TWO CONSECUTIVE HOT MARKET PERIODS: IS THE IPO MARKET IN SOUTH AFRICA CHANGING OVER TIME?

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Abstract

Various authors, such as Gao, Ritter and Zhu (2012), Weild (2011) and Fama and French (2004) reported increasing underpricing and a dramatic decline in both the profitability and the survival rates of Initial Public Offerings (IPOs) over the last few decades internationally. This study seeks to determine whether the IPO landscape in South Africa has shown similar trends focusing on two consecutive hot market periods (1997-99 and 2006-07). The findings are, contrary to expectations, that the level of underpricing has actually improved significantly over time with very little change in the size of the listings, the offer price or the years in existence prior to listing. There is, however, a significant change in the sectors these IPOs were listed in with relatively more listings in the Alternative Board (AltX), but less emphasis in the Consumer and Technology Sectors. Although not significant, it even seems as if the success and failure rate of IPOs in South Africa has improved marginally, providing some explanation for the improvement in the level of underpricing over time. A note of caution is also mentioned regarding the use of mean MAARs as a measure of underpricing, given the typically skewness of IPO data.

Keywords: IPOs, Hot Markets, Market-Adjusted Abnormal Return (MAAR)

JEL Classification: C22, E22, L11, N2, R11

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1 Introduction

An Initial Public Offering (IPO) is the preferred transition or exit strategy for high growth private companies to become a publicly-traded company (Draho, 2004:1). Ravasi and Marchisio (2012:18) identified 'to finance and growth and development', 'to facilitate external growth', 'to improve the company's image / status' and 'to increase visibility' as the most important reasons for going public. The ability to raise additional capital in the primary market is thus a very lucrative opportunity not only for high growth companies, but also as a means of harvesting for existing shareholders (Firer, Ross, Westerfield and Jordan, 2012:466). But, one of the downsides of going public is that the owners of the relatively unknown private company have to make it attractive to investors to buy the shares; an issue called underpricing.

In almost all stock markets around the world IPOs are characterized by initial underpricing and long-term underperformance. Underprising refers to the difference between the initial price the IPO company offers its shares to the public and the closing price in the market after the first day of trading (Heeley, Matusik and Neelam, 2006:2), indicating a loss to existing shareholders for 'leaving money on the table'. The levels of underpricing in different markets and different time periods vary significantly. Chen, Firth and Jeong-Bon (2004) reported underpricing of 145% in China, Boulton, Smart and Zutter (2007) demonstrated evidence of underpricing for Indonesia (41%), Malaysia (41%), South Korea (44%), Taiwan (13%), and Thailand (26%) while Loughran, Ritter and Rydqvist, (2010:1-2) reported positive average first day returns from 47 countries around the world. The average initial returns (underpricing) varied from as low as 4.2% in Russia to as high as 164.5% in China.

However, the timing of all these listings, such as in hot or cold market periods, could influence the level of underpricing significantly. A hot market issue is defined by periods of rising initial returns and increasing numbers of IPOs (Doeswij, Hemmes and Venekamp, 2006). Hot markets are also characterized by a window of opportunity where IPOs are highly valued and companies take advantage of a buoyant market (Jaskiewicz, Gonzalez, Menendez and Schiereck, 2005). Prior research (Almisher, Buell and Kish, 2002; Alti, 2005) have shown that IPOs in hot markets are severally underpriced with extraordinarily high variability of initial returns. Agarwal (2006) affirms that hot IPO markets are characterized by an unusually high volume of offerings, severe underpricing, frequent oversubscription of offerings, prevalence of smaller issues, and, to a certain extent,

by concentrations in particular industries or sectors. Neneh and Smit (2013:899) confirmed significant underpricing of 95.7% of IPOs in hot market periods in South Africa as opposed to only 4.9% in cold market periods with similar results found by Van Heerden and Alagidede (2012:130). Although this paper focuses on the level of IPO underpricing in hot market periods in South Africa, the main purpose is to determine whether there are significant changes in the IPO market over time.

