

LONG RUN PERFORMANCE OF IPO'S ON THE JSE: TAKING IT TO 10 YEARS

Luciano Agostinetto

557275

M.Com in Finance

In the

SCHOOL OF ECONOMIC AND BUSINESS SCIENCES

At the

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Supervisor: MR J. BRITTEN

Signature



Date

15/08/18

Date of submission:

15 August 2018

**SCHOOL OF ECONOMIC AND
BUSINESS SCIENCES**

Declaration Regarding Plagiarism

I (full names & surname):	Luciano Dino Agostinetto
Student number:	557275

Declare the following:

1. I understand what plagiarism entails and am aware of the University's policy in this regard.
2. I declare that this assignment is my own, original work. Where someone else's work was used (whether from a printed source, the Internet or any other source) due acknowledgement was given and reference was made according to departmental requirements.
3. I did not copy and paste any information directly from an electronic source (e.g., a web page, electronic journal article or CD ROM) into this document.
4. I did not make use of another student's previous work and submitted it as my own.
5. I did not allow and will not allow anyone to copy my work with the intention of presenting it as his/her own work.



Signature

15/08/18

Date

ABSTRACT

This paper investigates the long run performance of 270 South African IPOs during the period 1996 to 2016. Significant under-pricing in the short term and underperformance in the long term is found for equally-weighted event time CARs and buy-and-hold returns using two market benchmarks. This study took the long-term period past five years all the way to ten years to investigate if long-run underperformance persists in South African IPOs. It is found that underperformance persists in IPOs that list on the JSE and this underperformance can be explained by the window of opportunity hypothesis.

ACKNOWLEDGEMENTS

This dissertation is the culmination of two years of theoretical and practical learning. I would like to convey my gratitude to the following people for helping make this journey possible:

- My girlfriend Dominique de Villiers. Thank you for your support. Without your strength and encouragement, I would never have gotten this far.
- My Father for the encouragement, guidance, and financial support towards my Masters, without you none of this would have been possible.
- Mr James Britten for your invaluable guidance, editing and proofreading of this dissertation as my supervisor.
- My family and friends for your patience and understanding during the past two years.
- Monocle Solutions for the financial assistance provided.

DEFINITION OF KEY TERMS

Abbreviation	Meaning
IPO	Initial Public Offering
SEO	Seasonal Equity Offering
CAR	Cumulated Abnormal Returns
BHAR	Buy and Hold Abnormal Returns
JSE	Johannesburg Securities Exchange
FTSE	Financial Times-Stock Exchange

Table of Contents

1	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	PROBLEM STATEMENT / CORE RESEARCH QUESTION	2
1.3	RESEARCH OBJECTIVES	3
1.3.1	Secondary Objectives.....	3
1.4	IMPORTANCE AND BENEFITS OF THIS STUDY	3
2	LITERATURE REVIEW	4
2.1	INTRODUCTION	4
2.2	AN OVERVIEW OF OTHER IPO LITERATURE	4
2.2.1	The under-pricing phenomenon of IPOs.....	4
2.2.2	The hot issue topic and IPO Waves	5
2.3	LONG-RUN PERFORMANCE	7
2.4	WHY FIRMS CHOOSE TO GO PUBLIC.....	10
2.4.1	Financing.....	10
2.4.2	Harvesting	11
2.4.3	The window of opportunity.	12
2.4.4	Liquidity.....	13
2.4.5	Secondary Reasons for Listing	13
2.4.6	The cost of listing.....	14
2.5	LISTING ON A STOCK EXCHANGE	14
2.6	KEY PARTICIPANTS IN THE IPO PROCESS	15
2.6.1	Existing shareholders or Sellers.....	15
2.6.2	The Issuing firms	16
2.6.3	Regulatory bodies governing the IPO process.....	17
2.6.4	The Securities and Exchange Commission (SEC).....	17
2.6.5	How regulation effects IPOs.....	17
2.6.6	Underwriters or Investment banks	18
2.6.7	Investors	19
2.7	LISTING ON THE JSE SECURITIES EXCHANGE.....	20

2.7.1	The Listing Requirement	20
2.7.2	Different Listing Methods.....	22
3	METHODOLOGY	23
3.1	INTRODUCTION	23
3.2	RESEARCH DESIGN	23
3.2.1	EVENT STUDY APPROACH.....	23
3.3	SAMPLING AND DATA COLLECTION	24
3.4	DESCRIPTION OF OVERALL RESEARCH DESIGN	26
3.4.1	Long run performance.....	26
3.4.2	Cumulative abnormal return (CAR)	26
3.4.3	Buy and Hold abnormal return (BHAR).....	28
4	RESULTS.....	30
4.1	INTRODUCTION	30
4.2	LONG-TERM PERFORMANCE RESULTS.....	30
4.2.1	IPO Under-pricing using Cumulative abnormal returns (CAR) and Buy and Hold Abnormal Returns(BHAR)	33
4.2.2	IPO Underperformance Cumulative abnormal returns (CAR) and Buy and Hold Abnormal Returns (BHAR)	34
4.2.3	BHAR and CAR against Benchmarks	36
4.2.4	Trend Comparison	38
4.2.5	Explanations of the long-term underperformance of IPOs	38
5	CONCLUSION	41
5.1	CONTRIBUTIONS AND SUGGESTIONS FOR FURTHER RESEARCH	42
6	REFERENCES	43
	APPENDIX A LISTING REQUIREMENTS.	50

Table of Figures

Figure 1. Number of Listing Since 1988	24
Figure 2: Cumulative abnormal returns over a 10-year period.....	32
Figure 3 Buy and Hold abnormal returns over a 10-year period	32
Figure 4: Buy and Hold abnormal returns and Cumulative abnormal returns vs J203.....	36
Figure 5. Buy and Hold abnormal returns and Cumulative abnormal returns vs FTSE JSE Top 40 (J200)	37
Figure 6 Trend of Buy and Hold abnormal returns vs Cumulative abnormal returns	38

Table of Tables

Table 1: Long-run performance of international IPOs over three years.....	8
Table 2: JSE and JSE AltX minimum listing requirements.....	21
Table 3: Number of listings in sample period.....	25
Table 4: Monthly returns of both CAR and BHAR.....	30
Table 5: short-term returns of both CAR and BHAR.....	33
Table 6: long-term returns of both CAR and BHAR.....	34
Table 7: NYSE and Worldwide minimum listing requirements.....	51

LONG RUN PERFORMANCE OF IPOs ON THE JSE: TAKING IT TO 10 YEARS

1 INTRODUCTION

1.1 BACKGROUND

Companies are constantly seeking new growth opportunities so that they can mature and increase profits. A company's search for growth requires financing, the most commonly used way of reaching their finances is through its retained earnings and the acquisition of debt. This is known as the pecking order, where a firm will go for the cheapest form of financing (Myers & Majluf., 1984). Once a firm has exhausted all its other avenues of financing its operations, it turns to the equity market. An Initial Public Offering (IPO) is the way in which firms obtain financing and attract the attention of potential buyers who will finance the further growth of the firm. An IPO can be defined as the initial sale of a firm's shares to the public for the first time in the primary market (Brealey, Meyers, & Allen, 2011).

Studies of IPOs through the years have uncovered two interesting aspects associated with them. These two anomalies are the high positive initial returns (under-pricing) and the long run underperformance. These anomalies were initially identified by Ritter (1991) and have been observed in most financial markets around the world (Jenkinson & Ljungqvist, 1996). Other studies outside of developed markets ranging from South Africa by Auret and Britten (2008) to China by Su, Bangassa, and Brookfield, (2011). Many studies, such as one on Swiss firms, identified under-pricing and long-term performance of Swiss IPOs (Drobetz, Kammermann, & Waelchli, 2005). Gregory & Michou (2009) found similar results in UK firms who experience long-run underperformance on firms that have listed. Most studies on IPOs have found an underperformance over 36 to 60 months. It is seen as a norm that IPOs across the world's markets have negative average returns in the long run. This underperformance suggests that investing in IPOs is a bad strategy as they do not provide the long-run earning that investors expect.

There have been many explanations for the long-run underperformance of IPOs. Loughran and Ritter (1995) and Ritter (1991) say it could be due to investor sentiment, as it is seen as an important factor in determining IPO performance. Jain and Kini (1994) concluded that it could

be due to agency costs that arise once a firm goes public. While Ritter and Welch (2002), explain it as a result of over-optimistic expectations by investors and other firms, and this leads to more firms following successful IPOs. Drobetz, Kammermann, and Waelchli (2005) attribute long-term underperformance to the fact that IPO firms tend to be small firms. They find that the long-term underperformance disappears when using a small capitalization index as a benchmark. Lee, Taylor, and Walter (1996) observed a three-year cumulative abnormal return of -46.5% of Australian IPOs which listed between 1976 and 1989. Likewise, a study of 136 IPOs issued on the Stock Exchange of Thailand from 2001 to 2012 found an average three-year buy and hold abnormal return of -16.6%. (Komenkul et al, 2012)

Most papers only test the IPO returns after three years and five years. These papers rarely look at when an IPO stops (bearing?) the characteristics of an IPO that has created the bad stigma that IPOs have. Thus, this study will look at the returns of IPOs after ten years to see if the underpricing of IPOs persists. This study shall also test if long-run returns of IPOs in South Africa runs counter to the usual expectations of IPOs if they do then it will suggest a theoretical puzzle. The ten-year horizon may answer the question: "Do IPOs continue to underperform past the five-year mark and if so why? " It could be explained by the lottery ticket theory, that generally IPOs underperform but there could be that one IPO which could be a massive success.

1.2 PROBLEM STATEMENT / CORE RESEARCH QUESTION

Do IPO stocks underperform on the Johannesburg Stock Exchange(JSE) over a long period of time? As discussed in the introduction IPOs tend to underperform around the world. Thus this study will look into South African IPOs and extend the time period past 10 years.

1.3 RESEARCH OBJECTIVES

- The main objective of this paper is to determine if IPOs underperform on the JSE.

1.3.1 Secondary Objectives

- To review the three years, five years and ten years long performance of IPOs on the JSE.
- Is there any point in the life of an IPOs it stops suffering from underperformance?

1.4 IMPORTANCE AND BENEFITS OF THIS STUDY

The long-run performance of IPOs is essential knowledge for investors. It allows investors that prefer long-term investments to make informed decisions on which stocks to include in their portfolios. Thus, the purpose of this study is to provide investors with that knowledge by empirically studying the performance of IPOs in the long run. Therefore, this study will contribute to the knowledge base on IPOs by:

- 1) Extending the period looked at: This study will look at the three years, five years and ten years returns of IPOs. The initial two periods mentioned are the usual time periods that are investigated by previous studies. This study would like to extend the research to include a ten-year period of returns to see what the extreme long-run returns of IPOs are.
- 2) Comparing the long run return of IPOs in South Africa to IPOs in International markets. South Africa is seen as an emerging market and research on IPOs in emerging markets is limited compared to major markets. Therefore, the results of this study will contribute to the field of knowledge on emerging markets with regards to South African IPOs.
- 3) Provide South African Investors with more information on IPOs on the JSE and recommend a simple strategy in order to extract as much wealth out of IPOs, if they wish to invest in them.

This research report will proceed as follows. Section 2 Literature Review, section 3 Methodology, Section 4 Results, and Section 5 Conclusion.

2 LITERATURE REVIEW

2.1 INTRODUCTION

Since Ritter (1991) there has been a growing academic interest in studies on IPOs. These include studies on both initial IPO performance as well as the long-run performance of IPOs. Through these studies, a consistent conclusion has been found throughout international markets, this being that IPO short run returns are high, and this is caused by initial underpricing while in the long run, the IPO suffers low returns.

This literature review will look at an overview of IPO literature, why firms choose to list, the key players in the IPO process, the actual process of listing and the long-run returns of IPOs and will give a broad overview of the results obtained by other studies through the years. This will give some context about previous studies on IPOs, the process of listing and may give investors an oversight to further their knowledge on IPOs. Next, it will examine the several reasons why a firm would decide to list on an exchange. This may help investors in choosing which firms to invest in if they know the reasons a firm is listing. This study will specifically be looking at the long run returns of IPOs and thus this literature review will focus on long-run returns of IPOs. This will help with comparing the results of this study with other studies across different markets. This study will be looking at the performance of IPOs from the perspective of an investor.

2.2 AN OVERVIEW OF OTHER IPO LITERATURE

Throughout the years there have been many different studies that have been conducted on IPOs. These different studies range from the underpricing phenomenon of IPOs, the hot issue topic of IPOs and the long-term performance of IPOs.

2.2.1 The under-pricing phenomenon of IPOs

In the early 1970s when the phenomenon of IPO under-pricing was discovered, many studies such as Reilly and Hatfield (1969), McDonald & Fisher (1972) McDonald and Fisher (1972), Logue (1973) investigated this phenomenon. These papers were among some of the first papers to investigate under-pricing of IPOs and offer explanations for this phenomenon. Logue

(1973:91) observed that “investors who purchase new issues at the offering price will quickly achieve relatively large systematic profits.” Some of the explanations put forward were the Adverse Selection Theory by Rock (1986) and Hazard Model of Under-pricing (Eisenbeis & McEnally, 1995). In 2004 Loughran and Ritter looked at the fluctuation in first day returns of IPOs between 1980 and 2003. They argue that during the late 1990s and early 2000s there was less focus on maximizing IPO proceeds due to an increased emphasis on research coverage. Recently Chang, Chiang, & Qian, (2016) Looked again at IPO under-pricing and how pre-market trading effects it. They found that agency problems between underwriters and issuers produce extreme under-pricing, even in the presence of little valuation uncertainty

2.2.2 The hot issue topic and IPO Waves

A widely discussed determinants of IPO under-pricing is the hot issue topic. It has been discovered that IPO markets suffer from Hot and Cold periods in which they experience extreme fluctuations in the volume of IPO and initial returns swings. Ibbotson and Jaffe (1975) were one of the first to document these cycles in IPO waves. They categorised IPO market cycles into either a hot market or a cold market. Hot market IPOs characterised by major under-pricing, oversubscription of offerings, extremely high volumes of offerings and small offering sizes while, cold market IPOs are different as they are characterised as having less under-pricing, lower issuance, and larger offerings. Ritter (1984) also found that presence of IPO waves in the USA, he documented the unusually high volume of offerings and higher abnormal returns in the U.S. during the 1980s. A paper by Wang (1999) developed a theoretical model that described the determinants of the hot and cold market and its relationship with IPO under-pricing. It found that both interest rate and percentage of under-priced issues in the cold market are significantly higher than that in the hot market.

