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Is There Underpricing After Moroccan IPOs?

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Abstract

This study aims to analyze the phenomenon of underpricing in the Moroccan market. When underpricing occurs, investors can get a positive initial return. Underpricing is then the practice of listing an initial public offering (IPO) at a price lower than its real value in the stock market. This is a well-documented and widely studied anomaly in finance, and was explained by several theories such as Information Asymmetry (Winner's Curse), Signaling Theory, Agency Theory, and other Behavioral Theories. Many works on the international scale highlighted the prevalence of underpricing in IPOs, discussing factors influencing the decision to underprice and its impact on market efficiency.

This study examines the evolution of initial returns (both adjusted and non-adjusted) and tests the computation of initial returns (IRs) using the Student's t-test as the data analysis method, to affirm or reject the null hypothesis. The data are sourced from the prospectus and financial statements of companies after their Initial Public Offering (IPO). The sample consists of 35 companies listed on the Moroccan stock market from 2004 to 2020. The findings confirm the phenomenon of initial underpricing in the Moroccan context, consistent with international studies. However, our work suggests that further research is needed to explore the factors contributing to this underpricing, particularly those related to the characteristics of Moroccan companies and the economic conditions surrounding the IPO event, both pre- and post-IPO. This opens avenues for future research on the factors that drive the decision to underprice and how this affects the Moroccan market efficiency.

Keywords: Moroccan Capital Market; Initial public offering; Initial returns; Underpricing.

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Introduction

The phenomenon of initial underpricing in Initial Public Offerings (IPOs), where the offering price is set below the price at which the stock begins trading on the secondary market, is a well-documented and widely analyzed anomaly in financial markets. Numerous theories have been proposed to explain the persistence of this phenomenon across different markets and time periods.

First, information asymmetry theories suggest that underpricing compensates uninformed investors who face a disadvantage relative to informed ones. For example, **Rock's (1986)** Winner's Curse Hypothesis posits that informed investors can better identify underpriced IPOs, while uninformed investors tend to receive a larger share of overpriced ones. To attract the latter group, firms deliberately underprice their IPOs to ensure a fair expected return. Similarly, signaling theory views underpricing as a strategic move by high-quality firms to distinguish themselves from lower-quality ones. These firms aim to build a reputation or gain future financing advantages by accepting short-term losses through underpricing.

Second, behavioral theories attribute underpricing to investor psychology and market sentiment. High demand fueled by retail investor enthusiasm or optimism can push prices up on the first day of trading. In this context, underpricing becomes a tool to create market momentum and generate positive publicity. Concepts such as anchoring and herding behavior also play a role, where investors fixate on early price signals and follow the actions of others, reinforcing demand.

Third, institutional explanations point to the role of underwriters and the book-building process. Underpricing may serve to reward institutional investors for their participation or to cultivate long-term relationships. Additionally, practices such as spinning, where underwriters allocate underpriced shares to executives of other firms in exchange for future business, reveal more opportunistic motives.

Fourth, legal and regulatory factors can influence underpricing. Companies may underprice their IPOs to minimize the risk of litigation in case the stock underperforms after the listing. A strong aftermarket performance can help mitigate accusations of misrepresentation or misconduct.

Fifth, ownership and control considerations also matter. Founders may prefer underpricing if it results in a more dispersed ownership structure, helping them maintain managerial control while accessing public capital.

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Taken together, these five explanations suggest that underpricing is not merely a market inefficiency, but can be a deliberate strategy adopted by various stakeholders, issuers, underwriters, and investors, to achieve specific objectives related to market entry, reputation, and control **(Jillali and Belkasseh, 2024).**

While this phenomenon has been extensively examined in major markets such as the United States **(Hensler, 1996; Daily et al., 2003; Lahti, 2021)**, Europe **(Unlu et al., 2004; Brambilla and Gatti, 2021; Alidarous and Jamaani, 2023),** Asia **(Wang and Zhang, 2018; Islam et al., 2010; Hou and Gao, 2019)**, and Africa **(Zouari et al., 2011),** empirical research on the Moroccan IPO market remains scarce. This raises a key research question: *Is underpricing a significant and systematic phenomenon in the Moroccan IPO market?*

The objective of this paper is to examine and measure the extent of IPO underpricing in the Moroccan stock market, using initial return calculations as the primary indicator. By doing so, we aim to contribute to the limited body of literature on North African capital markets and explore whether the patterns observed internationally also hold true in the Moroccan context.