The trend observed and documented across different stock markets has been that the long term success rate of IPOs is decreasing (Gao, Ritter & Zhu, 2012 and Fischer & Pollock 2004). Other studies also indicate a steady increase in IPO failure over the last twenty years despite the fact that the average company displays promising fundamentals in terms of market capitalization and age (Weild, 2011; Demers & Joos, 2006). Loughran and Ritter (2004:41) found that the level of initial under-pricing in the US market increased substantially (from 7.4% in 1980-89, 14.8% in 1990-98 to 65.0% in 1999-2000).

Fama and French (2004) also reported a dramatic decline in the survival rates of IPOs over the last few decades. Loughram and Ritter (2004:5) confirm that the level of underpricing increased since the 1980s due to, amongst other reasons, more risky and younger IPOs being listed. Weild (2011) and Fisher and Pollock (2004) confirmed that the success rate of IPOs over the last few decades has declined, regardless of the increase in the size and maturity of IPO deals. The higher failure rates of IPOs over time provide a possible explanation for the higher levels of underpricing. Neneh and Smit (2013:900) established that the market-adjusted abnormal return (MAAR) did increase in two consecutive hot market periods from 87.4% in 1997 to 1999 to 113.7% in 2006 to 2007 in South Africa. The main purpose of this study is to compare two consecutive hot periods (1997 to 1999 and 2006 to 2007) on the JSE in South Africa to determine whether the IPO market in South Africa has changed significantly over time. Three significant adjustments were however made regarding the initial research by Neneh, Negek and myself (Smit), namely the sample size have been increased, more sources were consulted to verify abnormal returns as well as significant outliers were excluded from the sample to get a true reflection of the IPO changes over time.

2 Literature Review

The JSE was established in November 8, 1887 as a stock exchange in South Africa and it is now one of the top twenty security exchanges in the world in terms of market capitalisation (Alli, Subrahmanyam and Gleason, 2010:4). The JSE has two boards namely the JSE Main Board and the JSE Alternative (AltX) board. AltX is the alternative exchange launched in 2003 as a nursery for the JSE main board, which aimed at replacing the unsuccessful venture capital and development capital boards established as sub divisions of the main board in the 1980s. AltX was created to provide small to medium sized enterprises (SMEs) who had smaller income/profits and had not been in existence for a long time, with a public listing option, and conditions that were not as strict as the ones for the JSE Main Board (Manikai, 2011:8). The AltX caters for a segment of the market which would have found it difficult to be listed on the JSE Main Board due to its inability to meet with the listing requirements and its perceived riskiness.

The first issue to be addressed is whether the level of underpricing between the two consecutive hot market periods has increased. The high levels of underpricing are often associated with issues such as information asymmetry, the winner's curse theory and the signaling hypothesis (Neneh, 2013:56-59). Underpricing arises because both the investors and the public have little or no information regarding the company going public and thus have to rely on the information disclosed by the business. One solution companies follow to reduce the information asymmetry between informed and uninformed investors and to compensate for this issue companies is to deliberately under-price their IPO's (Firer et al., 2012:472). The goal of this strategy by companies is to increase the level of trading of their own shares and to increase the profit potential for the average investor. Brau & Facett (2006:414) added that underpricing can be seen as a marketing scheme to attract potential investors, increasing their market range. According to Álvarez and González (2005:35) the hype created by an IPO may cause an overreaction by the market, which can lead to a speculative decision by an investor to invest a substantial amount in an IPO without sufficient information and thus not getting a return on his or her investment. Underpricing could therefore be associated with long-term underperformance of IPOs. Thus, because of the worldwide phenomenon of poor long term performance of IPOs, companies deliberately under-price their shares to compensate for the poor, long term performance (Firer et al., 2012:472). If the level of underpricing therefore increased over time, it would be reasonable to assume that more information asymmetry is expected, thus explaining higher expected failure rates amongst IPOs in the second hot market period.