There are substantial papers which talk about IPOs but not many examine the fluctuation in IPO volume, the current understanding of these fluctuations is limited. Ibbotson and Jaffe (1975) and Ibbotson et al. (1994) show the substantial fluctuations in IPO volume. This fluctuation of IPO volumes is characterised by steep increases in IPOs listing, this happens when firms are highly valued and firms want to take full advantage of a bullish market, this is also known as taking the window of opportunity (Jaskiewicz, Gonzalez, Menedez, & Schiereck, 2005 and (Pagano, Panetta, & Zingales, 1998)). The steep incline in IPOs is then followed by a decline in listings. It has been observed that IPOs that list during these high-

volume periods have a tendency to underperform the market (Helwege & Liang, 2004). A study conducted by Persons and Warther (1997) suggest that these IPO cycles volume could be consistent with the efficient markets hypothesis. A South African study with a sample spanning over a period of 20 years concluded that aftermarket performance of IPO shares on the JSE was considerably different during hot and cold market periods (Lawson & Ward, 1998).

Persons and Warther (1997) further state that if firms base their decision to list on an exchange on the performance other IPOs that have recently listed, then there would be a clustering of IPOs during certain periods. The clustering of IPOs during certain periods is the result of information effects. Once a firm goes public it provides information of the potential prospects of similar firm's success if they list at the in the same period. Therefore, causing similar firm to go public soon after. (Stoughton, Wong, & Zechner, 1986). Lowry and Schwert (2004) found a correlation between that IPO volume and high initial returns, and state that this could be caused by the information learned during the IPO registration period. Other theories indicate that the fluctuation in firms' demands for capital and the change in investor optimism could explain a considerable amount of the disparity in IPO volume.

Helwege and Liang (2003) found that IPO waves, tend to happen within definite industries or subindustries. This is in line with the theory that economic environments are what determine IPO waves. For instance, an innovation in an industry or subindustry increases capital demand within that specific industry. This leads to IPO waves within certain industries and not only in the wider economic circle.

Ľuboš and Veronesi (2005) noted that time variation in market conditions play a part in the change in the number of IPOs going public over time. They find that IPO waves tend to be led by high market returns and trailed by low market returns. A paper by Buttimer, Hyland, and Sanders (2005) investigated the real estate investment trust (REIT) IPO market and found that it also exhibits waves of issuances. A study conducted on Indian IPOs found that hot IPO markets are characterized by major under-pricing, high volume of offerings and common oversubscription of offerings (Aggarwal, 2006; Helwege and Liang, 2004). Derrien (2005) found comparable results through his study of IPOs during hot market periods, that the long-term performance of IPOs tended to increase when listing occurred during cold market periods and decreased during hot market periods. He (2007) investigated how information asymmetry effects IPO waves. The author found that during hot issue periods, the information produced

by investment banks improves the quality of IPO firms, this improvement allows low-quality firms to go public. This increases the low-quality IPOs secondary market price.

2.3 LONG-RUN PERFORMANCE

The long-run performance of IPOs has been thoroughly tested around the world and in many different markets. Ritter (1991) was the seminal paper on the investigation into IPO underperformance over the long run. It gave rise to further studies on long-term IPO underperformance in different parts of the world, it tested the long-run performance of IPOs based on the share returns. The returns were calculated using cumulative average adjusted returns (CAR) and buy and hold abnormal returns (BHAR) spanning three years. It was found that IPO firms underperformed by 29% after three years. Ritter (1991) concluded that the underperformance could be due to investors being occasionally overoptimistic about the earnings potential of new growth firms and that firms take advantage of the window of opportunity. A study by Schuster (2003) examined the long-term performance of European IPOs. The study covered the following countries: Germany, France, Italy, the Netherlands, Spain, Sweden and Switzerland. It was found that all the IPOs issued in these countries between 1988 and 1998 were found to underperform the market at between -11.02% and -41.85% over a three-year period. Additionally, a study in Canada performed by Kooli and Suret (2004) concluded that IPOs underperformed the market from 1991 to 1998 with a CAR of -11.02%. Dimovski and Brooks (2004) investigated the characteristics of Australian firms that explain the long-term underperformance. They found that Australian firms underperformed between the period of 1994-1998. Their study found support for the overoptimism hypothesis.

Table 1: Long-run performance of international IPOs over three years

PERIOD	COUNTRY	SAMPLE SIZE	LONG RUN RETURN	AUTHORS
1966-1978	Australia	93	-6.5%	Fin and Higham (1988)
1972-1975	USA	486	11.6%	Reily (1977)
1977-1987	Germany	97	-7.4%	Uhlir (1997)
1978-1983	Hong Kong	21	-9.3%	Dawson (1987)
1980-1988	UK	712	-30.6%	Levis (1993)
1991-1995	UK	252	-1.3%	Kirkulak (2002)
1997-1998	Canada	445	-11.2%	Kooli and Suret (2004)
1994-2002	Greece	254	-16.17	Thomadakis, Nounis and Gounopoulos (2012))
1992-1996	Malaysia	258	+41.7%	Corhay, Teo, and Rad (2002)
1997-2001	China	335	-29.6%	Cai, lu, and Mase (2008)
1997 - 2011	Sweden	100	-8.37%	Olsson and Marcus (2015)

German IPOs were found to underperform the market by 12.7% for a BHAR period of three years during 1977-1995 (Bessler & Thies, 2007). Thomadakis, Nounis, and Gounopoulos (2012) tested 254 Greek IPOs during the period 1994-2002 and concluded that Greek IPOs underperform the market as most international studies confirm. Goergen, Khurshed, and Mudambi (2007) who tested 252 IPOs in England for the period 1991-1995 and found that they underperformed with a return of -21.3% over a three-year period. Kirkulak (2008) Found that 433 Japanese IPOs underperformed by 18.3% over a three-year period using CARs Chinese IPOs were found to have poor returns over the long-term, Cai, Liu, and Mase (2008) used a

sample of 335 Chinese IPO companies and established a negative long-term performance with a BHAR of -29.60%. In contrast to the above studies, Corhay, Teo, and Rad, (2002) found that IPOs in Malaysia outperformed the market in Malaysia with a CAR of +41.70% from 1992-1996

Goa, (2010) who did a study on Chinese IPOs between 2006 and 2008. Used a sample which consisted of 217 IPOs. His study found evidence of underpricing in the short term and underperformance in the long run of Chinese IPOs. Goa, concluded that the issuer and underwriter seize the window of opportunity to maximise the offer price when investor sentiment is at its peak.

Olsson and Marcus (2015) examined the long-run performance of IPOs (three year period), specifically, the differentiates between family firms and non-family firms Swedish firms. They looked at the period between 1997 and 2011. Their results show that, on average, firms underperform the benchmark with 8.37 percent Family firms slightly better than non- family firms, with a buy-and-hold abnormal return of negative 7.18 %, compared to negative 9.14 % for non family firms. In a recent study by Ozdemira and Upnejab (2016), the underpricing phenomenon, and long-term underperformance of local and international service firms were investigated. With a sample of 1822 IPOs between 1980 and 2009, they found that three-year cumulative abnormal returns and three-year buy-and-hold returns of international service firms are significantly higher than domestic service firms.

In the context of South African IPOs, M'Kombe and Ward (2002) studied the long-run performance of IPOs on the JSE for the period 1980 to 1998 and found that IPOs underperformed by 21.47% over three years, 35.67% over five years and 87.84% over ten years using the CAPM model. Similar results were found by Moodley (2009) who discovered that IPOs on the JSE underperformed by 10.51% over one year for the period 1998 to 2007.

A recent study of IPOs in India concluded there was no presence of significant long-run underperformance or over-performance of IPOs on the Indian stock exchange (Das, Saha, & Kundu, 2016). When investigating factors which may have a bearing on determining the long run performance of the IPOs, it is observed that book-to-market value ratio, the age of the IPO firm all have significant predictive power in explaining the long-run performance of IPOs on the Indian stock exchange.

2.4 WHY FIRMS CHOOSE TO GO PUBLIC

According to Pagano, Panetta, and Zingales (1998), the decision to go public is one of the most important decisions and is the least studied decision in corporate finance. There have been many different motives or reasons for a company to go public and they are usually specific to each company. Financing and harvesting are two common reasons why firms go public, these aspects will be discussed further

2.4.1 Financing

The primary and most common motive for a firm to go public is to acquire an additional source of financing other than debt. This could be due to that fact that the firm has moved past their optimal amount of debt financing or that they are unable to increase their fixed debt payments due to having insufficient liquidity. Going public can also provide the founder members, or venture capital providers, a method to realise their investment at the market price and move on to another investment (Zingales, 1995).

The capability to raise new capital in the primary market is a tremendously attractive option for high growth and highly leveraged companies with great current and future investments opportunities (Pagano, Panetta, & Zingales, 1998). Jenkinson and Ljungqvist, (1996) draw attention to the main reason firms go public is to raise additional capital to repay their debt and support their future projects. According to Pagano et al. (1998), Italian firms do not go public to finance future investments or growth but rather to rebalance their accounts after periods of high growth. The financial motive for going public may further be strengthened by the apparent advantage of reduced cost of credit. It is stated that once a firm goes public it has improved bargaining power with creditors as a result of being a publicly traded company (Pagano, Panetta, & Zingales, 1998).

Geddes (2005) states that equity presents two major advantages over debt, firstly: equity does not have to be repaid and secondly equity also does not require regular payments as a firm can choose when and if it is going to pay dividends. In addition, the major advantage of raising funds through an offering is that there is no immediate negative impact on the firm's cash flow compared to debt, which is required fixed interest payments. A firm may resort to going public

as a result of the company moving beyond its optimal capital structure in terms of using debt which may result in a shortage of cash (Poulsen & Stegemoller, 2008).

Thus going public allows for an additional source of funding. The optimal capital structure is the point at which the mixture of debt and equity is the cheapest for the firm and maximised the value of the firm. One possible reason for a company moving beyond its optimal capital structure could be that the growth rate of the firm has accelerated and the firms financing cannot keep up. Capital is always needed to continue the growth of new firms as it helps the firm meet its short-term obligations, sustain growth and survive when it undergoes long periods of underperformance.

2.4.2 Harvesting

Harvesting is the act of an investor retrieving their profits from an investment with the purpose of extracting the companies free cash flows over time or using the profits in a new potential investment (Tajnikar, Bonca, & Zajec, 2006). Petty, Bygrave, and Shulman (1994) state that harvesting is the method owners and investors use to get out of a business and, ideally, reap the value of their investment in a firm. The term harvesting has become synonymous as an exit strategy from an investment. Therefore harvesting can be seen as the action by which investors reap the value of an investment with the purpose of using the profits. An investor may therefore choose to have their investment either through exiting their investment by selling their full stake in the firm or by gradually reducing their share in the firm by deducting the value of their investment from the company's free cash flow over an extended period of time (Tajnikar, Bonca, & Zajec, 2007).

Kensinger, Martin and Petty (2000) consider harvesting as a means to help a firm grow and offer existing stakeholders with liquidity for their investment. This is a way for them to gain liquidity from their investment and can also be seen as an exit strategy (Martinez & Perron, 2004). Geddes (2005) states that the underwriters will advise existing shareholders to sell their share systematically over time and also to bundle their shares together with new shares. Therefore the IPO process is the perfect platform for investors and entrepreneurs to obtain a return on their investment. It allows them to reduce their risk and share in the company while still being able to profit from it as well as avoiding the expenses that they would incur if they just sold the company (Moore, Petty, Palich, & Longenecker, 2008).

This, however, does not mean that harvesting is the end of the line for the firm; harvesting is merely the point at which “the seeds of renewal and reinvestments are sown” (Timmons, 2004:44). Thus, harvesting can be considered as a means of sustaining and recycling entrepreneurial capital. Investors in the firm could also choose to harvest as they may feel the firm is at the optimal point to do so this could be seen as one of the stages of the entrepreneurial investment process.¹ Thus harvesting can also be seen as the final stage in the venture creating procedure.

The idea of harvesting can be likened to the market timing theory. Loughran and Ritter (1995) and Ritter (1991) suggest that firms will wait until the perfect time to list in order to take advantage of a period in which they will be able to get the most attractive offering price. This is done during a bull market to allow for a greater price. This occurs when investors are overly optimistic and the company realises it. When they do, they will decide to list once they believe the company is overvalued and they will get a favourable price (Lijun, 2006).

