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IPO and Economic Performance of SMEs: The Case of SMEs Listed on the Casablanca Stock Exchange

Introduction en bourse et performances économiques des PME : Cas des PME cotées à la bourse des valeurs de Casablanca

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Abstract

Today, the Moroccan capital market presents significant financing opportunities for SMEs, whether to finance their investment or operating cycle. In addition to the advantages offered by the financial market, the listing on the stock exchange may involve constraints inducing explicit costs and others of an implicit nature that may influence the medium and long-term performance of the company introduced.

This article aims to assess the impact of the IPO on the economic performance of SMEs. To this end, we examined the theoretical foundation of the agency, the signal, and the behavioral model of timing. By studying a sample of eight SMEs introduced on the stock exchange between 2004 and 2016, via an event study, it emerges that the companies in the sample outperformed the year before an IPO and underperformed after listing, except that this underperformance is not statistically significant.

Keywords: Initial public offering (IPO); SME; Performance; Agency theory; Timing**.**

Résumé

Aujourd'hui, le marché des capitaux marocain présente des opportunités de financement importantes pour la PME, que ce soit pour financer son cycle d'investissement ou d'exploitation. Parallèlement aux avantages offerts par le marché financier, la cotation en bourse peut comporter des contraintes induisant des coûts explicites et d'autres de nature implicite pouvant influencer les performances à moyen et long terme de l'entreprise introduite.

L'objectif de cet article et d'apprécier l'effet de l'introduction en bourse sur la performance économique des PME. Nous avons à cet effet interrogé le socle théorique de l'agence, du signal et du modèle comportementale du Timing. En étudiant un échantillon de 8 PME introduites en bourse entre 2004 et 2016, via une étude d'événement, il ressort que les entreprises de l'échantillon surperforment l'année avant la réalisation d'une introduction en bourse et sous-performent après cotation, sauf que cette sous performance n'est pas statistiquement significative.

Mots clés : Introduction en bourse ; PME ; Performance ; Théorie de l'agence ; Timing**.**

Introduction

An IPO is an appropriate means for the development and growth of a company. Its purpose is to ensure a significant inflow of funds, increase the company's notoriety and negotiating power vis-à-vis its partners, facilitate capital mobility, and favour external growth strategies. This being said, the listing on the stock exchange can involve constraints inducing explicit costs and others of an implicit nature, which can influence the medium and long-term performance of the listed company. In this respect, the IPO has been the subject of numerous studies which have generally shown that the stock market returns achieved were abnormally high in the very short term (initial undervaluation) and abnormally low in the medium and long term (medium and long term underperformance). This decline in stock market performance is not dissociated from a deterioration in post-listing economic performance. Research on the economic performance of IPOs has been the subject of several studies applied to the American, Asian and European markets. Most of them show a decline in economic performance in the post-IPO period. On the American market, work carried out by (Jain & Kini, 1994) and by (Mikkelson et al., 1997) highlights a decline in the economic performance of the companies that are introduced into the market during the post-introduction period. This decline is also observed in the Asian market by (Cai & Wei, 1997), (Kim et al., 2004), (Kutsuna et al., 2002) and (Wang, 2005), in the European market by (Pagano et al., 1998), (Sentis, 2001), (Coakley et al., 2004) and (Serve, 2007), as well as on the Moroccan market by (AAMOUM & GBAOUI, 20-21). The observed decline is classically explained by the increase in agency conflicts following the dispersion of capital after the IPO, a market timing effect, and even earning management before the IPO. From an academic point of view, the impact of the IPO on the performance of SMEs remains a very little explored subject, especially in the Moroccan market.

In Morocco, despite the mobilization of financial players, the stock market is struggling to attract companies, which are less and less likely to "take the risk of an IPO". For business leaders, taking a company public remains a high-risk operation, which still puts off SMEs. They perceive going public as a loss of control.

This situation leads us to wonder about the performance of SMEs after their IPO. More precisely, does the IPO of SMEs improve their economic performance?

The central objective of this work is to assess the economic performances of SMEs after their IPO and to draw conclusions. To do so, we examined a sample of eight SMEs listed on the Casablanca Stock Exchange, using a quantitative longitudinal analysis via an event study.

The paper will be structured in three parts: the first one circumscribes the theoretical framework of analysis, the second one presents the methodological framework and the third one highlights the results and discussions.

1. The theoretical framework of analysis

Here we present a literature review on the evolution of post-listing economic performances as well as the main theoretical explanations underlying the evolution of this performance.

1.1. IPO and economic performances: literature review

Several studies have examined the relationship between IPOs and the economic performances of companies. Most of them have highlighted a decline in medium- and long-term performance on the American market as well as on the Asian and European markets. However, the explanations for this phenomenon are more mixed.

The American market, (Jain & Kini, 1994) shows, by studying a sample of 682 companies between 1976 and 1988, that economic performances deteriorate over the three years following the IPO year relative to the pre-listing period. Listed companies belonging to the same sectors of activity form a control sample. The two authors show that the introduced companies outperformed the control sample in the previous year. However, this good performance is not maintained over the three years following the introduction. Indeed, the authors show that economic performances, measured by the economic rate of return, the growth rate of turnover, the current result on total sales, and the net result on total sales, decrease significantly between year -1 and year +3 despite a growth rate of sales and investment expenses higher than those of the control sample. Their results support the agency hypothesis. The authors did not test the market-timing hypothesis or the manipulation of pre-quotation accounting data.