Several studies (M'kombe and Ward, 2002:10; Hughes and Lee, 2006:5, Sohail and Raheman, 2009:63; Sahoo and Rajib, 2010:27; Durukan, 2002; Demers and Joos, 2005:17; Carpentier and Suret, 2011) have identified characteristics of IPO companies such as the company's age, timing of issue (hot and cold market periods), issue size, profitability, market capitalisation, offer size, gross proceeds, leverage, price to book value (P/B), market to book value (M/B), financial ratios, pre-IPO performance, and technical riskiness (measured by sector and R&D intensity) to be significant determinants of IPO initial

and long-term returns as well as the success and failure of IPOs. In this study, IPO characteristics are classified into offer price, market capitalization, company's age, sector classification and success versus failure.

Deb and Vijaya (2010) reported that the issue size had a negative impact on the level of underpricing; suggesting that a large issue size increases the supply of IPO shares, and thus results to lesser underpricing. These findings indicate that the smaller the size of the issue, the higher the level of underpricing. Furthermore researchers (Carpentier and Suret 2011; Demers and Joos 2007; and Hensler, Rutherford and Springer, 1997) established that younger companies experience a higher post issue failure rate and thus suggesting a negative relationship between company's age at IPO and the level of underpricing. Issues such as information asymmetry, moral hazard and adverse selection are likely to arise in contractual arrangements between issuing company and external providers of finance (investors). These problems may well be more severe obstacles to the listing of young and smaller companies, and the associated costs much higher for young and smaller companies that have a low visibility and little proven track records.

Moreover, Finkle and Lamb (2002) compared the long run aftermarket performance of IPOs in emerging industries (biotechnology, semiconductor and internet IPOs) to those in non-emerging industries during the period between 1993 and 1996. This study found that the returns from emerging industry after a year were worse than those of non-emerging industry, but nevertheless, the performance for both industries were negative.

IPO failure is often defined as the delisting of a company from the primary exchange on which it traded with a delisting code between 500 and 585 (Foster-Johnson, Lewis and Steward, 2001). The delisting codes are codes that indicate the reason a company is delisted from the stock exchange. IPO failure is defined by Fischer and Pollock (2004) as the delisting of a company from the primary exchange either because of bankruptcy or inability of a company to maintain minimum requirements. Wruck (1990) defines failure by financial criteria as the lack of sufficient cash flows to satisfy current obligations. Altman and Hotckiss (2005) stress that failure by economic criteria means that "the realized rate of return on invested capital, with allowances for risk consideration, is significantly and continually lower than prevailing rates on similar investments". IPO failure is also viewed as the poor returns earned relative to the risk of undertaking the investment (Raputsoane, 2009:1). Various studies proposed competing theories and concepts on IPO failure and its measurement criteria (Chava and Jarrow, 2004; Campbell, Hilscher, and Szilagyi, 2008; Beaver, McNichols, and Rhie, 2005).

In summary, prior research internationally indicates an increase in IPO failure with more, a decrease in the number of IPOs listed with higher levels of underpricing and changing characteristics of the typical IPO listed and the research question addressed in this paper is whether this is also applicable to the South African stock market.

3 Methodology

3.1 Research Questions

The fundamental research question addressed in this paper is whether the South African IPO landscape in two consecutive hot market periods (1997 to 1999 versus 2006 to 2007) have changed significantly. To answer the primary research question, the following secondary research questions have been formulated regarding the two consecutive hot market periods:

- Did the level of underpricing using the market-adjusted abnormal return (MAAR) increase significantly over time?
- Did the inflation adjusted offer price change significantly over time?
- Did the average size (market capitalization), adjusted for inflation, of the IPOs change significantly over time?
- Were more mature IPOs listed over time?
- Did the IPO market in terms of different sectors change significantly over time?
- Did the success rate of the IPOs deteriorate significantly over time?

3.2 Statistical Analyses

In this paper, the statistical analyses, such as cross tabulation, chi-square, one-way analysis of variance (ANOVA), T-test, regression analysis, and Pearson correlation coefficient were done using excel and the Statistical Package of Sciences (SPSS) statistical software.

