; FL represents financial leverage; INTANG represents intangibles; finally, PROP represents property/plant/equipment.

Of all the variables, FS has the highest mean (average) value, in absolute terms, while FL has the lowest mean value, in absolute terms. FS has the largest standard deviation, while FL has the smallest standard deviation. Hence, the FL data are closest to their mean value on average, while the FS data are furthest from their mean value on average. PROP data is negatively skewed, while the other variables are positively skewed. LG_INVEST variable is leptokurtic, since its kurtosis value is greater than 3 (the datasets have fatter tails than the tails of a normal distribution, and there are many outliers in the data). The other variables are platykurtic, since their kurtosis values are less than 3 (the datasets have thinner tails than the tails of a normal distribution, and there are very few outliers).

Although skewness and kurtosis give an insight into the distribution of the data, we can use the Jarque-Bera (JB) test to formally determine whether the data is normally distributed or not. The following theories apply to the Jarque-Bera normality test: H0: The distribution of the data is normal, while H1: The distribution of the data is not normal. For each variable, the probability value for the Jarque-Bera test statistic is less than 5% when the test is performed at a significance level of 5%. Therefore, we accept the alternative hypothesis and reject the null hypothesis at the 5% significance level. We therefore conclude that the data for all variables are not regularly distributed.

Variables in panel data are not necessarily required to be normally distributed. Panel data analysis typically focuses on the relationships between variables over time and across different individuals or entities. While normality of variables can be important for some statistical tests and assumptions, it is not a strict requirement for panel data analysis.

4.2 The Correlation Analysis

Table 3: Correlation matrix

	FV	LG_INVEST	FS	FL	INTANG	PROP
FV	1	0.29215699	0.91430196	-0.5945046	-0.4731163	0.2154675
LG_INVEST		1	0.48024890	0.11975262	0.23050598	0.15935371
FS			1	-0.4286339	-0.1556944	0.48513090
FL				1	0.72031652	0.22173218
INTANG					1	0.67666508
PROP						1

Note: FV represents firm value; LG_INVEST represents long term investment; FS represents; firm size; FL represents financial leverage; INTANG represents intangibles; finally, PROP represents property/plant/equipment.

The above values are the Pearson Correlation Coefficients. They show the strength (strong, weak, or medium) and direction (positive or negative) of the linear relationships between the variables.

The correlation analysis shows that the relationships between independent variables are weak (<50%) or medium (50%< k <90%). Therefore, regressors don't have perfect or exact linear relationship.

4.3 Unit Root Test

4.3.1 Cross Sectional Dependence Test

Table 4: Cross sectional dependency analysis

Test	Statistic	Prob
Breusch-Pagan LM	13.20477	0.0042
Pesaran scaled LM	4.166079	0.0000

For the cross-sectional dependency test, the hypotheses are: H0: No cross-section dependence in residuals vs H1: There is cross section dependence in residuals.

Using 5% significance level to perform the test, the probability value for both two tests are less than 5% which means we reject the null hypothesis and accept the alternative hypothesis. Therefore, there is cross-sectional dependence in residuals. In short, the real estate companies in this study are dependent on one another.

In order to check the stationarity of the variables, second-generation panel unit root tests must be used in the presence of cross-sectional dependence. Unit root tests of the first generation could lead to an incorrect result in this case.

4.3.2 Second Generation Panel Unit Root Test

Table 5: CIPS panel unit root analysis

	Level	First difference	
Variable	CIPS*	CIPS*	Integration
FV	2.61	-	I (0)
LG_INVEST	2.61	-	I (0)

FS	0.83	-3.13	I (1)
FL	0.73	-4.66	I (1)
INTANG	0.25	2.61	I (1)
PROP	-4.57	-	I (0)

Note: FV represents firm value; LG_INVEST represents long term investment; FS represents; firm size; FL represents financial leverage; INTANG represents intangibles; finally, PROP represents property/plant/equipment.

Table 6: Critical values of CIPS test

	10%	5%	1%
Critical value at	-2.21	-2.33	-2.55

For the unit root test, the hypotheses are as follows: H0: unit root (non-stationary) vs H1:no unit root (stationary).

At level and for the variables FV, LG_INVEST and PROP, the coefficients of CIPS test (CIPS*) in absolute value are respectively equal to 2.610, 2.610 and 4.574. They are greater than all the conventional levels of statistical significance. Therefore, we reject the null hypothesis for those variables and we accept the alternative hypothesis. Hence, FV, LG_INVEST and PROP are stationary at level.

For the variables, FS, FL and INTANG, the coefficients of CIPS test (CIPS*) in absolute value at level are respectively equal to 0.834, 0.737 and 0.255. They are less than all the conventional levels of statistically significant. Therefore, we do not reject the null hypothesis. FS, FL and INTANG are not stationary at level. However, at first difference the coefficients of CIPS test (CIPS*) in absolute value at are respectively equal to 3.138, 4.667 and 2.610 which are greater than all the conventional levels of

statistically significant. Therefore, we reject the null hypothesis and we accept the alternative hypothesis. Hence, FS, FL and INTANG are stationary at first difference.

As soon as there are variables integrated at order zero and variables integrated at order one, we will adopt the ARDL model for the next part analysis.