(Mikkelson et al., 1997) were able to show, by examining a sample of 283 US IPOs over the period 1980-1983, that return on assets, measured by net income over total assets, fell sharply from one year before the IPO to one year after. The study focuses primarily on the link between economic performance and ownership structure. Unlike the study by (Jain & Kini, 1994), it is the rate of disengagement of management shareholders and not the share held after

the IPO that is used as an explanatory variable. The time horizon is broader: up to 10 years after the introduction. The results concerning the evolution of economic performances are similar to those of (Jain & Kini, 1994). The authors conclude that there is a timing effect of the IPO.

(Shelor & Anderson, 1998) analysed the economic performance of a sample of REITs (Real Estate Investment Trusts) [1] when they went public. The authors affirm that economic performance has rather improved, contrary to what has been commonly admitted. The two indicators used are income before extraordinary items/total assets and net income to total sales.

(Purnanandam & Swaminathan, 2004) have also studied post-listing economic performances. They were able to show that companies that were overvalued at the time of the IPO had a higher rate of sales growth but generated lower profits than companies that were initially undervalued by the market, over the five years of the stock market. This result shows that the growth opportunities foreseen at the IPO date for some companies are not realized in the post-listing phase.

On the Japanese market, (Cai & Wei, 1997) studied the performance of 180 IPOs on the Tokyo Stock Exchange (JASDAQ) [2] over the period 1991-1992 and found a significant deterioration in economic performances after adjusting for the sector of activity. The authors note that the rate of management shareholder exit at IPO is low (retention rate of 60% on average). The authors invalidate the agency hypothesis and conclude that there is a timing effect of IPOs.

By studying 247 companies listed between 1995 and 1996 on the JASDAQ, (Kutsuna et al., 2002) offer results similar to those of (Cai & Wei, 1997) and (Jain & Kini, 1994). The authors argue that management retention rate and the presence of venture capital firms after introduction significantly influence the growth rate of sales and current earnings. Age and size also play an important role according to the same authors.

(Smith & Chun, 2003) studied the performance of a sample of 325 Korean companies that went public between 1986 and 1995. The authors' results show that performance, as measured by return on assets (ROA), declined for the overall sample from -2.6% in the first year of listing to -4.2% in the fifth year. The reasons cited by the authors are increased agency costs,

[1] Listed real estate investment companies
[2] JASDAQ: Abbreviation of Japan Association Of Securities Dealers Automated Quotation.

accounting manipulations prior to listing and the timing of the listing coinciding with a peak in economic performances.

The work of (Kim et al., 2004) attempts to shed light on the divergent results observed in the above-mentioned studies: the link between economic performances and the retention rate of management shareholders is modelled by a non-linear (cubic) relationship. The market studied is the Thai IPO market represented by 133 IPOs over the period 1987-1993. The specificity of this market is a very concentrated shareholding, typical of emerging Asian countries (important weight of families and banks in the shareholding). The economic performance declines after the IPO without the level of sales or capital expenditures being able to explain it. In contrast, the cubic non-linear model is found to explain the variation in performance: for low and high retention rates (below 31% and above 71%), the decline in operating income is smaller the higher the retention rate. For intermediate rates (between 31% and 71%), the decline in economic output increases with the retention rate. Size and age also have a positive influence on performance variation.

(Wang, 2005) analysed a sample of 747 Chinese companies that went public between 1994 and 1999. The author reports a decline in performance as measured by return on assets (ROA), current income to total assets, and total sales to total assets. The median value of ROA falls from 9.3% (three years before listing) to 6.4% (three years after listing). In studying the role of ownership structure in the evolution of post-listing economic performances, (Wang, 2005) finds no relationship between the percentage of capital held by managers and the state and post-listing performance. This result is valid for the concentration of capital in the hands of majority shareholders, which has no influence on economic performance. However, according to the author, there is a curvilinear relationship between capital concentration (other than that of the state) and the change in post-listing performance.

In the Italian market, (Pagano et al., 1998) analysed the consequences of the IPO following the study of the determinants of the decision to list. Measured by the return on assets (earnings before interest, taxes, depreciation, and provisions/total assets), economic performance declines after the IPO (from 1.5% in the first year to 3% in the third year). The two authors have also shown that the IPO has a negative impact on investment, which decreases significantly, once the company is listed (by about 7% during the two years following the year of the IPO).

On the French market, (Sentis, 2001) studied the economic performances of 61 companies listed on the first and second French markets over the period 1991-1995. The author matched listed companies with a sample of unlisted companies on a double criterion: sector of activity and size (in terms of market capitalization). The author showed that listed companies experience a decline in economic profitability that is reduced over time (from 4.8% to 0.14%). To explain this decline in economic performance, the author tests the link between economic performance and the fraction of capital introduced into the market: no significant difference between the two groups of companies is found.

(Serve, 2007) studied the evolution of the economic performances of 115 French companies listed on the new market over the period 1996-2000. The author's results highlight a significant decline in economic profitability (gross operating surplus as a proportion of total assets) over the post-listing period, which extends to three years after the listing date. This decline is between -6.7% over the period (n-1, n) and -10.71% over (n-1, n+3). To explain this decline, the author decomposed, as in (Sentis, 2001), economic profitability into an economic margin rate (gross operating surplus in relation to turnover) and an asset turnover rate (turnover in relation to total assets). She confirmed, contrary to (Sentis, 2001), that the deterioration of economic profitability is due to the combination of the decline in the economic margin rate and the asset turnover rate. (Sentis, 2001) rather explains the decline in economic performances by the deterioration in the rate of asset turnover, while listed companies had a higher economic margin rate than unlisted companies.

Their study of the evolution of the economic and stock market performance of a sample of 379 IPOs in France between 1990 and 2003 on the second and new markets, (Mansali & Labégorre, 2010) show that the economic performance of French companies improves before the IPO and then deteriorates in the five years following the IPO. The authors explain this deterioration by the behavioural model of *timing*.