This study is important not only because it addresses a gap in empirical research on IPO underpricing in the Moroccan context, but also because it offers original insights into an underexplored emerging market within North Africa. While much of the existing literature focuses on developed or larger developing markets, Morocco presents a unique institutional, regulatory, and economic environment that may yield different dynamics in IPO pricing. By providing empirical evidence from this setting, the study contributes to both theory and practice: it enriches the global understanding of IPO behavior through a new geographical lens and offers valuable implications for investors, regulators, and firms considering public offerings in similar markets.

The remainder of this paper is then organized as follows: the first section presents a comprehensive literature review of international studies on IPO underpricing and its determinants, including macroeconomic shocks (e.g., the 2008 financial crisis, the COVID-19 pandemic), regulatory environments (e.g., IFRS adoption, legal protections), and company-specific factors. The second section describes the methodology used to assess underpricing in Morocco. The third section presents and discusses the empirical findings, followed by a conclusion that summarizes the main insights and suggests directions for future research.

1. Previous Research Overview

To contextualize the phenomenon of IPO underpricing and frame the relevance of this study, it is essential to review the existing body of literature that has explored its determinants across different markets and economic settings.

Starting with the works applied to the United States market, **Hensler (1996),** examined IPO pricing strategies and their implications on initial returns. The study highlighted the prevalence of underpricing in IPOs, discussing factors influencing the decision to underprice and its impact on market efficiency. **Daily et al. (2003),** who conducted a meta-analysis of 119 studies on IPO underpricing, focusing on U.S. markets. The analysis confirmed that IPO underpricing is a consistent phenomenon in the U.S., with average initial returns significantly above zero. In addition to **Lahti (2021)**, who analyzed IPOs listed on the NYSE and NASDAQ between 2003 and 2019, focusing on initial returns and long-term performance. The average initial market-adjusted return was 14.8%.

At the level of the UK, **Unlu et al. (2004),** analyzed 513 IPOs launched in the UK from 1993 to 2001, examining the changing nature of underpricing over time. The study found that the mean UK underpricing initially was less than that in the USA, reversed itself in the mid-1990s, returned to a lower level during the bubble period, but exceeded US underpricing in the later years of the sample.

In Italy, **Brambilla and Gatti (2021),** examined 128 Italian IPOs between 2000 and 2016, analyzing the impact of corporate governance characteristics on underpricing. The study concluded that board size negatively affects underpricing, while ownership by institutional investors and board members positively affects underpricing.

In China, **Wang and Zhang (2018),** analyzed 1,069 IPOs on Chinese stock exchanges between 2004 and 2013, comparing underpricing before and after the 2008 financial crisis. The study found that IPO underpricing decreased significantly after the crisis, with average initial returns dropping from 146.4% before the crisis to 35.8% afterward. In addition to **Li and Zhou (2020),** who analyzed 2,131 IPOs, focusing on state-owned enterprises (SOEs) and the influence of local government interventions. Local SOEs, particularly in less developed provinces, exhibited higher underpricing due to political incentives to promote regional economic development.

In Singapore, **Daniel (2017),** examined 108 IPOs listed on the Singapore Exchange, analyzing the relative importance of various hypotheses in explaining underpricing. The study found that the winner's curse hypothesis was most relevant in explaining the underpricing phenomenon in Singapore.

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Evidence from Bangladesh, **Islam et al. (2010),** analyzed 117 IPOs listed on the Chittagong Stock Exchange, examining the relationship between underpricing and various factors. The study found that 87.18% of IPOs were underpriced, with an average initial return of 15.37%. Offer size and company size were positively related to underpricing, while industry type and firm age were negatively related.

In Thailand, **Laokulrach (2021),** examined 142 IPOs listed on the Market for Alternative Investment (MAI) in Thailand. The study found an average first-day return of 61.92%, indicating significant underpricing. Additionally, IPOs outperformed the market over six- and twelve-month holding periods but underperformed after two years.

In Sri Lanka, **Samarakoon (2018),** analyzed 148 IPOs from 1991 to 2017, calculating initial returns and market-adjusted abnormal returns. The average initial return is 47.1%, with a market-adjusted return of 40.83%. The study indicates that IPOs in Sri Lanka are significantly underpriced, with initial returns higher than those observed in previous studies.

In Turkey, **Alidarous and Jamaani (2023),** analyzed 188 IPOs from 1998 to 2019, calculating initial returns and examining the impact of IFRS mandate and institutional governance on underpricing. The study found that the IFRS mandate and institutional governance quality significantly impact IPO underpricing and aftermarket performance.