The market-adjusted abnormal return (MAAR) has been the most widely used method in calculating underpricing (Van Heerden and Alagidede, 2012:132). The market-adjusted abnormal return ($MAAR_{x,i}$) for stock 'x' after ith, trading period is calculated as follows:

$$MAAR_{x,i} = 100 \times \left\{ \frac{(1 + R_{x,i})}{(1 + R_{m,i})} - 1 \right\}$$

The market-adjusted model measures the initial returns (offer price versus closing price after first day of trading) in excess of the market return. The JSE All Share Index (ALSI) was used to calculate the market return.

The average market-adjusted abnormal return for the ith trading period is.

$$\overline{\text{MAAR}}_{x,i} = \frac{1}{N}\sum_{i=0}^{n} \text{MAAR}_{x,i}$$

Where $\overline{\text{MAAR}}_{x,i}$= the sum of the market adjusted abnormal return of the sample IPOs divided by the number of sample IPOs.

To test the significance of $\overline{\text{MAAR}}_{x,i}$, the following t-statistic is calculated:

$$t = \frac{\overline{\text{MAAR}}_{xi}}{s/\sqrt{n}}$$

Where 's' is the standard deviation of MAAR $_{x,i}$ for a '*n*' number of companies.

For comparative purposes, this study will adopt the mean market-adjusted abnormal return ($\overline{\text{MAAR}}_{x,i}$), which is the standard method for calculating underpricing of new issues and t-stats to measure the significance of the level of underpricing. Testing for the symmetry of the standard deviation (normal distribution), the following measure of Skewness (Hair, Black, Baben, Anderson and Tatham, 2006:80-81) was used (Z value exceeding ±2.58 indicates non-normal distribution at a significance level of 0.01):

$$z_{skewness} = \frac{\text{skewness}}{\sqrt{\frac{6}{N}}}$$

Where n is the number of IPOs in the sample.

3.3 Data

The sample for the study comprised of 390 IPOs that were listed on the Johannesburg Securities Exchange (JSE) from 1996 to 2011 as was available in the McGregor-BFA database, the Stock Exchange Handbook, the companies' initial prospectus, as well as data provided by the JSE. According to the JSE database, 482 IPOs were listed over the 16 year period, indicating a sample size in this study of 80.9%. The reasons for excluding some of the IPOs are a) detailed data (such as offer prices and number of shares issued) for some of the IPOs were not available on the McGregor-BFA database, b) inconsistency in the specific IPO data amongst the various sources, and c) unexplainable outliers that jeopardized the reliability of the data. It was crucial to exclude an IPO if discrepancies in the various data sources could not be resolved. Previous studies by Neneh, Ngek and myself relied exclusively on the McGregor-BFA database (Neneh & Smit, 2013; Smit and Ngek, 2014). Verifying the individual IPO data using four sources led to adding many more IPOs to the sample, but more importantly, it also created the opportunity to exclude any inconsistent data and unexplained outliers, thus increasing the reliability of the data. The substantially bigger sample size, combined with the exclusion of certain IPOs from the study, have influenced the empirical results from previous papers and articles, specifically regarding MAAR and the factors impacting both initial underpricing and long-term success.

The JSE All Share Index (ALSI) was used to calculate market return and the CPI (Consumer Price Index) was used to adjust the offer price and issue size (market capitalization) for inflation. The IPOs were also classified into six sectors, namely Basic Materials (Mining/Minerals), Consumer Goods and Services, Industrial, Financial, Technology and Venture Capital (AltX). The Alternative Exchange (AltX) creates a unique opportunity for companies to list if they do not comply with the requirements of the Main Board (such as profit history, size of the listing, subscribed capital, etc.).

Failure was defined as all IPOs delisted from the JSE with reasons such as 'failure', 'no longer quality for listing', 'failure to comply with JSE requirements' and 'Section 17 of the Stock Exchanges Control Act 1985'. If there was an increase in the share price in absolute terms from the original offer price over a seven year period, the IPO was regarded as successful, at least in absolute terms. The IPOs who were delisted for other reasons or had a market price less than the original offer price over a period of seven years were classified as "Other".