2.4.3 The window of opportunity.

Owners use mispricing in the market to extract the greatest amount of value out of their initial public offering. This is called the window of opportunity. When a company realises that the market is overpricing their firm because investors are overoptimistic about the earnings potential of the company. The owners of the firm exploit the overvaluation of their firm to extract the maximum amount of value out of investors (Ritter, 1998). This usually happens to young companies which are trying to raise extra capital, these young companies subsequently tend to underperform after the IPO. Another name for this phenomenon is a fad, this is defined as a temporary overvaluation of a firm due to overoptimism of investors about the price of a firm. Lijun, (2006) who investigated behavioural finance find that fads are common in IPOs as investment banks and firm owners time the market so that they issue shares in periods of overpricing when investors are unaware of the correct share price. The window of opportunity can be contagious as more firms go public when the share price of firms in a specific sector is trading at a high price. This overpricing can be misleading to managers as they predict their

¹ Klonowski (2010) discusses the three main stages of the venture capital investment cycle: contracting and valuation, value creation and the creation of an exit strategy.

future earnings based on the current overpricing caused by the over-optimistic investors (Lijun, 2006).

2.4.4 Liquidity.

Liquidity plays a significant role in a firm's finances. It is the firm's ability to effectively convert its assets into cash timeously and with minimum loss in the value of the assets. By going public a firm enters the stock market which increases its stock liquidity compared to a privately held firm, pushing up the firm's value. This increase the firms share value and popularity which give the firm the ability to sell off more of its shares to the public, which thus increases its funding liquidity. In a survey by Bancel and Mittoo, (2009) 75% of CFOs stated that they believed stock liquidity increased firm value, although it does vary across firms.

2.4.5 Secondary Reasons for Listing

- **Investor Recognition:** Merton (1987) shows that investors avoid stocks that are less popular in their portfolios. Going public is a way of marketing the company and it becomes popular, the discount rate that investors demand shrinks with more recognition and results in higher stock prices.
- **Greater Bargaining Power with Banks:** Rajan (1992) says that going public introduces a different type of lender that is now in competition with the traditional banks. The likelihood of an IPO will, therefore, increase if the company is facing high-interest rates and more concentrated credit sources.
- **Monitoring:** due to high agency costs that exist in the private company owned by more than one shareholder, the cost of monitoring becomes very large and companies opt to go public as the stock market provides a device for managerial discipline. These monitoring costs become significantly large as the scale of investment increases. Shareholders in private companies can use the listing as a way of monitoring managers of the firm. One way of doing this is by utilising the information embodied in stock prices to create new and efficient compensation systems for their managers. Holmstrom and Tirole (1993) stated that firms can

monitor and control managers by indexing their salaries to the stock price or by offering them stock options to incentivise them to put the firm first.

2.4.6 The cost of listing.

There are both direct and indirect costs that accompany the listing of a firm. These range from the listing fees themselves to having less freedom which allows a private firm to make its own business decisions at its own discretion. The most commonly cited direct cost of going public is the fees that accompany it. These costs being the underwriter's fees, legal fees, audit fees and the cost of taking the IPO on a roadshow. These direct costs may seem excessive but can pale in comparison to the indirect costs. When a firm goes public it comes under the spotlight of the public's eye, forcing it to disclose a greater degree of asymmetric information. This new public scrutiny can have firms paying more tax as it is harder for a firm to hide money because of the added transparency of their accounts. Pagano, Panetta, and Zingales, (1998) found that after going public, firms in Italy were paying more tax. The greater degree of scrutiny can result in a loss of competitive advantage (Ritter, 1998). There is also an upside to the disclosure of sensitive information. Botosan (1997) found that a firm may benefit from sensitive information disclosure as it can decrease the companies cost of equity. As can be seen, there are both advantages and disadvantages to going public. Firms need to weigh up these facts and decide if the benefits and advantages of going public will outweigh the costs and disadvantages.

2.5 LISTING ON A STOCK EXCHANGE

The decision to list and have a firm's shares quoted on a stock exchange is a very important decision in the life cycle of a firm and might be one that is motivated by capital constraints (Jenkinson & Ljungqvist, 2001). An IPO is a way in which a firm will list its new shares on an exchange. When a firm lists with already existing shares, the profits for the sales are attributable to the existing shareholders (Ibbotson et al., 1994). The proceeds from the sale of new shares on the stock exchange during an IPO will amass to the specific firm listing and will be seen as extra capital raised (Jenkinson & Ljungqvist, 2001). Many firms that decided to list now a day are usually small firms compared to firms during the nineties. This could be due to the fact that small firms exhaust their debt ability fairly quickly as well as they do not have massive retained earnings compared to large and mature firms. This search for external financing through an equity listing and the process that leads up to the decision to list follows the pecking order theory.

The pecking order theory states that firms prefer to first finance their operations through retained earnings, then debt, and finally they will utilise equity as a last resort. It assumes that there is no target capital structure which firms choose to utilise. The pecking order theory suggests that firms have a precise order for capital used to finance their new investment opportunities or businesses (Myers & Majluf., 1984). Due to the information asymmetries between the firm and its probable investors, the firm will prefer retained earnings to debt, short-term debt over long-term debt and debt over equity. Going public is, however, considered an important aspect of raising finance for companies in a growth cycle (Ibbotson et al., 1994). Listing on a stock exchange is cited as being the most popular exit strategy for entrepreneurs. It allows them to get a return on their investment by selling their equity to investors through the stock exchange (Petty, Bygrave, & Shulman, 1994).

This means that the stock market is one of the key places for firms to acquire equity finance and is thus considered an important part of entrepreneurial and economic development (Jenkinson and Ljungqvist, 2001).

2.6 KEY PARTICIPANTS IN THE IPO PROCESS

The process to go public can be a long and expensive one. This process can be made long and even more expensive if the firm does not choose the correct participants to help them along through the process. Thus, choosing the correct key players will ensure an efficient and successful IPO process. There are many key players in the process and the major one will be discussed below.

2.6.1 Existing shareholders or Sellers

Shareholders are the existing owners of the firm. They can either be a person, group of people or an organisation which owns one or more shares in the firm. The shareholders are the most important players in a firm as they control the financing and key aspects of the firm.

Their key role is ensuring the survival of the firm. This can include selecting the correct directors and management of the firm. They have the power to remove the directors and management team at any time if they feel they are not doing a sufficient job and thus ensure

there is accountability in the firm. New firms which are still young and cannot afford to raise sufficient capital can gain access to additional funding through themselves by contributing either share capital or loan capital funds to meet the required working capital amount.

As the firm grows so does its capital needs, shareholders find it hard to acquire additional funding in order to keep up with capital requirements and thus must look to alternative sources of funding which might have a differing effect on their controlling rights (Poulsen & Stegemoller, 2008). High growth firms who cannot keep up with their ever-growing capital requirements see going public and the loss of shares in their company as a necessary trade-off that will help keep their firm growing. Thus, IPOs provide firms with the opportunity for existing shareholders to sell off all their shares in their firm and cash in on their investment or sell them off gradually once their company has been listed on an exchange. An IPO also provides shareholders with the opportunity to grow their stake in the firm through an IPO while also reducing their risk by sharing it with the new shareholders.

Zingales (1995) states that an IPO allows existing shareholders to cash out on their existing investment in the firm they own. IPOs allow owners of shares in an issuing firm to sell their shares for personal gain. Geddes (2005) backs up Zingales (1995) by stating that the purpose of shareholders selling their shares is to maximise profits and exploit the value of share performance.

2.6.2 The Issuing firms

An issuing firm is one that has decided to sell off a portion of its shares to the public in order to acquire additional funding. The main purpose of an issuing company is to maximise shareholder value. This allows it to create a strong management structure, facilitate the investments in future prospects that will help raise the firm's profits, in turn facilitating liquidity for the firm shares in the secondary market (Jensen, 2001). The firm is responsible for providing all the necessary documentation that are required to register the firm as an IPO and plays a major role in all aspects of registering the firm. Once the firm has listed it has the job of keeping its investors happy which in turn will increase the share price

2.6.3 Regulatory bodies governing the IPO process

The IPO process and procedures are governed by different laws which differ between countries. In the United States, the IPO process is governed by the United Securities and Exchange Commission (SEC). China has the China Securities Regulatory Commission (CSRC), while Japan has the Securities and Exchange Surveillance Commission (SESC). South African IPOs are governed by the Johannesburg Stock Exchange (JSE) and the Financial Services Board. Each one of these commissions or boards will have different listing requirement and process. As the SEC is one of the most advanced regulatory boards with regards to the IPO process, it shall be discussed in more detail below.

2.6.4 The Securities and Exchange Commission (SEC)

The Securities and Exchange Commission is the principal regulating body in the securities industry. Its main role is the protection of the investors. It does this by preventing all fraudulent activities such as insider trading and fraud (Williams, 1999). The SEC is tasked with overseeing the IPO registration process and reviewing the IPO registration statements, commenting on the disclosures of the firm and more specific comments regarding the firm's financial and accounting matters. This ensures full transparency in the IPO process and allows investors to make educated decisions on the purchasing of the firm's shares (Williams, 1999).

In order for an IPO to commence the offering firm is required to file a registration statement with the SEC, which discloses all pertinent information about the firm and the offering of its share to the public. The SEC then scrutinised the registration documents and has the right to deny the registration if they find any inconsistencies or are not pleased with the information required. If the request is denied, then the shares of the issuing firm will not be offered to the public and the firm will have to apply again.

2.6.5 How regulation effects IPOs

The impact of regulations on initial IPO prices is an ongoing discussion. Particular attention has been paid to how more stringent regulation effects IPO underpricing. It has been suggested that information asymmetry is a significant determinant of IPO underpricing (Beatty & Ritter,

1986). Thus, issuing firms need to under-price their shares to increase investor demand in a market where asymmetric information is present. A recent study done by Shi et al. (2013) found a negative relation between IPO underpricing and the stringency of disclosure regulation in 34 markets. In 2002, the US decided to enact the Sarbanes–Oxley Act (SOX) to impose strict corporate governance standards that apply to all firms whose shares are publicly traded in the US. These new regulations had an effect on the underpricing of IPOs. Johnston and Madura (2009) studied the effect that the SOX had on the underpricing of IPO shares in the US and found that, on average, under-pricing is lower for IPO shares issued post-SOX. As can be seen, more stringent regulation on the IPO process can have a negative effect on IPO underpricing. However, Dewenter and Field (2001) study how the relaxation in the listing requirements of the Hong Kong Exchanges and Clearing (HKEx) in 1996 affected long-run returns of IPOs and found no substantial difference in long-term performance. Even though stringent regulation has been found to have a negative effect on IPO pricing, regulation is still important to help protect firms and investors.

2.6.6 Underwriters or Investment banks

Underwriters are a third party that acts as an intermediary between the issuing firm and investors, who produce information about the new issue and certify the issue price (Lewellen, 2006). Selecting the correct underwriter is an imperative decision which can heavily influence the outcome of the IPO process. It is important to note that no single underwriter can assure a successful IPO, however, the selection of the right underwriter can significantly increase the likelihood of a successful IPO. Thus, firms must take into consideration certain criteria of the underwriter such as track record, reputation and experience, its staff, the firms reach, its aftermarket support, analyst coverage, its previous clients, the firm's economic factors and financial strength (Allison, Hall, & McShea, 2008). A study conducted by Deloitte (2010) found the underwriter's reputation to be of great significance in an IPO. Investors judge an underwriter's skill, effort, and honesty by considering its past performance as an underwriter. Investors gain considerable confidence in a firm if the underwriter they utilised is named as a lead underwriter. Reputation can also significantly influence the underwriter's ability to organise a strong syndicate as the lead underwriter of other underwriters to help in the selling and distributing of the offering firms shares.

It is known that the issuing firm takes great care in selecting an underwriter, the same is done by the underwriter when deciding to take on an issuing firm. This is due to the fact that the underwriter's reputation depends on overseeing the successful issuing of an IPO. Thus, few underwriting companies will be willing to stake their reputation on questionable issuing companies (Aberman, 2006). Accordingly, for profitable and established private companies, underwriters are willing to make a firm commitment arrangement. Based on the firm commitment, the underwriter may agree to buy all issued shares of the firm, regardless of their capabilities to sell them at a particular price if they feel strongly about the IPO's prospects. When dealing with riskier or less established firms, an underwriter may offer the best effort arrangement. This is a contract that requires the underwriter to purchase only enough shares to fulfil current investor demand. This agreement is that the underwriter accepts no responsibility for any unsold shares.

Meggison and Smart (2008) state that a firm's commitment is an agreement to which the underwriter agrees to underwrite the offering firm's shares, this guarantees that the investment bank will effectively complete the sale of the issuing firm's shares. Thus, this agreement requires the underwriter to bear a risk of an insufficient demand for the firm's shares.

2.6.7 Investors

Investors are ordinary people in society who decide to buy shares of the issuing company in order to make a profit. They can range from people looking to hold the share for a long period hoping that its price appreciated to people who are looking to make a quick profit from the spread in the share price. Geddes (2005) points out that the primary objectives of investors in an IPO is to maximise profits from the short and long terms of the share price returns, widen and diversify their portfolio and accumulate a position not easily found in the secondary market. Investors can be split into two categories the first being institutional investors who are typically the most important stock buyers, as they buy up to 70% - 90% of shares in the IPO (Martinez & Perron, 2004). The second being retail investors who purchase securities and commodities on their own behalf and usually purchase many small portions of stocks compared to institutional investors.

Investors can further be categorised into informed and uninformed investors. These investors make their investments and strategic decisions based on the available information in the public

domain when buying shares in firms (Martinez & Perron, 2004). Informed investors are usually better equipped when it comes to making investment decisions as they have information about the issuing firm's competitors, the general conditions of the economy and financial markets and future regulatory reforms that the issuing company does not have and thus are able to make a better assessment concerning the long-term value of the issuing firm. While uninformed investors usually have sufficient funds to buy shares in the offering firm but are not willing to partake because of the adverse selection problem. Jenkinson and Ljungqvist (2001) found that firms that operated under lower informational transparency experienced greater financial challenges as this greatly reduced the appeal and marketability of their shares they are offering to investors.