In Taiwan, **Hou and Gao (2019),** calculated initial returns and market-adjusted abnormal returns to assess underpricing. Regression analysis examines the relationship between underpricing and various factors, including information asymmetry, investor sentiment, and corporate governance. The study found that overallotment is negatively related to underpricing, whereas market momentum, first-day trading volume, and managers' ownership retention rates are positively related to underpricing, particularly for high-technology IPOs.

In Tunisia, **Zouari et al. (2011),** calculated market-adjusted initial returns for the first three trading days to assess underpricing. Multivariate regression analysis identifies factors influencing underpricing. The study found that the average market-adjusted initial return is approximately 17.8%. Factors such as retained capital, underwriter's price support, oversubscription, listing delay, and offer price significantly influence underpricing. Firm age, size, and offer size do not significantly reduce underpricing.

In addition to other studies focusing on international comparison, like the study by **Engelen and Van Essen (2010),** who analyzed 4,462 IPOs across 29 countries, examining the relationship between country-level governance and IPO underpricing. The study found that the underpricing is higher in countries with corporate governance that strengthens the position of investors relative to insiders. This suggests that when countries empower outsiders, IPO issuers underprice more to generate excess demand, leading to greater ownership dispersion and reduced incentives for outsiders to monitor insiders. On the one hand, **Boulton et al. (2017),** analyzed 3,728 IPOs from 22 economies, examining the relationship between economic freedom and underpricing. The study found that IPO underpricing exists in almost all sample economies, with significant variation across countries. Emerging markets like Indonesia, Poland, and Thailand exhibited higher initial returns compared to developed markets such as the U.S. and U.K. On the other hand, **Icheva (2023),** calculated initial returns and analyzed them to understand IPO underpricing from the institutional investor perspective. The study found that IPOs in emerging markets are underpriced, with abnormally high first-day returns and monthly returns. Underpricing is evident in all individual industries and years observed. Factors such as property rights protection and corruption levels influence underpricing.

On the flip side, lately, related to the COVID-19 Pandemic, **Panda and Guha Deb (2023),** compared IPO underpricing during the COVID-19 pandemic with the pre-pandemic period, analyzing initial returns and short-term performance. The study found that IPOs issued during the pandemic had 17.6% more underpricing than those issued before the pandemic. Factors such as underwriter reputation, percentage of net proceeds to the company, new shareholder participation, industry affiliation, and the severity of the pandemic in respective countries influenced these patterns.

In turn, through this paper, we envisage discussing the results related to the performance of Moroccan IPOs in a short-run horizon; by verifying the phenomenon already exposed and proved by international scale works, that is, the “Initial Underpricing”, in our Moroccan context, on the level of the Casablanca Stock Exchange. To this end, we put the main hypotheses we want to verify:

H_0: There are no abnormal returns after the Moroccan IPOs, so there is no initial underpricing in the Moroccan market.

H_1: Admission to the Moroccan stock market has a positive short-term impact on the financial performance of candidate companies, but it causes an initial underpricing phenomenon from the first day of quotation.

2. Methodology and Empirical Sources

This paper is dedicated to “Short-term performance analysis”, specifying the results retained from the study of the “initial underpricing” phenomenon by calculating the initial unadjusted and adjusted, equally weighted, and capitalization-weighted returns.

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The existence of abnormal returns will also be tested statistically to prove or deny the existence of unusual returns following the IPO event in different horizon times; 1st, 7th, 21st, and 30th day. Following many data availability circumstances, we are going to work on the initial underpricing of 35 observations of our random sample studied on the Moroccan stock exchange (the Casablanca Stock Exchange).

On the one hand, in terms of initial underpricing, the study is based on the calculations of the initial returns, which is the relative variation between the closing price of the t^{th} session (t=1,7,21,30) and the offer price appearing in the prospectus.

The initial underpricing is then a kind of undervaluation of the initial offer price mentioned in the prospectus when a company is applying for an IPO to go public. The initial underpricing phenomenon is manifested when a new stock closes its first day of trading beyond the fixed IPO price; in this case, the stock is considered to have been underpriced. Underpricing is then the practice of listing an initial public offering (IPO) at a price lower than its real value in the stock market.

A recall on the computation of the undervaluation of a company i, is measured by the profitability of the first trading sessions after the IPO, which is called Initial Return (IR).