4 Results and Discussion

From a sample of 390 IPOs Table 1 clearly indicates two hot market periods since 1996 to 2011 in the South African stock market with 67.2% of all the listings in five of the 16 years investigated. The initial returns (MAAR) on the first day of trading also confirm underpricing of 38.19% with significant differences in MAAR in the different years. These results differ slightly from previous studies (Neneh and Smit, 2013; Smit and Ngek, 2014) because of the increase in the sample size as well as the elimination of unexplainable outliers. The underpricing was also significantly higher in the hot market periods (53.3%) compared to the cold market periods (7.3%), but the main focus of the paper is comparing the two consecutive hot market periods with each other.

In Table 2 the results are summarized confirming that the level of underpricing in both hot and cold markets is significant using T-Stats. It also indicates that the level of underpricing of IPOs is significantly higher in hot markets than in cold markets confirming results from previous studies. Contradictory to expectations, in the second part of Table 2 it was established that the first day MAAR was significantly lower for the second hot market period than the first hot period with substantially fewer IPOs listed in the second hot market period. Another observation was the size of the standard deviations for MAAR in both hot periods, which justified further investigation.

Table 1. Annual Market-Adjusted Abnormal Returns of IPOs on the JSE

	Year	No. Of IPOs	% of IPOs	MAAR D1
Cold Market	1996	21	5.4%	12.01%
Hot Market 1	**3**	**168**	**43.1%**	**70.32%**
1997-98	1997	46	11.8%	62.75%
	1998	72	18.5%	99.24%
	1999	50	12.8%	35.64%
Cold Market	**6**	**64**	**16.4%**	**8.62%**
2000-05	2000	10	2.6%	12.36%
	2001	8	2.1%	-6.54%
	2002	9	2.3%	7.35%
	2003	6	1.5%	-2.09%
	2004	13	3.3%	17.80%
	2005	18	4.6%	10.84%
Hot Market 2	**2**	**94**	**24.1%**	**22.80%**
2006-07	2006	35	9.0%	27.43%
	2007	59	15.1%	20.09%
Cold Market	**4**	**43**	**11.0%**	**3.10%**
2008-11	2008	16	4.1%	2.32%
	2009	10	2.6%	1.89%
	2010	6	1.5%	5.10%
	2011	11	2.8%	4.24%
Total	**16**	**390**	**100.0%**	**38.19%**
Significance				***.007******

****Significant at 1%; **Significant at 5%; *Significant at 10%*

Table 2. Market adjusted abnormal return (MAAR) for the period 1996-2007

	No. of IPOs	MAAR Day 1	Std. Dev.	T Stats
1996-2011	390	38.2%	96.8%	7.7936***
Cold Markets	128	7.3%	21.3%	3.8872***
Hot Markets	262	53.3%	114.2%	7.5509***
Significance		*0.000****		
Hot Market 1	168	70.3%	137.5%	6.6265***
Hot Market 2	94	22.8%	34.3%	6.4589***
Significance		*0.001****		

****Significant at 1%*

If we assume a MAAR of between 0.0% and 19.9% as reasonably normal, negative first day returns and MAARs exceeding 20.0% are regarded as abnormal, with MAARs exceeding 100.0% as extremely abnormal. In Table 3 IPOs were classified according to the size of MAAR for the two hot market periods. The results were fairly similar for IPOs with MAARs of less than 100.0%, but the first hot market period had significantly more IPOs with a MAAR exceeding 100.0% (20.8% with an average MAAR of 276.0%) than the second hot market period (only 3.2% of IPOs with an average MAAR of 137.3%). It seems therefore that the main reason for the difference in underpricing between Hot Market Period 1 and 2 is the skewness of the data, thus the number of IPOs with a MAAR exceeding 100.0% (see Table 4).