As can be seen from the literature above all key players in the IPO process play a critical part in the IPO process and the smooth completion of the process. The existing shareholders play a crucial role in controlling key features of a business, as well as when the company reaches the point where more external financing is required and thus when the firm should undertake an IPO.

When selecting the right underwriter, it crucial that the issuing firm considers the criteria stated above. Finally, with regards to investors and them making an important investment decision, it is vital that they have a basic understanding of the firm that they wish to invest in, while also taking into consideration the business fundamentals, the objectives and policies of the business, and its competitors. Thus, in order for investors to take full advantage of their long-term investments they must make sure they have sufficient knowledge in order to make the right decision.

2.7 LISTING ON THE JSE SECURITIES EXCHANGE

2.7.1 The Listing Requirement

There are several ways in which a firm can list on a stock exchange, however, the company must first satisfy the minimum listing requirements set out by the exchange (Jenkinson & Ljungqvist, 2001). The minimum listing requirements for the JSE Main Board and for the JSE AltX are listed in table 2.

Table 2: JSE and JSE AltX minimum listing requirements

REQUIREMENTS	MAIN BOARD	ALTIX
SHARE CAPITAL	R 25 million	R 2 million
PROFIT HISTORY	3 years	None
PRE-TAX PROFIT	R 8 million	NA
SHAREHOLDER SPREAD	20%	10%
NUMBERS OF SHAREHOLDERS	300	100
SPONSOR/DA	Sponsor	Designated advisor
PUBLICATION IN PRESS	Compulsory	Voluntary
NUMBERS OF TRANSACTION CATEGORIES	2 (threshold 25%)	2 (Threshold 50%)
ANNUAL LISTING FEE	0.04 % of average market capitalisation with minimum of R 33,454 and a maximum of R 170,440.55(including VAT)	R27,189.25 (including VAT)
EDUCATION REQUIREMENTS	NA	All directors to attended Directors Induction Programme

Source: (Johannesburg Stock Exchange, 2017)

Table 2 above shows the massive difference between the requirements to list on the JSE Main board compared to the AltX. This difference is there to facilitate a financial market environment which allows for a variety of firms to be able to list on the stock exchange. These firms range from large established firms which have been running for many years to smaller high growth start-up firm. Certain differences are the on the JSE Main Board a minimum of 25 million share capital is required while on the AltX only requires a minimum of 2 million share capital. This difference is significant for smaller companies who can on afford to offer 25 million in share capital. The AltX allows smaller companies who do not meet the requirements of the JSE Main Board to list and acquire finding. These small companies who list on the AltX eventually grow into large companies which can then transfer over to the JSE Main Board. When comparing these requirements above to other stock exchanges in other countries it can be seen that requirements differ from exchange to exchange. Table 8 found in Appendix A shows the listing requirements for the New York Stock exchange (NYSE) as well as certain worldwide requirements. The NYSE requirements are more stringent and are different from what is required by the JSE. There is also a difference when looking at certain worldwide

requirements. For example, the NYSE sets requirements for cash flow and total assets and equity whereas the JSE doesn't have such requirements.

2.7.2 Different Listing Methods

In order to list on the JSE, a firm can choose between different approaches of listing on the JSE's main board or AltX. These are the introduction approach, private placing and public offer. (JSE, JSE SpecificationsItems Guidelines, 2017). These must be conducted in conjunction with a prelisting statement or a prospectus.

The introduction approach is the quickest and cheapest means of listing. It is intended for firms that already have an existing and extensive spread shareholder base and do not need to raise additional capital. This means that there are minimal formalities required. (JSE, JSE SpecificationsItems Guidelines, 2017). When the listing firm has attained the approval of the JSE listing committee, it will be introduced to the Exchange and be listed.

The private placing approach has shown to be the most common method of firms listing on the JSE Main Board or the AltX. This offering is done through a sponsor or a merchant bank. The sponsor or merchant bank offer the firms shares to potential shareholders through private negotiations. This is the most common method as the merchant bank or sponsor act as an intermediary and makes the negotiations easier as well as more stable and long-term shareholdings (JSE, JSE SpecificationsItems Guidelines, 2017).

The public approach is done by an offer for subscription or an offer for sale to the public. In an offer for subscription, members of the public are invited to subscribe for unissued shares and the proceeds from the subscription are given to the firm. (JSE, JSE SpecificationsItems Guidelines, 2017). The offer for sale is when existing shareholders of the firm invite subscribers to purchase their shares. The proceeds from this sale are paid to the shareholders. This method requires the production of a prospectus which must be approved and registered with the Registrar of Companies (JSE, JSE SpecificationsItems Guidelines, 2017).

3 METHODOLOGY

3.1 INTRODUCTION

This section will present the research design approach and the methodology that was used in the study. It will then go on to discuss the research approach (Section 4.2) that was followed. From there the data will be presented (Section 4.3), along with the data sources that were utilised. Lastly, the research design methodology (Section 4.4) that was followed will be described comprehensively.

3.2 RESEARCH DESIGN

The main objective of the study is to determine the long-run performance of IPOs in South Africa. This study is, therefore, a quantitative study due to the data analysis required. In order to determine the long-run performance of IPOs, share price history and that of a benchmark are required. This study will employ both descriptive statistics as well as a quantitative research design.

3.2.1 EVENT STUDY APPROACH

An event study approach will be utilised as it has been extensively used in other papers in order to assess the financial impact of certain events (McWilliams & Siegel, 1997). This research method has been utilised by authors such as Ritter and Welch (2002); Goergen, Khurshed, and Mudambi (2007) and is the preferred method to be employed in a study such as this. This approach allows for the use of stock market prices which a better indicator of a firm's performance than accounting measures as they cannot be manipulated (McWilliams & Siegel, 1997). Finally, this approach will be used as it has been employed by other South African papers which studied IPO returns on the JSE such as Aurret and Britten (2008), Mashaba (2014) and Michael and Reyneke, (1997) This will allow for a comparison between results.

3.3 SAMPLING AND DATA COLLECTION

The data on new listings were obtained from the Johannesburg Stock Exchange (JSE). A list of all issues was comprised for the period 1996 to 2016. This time period provides for enough time for a firm to be listed for 10 years and more as well as providing a sufficient sample size. The start date was chosen as this was the year that the All Share Index (ALSI) was introduced, which will be used as the benchmark in this study. This leaves 17 years of data available for analysis. IPOs that delisted within 36 months were excluded from the sample. The monthly offering price, closing price and trading volume were sourced from McGregor-BFA database as well as Bloomberg. Only those IPOs listings that provided three years of share price data were included in the sample.

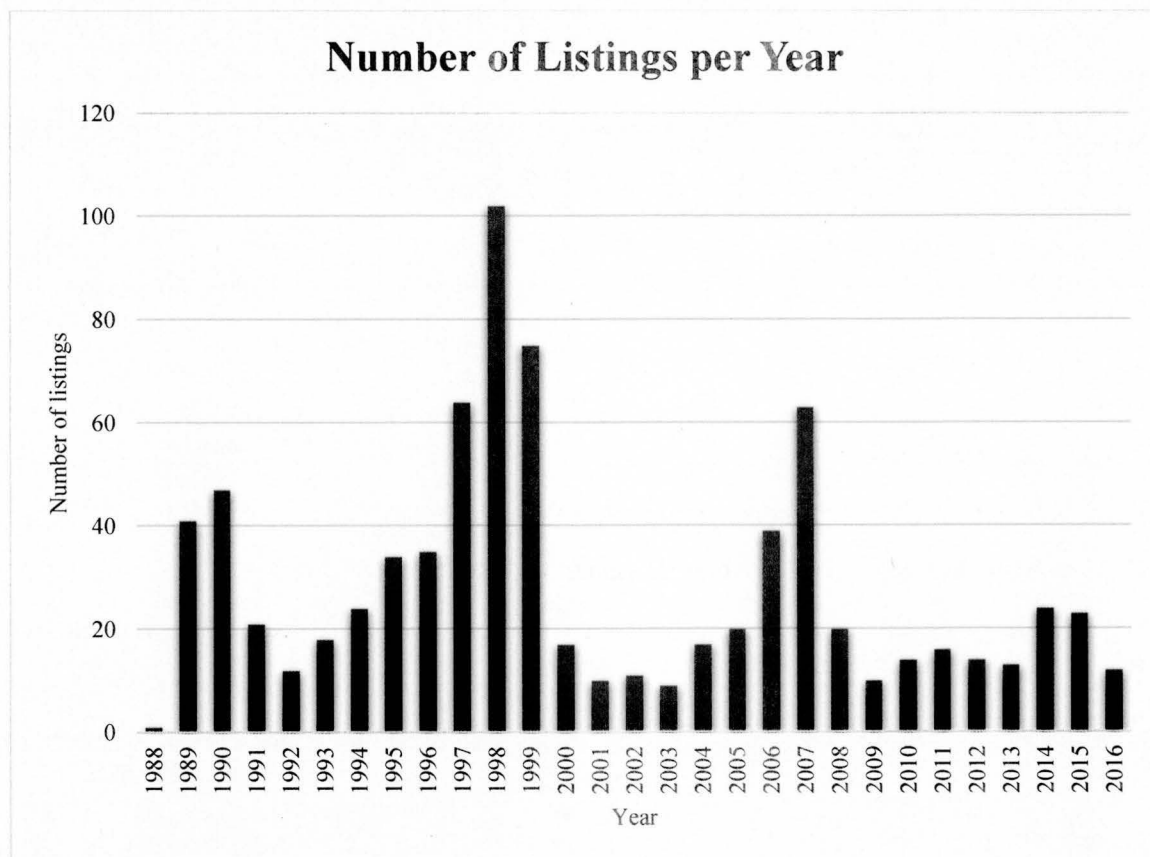


Figure 1. Number of Listing Since 1988

The figure 1 above represents the number of listing per year between 1988 and 2016. There was a massive spike between 1997 and 1999. As can be seen, the graph shows how the certain financial crisis affected IPO offerings. Between 1991 and 1994 there was a massive drop in

offerings due to the recession of the early 1990s.² Again, it can be seen, there is a significant fall in offering after 2000 and 200. These coincided with the dot-com bubble and the financial crisis of 2007 – 2008. This graph also shows a clear cycle of IPOs in the South African market. Between 1989 and 1990 there is a massive spike in the number of IPOs listing from 1 in 1988 to 47 in 1990. There is a clear decline to 12 just two years later. This decline could have been caused by the early nineties recession. A similar trend is seen between 1993 and 1999 just before the tech bubble of 2000. There is an increase of 466 % just in a three-year period which is then followed by a substantial decrease from 108 in 1998 to just 10 IPOs in 2001.

Table 3: Number of listings in sample period

Year	No. of New Listings	Year	No. of New Listings
1988	1	2002	11
1989	41	2003	9
1990	47	2004	17
1991	21	2005	20
1992	12	2006	39
1993	18	2007	63
1994	24	2008	20
1995	34	2009	10
1996	35	2010	14
1996	35	2011	16
1997	64	2012	14
1998	102	2013	13
1999	75	2014	24
2000	17	2015	23
2001	10	2016	12

The sample period used in this study was reduced to the period of 1996 to 2016 due to data constraints which produces a total of 549 IPOs. However, IPOs must be listed for three years

² This drop in IPOs could be the result of the 1980s global economic crisis. This resulted in the South African currencies loss in value, the gold price dropping; unemployment and inflation rates being high. The apartheid government also added to the poor economic conditions.

and shares were excluded if they delisted within a year (either through merger or buyout). This thus reduced the total number of IPOs in the sample to 270.

3.4 DESCRIPTION OF OVERALL RESEARCH DESIGN

3.4.1 Long run performance

The measurement of long-run returns has been found to be sensitive to the methodology used as each one is subject to certain limitations. This was pointed out by Fama (1998) who argued that long-run performance is highly sensitive to the method used to analyse the returns. Barber and Lyon (1997) showed that Cumulative Abnormal Returns (CAR) ignores compounding while Buy and Hold Abnormal Return (BHAR) includes the effect of compounding. Fama and French (1992) stated that the problem with long-run BHARS are most severe due to the fact that long-run returns compound any models' failure to accurately depict short-term returns while cumulative abnormal returns (CAR) are found to ignore compounding. BHARs are found to be a more accurate description for investors since it represents an actual investment experience compared to monthly rebalancing required in other measurements that are based on a risk adjusted performance. In the long run, BHARs are found to be highly right-skewed while CARs help to avoid the skewness problem of BHARs (Kothari & Warner, 1997). Thus, both methods will be used to measure returns to produce better results and acts as a robustness test. This study will, therefore, be measuring the long-run performance of IPOs using the two methods mentioned above. These tests will help understand if IPOs in South Africa underperform over the long run.

3.4.2 Cumulative abnormal return (CAR)

For the cumulative abnormal returns, the return on a security or index is defined as:

$$r_{i,t} = \left(\frac{P_{i,t}}{P_{i,t-1}} \right) - 1 \quad (1)$$

Where $P_{i,t}$ represents the prices of the security at the end of the current period and $P_{i,t-1}$ represents the prices of the security at the end of the previous periods.

The benchmark-adjusted return for stock i in event month t is defined as:

$$r_{i,t} = r_{i,t} - r_{m,t} \quad (2)$$

Where $R_{i,t}$ is the return of company i in period t and $R_{m,t}$ is the return on a benchmark (JSE All Share Index) for the same period.