The IR of the company's share i, is calculated by the relative variation between the closing price of the t^{th} session (t=1,7,21,30) and the offer price appearing in the prospectus, it is calculated as follows, in accordance with **Aggarwal, et al. (1993), Ibbotson, et al. (1994), Lee, et al. (1995) :**

$$\boldsymbol{IRi,t} = \frac{\boldsymbol{CPi,t - Pi,0}}{\boldsymbol{Pi,0}}$$

Or

$$\boldsymbol{IR_{i,t} = ln\left(\frac{CPi,t}{OPi}\right)}$$

With:

- $IR_{i,t}$: The initial return of the company's share i.
- $CP_{i,t}$: The closing price of the t^{th} session (t=1,7,21,30)
- $P_{i,0}$: The offer price at the IPO.

We chose to use the second equation of natural logarithm, because the first approach in finance poses an issue of no symmetry between an increase and decrease of a similar amount, when calculating a percentual price increase or decrease, the natural log is then used to express growth rates and is a way to tackle the issue created by the easy way we pre-explained. Moreover, we prefer the natural log because the symmetrical nature of the percentual increases and decreases,

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for instance, allows us to better calculate the standard deviation of these percentages, which is part of the statistical test (Student), as we can see in the formula:

$$t(IR)=\frac{IRi*\sqrt{nt}}{STDEVt}$$

with: i: firm, n: number of observations, and t: the session (t=1,7,21,30).

For each IPO transaction, we calculate two measures for undervaluation. The undervaluation, denoted RIi, presents the unadjusted initial return, calculated according to the first previous equation, and the adjusted undervaluation, denoted RIAi, presents the initial return adjusted for the market movement. To adjust these returns, we use the MASI "Moroccan All Shares Index" which is a composition of all the stocks listed on this market.

The methodological approach adopted in this study aligns with a positivist epistemology, which assumes that financial phenomena, such as IPO underpricing, can be observed, measured, and analyzed through objective data and statistical methods. Our reasoning follows a deductive logic, whereby we test existing theories, such as those related to information asymmetry, investor behavior, and market efficiency, within the specific context of the Moroccan IPO market. By employing quantitative techniques, particularly initial return calculations and hypothesis testing, the study seeks to uncover patterns and causal relationships that are generalizable beyond the sample. This approach not only ensures methodological rigor but also enables empirical validation of theoretical assumptions, offering robust insights into the behavior of newly listed stocks in an emerging market context.

In what follows, more details about the findings of distinct methods emanating from the computations of IRs.

3. Empirical Findings and Discussion

Tables 1 and 2 display the statistics on the initial underpricing for the 35 observations of our random sample studied on the Moroccan stock exchange (the Casablanca Stock Exchange).

Table N°1 : The Initial Returns Non-Adjusted observed between 2004 and 2020

	IRs Equally-weighted					IRs Capitalization-weighted					
	Average	t-test	Median	min	max	Average	t-test	Median	min	max	Sample size
1st day	6,47%	8,160	9,49%	-10,23%	9,53%	0,17%	3,217	0,07%	-0,05%	1,33%	35
7th day	19,28%	5,035	11,58%	-8,00%	59,15%	0,72%	2,122	0,09%	-0,27%	11,55%	35
21st day	17,96%	3,739	11,33%	-16,83%	112,76%	0,68%	2,308	0,06%	-0,53%	9,61%	35
30th day	18,18%	3,729	10,29%	-17,77%	95,67%	0,79%	2,164	0,04%	-0,54%	10,96%	35

Source : Authors

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Table N°2 : The Initial Returns Adjusted observed between 2004 and 2020

	IRAs Equally-weighted					IRAs Capitalization-weighted					
	Average	t-test	Median	min	max	Average	t-test	Median	min	max	Sample size
1st day	7,93%	2,569	8,92%	-35,44%	65,16%	0,16%	1,821	0,07%	-1,35%	2,12%	35
7th day	20,45%	4,060	12,09%	-37,06%	95,22%	0,73%	2,097	0,10%	-1,29%	11,46%	35
21st day	18,43%	3,013	9,34%	-36,60%	153,23%	0,73%	2,220	0,06%	-1,27%	10,24%	35
30th day	17,28%	2,952	6,94%	-35,86%	123,20%	0,79%	2,061	0,05%	-1,21%	11,42%	35

Source : Authors

Between 2004 and 2020, in terms of IR and IRA, the equally weighted mean level of underpricing averaged respectively 6,47% and 7,93%.