In the Moroccan context, (AAMOUM & GBAOUI, 2021) were interested in the economic performances of companies listed on the Casablanca Stock Exchange over the period 2004 - 2013. Their study, conducted over a time horizon of one year before listing and three years after, showed that the economic performances of companies listed on the stock market have a downward trend.

1.2. IPO and economic performances: theoretical explanations

The observed evolution of post-listing economic performances finds three explanations in the literature. First, it is attributable to agency conflicts: the possible disengagement of management shareholders and the dilution of capital at the time of the IPO would encourage them to undertake projects contrary to the interests of other shareholders. Secondly, it could be explained by the timing of the IPO: managers would choose to list the company at a time when economic performance is abnormally high. Finally, managers may be inclined to overestimate earnings before the IPO. The empirical results of the above-mentioned studies diverge as to the explanation for this decline.

1.2.1. Agency relations

The dominant explanation for the decline in economic performances after the IPO is that proposed by the theory of agency cost initiated by (Berle & Means, 1932) and then (Jensen & Meckling, 1976).

The IPO is considered an appropriate context for the study of agency relations since it profoundly changes the ownership and financing structure of companies. With the change in the percentage of capital held by the owner-manager, because of share issues, agency conflicts arise.

Indeed, prior to the initial public offering, the ownership structure of the company is characterized by a very high concentration of ownership in the hands of the original owner or shareholders. After the listing, two situations are often possible.

In the first situation, the original shareholders prefer to keep control of the company and choose to liquidate a small part of the capital in return. In the second situation, the original shareholders no longer wish to retain control of their company and choose to divest themselves partially or completely from it. To do so, the original shareholders can liquidate their holdings gradually. This results in a widely dispersed ownership structure. Similarly, the original shareholders may divest by transferring ownership to another investor, by taking control, or by selling a block of shares.

In the literature, three main conceptions of the link between performance and ownership structure seem to clash the "convergence of interests" thesis, the "entrenchment" thesis, and the "neutrality" thesis.

The pioneering study of the linear relationship between managerial ownership and company performance is that of (Jensen & Meckling, 1976). According to the convergence of interests thesis, initially supported by (Berle & Means, 1932) and notably taken up by (Jensen & Meckling, 1976), the greater the percentage of capital held by managers, the smaller the deviation from the traditional objective of maximizing value. The value of the company increases with the proportion of control held by managers. Thus, the greater the percentage of capital held by managers, the smaller the deviation from the traditional value maximization objective. This is because managers identify their interests with those of shareholders and are less inclined to use free cash flow for unproductive expenditures. According to this thesis, managerial ownership is an excellent incentive to manage the company in accordance with the shareholders' interest. These authors believe that managerial ownership can reduce the tendency of managers to take advantage of their position, expropriate shareholder wealth, reduce the consumption of private profits, and engage in decisions that do not maximize company value.

The "convergence of interests" hypothesis has been criticized by (Fama & Jensen, 1983) who argue that managerial ownership can negatively influence the agency relationship (managers and shareholders). For these authors, managerial ownership is a source of significant agency costs. They argue that instead of reducing the problems of managerial opportunism, managerial ownership entrenches the current management team and only accentuates them. By having a high share of capital, the manager can benefit from the power of neutralizing control mechanisms. This lack of control can lead to a decrease in the performance of the company.

The entrenchment thesis, on the other hand, argues that managers who own a solid majority of the capital escape control and thus can manage in a way that is contrary to value maximization. The seminal study of non-linear modelling of the relationship between managerial ownership and company performance is that of (Morck et al., 1988). This study confirms, in general, that a low percentage of managerial ownership ensures the alignment of managerial interests with those of shareholders while a high percentage of ownership leads to managerial entrenchment. The entrenchment theory assumes that actors develop strategies to maintain their place in the organization and to oust potential competitors. By doing so, they make their replacement costly to the organization to which they belong, thereby increasing their power and discretionary space. The theory applies to all actors in organizations. Leaders are particular agents who can use the resources of the company to become entrenched and

thus increase their power and the various benefits they receive (freedom of action, job security, remuneration, benefits in kind, etc.). The entrenchment theory emphasizes the relationship between managers and controllers and the means available to the former to paralyze the control systems by increasing the dependence of the various partners on them. This entrenchment strategy is effective because controllers can detect the opportunistic behaviour of managers but cannot stop it.

In the neutrality thesis, (Demsetz, 1983) believes that the ownership structure has no influence on the company's performance, or more precisely, that all ownership structures are equivalent. For the author, company performance is essentially constrained by the environment and the operating conditions of the company. This hypothesis is very pessimistic about the means available to shareholders to constrain managers' performance. In contrast to all previous studies that consider managerial ownership as an exogenous variable, Demsetz and Lehn (1985) show that there is no significant relationship between accounting performance and ownership concentration. They also argue that the costs associated with managerial control depend on the stability of the environment. The more stable the environment, the less costly it would be to evaluate managerial decisions. Furthermore, the results of their analysis imply that ownership structure does not have a significant effect on company value. This study asserts that managerial ownership is endogenously determined in an equilibrium setting and varies with the volatility of the company's market value. The two authors add that managers with a large share of their company's capital find it difficult to diversify the risk of their portfolios. As a result, they tend to hold less stock in high-risk companies.