The average adjusted return for a portfolio of n stocks in period t is the mean of the benchmark-adjusted returns, which is given as:

$$AR_t = \frac{1}{N} \sum_{i=1}^n ar_{i,t} \quad (2)$$

The t -statistic for CAR in the event month t is computed as:

$$t_{CAR} = \frac{\overline{CAR_{i,t}}}{\sigma(CAR_{i,t})/\sqrt{n}} \quad (3)$$

Where

$\overline{CAR_{i,t}}$ = sample average

$\sigma(CAR_{i,t})$ = Sample standard deviation

N = sample size

The cumulative adjusted return during the 36-month aftermarket period is, therefore, the sum of the average adjusted returns for each period

$$CAR_t = \sum_{s=1}^t AR_s \quad (4)$$

3.4.3 Buy and Hold abnormal return (BHAR)

As an alternative to the use of CAR, this study will use the buy-and-hold to compute three, five, ten and twelve-year holding period returns.

The holding period return (BHAR) for a company i stock is calculated for the period T as:

$$BAR_t = [(1 + R_{i,1})(1 + R_{i,2}) \dots \dots (1 + R_{i,t}) - 1] \quad (5)$$

It can be rewritten as:

$$BAR_{i,t} = \left[\prod_{t=1}^T (1 + R_{i,t}) \right] - 1 \quad (6)$$

Where $R_{i,t}$ is the raw return of company i stock at time t and T is the time period for which the BHAR is calculated (Bessler & Thies, 2007).

In order to calculate the BHAR on firm i over T period, the return of the market is subtracted from the return of the firm which can be calculated as follows:

$$BHAR_t = \frac{1}{N} \sum_{t=1}^N \left[\left(\prod_{t=1}^T (1 + R_{i,t}) \right) - \left(\prod_{t=1}^T (1 + R_{m,t}) \right) \right] \quad (7)$$

In order to test whether the average buy-and-hold return is significantly different from 0 or not, the t-statistic for BHAR in the event month t is computed as:

$$t_{BHAR} = \frac{\overline{BHAR}_{i,t}}{\sigma(BHAR_{i,t})\sqrt{n}} \quad (8)$$

Where

$\overline{BHAR}_{i,t}$ = sample average

$\sigma(BHAR_{i,t})$ = Sample standard deviation

N = sample size

4 RESULTS

4.1 INTRODUCTION

This section will contain the results of the analysis done on IPOs listing on the JSE. Section 4.2 will address the long run performance of the IPOs in the sample period, these returns were calculated using BHAR and CAR as discussed in the previous section.

4.2 LONG-TERM PERFORMANCE RESULTS

As indicated, the sample period used was for IPOs listed between 1996 and 2016. Only those IPOs listings that provided three years of share price data were included in the sample. Where firms were delisted within a three-year period, they were excluded from the sample set.

Table 4 shows the results per month for BHAR and CAR. The BHAR values revealed below were estimated by first calculating the BHAR per month for each company and then averaging these over the number of samples. This was done for months 1 to 120. The CAR values were calculated in an equivalent way as for BHAR, however, a further step was required to cumulate the results for each month from month 1 to 120.

Table 4: Monthly returns of both CAR and BHAR

Month	CAR	t-stat	BHAR	t-stat
1	1.23%	0.663277	1.18%	0.615526
2	-1.21%	-0.539	1.34%	0.528453
3	1.26%	0.461552	5.66%	1.682331
4	1.66%	0.546296	9.58%	2.137529
5	1.99%	0.616395	11.86%	2.551964
6	3.03%	0.839292	14.07%*	2.9044
7	3.26%	0.791543	11.80%	2.566563
8	1.92%	0.441298	9.89%	2.237462
9	0.23%	0.05337	6.60%	1.5551
10	-2.07%	-0.45582	3.71%	0.851736
11	-3.00%	-0.64353	4.40%	0.959137
12	-5.56%	-1.14392	3.88%	0.811206

13	-5.77%	-1.11253	6.42%	1.218324
14	-6.25%	-1.09235	11.42%	1.5148
15	-5.53%	-0.94388	12.64%	1.644107
16	-7.64%	-1.25011	13.99%	1.66679
17	-10.80%	-1.72642	13.18%	1.426787
18	-14.06%	-2.238	10.38%	0.923872
19	-13.41%	-2.1921	7.33%	0.690312
20	-16.30%	-2.66857	7.26%	0.592962
21	-17.64%	-2.80541	8.26%	0.533364
22	-19.99%	-3.05197	16.59%	0.678002
23	-22.94%	-3.42671	12.52%	0.592229
24	-21.33%	-3.21506	11.32%	0.587567
25	-23.16%	-3.52779	7.34%	0.431804
26	-26.36%	-3.99919	-1.58%	-0.16256
27	-27.89%	-4.26832	-5.74%	-0.67533
28	-27.74%	-4.11925	-2.97%	-0.25897
29	-31.57%	-4.68491	-8.71%	-0.90101
30	-32.86%	-4.7587	-12.60%	-1.3429
31	-33.61%	-4.67375	-7.49%	-0.55167
32	-34.50%	-4.71181	-2.53%	-0.15359
33	-38.02%	-5.03447	-0.97%	-0.04983
34	-37.45%	-4.87348	-1.25%	-0.06477
35	-41.53%	-5.30273	-4.62%	-0.25935
36	-40.80%	-5.14953	-3.11%	-0.17888
60	-24.49%	-1.04905	-22.63%	-1.97991
96	-19.03%	-0.53463	-30.17%	-2.66273
120	-24.06%	-0.57507	-22.75%	-1.46836

***Significant at 99% **Significant at 95% * Significant at 90%

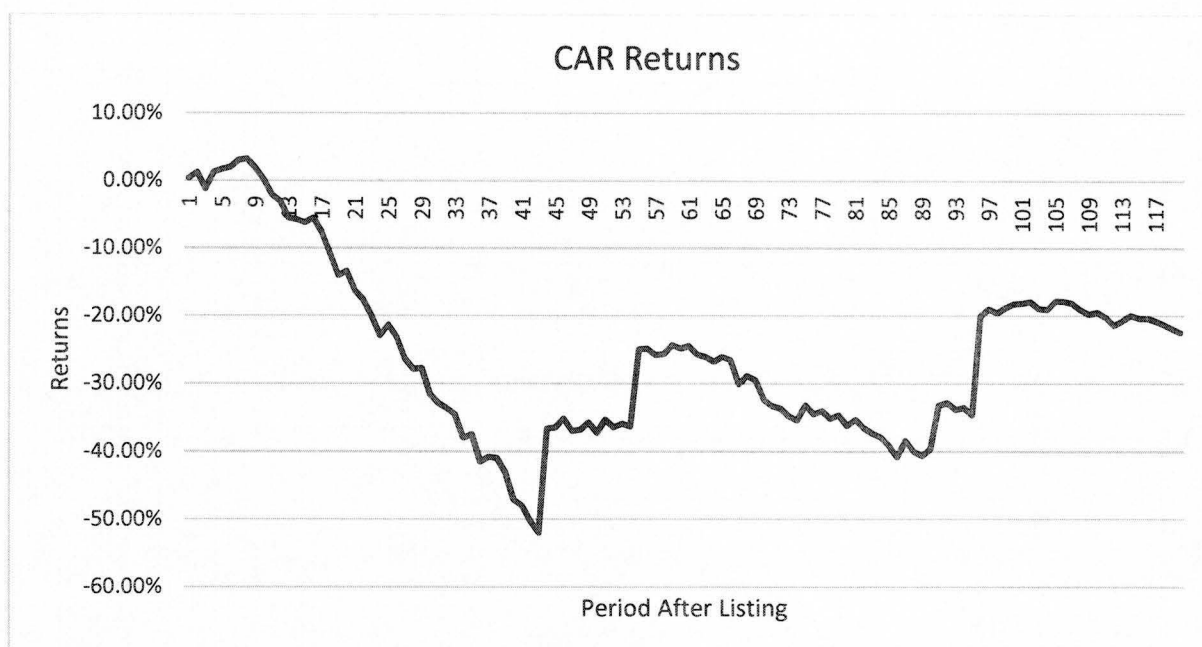


Figure 2: Cumulative abnormal returns over a 10-year period

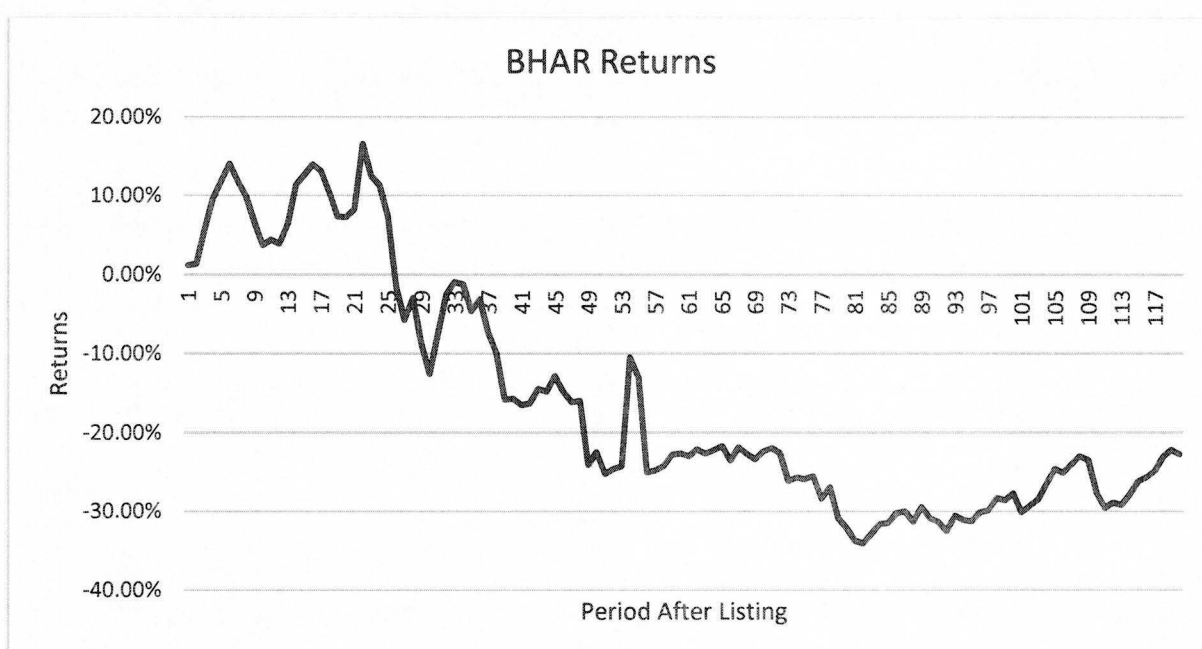


Figure 3 Buy and Hold abnormal returns over a 10-year period

As can be seen in both Table 4 and Figure 2 that represent the CAR of IPOs over a ten-year period, the average returns of IPOs were positive for the first 10 months with a maximum return of 3.26% in month eight. After one year the average returns declined to -3% with the declining trend continuing. The average returns of the IPOs had a minimum of -52% after 46 months, after which the average returns started to increase again to -24.88% in month 56. After five years the average returns of the portfolio were -24.87% and -33.85% after eight years. The average returns of the portfolio start to average out past 8 years coming to -22.49% after a ten-year period. The above trend can also be seen when looking at the BHAR results. The average

returns of the IPOs for the two years are positive with a return of 3.88% after twelve months and a maximum of 13.99% after seventeen months. However, after 24 months the average returns decline sharply, and the downward trend continues, which is consistent with the CAR results.

4.2.1 IPO Under-pricing using Cumulative abnormal returns (CAR) and Buy and Hold Abnormal Returns (BHAR)

Table 5: short-term returns of both CAR and BHAR

Period	BHAR	Std. dev.	T-stats	CAR	Std. dev.	T-stats
1 Month	1.18%	0.314239	0.615526	1.23%	0.304425	0.663277
6 Months	14.07%*	0.795969	2.9044	3.03%	0.593198	0.839292
12 Months	3.88%	0.785154	0.811206	-3.00%	0.765753	-0.64353

***Significant at 99% **Significant at 95% * Significant at 90%

Several previous studies have found that IPOs usually experience high initial returns (Loughran et al., 2010; Ritter & Welch, 2002). It can be seen that after 6 months IPOs on the JSE had a 14.07% BHAR and a CAR of 3.03%. These short-term positive returns are attractive to investors who intend to buy the stock on the listing date and sell it off after a few months to make a profit. This will allow them to take advantage of short-term under-pricing of the stocks before they start to decline in returns past the first-year mark. The 6-month BHAR is significant at a 90% confidence interval. This short-term under-pricing of IPOs during the first few months are consistent with the window of opportunity theory by Ritter (1998) and (Pagano, Panetta, & Zingales, 1998). Ritter (1998) states that owners of the firm exploit the overvaluation of their firm to extract the maximum amount of value out of investors. These results are also consistent with Ritter (2011) who studies the returns of 7314 IPOs in the U.S market from 1980 to 2008. He found that these firms exhibited returns of 20.8% for the first thirty-six months. These findings confirm the existence of underpricing on the JSE and are in line with previous studies such as those by Ibbotson (1975), McGuiness (1992), Ritter and Welch (2002) and Lawson and Ward (1998) which confirmed the existence of IPO underpricing. Equivalent results were found by Levis (1993) on the long-run performance of IPO in the UK using data from 1980 to 1988. Levis (1993) concluded that there is a gradual but steady decline in IPO returns in the UK over a period of three years following the first month of trading on the stock exchange. In

the South African Context. Similar results were found by Auret and Britten (2008), who looked at the post issuing performance of IPOs on the JSE.