As we can see, through the tables the IR and the IRA, are increasing from the first day of quotation to the 30th day. Rosing from $IR_{t=1}$ (EW) = 6,47% to $IR_{t=30}$ (EW) = 18,18%%, and from $IR_{t=1}$ (CW) = 0,17% to $IR_{t=30}$ (CW) = 0,79%.

It's pretty much the same trend when talking about IRA; going up from $IRA_{t=1}$ (EW) = 7,93% to $IRA_{t=30}$ (EW) = 17,28%, and from $IRA_{t=1}$ (CW) = 0,16% to $IRA_{t=30}$ (CW) = 0,79%.

Following the Student's T-Test, which is used to show how significant the differences between the initial returns' means are. It lets us know if those differences in means could have happened by chance and test the null hypothesis that there is no initial underpricing after the IPO event, which means listing an initial public offering (IPO) at a price that is reflecting its real value in the stock market that will be manifested when this new stock closes its first day of trading at the fixed IPO price. In our case, all values related to the first day, the first week, and the first month following the IPO event are significant (above the critical value of 2,042 that is related to the degrees of freedom 34 and the significance level α=0,05). Thus, in both cases when computing initial returns non-adjusted and market adjusted; weighted equally or by considering their capitalization (value-weighted), we reject the null hypothesis H_0 of the absence of underpricing immediately after the IPO event on the first day, which means that on the Casablanca Stock Exchange, IPOs record an initial underpricing from the first day of listing as affirmed previously on the international scale.

In this case, we can affirm the hypothesis H_1 of the existence of the underpricing phenomenon on the Moroccan market :

H_1: Admission to the Moroccan stock market has a positive short-term impact on the financial performance of candidate companies, but it causes an initial underpricing phenomenon from the first day of quotation.

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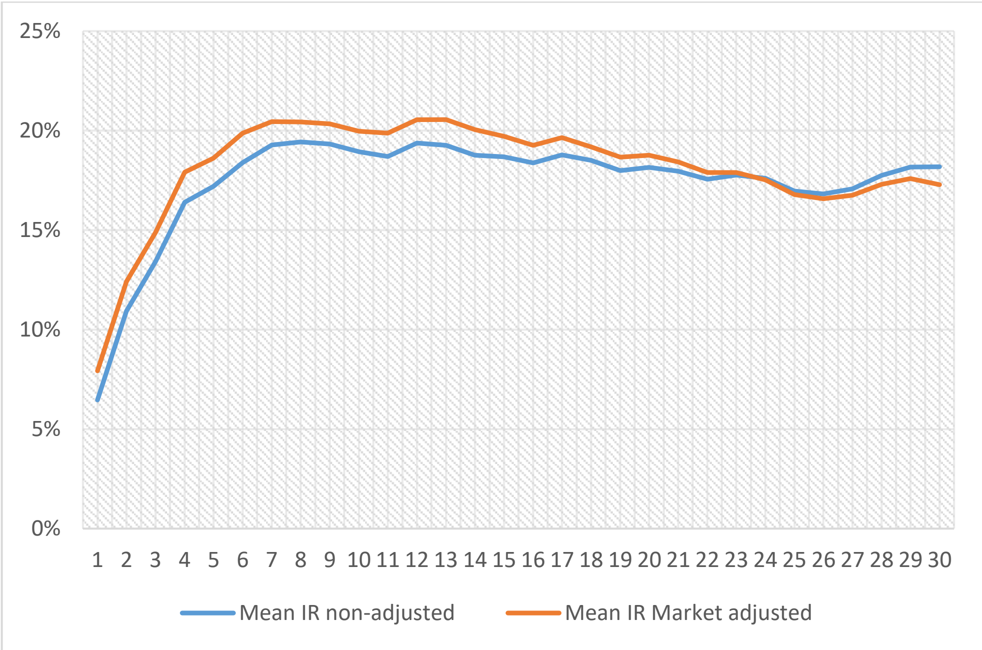
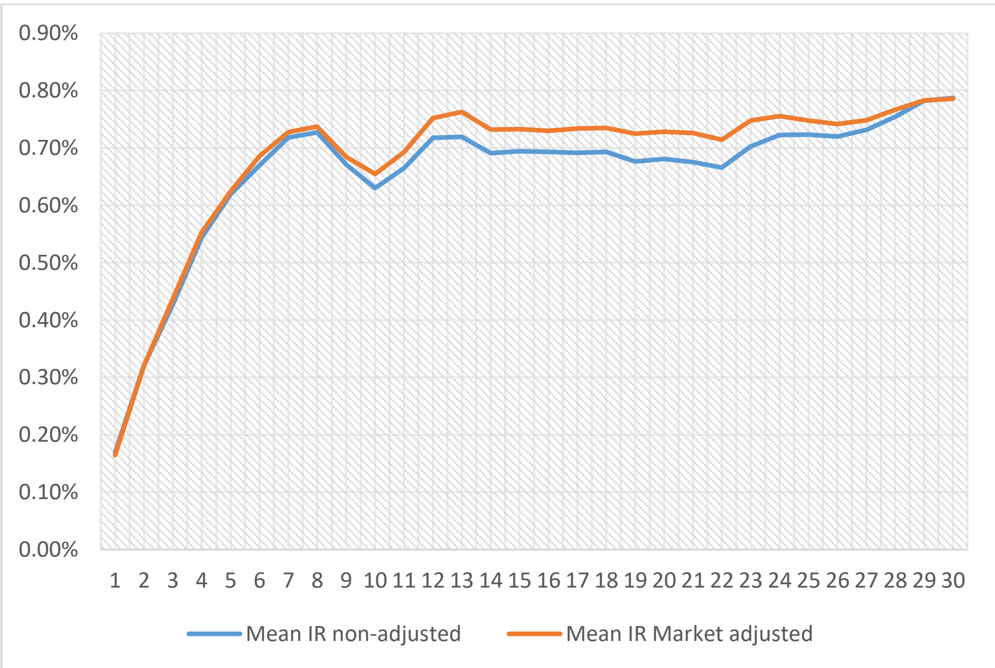
The phenomenon of initial underpricing is shown and appears clearly in Figures 1, 2 below.