1.2.2. The hypothesis of timing and evolution of economic performances

The timing hypothesis has been proposed as an explanation for the deterioration in the medium and long-term stock market performance of companies issuing shares. (Loughran & Ritter, 1995) show that managers choose to issue shares after a price increase: because of information asymmetry, investors cannot assess the true value of the company at the time of issue. According to the "market timing" hypothesis, managers time the IPO to coincide with a period when economic performance is abnormally high and will not be sustained in the future. (Loughran & Ritter, 1997) show that certain issuing companies mislead investors. (Degeorge

& Zeckhauser, 1993) make the same observation for companies undergoing a reverse LBO[3]. This explanation can be applied to the context of the IPO: the managers would make the IPO coincide with a peak in economic performance.

According to (Benninga et al., 2005), IPOs coincide with periods when investors overestimate the future cash flows of companies going public.

Thus, in the American market, (Mikkelson et al., 1997) point out that companies with good economic performance are more inclined to invest. As a result, the induced increase in assets leads to a deterioration in economic profitability in the year following the introduction: this is the return on investment bias.

According to (Pagano et al., 1998), companies with strong growth prospects experience a decline in economic performance and capital expenditures after the IPO. Indeed, managers would use the IPO to clean up their financial structure. According to the same authors, the IPO would therefore be planned after a strong period of growth in order to rebalance their balance sheet.

According to (Sentis, 2005), the explanation linked to the phenomenon of timing underlies an opportunistic act by the original shareholders: aware of the high valuation of the company by the market, they would take advantage of this temporary situation to take it public.

1.2.3. The hypothesis of earnings management before IPO

The timing effect of the IPO may go hand in hand with pre-listing earnings management. (Teoh et al., 1998) and (Rangan, 1998) have proposed the hypothesis of manipulation of accounting results in the year preceding the IPO to explain post-listing underperformance. According to the same authors, managers tend to improve results to give a better image of the company before a share issue. This improvement would be due to accounting adjustments made to discretionary accruals: it may thus lead to an overestimation of economic performance before the IPO.

(Jain & Kini, 1994) and (Loughran & Ritter, 1995) argue that issuing companies engage in aggressive earnings management to induce investors to be overly optimistic about the issuing company's prospects.

[3] A Reverse Leveraged Buy-Out (RLBO) is a company listed on the stock exchange following an LBO operation. A Leveraged Buy-Out (LBO) consists in buying a company by calling upon specialized organizations, which finance this takeover by debt. It is called a reverse LBO because the LBO very often involves delisting when it targets a listed company. The sample of Degeorge and Zeckhauser (1993) is composed of companies that return to the stock market after having left it.

(Teoh et al., 1998) state that if investors are guided by earnings but ignore the fact that earnings can be manipulated by the issuing company's managers, they may pay too high a price. As the true value of the company is disclosed, stock prices are revised downward. All else being equal, the greater the manipulation of accounting results, the greater the price correction.

This scenario suggests that issuing companies that manipulate their earnings prior to issuance underperform in the medium to long run. However, this explanation is only valid if the market cannot correctly anticipate management behaviour. If the issuing companies show a peak in performance just before going public, one may suspect that the manipulation of accounting data is behind the decline in post-listing economic performance.

2. Methodological approach

In order to provide some answers to our questions, we used a quantitative longitudinal analysis via an event study. The basic idea of this method is to compare observed profitability with an estimated (or expected) profitability, i.e. the one that should have been observed in the absence of the event considered.

This section presents the methodological choices for the analysis of the economic performance of SMEs listed on the stock market. In the following, we present the sample selection process, the data sources, the performance measures that will be used, the determination of the expected economic performance of the company, and the selection of the statistical test to determine whether the performance is significantly abnormal or not.

2.1. Sample and data

In order to identify the SMEs listed on the Casablanca Stock Exchange, we referred to the three criteria put forward by the SME charter[4]. The first one is related to the management or administration of the company, which must be ensured directly by natural persons (owners or shareholders). The second criterion is related to the ownership of the capital or voting rights, which cannot be held at more than 25% by a company or a group of companies that do not correspond to the definition of SME. The third criterion is size, with a distinction between existing companies (more than two years old) and those that are newly created:

[4] LAW N° 53-00 FORMING THE CHARTER OF THE SMALL AND MEDIUM-SIZED ENTERPRISE, Dahir n° 1-02-188 of 12 joumada I 1423 (23 July 2002).

- Existing companies: to qualify as SMEs, they must have a workforce of less than 200 permanent employees, an annual gross profit that does not exceed 75 million DH, and/or a total balance sheet limited to 50 million DH ;
- Newly created companies: the law stipulates that they must have an initial investment program of less than or equal to 25 million DH and comply with an investment per job ratio of less than 250,000 DH.

However, the new definition of the SME elaborated by the ANPME[5] takes into account only the criterion of the turnover and ignores the number of employees of the company. According to this definition, three types of companies are distinguished:

- The very small business: less than 3 million DH;
- The small business: between 3 and 10 million DH;
- The medium-sized business: between 10 and 175 million DH.

For the sake of operationality and in order to have a correct estimate of the proportion of listed companies that can be qualified as SMEs, we have limited ourselves to the criterion put forward by the ANPME, which is based solely on turnover.

We chose the period 2004-2016 for two main reasons:

- The aforementioned period witnessed the main waves of IPOs prompted by a set of regulatory incentives to list on the stock market;
- We opted for a time horizon ranging from three years before listing to five years after.

In order to select the SMEs in our sample, we proceeded to eliminate enterprises for which a certain number of missing data prevented the analysis from being carried out. This procedure allowed us to define nine listed SMEs.

After excluding one company[6] for which economic data are partially unavailable, the final sample includes eight SMEs listed on the stock exchange.