4.2.2 IPO Underperformance Cumulative abnormal returns (CAR) and Buy and Hold Abnormal Returns (BHAR)

Table 6: long-term returns of both CAR and BHAR

Period	BHAR	Std. dev.	T-stats	CAR	Std. dev.	T-stats
1 Years	3.88%	0.785154	0.811206	-5.56%	0.798403538	-1.143921
3 Years	-3.11%	2.859749	-0.17888	-40.80%	1.30194776	-5.149532**
5 Years	-22.63%	1.878334	-1.97991*	-24.49%	3.836200105	-1.049048
8 Years	-30.17%	1.861758	-2.66273**	-19.03%	5.849581	-0.53463
10 Years	-22.75%	2.546084	-1.46836	-24.06%	6.87374887	-0.575068

***Significant at 99% **Significant at 95% * Significant at 90%

When looking at the performance of the IPOs over the medium term between three and eight years one can see a gradual decline in the average price with the CAR and BHAR average returns after three years being -41.53% and -3.11% respectively. After eight years the CAR remains in the negative at -20.05% and the BHAR at -30.17%. The CAR returns look as if they have increased from three years to eight years, however, this increase could be explained as the cumulative effect of the CAR calculation causes it. This decline in average returns is again consistent with Ritter (1991) who found a decline in returns of IPOs over a medium to long-term period. The five and eight-year BHAR are -22.63% and -30.17% and are statistically significant at 90% and 95% respectively.

This means that investors who bought and held the shares for a long period would have made a significantly negative return which is discouraging for these investors. These results also suggest that investors who purchased the shares when they were first offered to the public at the offer price are unable to profit from the abnormal returns and thus suffer substantial losses starting from the first twelve months. These results are consistent with the findings by M'kombe and Ward (2002), who found that IPOs who list on the JSE underperform the market

over a three-year period by -21.41% and -21.92% when measuring it with BHAR and CAR respectively. Michael and Reyneke (1997) found evidence of the long-run underperformance for a sample of 118 South African initial public offerings listed on the JSE between January 1980 and December 1991. Similar results were found in a study by Brownhilder and Smit (2014). Using a sample set of 313 South African firms listed for the period 1996–2007, they concluded that these IPOs underperformed the market over three years by 65.59% and 64.37% for five-years.

The above results show that in the overall IPOs on the JSE underperform the market over a period of eight to ten years. They establish that whether investors hold their portfolios for over a three year, five or ten-year period, these portfolios will continue to underperform in the long run. These findings of long-run underperformance of IPOs which list on the JSE over a ten-year period are consistent with Kooli and Suret (2004) who found that IPOs in Canada underperform the market in the long run when they are measured using cumulative abnormal returns. Schuster (2003) examined the long-term performance of European IPOs. The study covered the following countries: Germany, France, Italy, the Netherlands, Spain, Sweden, and Switzerland. It was found that all the IPOs issued in these countries between 1988 and 1998 were found to underperform the market at between -11.02% and -41.85% over a three-year period. Similar results are found in China where IPOs were found to have poor returns over the long-term. Cai, Liu, and Mase (2008) used a sample of 335 Chinese IPO companies and established a negative long-term performance with a BHAR of -29.60%.

This decline continues after year 8 but there is a visible stabilisation in the returns as can be seen in Figure 3 with the returns year 8 having a BHAR return of -30.17% and year 10 having a return of -22.75 %. This equals to an increase in the average return of 7.24%. The CAR supports this increase returns with an increase of 15.39% between year 7 and year 10. These extended negative returns are backed up by a paper by M'Kombe and Ward (2002) who studied the long-run performance of IPOs on the JSE for the period 1980 to 1998 and found that IPOs underperformed by 21.47% over three years, 35.67% over five years and 87.84% over ten years. This study's results in conjunction with M'Kombe and Ward (2002) findings could suggest that the underperformance of IPOs, in the long run, are not sample specific. This could mean that IPOs have a tendency to underperform in the South African market and that this underperformance doesn't disappear in the long run.

This continued underperformance could be due to the lottery ticket theory, which states that investors are playing the lottery when they invest in IPOs as they are hoping that that specific firm will be that one that will outperform the rest, such as Facebook. The constant investment in IPOs by investors could be due to all the hype around IPOs as investors are hoping to pick the right IPO that will be the winning one which outperforms the rest. However this is not the main focus of this study, but it does lead to the next question of what could be the drivers of the underperformance. The continued underperformance could also speak to the question of when and does an IPO ever overcome the underperformance they face in the long run. If the returns of an IPO continually underperform this could mean that IPOs have a characteristic that brings on this poor performance and that firms which go public will always be seen as an IPO and suffer from the underperformance.

4.2.3 BHAR and CAR against Benchmarks

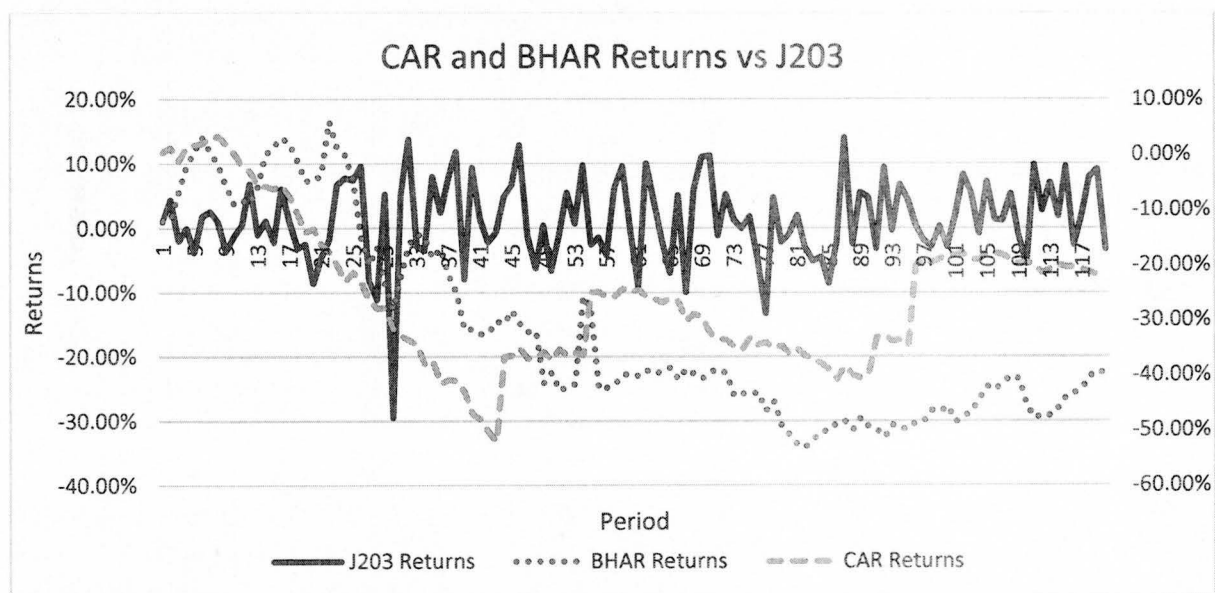


Figure 4: Buy and Hold abnormal returns and Cumulative abnormal returns vs J203

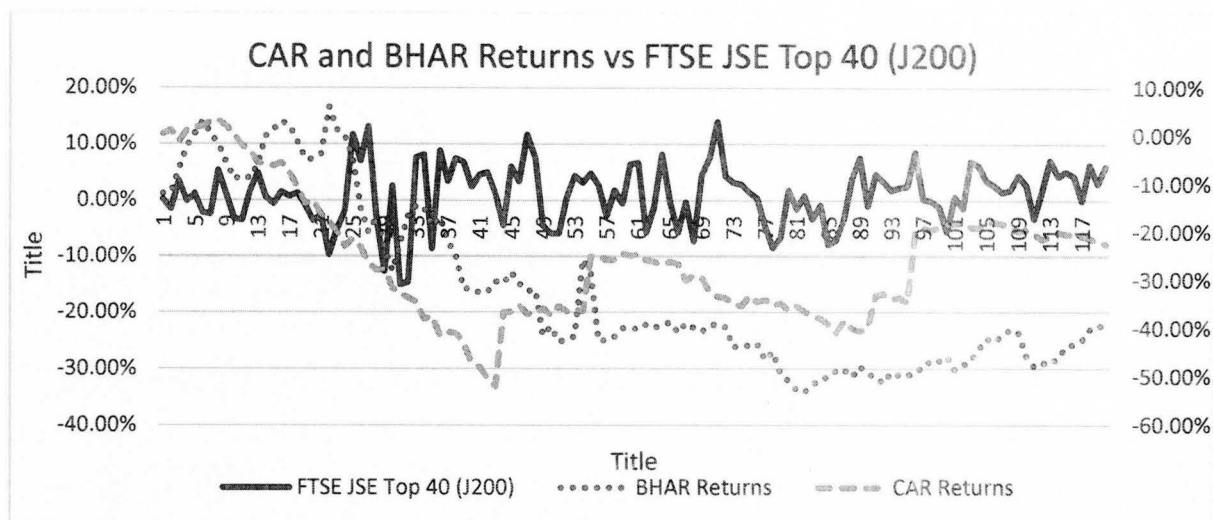


Figure 5. Buy and Hold abnormal returns and Cumulative abnormal returns vs FTSE JSE Top 40 (J200)

Figure 4 and 5 show the comparison of the BHAR and CAR returns against the J203 and the FTSE JSE Top 40 (J200). These comparisons again highlight the overperformance of IPOs on the JSE during the first few months after listing and then the decline in returns in the long run. As can be seen in both graphs, IPO returns outperform both indices for the first 24 months. However, over the long term, the average return of the BHAR and CAR returns are -15.80% and -25.43% respectively while the average for the J203 and FTSE JSE Top 40 are 1.18% and 1.04% respectively. This clearly shows that over the long run it would be a better strategy to invest in the indices rather than IPOs. After that, the returns of the two indices start to outperform the portfolio of IPOs. A trading strategy could be used by an investor to realise short-term profits from IPOs and then take the returns he has realised and use them in other investments. Looking at the BHAR an investor could have realised a return of 11.32% after 24 months compared a return of -1.95% or 7.77% if they had rather invested in the FTSE JSE Top 40 or the J203 respectively. This above comparison could also strengthen the idea that IPOs continue to have a certain characteristic that results in its poor underperformance, showing that they are plagued with underperformance throughout their lives. Although this underperformance is not consistent across all IPOs, most IPOs do suffer from this underperformance.

4.2.4 Trend Comparison

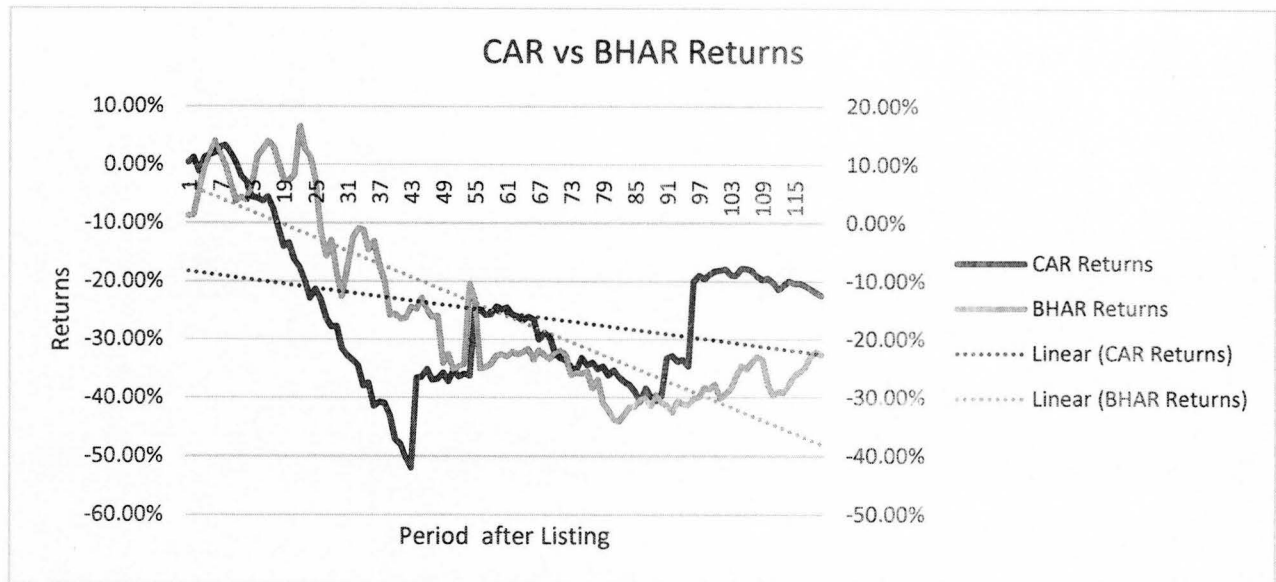


Figure 6 *Trend of Buy and Hold abnormal returns vs Cumulative abnormal returns*

The above figure compares the trend between the two different measures employed in this study to measure the returns of IPOs on the JSE. This should help with understanding the effects that the different measurement techniques have on the results obtained. The trend of both measurement techniques are downward sloping which is consistent with the results as the returns which exhibited a decrease in returns over the ten year period. The trend of the BHAR returns is much steeper compared to the CAR returns. This is consistent with Lyon (1997) showed that Cumulative Abnormal Returns (CAR) ignores compounding while Buy and Hold Abnormal Return (BHAR) includes the effect of compounding. This continued downward trend shown in figure 6 again speaks to the previous question, does an IPO ever stop suffering from underperformance throughout its life? These results answer the above question, as there does not seem to be a point in the life of an IPO when there is a shift in IPO returns and underperformance. This speaks to that IPO firms tend to underperform whether it is over a one-year period or a ten-year period.

4.2.5 Explanations of the long-term underperformance of IPOs

The results above exhibited that IPOs significantly underperformed in the long run. Many researchers have put forward a few possible explanations for the outperformance or underperformance of IPOs throughout the worlds financial markets.