4.4 ARDL Model Empirical analysis

Table 7: Dynamic fixed effect (DFE), Pooled mean group (PMG) and Mean group (MG) analysis

	Variables	DFE estimation	PMG estimation	MG estimation
LR	LG_INVEST	-0.85547 (0.069)	2.64e+09 (0.000)	-0.18579 (0.714)
	FS	-5.26174 (0.300)	- 4.70e+10 (0.000)	5.77858 (0.432)
	FL	0.22441 (0.678)	-2.07e+10 (0.000)	-1.47493 (0.000)
	INTANG	-0.22962 (0.369)	3.64e+08 (0.021)	1.77682 (0.221)
	PROP	-2.99984 (0.203)	- 8.97e+10 (0.000)	-5.03500 (0.160)
SR	LG_INVEST	0.53295 (0.038)	-0.04745 (0.756)	-0.45899 (0.793)
	FS	5.97944 (0.000)	-10.43825 (0.237)	1.42675 (0.384)
	FL	1.03584 (0.000)	2.36640 (0.125)	0.30523 (0.533)
	INTANG	-0.44905 (0.000)	-4.614019 (0.317)	1.75683 (0.292)
	PROP	4.05202 (0.000)	22.3308 (0.271)	1.46964 (0.093)
	ECT	-0.02159 (0.089)	-0.07015 (0.000)	0.11602 (0.001)

Note: FV represents firm value; LG_INVEST represents long term investment; FS represents; firm size; FL represents financial leverage; INTANG represents intangibles; finally, PROP represents property/plant/equipment.

The Hausman test was also carried out to check homogeneity in the long term. The results show that between MG and PMG, prob > chi2 = 0.6350, and between DFE and PMG, prob > chi2 = 0.843. Consequently, a Hausman-type test cannot rule out the null hypothesis that the pooled mean of the group (PMG) is a more effective estimator

under the null hypothesis of homogeneity. For this reason, this model is analyzed using the PMG estimates.

Table 7 shows that for PMG estimation in long-run all coefficients are statistically significant, while they are meaningless in the short-run. According to PMG, the long-run coefficients are the same across all groups that make up the panel. This research shows several conclusions in long run. At first, the impact on firm value is caused by all variables selected in this research. The investment appears to affect the firm value positively. The same thing for intangibles. while, the increase in financial leverage, firm size and property variables decreases the firm value.

Chapter 5

CONCLUSION

Assessing a company's value is a crucial step in financial decision-making. It enables investors, owners and stakeholders to understand how much a company is worth. This gives them a solid basis on which to negotiate transactions, make investments or take strategic decisions. There are many reasons why it is useful to assess a firm's value. Some of these reasons are: determining the purchase or sale price of a business, obtaining financing, evaluating business performance, making estate planning decisions or determining employee incentives. It's also important to know the factors that influence the value of the firm, so you can maximize them when planning the firm strategy. Financial aspects are crucial for determining the value of a company. They consist of cash flow, assets, liabilities, revenues and profits. The financial multiples and ratios that influence the value of a company are calculated using these financial components. The company value is also significantly influenced by investments. Investment policy is part of the company's overall strategy, and is the guarantor of its future development. All investment decisions have a bearing on the future. We need to make sure that these investments are worthwhile, that they create value, and that their financing does not unbalance the company's financial structure. The value of a company can be influenced by non-financial as well as financial factors. These include the company's reputation on the market, its competitiveness, its customer base, its intellectual property and its human resources.

Maximizing shareholders' equity, or the value of the company, is a key objective for managers. However, company value can be influenced by both internal and external conditions. Some of these external factors, such as political conditions, cannot be controlled by companies. Otherwise, managers can improve company value by making optimal financing and investment decisions. In this report, we have attempted to analyze the impact of investment and financial leverage on a company's value. This has enabled us to achieve a major treatment using two software packages, EViews and Stata. The study examined a type of financing strategies and investment decisions and their effect on enterprise value for three real estate companies listed on the Casablanca stock exchange. This research was used to analyze lagged values of ARDL cointegration method. It highlights several implications in long-run. We implemented our problem empirically in the Moroccan context using panel data analysis for the period from 2019 to 2022. The empirical results show that investments have a positive influence on enterprise value, whereas we found that the impact of leverage on enterprise value is negative in the long term for real estate companies in Morocco. We can conclude that a higher leverage ratio, which indicates financing decisions, leads to a lower firm value, while higher investment leads to a higher firm value. The dependent variable and investment should have a positive relationship, while the dependent variable and leverage should have a negative relationship. The hypothesis and the results were consistent.

However, this research has certain limitations. Indeed, the small sample size means that we cannot consider and isolate the specificities of the real estate sector and work in a homogeneous environment. For this reason, we can understand and explain why the results obtained from statistical tests may not represent the entire real estate sector.

The companies in our sample are not very representative, especially as the number of companies listed on the Casablanca stock exchange is insufficient for a panel analysis. In addition, we found another limitation in this research concerning the collection of information. We relied on the database of the www.investing.com website as a source of information. The main obstacles encountered with this choice were the lack of information over a long period or with great frequency.

This research contributes to the literatures that suggest the preference of investment and not put a much concern about leverage to finance if we want to ameliorate firm value. The research results could have some policy implications. The findings of the study can be used to inform the decision-making of stock investors and finance managers. Furthermore, it is expected that the results will be useful to the literature. The studies to be carried out with different indices, methods, time periods, countries, and sectors are essential in order to obtain new insights in testing the series relationship. Firms can seek solutions to their funding policies by exploring alternative sources of funding. Finance managers can improve firm value by making more efficient and effective investment and financing decisions. Investors can achieve their investment goals by understanding the overall state of the economy if they know which factors and in which direction the firm's value is impacted. Therefore, it is essential to thoroughly analyze the rates that correlate positively and negatively to the firm value, and to put into practice the actions that can be monetized for firm value.

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