The data on SMEs listed on the Casablanca Stock Exchange comes mainly from the database and the reports published by the exchange. Missing data were completed by consulting the official website of the listed companies and the website of the Moroccan Capital Market Authority. This site is in principle dedicated to all information related to listed companies as well as to post-IPO operations, such as capital increases, takeover bids, public exchange

[5] "Agence Nationale pour la Promotion de la Petite et Moyenne Entreprise", or The National Agency for the Promotion of Small and Medium-sized Enterprises, which has now become MarocPME.
[6] The company INVOLYS.

offers, etc. We used various media and publications to construct our sample and to collect the maximum amount of information necessary for the study. Information memoranda, annual financial statements and stock market data were our main sources of data.

2.2. Measures of economic performance

(Barber & Lyon, 1996) recommend the use of an economic performance measure that is based on the potential cash flow generated by the operation, which is the GOS (Gross Operating Surplus)[7].

GOS represents a quasi-operating cash flow compared to operating income and does not include accruals: the choice of such an indicator prevents the measurement of economic performance from being biased by any management of results before the IPO. Thus, it has two advantages: on the one hand, it allows a comparison over time of a company's profitability while avoiding the effects of distortions linked to depreciation and provisions. On the other hand, it is calculated based on a result before financial interests allowing the comparison of several companies with different financial structures. In the same vein, (Barber & Lyon, 1996) and (Yan & Cai, 2003) point out that operating income (GOS) is a better reflection of a company's profitability than net income since the former is calculated before extraordinary items and is free of the effects of changes in capital. This is an advantage in studies of events such as IPO.

In order to make economic returns comparable over time and space, the GOS of each company in a period t is related to the total assets (TA) that generated it in the same period t. Thus, the measure of economic performance used is the ratio of GOS to total assets, which reflects the efficiency with which the company's assets are used.

The use of the GOS to total assets ratio suffers from an inherent limitation of non-operating assets (non-operating assets drawback). Total assets that include non-operating assets will underestimate economic profitability. In this sense, (Barber & Lyon, 1996) propose the deduction of cash and realizable values from the book value of their assets.

However, in the case of cash-flow events (especially securities issues), the funds received by the companies in the sample may be allocated to investment projects shortly after the event, leading to an increase in existing operating assets, but without immediately generating income

[7] GOS is close to the EBITDA (Earnings before interest, taxes, depreciation and amortization) used in previous studies and recommended by Barber and Lyon (1996) in the context of an IPO. Unlike EBITDA, GOS includes taxes.

flows. As stated by (Mikkelson et al., 1997), the fact that the IPO significantly increases the company's assets can lead to a downward bias in the calculation of the GOS to total assets ratio. This will result in an underestimation of the short-term economic profitability of the companies in the sample following the event. To compensate for this bias (Barber & Lyon, 1996) suggest correcting it, due to the existence of a possible delay in the response of the investments undertaken (return on investment bias), either by observing the evolution of the performance of the companies in the sample over a relatively long period (several years) or by using a measure of performance that is not affected by the increase in assets, such as commercial profitability (gross operating surplus/gross profit).

Thus, following the example of (Serve, 2007) we have decomposed the economic profitability ratio GOS/ TA (gross operating surplus / total assets):

- In a margin ratio: GOS / gross profit;
- In an asset turnover ratio: Gross profit / TA (total assets).

The evolution of economic profitability can be explained by a combination of the evolution of the margin rate and the asset turnover rate. Thus, a decline in this rate can be attributable to a decline in the turnover rate (gross profit/total assets): the IPO modifies the structure of the balance sheet and is supposed to be accompanied by investments that inflate the total assets without any immediate impact on sales (return on investment bias). This decline can also be due to a decrease in the margin rate (GOS growth does not follow the growth in gross profit). For this reason, following the example of Mikkelson, Partch and Shah (1997), we used a second measure of performance defined by GOS in relation to total sales (economic margin rate).

2.3. Expected economic performance

The evaluation of the expected economic performance is essential since economic performance is said to be abnormal when the difference between the performance achieved and that expected is significant. The abnormal economic performance (i.e., the economic performance related to the event) is therefore expressed as follows:

$$AP_{it} = P_{it} - E(P_{it})$$

Or:

- AP_{it} Measures the abnormal performance of company *i* in year *t*
- P_{it} Measures the performance achieved by company *i* in year *t*

- $E(P_{it})$ Measures the expected performance by company *i* in year *t*

Several standards are usually used in the literature to understand expected economic performance. Barber and Lyon (1996) propose nine models that can be grouped into two categories. In the first category, expected performance corresponds to the performance of the controlling company[8]. The second category of models considers that expected performance corresponds to the past performance of the company under study.

For our study, given the difficulty of selecting a sample of unlisted controlling companies and accessing the necessary data, we limited ourselves to the last model (ninth model) to measure expected performance. The ninth model does not require the use of any controlling company and assumes that the expected performance of a company in a year is simply its past performance of the company under study:

$$E(P_{it}) = P_{i,t-1}$$

Once the expected performance has been measured, it is important to subtract it from the actual performance of the company under study to determine whether the latter is abnormal.

Finally, in order to test the hypothesis that the abnormal performance is zero[9], a statistical test must be chosen.

2.4. Choice of the statistical test of significance

To test the significance of abnormal economic performance, we used statistical tests of significance, which are generally powerful tools for testing research hypotheses.

Barber and Lyon (1996) consider both parametric tests, such as Student's test and non-parametric tests, such as the Wilcoxon test. They show that the Wilcoxon test is the most powerful and recommend its use.

The Wilcoxon test allows us to test whether two samples can be derived from the same law:

The null hypothesis and the alternative hypothesis to be approved are:

- H_0 (Null hypothesis): The difference in the position of the samples is not significantly different from 0;

[8] The controlling company is a company that is similar to the study company, but that did not perform an event. The three most common criteria for matching study companies to controlling companies are industry, size and performance.