The long-term performance of IPOs are also affected by the time period when the issue was made. The political, economic, and social state of the country in which the firm is listing. The health of the business environment as well as how investors perceive the market conditions at the time of issue will have an impact on the prospects of the listing firm (Govindasamy, 2010). It was established by Shikha and Balwinder (2008) that market conditions play a significant role in the performance of IPO returns in the first three years. The effects of market conditions can be seen in figure 1 where the total amount of IPOs significantly decreases in years of market stress like the 2008 financial crisis. Cai, Liu, and Mase (2008) conclude that another explanation of the long-term underperformance of IPOs is that more IPO issues tend to follow successful IPOs. Firms decided to go public when they see other firms that have conducted successful offerings. Most of the time these firms are not ready to go public and thus underperform compared to the first issuing firms. Schultz (2001) also concluded that more IPOs follow successful IPOs. Thus, the last large group of IPOs would underperform and be a moderately substantial portion of the sample used in a study. If the underperformance of the IPOs is using an equally weighted portfolio, the high-volume periods will carry a great weight, this will result in an underperformance of the IPOs, on average.

Ritter and Welch (2002) cite several studies which argue that overoptimistic investors have also been found to play a role in the long-term underperformance of IPOs. When a firm first lists optimistic investors would likely buy their share regardless of not having much information in order to make an informed investment decision. However, over time investors start to lose their overoptimism and their valuation of the firm will gravitate back the mean valuation. Thus, over the long-term, the share price of the respective IPO that they invested in will decrease. Ritter and Welch (2002) found that both overoptimistic accounting reports at the beginning of the offering as well as the suppression of possible warning signs can also contribute to the long run underperformance of IPOs. Moreover, Kooli and Suret (2004) put forward a hypothesis called the investors' overreaction hypothesis which could help to explain the long-term underperformance of IPOs. Further studies by Dimovski and Brooks, (2004) and Goa (2010) found that the window of opportunity to be the explanation for IPO underperformance.

Lijun (2006) put forward the argument that the investor's overreaction hypothesis which they call the overestimate hypothesis supports the idea that firms will forecast their future earning based on information which can be found in the prospectus. Because the share price predictions are formed on the expectation of the firm's future actions, analysts' forecasts are a very valuable source of information that investors rely on. Investors will thus use this information

which heavily influences their decisions on whether or not to buy the IPOs shares. Thus, many investors will utilise the same information which could lead to an overoptimistic view on the share's prices.

5 CONCLUSION

This study has examined the long run return performance of South African IPOs which have listed on the JSE during the period 1996 to 2013. It specifically looked at IPO returns over a period of 10 years. The results showed that there is a significant overpricing of SA IPOs in the short term as well as a significant underperformance of IPOs in the long term when CARs and BHARs are calculated using the J203 as a benchmark. As investors can make an average return of 14.6 % after holding an IPO stock for six months preceding its listing but suffer a maximum loss of -52% after 46 months. The underperformance of IPOs was found to continue when looking at a ten year period. These findings are consistent with previous studies on the performance of IPOs listing on the JSE, such as Michael and Reyneke (1997), M'Kombe and Ward (2002) and Auret and Britten (2008). The study also showed the different effect of CAR and BHAR have on the returns on a portfolio, indicating that when looking at the performance of IPOs it is important to use various measures to verify a studies findings. The question of does an IPO stop suffering from underperformance, in the long run, was answered. The trend of IPO returns in conjunction with comparing their returns them to different indices showed that IPO returns have a clear downward trend and fail to recover to levels which exceed the benchmark. They are consistent with M'Kombe and Ward (2002) who studied the long-run performance of IPOs on the JSE for the period 1980 to 1998. These findings indicate the fact that there is no one point in the IPO life cycle where they stop suffering from underperformance, as there seems to be no shift in the underperformance of whether it is over a one-year period or a ten-year period.

This study also found that if investors invest in IPOs in the first few months after listing they can take advantage of abnormal returns. However, if the investor continues to hold the stock past the first year preceding the listing they will experience significant losses. These results are consistent with Ritter's (1991) finding that IPOs experience significant short-term overperformance due to under-pricing and then experience significant underperformance in the long run. Therefore the long-term underperformance of IPOs on the JSE could be explained by the window of opportunity hypothesis. Further studies by Dimovski and Brooks, (2004) and Goa (2010) support these finding of the window of opportunity. As the IPO provides investors in the firm the opportunity to sell off all their shares in their firm and cash in on their investment or sell them off gradually once their company has been listed on an exchange while reaping increase share prices caused by the under-pricing effect of the IPO in the short term.

5.1 CONTRIBUTIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This study looked at the long run performance of IPOs using three, five and ten-year periods to determine if IPOs underperform in South Africa and to see if IPOs ever stop being IPOs. IPO returns and IPO success or failure patterns. A Potential area for future study could use the same idea set out in this paper but look at the first day returns and compare them to the ten-year returns.

Further studies could investigate the influence of firm size on IPO performance to identify if it influences the overall performance of IPOs, as well as how hot and cold market periods effect IPO returns in SA. Lastly, future studies could examine why firms underperform over three years and continue to underperform in the long run, and which characteristic's causes this underperformance.

6 REFERENCES

- Aberman, J. (2006, April 28). *Going public via initial or direct public offering - the role of the Securities and Exchange Commission*. Retrieved September 3, 2017, from [http://ezinearticles.com: http://ezinearticles.com/?Going-Public-Via-Initial-Or-Direct-Public-Offering-Role-of-the-Securities-and-Exchange-Commission&id=187343](http://ezinearticles.com/?Going-Public-Via-Initial-Or-Direct-Public-Offering-Role-of-the-Securities-and-Exchange-Commission&id=187343)
- Aggarwal, S. (2006). "The New Issue Puzzle: IPO Pricing in the Hot and Cold Markets in India". *MA thesis in Finance and Investment, India*.
- Allen, D. E., Morkel-Kingsbury, N. J., & Piboonthanakiat, W. (1999). The long-run performance of initial public offerings in Thailand. *Applied Financial Economics* 9, 215-232.
- Allison, S., Hall, C., & McShea, D. (2008). *The initial public offering handbook: a guide for entrepreneurs, executives, directors and private investors*. Minnesota: Merrill Corporation.
- Auret, C., & Britten, J. (2008). Post-issue operating performance of firms listed on the JSE. *Investment Analysts Journal* 37:68, 21-29.
- Bancel, F., & Mittoo, U. R. (2009). Why Do European Firms Go Public? *European Financial Management* 15(4), 844-884.
- Barber, B., & Lyon, J. (1997). Detecting Long-run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics*, 43: 341-372.
- Beatty, R. P., & Ritter, J. R. (1986). Investment banking, reputation, and the underpricing of initial public offerings. *Journal of Financial Economics* 15(1-2), 213-232.
- Benning, F. J. (2007). *Trading Strategies for Capital Markets*. New York: MacGraw-Hill.
- Besley, S., & Brigham, E. F. (2011). *What's inside: A student -tested faculty approved approach to learning corporate finance: A new approach to learning built with you in mind*. USA:: South-Western Cengage Learning.
- Bessler, W., & Thies, S. (2007). The long-run performance of initial public offerings in Germany. *Managerial Finance*, 33 (6), 420-441.
- Bessler, W., & Thies, S. (2007). The long-run performance of initial public offerings in Germany. *Managerial Finance* 33 (6), 420-441.
- Black, F. (1972). Capital market equilibrium with restricted borrowing. *Journal of Business*, 45: 444-454.
- Botosan, C. (1997). Disclosure level and the cost of equity capital. *The Accounting Review*, 72 (3), 323-339.
- Brealey, R. A., Meyers, S. S., & Allen, F. (2011). *Principles of Corporate Finance*. (10th, Ed.) New York: McGraw-Hill.

- Brigham, F. E., & Houston, F. J. (2009). *Fundamentals of financial management*. 12th edition. USA: South-Western Cengage Learning.
- Brownhilder, N. N., & Smit, V. (2014). Do IPOs underperform in the long run? Evidence from the Johannesburg Securities Exchange (JSE). *African Review of Economics and Finance Vol. 6, No. 2*, 22–42.
- Buttimer, R. J., Hyland, D. C., & Sanders, A. B. (2005). REITs, IPO Waves and Long-Run Performance. *REAL ESTATE REAL ESTATE*, 51-87.
- C, B. (1997). Disclosure level and the cost of equity capital. *The Accounting Review*, 72(3): 323-339.
- Cai, X., Liu, G. S., & Mase, B. (2008). The long-run performance of initial public offerings and its determinants: the case of China. *Quantitative Financial Accounting Review*, 30, 419-432.
- Carter, R. B., Dark, F. H., & Singh, A. K. (1998). Underwriter Reputation, Initial Returns, and The Long-Run Performance of IPO Stocks. *The Journal of Finance* 53, 285-311.
- Chang, C., Chiang, Y.-M., & Qian, Y. R. (2016). Pre-market Trading and IPO Underpricing. *The Review of Financial Studies* (30), 835–865.
- Chanin, O. (2010). Multinational corporation strategies, human resource management practices and competitive advantage: the rubber industry in Thailand. *Doctorate thesis, University of Utara Malaysia*.
- Chipeta, C., & Jardine, A. (2014). A Review of The Determinants Of Long Run Share Price And Operating Performance of Initial Public Offerings On The Johannesburg Stock Exchange. *International Business & Economics Research Journal* 13, 1161-1176.
- Corhay, A., Teo, S., & Rad, A. (2002). The long-run performance of Malaysian Initial Public Offerings (IPOs): Value and Growth effects. *Managerial Finance*, 28(2), 52-65.
- Corporation, V. L. (2017, October 18). *Listing Requirements of the New York Stock Exchange*. Retrieved from Venture Law Corporation: <http://venturelawcorp.com/listing-requirements-of-the-new-york-stock-exchange>
- Corrado, J., & Jordon, D. (2002). *Fundamentals of investments: valuation and management*. 2nd edition. New York: McGraw-Hill/Irwin.
- Correia, C. F. (2013). *Financial Management*. 7th edition. Johannesburg: Juta & Company Ltd.
- Das, G., Saha, M., & Kundu, A. (2016). Analyzing Long-run Performance of Select Initial Public Offerings Using Monthly Returns Evidence from India. *The Journal of Business Perspective*, 237 - 248.

- Deloitte. (2010). *Deloitte & Touche*. Retrieved April 26, 2016, from Deloitte & Touche.: <http://www.deloitte.com/assets/Dcom-India/Local%20Assets/Documents/FA%20alerts/FA-03-2010.pdf>
- Derrien, F. (2005). IPO pricing in 'hot' market conditions: Who leaves money on the table? *The Journal of Finance* 60 (1), 487-521.
- Dewenter, K. L., & Field, L. C. (2001). 'Investment Bank Reputation and Relaxed Listing Requirements: Evidence from Infrastructure Firm IPOs in Hong Kong'. *Pacific-Basin Vol. 9*, 101-117.
- Dimovski, W., & Brooks, R. .. (2004). Initial Public Offerings in Australia 1994 to 1999, recent evidence of underpricing and underperformance. *Review of Quantitative Finance and Accounting*, 22 (3), 179 -198.
- Drobetz, W., Kammermann, M., & Waelchli, U. (2005). Long-Term Performance of Initial Public Offerings: The Evidence for Switzerland. *Schmalenbach Business Review*, Vol. 57, 253-275.
- Eisenbeis, R., & McEnally, R. W. (1995). *Initial Public Offerings: Findings and Theories*. The University of North Carolina at Chapel Hill: Kluwer Academic Publishers.
- Emmet, S. (2003, 30 January). Shareholders' agreements – a practical analysis. A paper delivered at a meeting of the Galway enterprise platform programme. Galway, Ireland.
- Fama, E. F. (1998). Market efficiency, long-term returns, and behavioural finance. *Journal of Financial Economics* 49, 283-306.
- Fama, E. F., & French, K. (1992). The Cross-Section of Expected Stock Returns. *Journal of Finance*, 49, 283-306.
- Fama, E. F., & French, K. R. (2004). The capital asset pricing model: theory and evidence. *Journal of Economic Perspective* 18 (3), 25-46.
- Finn, F. J., & Highman, R. (1987). The performance of unseasoned new equity issues-cum-stock exchange listings in Australia. *Journal of Banking & Finance*, 333-351.
- Geddes, R. (2005). *IPOs & equity offerings*. United Kingdoms: Butterworth Heinemann.
- Goa, Y. (2010). What comprises IPO initial returns: Evidence from the Chinese market. *Pacific-Basin Finance Journal*, 77-89.
- Goergen, M., Khurshed, A., & Mudambi, R. (2007). The long-run performance of UK IPOs: can it be predicted? *Managerial Finance*, Vol. 33 Issue: 6, 401-419.
- Goergen, M., Khurshed, A., & Mudambi, R. (2007). The Long-run performance of UK IPOs; Can it be Predicted? *Managerial Finance* 33(6), 401-419.
- Govindasamy, P. (2010). The long-run performance of initial public offerings in South Africa. *Gordon Institute of Business Science*.