Figure N°1 : The initial underpricing from the first to the 30th day following the IPO (Means Equally-weighted)



Source : Authors.

Figure N°2 : The initial underpricing from the first to the 30th day following the IPO (Means Value-weighted)



Source : Authors.

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Table N°3 : The findings of the "Initial underpricing phenomenon" study

		Non adjusted		Market adjusted		*Findings*
		EW	**VW**	**EW**	**VW**	
Initial Returns (IRs)	**1st day**	The least	The least	The least	The least	The initial returns start from a lower value to peak from the first week of quotation and subsequently increased until the first month to peak again. **→"Initial underpricing phenomenon" is deemed proven in our Moroccan sample.**
	7th day	The peak	The highest values	The peak	The highest values	
	21st day	The highest values	The highest values	The highest values	The highest values	
	30th day	The highest values	The peak	The highest values	The peak	

Source : Authors.

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Conclusion

This paper enters into a series of research we conducted to study the financial performance of Moroccan IPOs, through different time horizons, and verify specific hypotheses related to the phenomenon justifying the drop or rise of performance indicators, correlated to the event of initial public offering before opening up the capital to investors, and after it, in a short-term and a medium to long term horizon.

The present study is dedicated to “Short-term performance analysis”, specifying the results retained from the study of the “initial underpricing” phenomenon by calculating the Initial Returns, to detect the existence of abnormal returns, tested statistically to prove or deny the existence of unusual returns following the IPO event. Based on a sample of 35 companies listed on the stock market in Morocco, for the period between 2004 and 2020.

Through our literature review, we noticed that at the level of many stock market places, the new stocks close their first day of trading beyond the fixed IPO price; in this case, the stocks are considered to have been underpriced, which is literally the initial underpricing phenomenon. The authors also tried to examine the relationship between underpricing and various factors, including; the 2008 financial crisis, COVID-19 pandemic, property rights protection and corruption levels, IFRS mandate and institutional governance, economic freedom, market momentum, first-day trading volume, and managers' ownership retention, and characteristics of companies (age, size, industry, etc.).

We, in turn, through our study highlighted the prevalence of underpricing in Moroccan IPOs, by calculating the initial unadjusted and adjusted, equally weighted, and capitalization-weighted returns, in different horizon times: 1^{st}, 7^{th}, 21^{st}, and 30^{th} day of the 35 IPOs of our sample. Rejecting the null hypothesis H_0 of the absence of underpricing immediately after the IPO event on the first day.

To sum up, the initial underpricing phenomenon is deemed proven in our Moroccan sample as it was affirmed in the international studies, however, our work should develop to search for the factors related to this observation and which is especially related to the characteristics of Moroccan companies, and the economic circumstances around the IPO event (pre and post IPO). This opens up other avenues of research in this sense, discussing factors influencing the decision to underprice and its impact on market efficiency.

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