[9] The statistical hypothesis is traditionally presented in two forms: a first hypothesis called the "null hypothesis" H_0 and a second hypothesis called the "alternative hypothesis" H_1. The null hypothesis refers to the absence of difference between the parameters. The alternative hypothesis is the one that the researcher wishes to establish.

- H_1 (Alternative hypothesis): The difference in the position of the samples is significantly different from 0.

In event studies, the assumption of normality of the distribution of abnormal returns is seriously challenged by the relative importance of extreme values (outliers).In order to overcome the assumption of normality in the testing of the null hypothesis H_0, researchers resort to the use of the Wilcoxon test. Thus, in small samples (such as the case of our study) where the conditions of parametric tests are not respected, we use the Wilcoxon signed rank test.

It is calculated as follows:

$$Z_{Wilcoxon} = \frac{\sum_{i=1}^{N} K_i - \frac{1}{4}N(N+1)}{S} \sim N(0,1)$$

Or:

$$S = \sqrt{\frac{N(N+1)(2N+1)}{24}}$$

And

$$K_i = \begin{cases} 0 \; if \; AP_i \leq 0 \\ rank \; (AP_i) \; otherwise \end{cases}$$

Table 1: Event Study Data Sheet

Economic performance	Performance measures	- Economic profitability: GOS/ (Total assets). - Asset turnover: Gross profit/ (Total assets). - Economic margin: GOS/Gross profit.
	Comparison standards (models)	- Past performance ($P_{i,t-1}$).
	Statistical tests	- Wilcoxon test.

Source : Author

3. Results

The aim here is to assess the evolution of the economic performance of SMEs listed on the stock market and to analyse their abnormal performance.

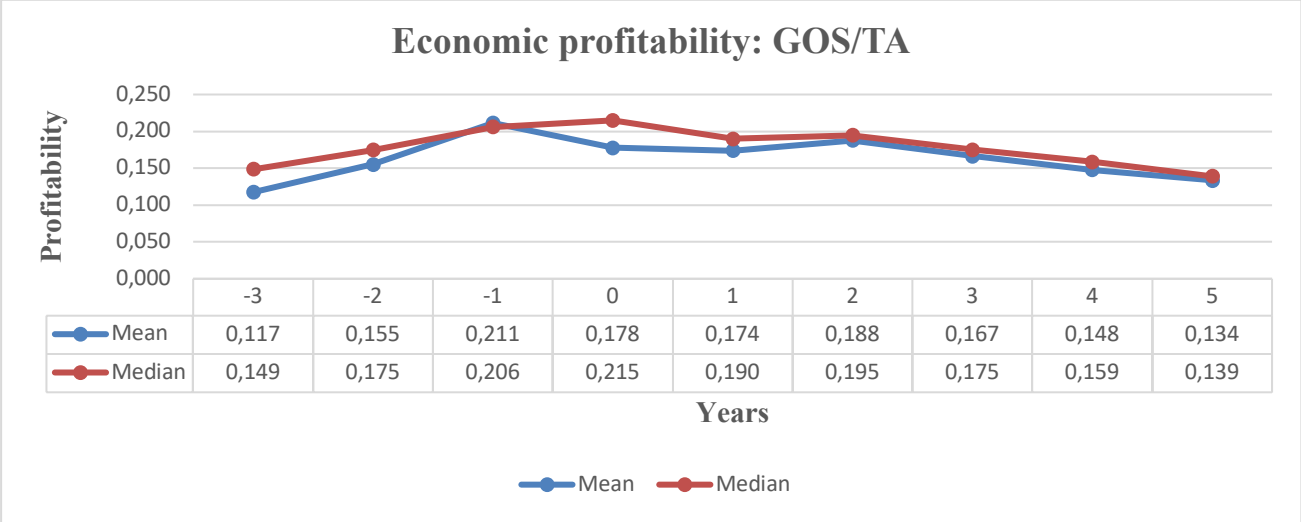
3.1. The evolution of economic performance

The results relating to the economic performance of SMEs that have gone public seem relatively consistent with those observed in the literature. The tables below show that SMEs tend to go public when their performance is high (year -1). We thus have nine years to observe the level of performance studied where 0 is the year of the IPO. On the other hand,

the results presented show that the economic performances are lower than those posted before the operation.

The examination of the evolution of the economic performances shows that the average economic profitability (median), measured by the ratio (GOS/Total assets), is 0.117 (0.149) at time -3, 0.155 (0.175) at time -2 and 0.211 (0.206) at time -1 Following the stock market quotation, it decreases to 0.167 (0.175) at time -3 and 0.134 (0.139) at time -5. We thus see that it peaks in the year before listing and declines thereafter.