- Gregory, A., & Michou, M. (2009). Industry Cost of Equity Capital: UK Evidence. *Journal of Business Finance and Accounting*, Vol 36, 679–704.
- Gumede, V. (2002). Export propensities and intensities of small and medium manufacturing enterprises in South Africa. *Journal of Small Business Economics*, 22(5): 379-389.
- Harnilap, P., & Kain, M. (2017, August 1). *Features and functions of the stock market: Argentina*. Retrieved from <http://www.pkf.com/media/131758/doing%20business%20in%20argentina.pdf>.
- He, P. (2007). A Theory of IPO Waves. *The Review of Financial Studies*, Volume 20, Issue 4, 983–1020.
- Helwege, J., & Liang, N. (2003). Initial Public Offerings in Hot and Cold Markets. *Working paper. Federal Reserve Board—Finance and Economics Discussion Series*.
- Helwege, J., & Liang, N. (2004). Initial Public Offerings in hot and cold markets. *Journal of Finance and Quantitative Analysis* 39(3), 541-569.
- Holmstrom, B., & Tirole, J. (1993). Market liquidity and performance monitoring. *Journal of Political Economy* 101, 678 - 703.
- Ibbotson, R. G., L., S. J., & Ritter, J. R. (1994). The market's problems with the pricing of initial public offerings. *Journal of Applied Corporate Finance*, 6, 66-74.
- Ibbotson, R., & Jaffe, J. (1975). Hot Issue markets. *Journal of Finance* 30, 1027-1042.
- Jain, B., & Kini, O. (1994). The post-issue operating performance of IPO firms. *Journal of Finance*, 49(5), 1669-1726.
- Jackiewicz, P., Gonzalez, M. V., Menedez, S., & Schiereck, D. (2005). Long-run IPO performance analysis of German and Spanish family-owned businesses. *Family Business Review* 18(3), 179-202.
- Jenkinson, T., & Ljungqvist, A. (1996). *Going public: theory and evidence on how companies raise equity finance*. Oxford: Oxford University Press.
- Jenkinson, T., & Ljungqvist, A. (2001). *Going Public: The Theory and Evidence on How Companies Raise Equity Finance*. Oxford: Oxford University Press.
- Jensen, M. C. (2001). VALUE MAXIMIZATION, STAKEHOLDER THEORY, AND THE CORPORATE OBJECTIVE FUNCTION. *Applied Corporate Finance*, 8-21.
- Johnston, J. M. (2009). The pricing of IPOs post-Sarbanes–Oxley. *Financial Review* 44, 291-310.
- JSE. (2017, October 18). *Johannesburg Stock Exchange*. Retrieved from JSE: <https://www.jse.co.za/articles/jse-amends-listing-requirements>

- JSE. (2017, August 15). *JSE SpecificationsItems Guidelines*. Retrieved from JSE: <https://www.jse.co.za/content/JSESpecificationsItems/Guidelines%20to%20Listing%20on%20the%20JSE.pdf>
- Kensinger, J., Martin, J., & Petty, J. (2000). Harvesting value from entrepreneurial success. *Journal of Applied Corporate Finance*, 12 (4), 81-93.
- Kirkulak, B. (2008). The initial and long-run returns of Japanese capital-backed and non-venture capital-backed IPOs. *International Journal of Managerial Finance* 4 (2), 112-135.
- Klonowski, D. (2010). *The Venture Capital Investment Process*. New York: Palgrave Macmillan.
- Komenkul, K., & Sherif, M. X. (2012). Prospectus disclosure and the stock market performance of initial. *Investment Management and Financial Innovations (open-access)* 13(4-1), doi:10.21511/imfi.13(4-1).2016.02.
- Kooli, M., & Suret, J. (2004). The aftermarket performance of initial public offerings in Canada. *Journal of multinational financial management*, 47-66.
- Kothari, S., & Warner, J. B. (1997). Measuring Long-Horizon Security Price performance. *Journal of Financial Economics*, 43, 301-339.
- Lasher, W. (2010). *Financial Management: A practical guide*. Thomson: South-Western Cengage Learning.
- Lawson, R., & Ward, M. (1998). Price Performance of newly listed shares on the Johannesburg Stock Exchange. *Investment Analysts Journal*, 47, 17-31.
- Lee, P. J., Taylor, S. L., & Walter, T. S. (1996). Australian IPO pricing in the short and long run. *Journal of Banking & Finance* vol 20, 1189-1210.
- Levis, M. (1993). The long-run performance of initial public offerings: The UK experience. *Financial Management*, 22, 28-41.
- Lewellen, K. (2006). Risk, reputation, and IPO price support. *The Journal of Finance*, 61(2): 613-653.
- Lijun, Y. (2006). *The long-run performance of initial public offerings- Evidence from the A-share Shanghai Stock Exchange*. A Dissertation presented in part consideration for the degree of Master of Arts in Finance and Investment.
- Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics*, 47:13-37.
- Logue, D. (1973). On the Pricing of Unseasoned Equity Issues: 1965-1969. *Journal of Financial and Quantitative Analysis*, 8(1), 91-103.
- Loughran, T., & Ritter, J. (1995). The new issue puzzle. *Journal of Finance* 50(1), 23-51.

- Loughran, T., & Ritter, J. (2004). Why Has IPO Underpricing Changed over Time? *Financial Management* (33), 5-37.
- Lowry, M., & Schwert, W. G. (2004). Is the IPO pricing process efficient? *Journal of Financial Economics*, 71, 3-26.
- Luboš, P., & Veronesi, P. (2005). Rational IPO Waves. *The Journal of Finance*, 1713-1757.
- Martinez, S., & Perron, P. (2004). *The valuation and pricing of initial public offerings*. Massachusetts: Massachusetts Institute of Technology.
- Mashaba, T. (2014). The IPO performance of companies listed on the JSE alternative exchange. *Wits Business School*.
- McDonald, J., & Fisher, A. (1972). New issue stock price behaviour. *Journal of Finance*, 97-102.
- McWilliams, A., & Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. *The Academy of Management Journal* 40(3), 626-657.
- Meggison, W., & Smart, S. (2008). *Introduction to Corporate Finance*. London, UK: Thomson South-Western Cengage Learning.
- Merton, R. C. (1987). Presidential Address: A simple model of capital market equilibrium. *Journal of Finance* 42, 483-510.
- Michael, J. P., & Reyneke, I. (1997). THE TIMING AND SUBSEQUENT PERFORMANCE OF INITIAL PUBLIC OFFERINGS (IPOs) ON THE JOHANNESBURG STOCK EXCHANGE. *Journal of Business Finance & Accounting*, 24(9), 1401-1420.
- Mishkin, F. (2013). *The economics of money, banking, and financial markets*. Columbia: Pearson.
- M'Kombe, C., & Ward, M. (2002). Aftermarket price performance of initial public offerings on the JSE. *Investment Analyst*, 55, 7-20.
- Moodley, K. (2009). *Post listing performance of initial public offerings in South Africa*. University of the Witwatersrand: Master of Business Administration.
- Moore, W., Petty, W., Palich, E., & Longenecker, G. (2008). *Managing Small Business: An Entrepreneurial Emphasis* (14 ed.). Mason, USA: South-Western Cengage Learning.
- Myers, S. C., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not. *Journal of Financial Economics*, 13, 187-221.
- Olsson, L., & Marcus, Ö. (2015). Long-Run IPO Performance for Family Firms - A study on the Swedish market. *Department of Business Administration, LUND University*. Retrieved from <http://lup.lub.lu.se/student-papers/record/5469314>

- Ozdemira, O., & Upnejab, A. (2016). The role of internationalization in the IPO performance of service firms: Examination of initial returns, long-run returns, and survivability. *International Business Review*, 997-1009.
- Pagano, M., Panetta, F., & Zingales, L. (1998). Why Do Companies Go Public? An Empirical Analysis. *The Journal of Finance* 53, 27-64.
- Persons, J., & Warther, V. (1997). Boom and bust patterns in the adoption of financial. *Review of Financial Studies* 10, 939-967.
- Persons, J., & Warther, V. (n.d.). Boom and bust patterns in the adoption of financial innovations. *Review of Financial Studies* 10, 939-967.
- Petty, W. J., Bygrave, W. D., & Shulman, J. M. (1994). Harvesting the Entrepreneurial Venture: A Time for Creating Value. *Journal of Applied Corporate Finance* 7 (1), 48-58.
- Poulsen, A. B., & Stegemoller, M. (2008). Moving from Private to Public Ownership: Selling Out to Public Firms versus Initial Public Offerings. *Finacial Management*, 81-101.
- Poulsen, A., & Stegemoller, M. (2008). Moving from private to public ownership: Selling out to public firms vs. initial public offerings. *Financial Management*, 37(1), 81-101.
- Poulsena, A., & Stegemoller, M. (n.d.). *Moving from private to public ownership: selling out to public firms vs, initial public offering*. Retrieved from <http://leeds-faculty.colorado.edu/bhagat/poulsen-stegemoller-acquisition-ipo.pdf>
- Rajan, R. G. (1992). Insiders and Outsiders: the choice between informed and arm's-length debt. *Journal of Finance* 47, 1367-1400.
- Reilly, F., & Hatfield, K. (1969). Investor experience with new stock issues. *Financial Analysts Journal*, 73-80.
- Ritter, J. R. (1980). The "Hot Issue" Market of 1980. *The Journal of Business*, 215-240.
- Ritter, J. R. (1991). The Long-run performance of initial public offerings. *Journal of Finance* 47, 3-27.
- Ritter, J. R. (1998). Initial Public Offerings. *Contemporary Finance Digest*, 5-30.
- Ritter, J. R., & Welch, I. (2002). A review of IPO activity, pricing and allocation. *Journal of Finance* 57, pp. 1795-1828.
- Rock, K. (1986). WHY NEW ISSUES ARE UNDERPRICED. *Journal of Financial Economics* 15, 187-212.
- Schultz, P. H. (2001). Pseudo Market Timing and the Long-Run Performance of IPOs. *University of Notre Dame Working Paper*.
- Schuster, J. A. (2003). The cross-section of European IPO returns. *Financial Markets Group, London School of Economics and Political Science*, 460.

- Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance*, 19: 425-442.
- Shi, C. P. (2013). Does disclosure regulation work? Evidence from international IPO markets. *Contemporary Accounting Research* 30, 356-387.
- Shikha, S., & Balwinder, S. (2008). Determinants of initial and long-run performance of IPOs in Indian stock market. *Asia-Pacific Business Review*, 4(4):1-15.
- Soyede, A. (2005). The role of capital market in economic developments. *Security Market Journal*, 6(3), 6-14.
- Stoughton, N. M., Wong, K. P., & Zechner, J. (1986). IPOs and product quality. *Journal of Business* 74, 375-408.
- Su, C., Bangassa, K., & Brookfield, D. (2011). Long-Run Performance of Chinese Initial Public Offerings: Further Evidence. *Asia-Pacific Journal of Financial Studies* 40, 285-316.
- Tajnikar, M., Bonca, D., & Zajec, L. (2006). *The Life Cycle of Entrepreneurial Ventures*. New York: Springer.
- Tajnikar, M., Bonca, D., & Zajec, L. (2007). Harvesting in high growth firms. The Life Cycle of Entrepreneurial Ventures. *International Handbook Series on Entrepreneurship*, 535-582.
- Thomadakis, S., Nounis, C., & Gounopoulos, D. (2012). Long-term performance of Greek IPOs. *European Financial Management* 18, 117-141.
- Timmons, J. A. (2004). *New venture creation: entrepreneurship for the 21st Century*. 6th edition. Burr Ridge: McGraw-Hill/Irwin.
- Wang, K. (1999). Hot and Cold Market Cycle and IPO Performance: Theory and Evidence. *Presented at 11th PACAP/FMA Conference, Singapore*.
- Williams, C. A. (1999). The Securities and Exchange Commission and Corporate Social Transparency. *Harvard Law Review*, 1197-1311.
- Zingales, L. (1995). Insider ownership and the decision to go public. *The Review of Economic Studies*, 62, 425-448.

APPENDIX A LISTING REQUIREMENTS.

Table 7: NYSE and Worldwide minimum listing requirements

REQUIREMENTS		STANDARD 1	WORLDWIDE
# OF SHARES PUBLICLY HELD		1,100,000	2,500,000
# PUBLIC BOARD LOT HOLDERS		400	5,000
MARKET VALUE OF PUBLICLY HELD SECURITIES		\$100,000,000 unless IPO, carve-out or spin-off \$40,000,000	\$100,000,000
TRADING PRICE OF LISTED SECURITIES		\$4.00	\$4.00
SHAREHOLDERS EQUITY		N/A	\$55,000,000
#1 – EARNINGS:			
	AGGREGATE PRE-TAX INCOME FOR LAST 3 YEARS	\$10,000,000	\$100,000,000
	MIN. PRE-TAX INCOME IN EACH OF 2 PRECEDING YEARS	\$2,000,000 (all 3 years must be positive)	\$25,000,000
OR:			
	AGGREGATE PRE-TAX INCOME FOR LAST 3 YEARS	\$12,000,000	N/A
	MIN PRE-TAX INCOME IN MOST RECENT YEAR	\$5,000,000	N/A
	MIN. PRE-TAX INCOME IN NEXT MOST RECENT YEAR	\$2,000,000	N/A
#2A – VALUATION/CASH FLOW			
	GLOBAL MARKET CAPITALIZATION	\$500,000,000	\$500,000,000
	REVENUES (MOST RECENT 12-MONTH PERIOD)	\$100,000,000	\$100,000,000
	AGGREGATE CASH FLOW FOR LAST 3 YEARS	\$25,000,000 (all 3 years must be positive)	\$100,000,000
	MINIMUM CASH FLOW IN EACH OF 2 PRECEDING YEARS	N/A	\$25,000,000
#2B – VALUATION/REVENUE:			
	GLOBAL MARKET CAPITALIZATION	\$750,000,000	\$750,000,000
	REVENUES (MOST RECENT FISCAL YEAR)	\$75,000,000	\$75,000,000
#3 – AFFILIATED COMPANIES:			
	GLOBAL MARKET CAPITALIZATION	\$500,000,000	\$500,000,000
	OPERATING HISTORY	12 Months	12 Months
#4 – ASSETS/EQUITY			
	GLOBAL MARKET CAPITALIZATION	\$150,000,000	N/A
	TOTAL ASSETS	\$75,000,000	N/A
	STOCKHOLDERS EQUITY	\$50,000,000	N/A

Source: (Corporation, 2017)