Figure 1: The evolution of economic profitability

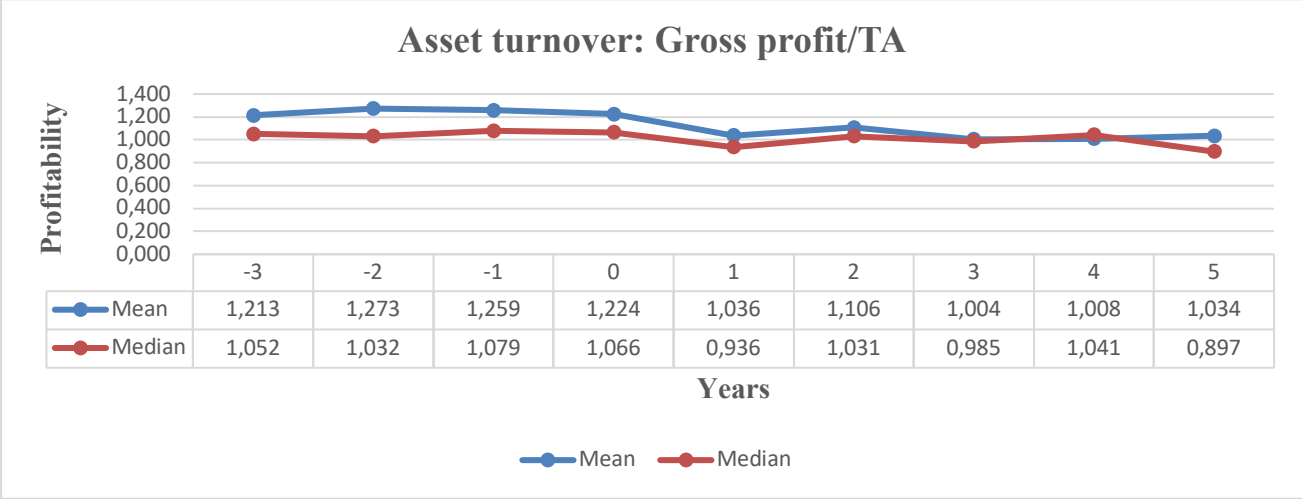


	-3	-2	-1	0	1	2	3	4	5
Mean	0,117	0,155	0,211	0,178	0,174	0,188	0,167	0,148	0,134
Median	0,149	0,175	0,206	0,215	0,190	0,195	0,175	0,159	0,139

Source: Author

The same trends can be observed when we look at the evolution of the asset turnover rate (Gross profit/TA). It is, on average (median), 1.213 (1.052) at time -3, 1.273 (1.032) at time -2, and 1.259 (1.079) at time -1. This trend changes particularly after listing to 1.004 (0.985) at time -3 and 1.034 (0.897) at time -5.

Figure 2: The evolution of asset turnover

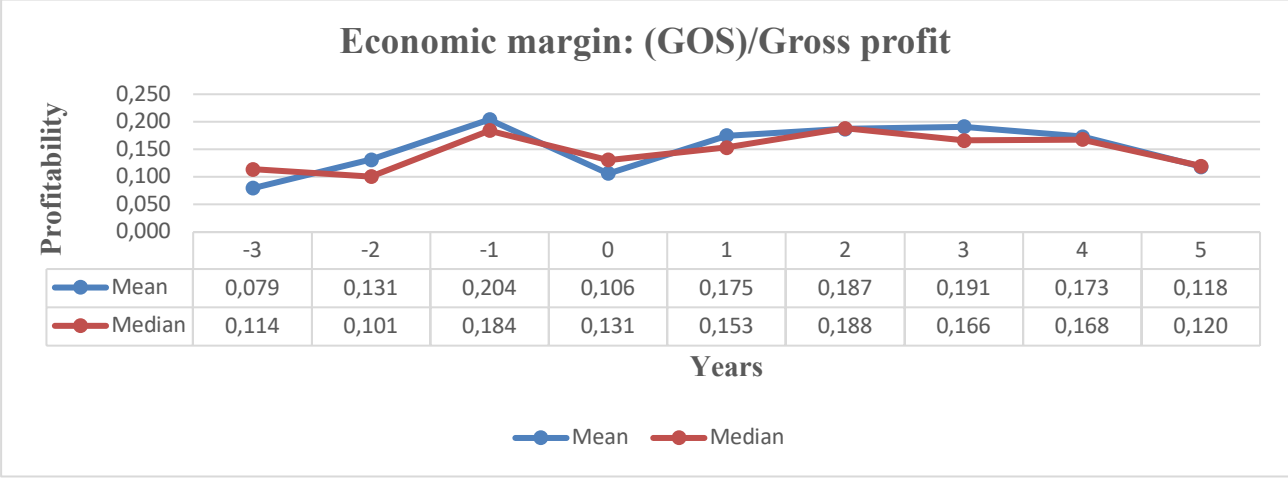


	-3	-2	-1	0	1	2	3	4	5
Mean	1,213	1,273	1,259	1,224	1,036	1,106	1,004	1,008	1,034
Median	1,052	1,032	1,079	1,066	0,936	1,031	0,985	1,041	0,897

Source: Author

The analysis of the average economic margin (median) measured by (GOS/Gross profit) allows us to highlight the favourable evolution of the performances before the quotation. They are 0.079 (0.114) at time -3, 0.131 (0.101) at time -2 and 0.204 (0.184) at time -1. The decline in performance is pronounced after the quotation where the economic margin falls from 0.204 (0.184) at time -1 to 0.118 (0.120) five years after the quotation.

Figure 3: The evolution of the economic margin



	-3	-2	-1	0	1	2	3	4	5
Mean	0,079	0,131	0,204	0,106	0,175	0,187	0,191	0,173	0,118
Median	0,114	0,101	0,184	0,131	0,153	0,188	0,166	0,168	0,120

Source: Author

Based on the results obtained, we find that the economic performance of SMEs that have completed an IPO is at its peak in the year before the IPO and declines relatively in the post-listing period until the fifth year of listing.

Table 2: Economic performance of SMEs listed on the stock exchange

Economic profitability: $\frac{GOS}{TA}$									
Years	-3	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8	8
Mean	0,117	0,155	0,211	0,178	0,174	0,188	0,167	0,148	0,134
Median	0,149	0,175	0,206	0,215	0,190	0,195	0,175	0,159	0,139
Asset turnover: $\frac{\text{Gross profit}}{TA}$									
Years	-3	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8	8
Mean	1,213	1,273	1,259	1,224	1,036	1,106	1,004	1,008	1,034
Median	1,052	1,032	1,079	1,066	0,936	1,031	0,985	1,041	0,897
Economic margin : $\frac{GOS}{\text{Gross profit}}$									
Years	-3	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8	8
Mean	0,079	0,131	0,204	0,106	0,175	0,187	0,191	0,173	0,118
Median	0,114	0,101	0,184	0,131	0,153	0,188	0,166	0,168	0,120

Source : Author

3.2. Analysis of abnormal economic performance

In order to judge the normality of the economic performance of SMEs that have completed an IPO, we compared the economic performance of the companies to past performance. Any significant difference observed between the two performances can logically be attributed to the event. The results obtained from the comparison between the actual performance of the company and the one it should have obtained are presented in the table below.

The abnormal economic performance calculated using the economic profitability shows that the IPO SMEs outperformed before the transaction. Indeed, the median analysis reveals that the actual performance of the companies is significantly higher than the expected one. More precisely, the abnormal performance is in the average value (median) of 0.056 (0.031) the year before listing. This increase is statistically significant at the 5% level using the Wilcoxon rank test. The calculated abnormal performance begins to decline to a mean (median) value of -0.033 (0.009) in the year of rating and -0.021 (-0.020) at time 3. In the 5th year of rating, the abnormal performance continues to deteriorate without being significant.

With respect to the abnormal economic performance, using the asset turnover rate as a measure, we find that the performance of the SMEs listed on the stock market deteriorates

significantly in the first year after listing to reach a mean (median) value of -0.189 (-0.130) (the decline is significant at the 10% threshold using the Wilcoxon rank test). Abnormal performance increased slightly in the second year of scoring and continued to decline from the third year onwards without being significant.

Finally, the results of the examination of the economic margin confirm those of the economic profitability and show that the abnormal performance is significantly positive the year before the quotation. It deteriorates statistically significantly at the 5% threshold in the year of listing, and then improves in the first and second years of listing, before declining until the fifth year of listing.

Table 3: Abnormal economic performance of introduced SMEs

Economic profitability: $\frac{GOS}{TA}$								
Years	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8
Mean abnormal performance (N-N-1)	0,038	0,056	-0,033	-0,004	0,014	-0,021	-0,019	-0,014
Median abnormal performance (N-N-1)	0,026	0,031**	0,009	-0,025	0,005	-0,020	-0,017	-0,020
Wilcoxon signed-rank test	-0,420	-2,521	-1,540	0,000	-1,400	-1,260	-0,840	-0,420
Asset turnover: $\frac{\text{Gross profit}}{TA}$								
Years	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8
Mean abnormal performance (N-N-1)	0,060	-0,013	-0,035	-0,189	0,070	-0,102	0,004	0,026
Median abnormal performance (N-N-1)	-0,019	0,046	-0,013	-0,130*	0,095	-0,046	0,056	-0,145
Wilcoxon signed-rank test	-1,400	-0,700	0,000	-1,680	-0,840	-1,120	-0,560	-0,140
Economic margin : $\frac{GOS}{\text{Gross profit}}$								
Years	-2	-1	0	1	2	3	4	5
Number of observations	8	8	8	8	8	8	8	8
Mean abnormal performance (N-N-1)	0,052	0,073	-0,098	0,068	0,012	0,004	-0,018	-0,055
Median abnormal performance (N-N-1)	-0,013	0,083**	-0,053**	0,022	0,035	-0,023	0,002	-0,048
Wilcoxon signed-rank test	-0,420	-2,380	-1,960	-1,400	-0,980	-0,280	0,000	-0,700

Source: Author

*** Significant at the 1% level; ** significant at the 5% level; * significant at the 10% level

Conclusion

The aim of this study was to assess the impact of stock market listing on the economic performance of SMEs listed on the Casablanca Stock Exchange. The economic performance was apprehended through ratios of economic profitability.

From an event study, we were able to evaluate the abnormal economic performance of SMEs following an IPO. Such analysis allowed us to identify two findings:

- The first finding is that economic performance, as measured by the economic rate of return and economic margin rate, outperforms the year before introduction. In addition, this seems to corroborate previous studies, such as (Jain & Kini, 1994; Mikkelson et al., 1997; Cai & Wei, 1997; Kim et al., 2004; Wang, 2005; Serve, 2007).
- It then emerges that these performances experience a non-significant decline from the first year to the 5th year, with slight increases in the 2nd and 3rd years of rating.

Overall, the study shows that the economic performance of SMEs deteriorates after their IPO, except that this deterioration is not statistically significant.

Despite the above-mentioned contributions, our research has some limitations such as:

- Reduced sample size: The main limitation of this research and the most virulent criticism that we are the first to formulate with respect to our research methodology concerns the size of our sample, which raises the question of «generalizability» of the results obtained. In fact, according to the definition criteria we have defined a population of nine listed SMEs. However, we have excluded one company whose economic data are partially or completely unavailable. A sample of eight listed SMEs may be considered, rightly or wrongly, too small.
- Not using an econometric model with panel data: In fact, panel data (or longitudinal data) are representative of a double dimension: individual and temporal, they mix the two dimensions: time series and slice data.

From the results obtained in the framework of this study, it would be interesting for us to extend the analysis by carrying out another research work on the explanatory factors of the evolution of the economic performances noted. Moreover, we can open the way to other research questions that could concern theoretical or empirical work, among these questions we can cite in particular:

- The reasons and determinants assumed to influence the IPO decision of an SME;
- Medium and long-term stock market performance of SMEs.

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