Table 3. Number of IPOs with abnormal MAARs

	Hot 1: 1997 - 1999		Hot 2: 2006 - 2007	
	% of IPO's	**MAAR Day 1**	**% of IPO's**	**MAAR Day 1**
No. Of IPOs	168		94	
MAAR Cat.				
< 0.0%	17.9%	-17.8%	23.4%	-6.3%
0.0 to 19.9%	31.5%	9.0%	38.3%	7.7%
20.0 - 100.0%	29.8%	44.2%	35.1%	48.4%
> 100.0% **	20.8%	276.0%	3.2%	137.3%
Avg. MAAR		70.3%		22.8%
Avg. MAAR**	**79.2%**	**16.2%**	**96.8%**	**19.1%**

** *MAAR of IPOs excluding those with MAARs exceeding 100%*

When comparing the means, Table 4 confirms that the hot market period in 1997 to 1999 had significantly higher underpricing than the second hot market period in 2006 to 2007. However, if we

compare the Z score for Skewness, the MAARs for both hot periods deviated significantly from normal, indicating that the mean MAAR is not a true reflection of the level of underpricing, but is significantly influenced by the number of IPOs with a MAAR exceeding 100.0%. If these outliers are excluded from the results, the adjusted mean MAARs for hot period 1 is 16.2% and 19.1% for hot period 2. Even the median MAAR becomes a better indicator for the level of underpricing if the significance of the Skewness is taken into account.

Table 4. Skewness of MAAR between Hot Market 1 and 2

	Hot 1	Hot 2	Sig.
Mean (MAAR)	**70.32%**	**22.82%**	
No. Of IPOs	168	94	
Std. Deviation	137.54%	34.26%	0.001
Median (MAAR)	**20.16%**	**10.60%**	
Skewness	3.14	1.73	
Z (Skewness)	***6.79****	***2.80****	
Adj. MAAR**	**16.20%**	**19.05%**	

*** *Significant at 1%*

In the next few tables other indicators, such as the offer price, market capitalization (size), years of existence before listing, sectors and success versus failure are assessed to verify whether the IPOs in two consecutive hot periods on the JSE differ significantly. It is important to note that given the relative high levels of inflation, combine with the fact that these IPOs were listed over a period of 16 years, it was essential to adjust both the offer price and the market capitalization (size) for inflation.

Table 5. Offer Price, Size and Maturity of IPOS in two Hot Markets

		Inflation Adjusted		Years Exist
HOT MARKET 1 VS 2:		Offer Price	Market Cap.	before Listing
Hot Market 1: 1997-99	Mean	1 098	2 521	22
	No. Of IPOs	168	168	168
	Std. Deviation	6 492	9 278	155
	Median	**206**	**289**	**3**
	Skewness	12.32	6.11	12.66
	Z (Skewness)	***26.62****	***13.20****	***27.35****
Hot Market 2: 2006-07	Mean	1 085	2 142	14
	No. Of IPOs	94	94	94
	Std. Deviation	2 336	6 140	21
	Median	**257**	**482**	**7**
	Skewness	4.27	6.09	2.73
	Z (Skewness)	***6.90****	***9.84****	***4.42****
Significance		***0.985***	***0.635***	***0.723***

Table 5 clearly indicates that the inflation adjusted offer price (R1 098 in hot period 1 to R1 085 in hot period 2) were very similar. Regarding both the size (market capitalization) and maturity (years of existence before listing), there are no significant differences between the two consecutive hot periods. Again the level of Skewness for all three indicators are significant, indicating that we cannot assume a normal distribution. The median values could therefore be a more true reflection of the differences between the two hot periods.

Table 6. IPOs listed in different Sectors comparing the two hot periods

	Percentage IPOs Listed	
Sector	Hot Mark. 1	Hot Mark. 2
No. Of IPOs	168	94
Basic Materials	4.2%	**18.1%**
Consumer	**19.6%**	4.3%
Industrial	7.7%	14.9%
Financial	**16.7%**	4.3%
Technology	**17.3%**	3.2%
Venture/AltX	34.5%	**55.3%**
Significance	***0.000****	

The results in Table 6 clearly indicate that there was a shift in sectors regarding the listing of IPOs in the two consecutive hot periods. As was expected there were substantially more technology stocks listed in the period 1997 to 1999, as well as IPOs in the consumer and financial sectors, while the period 2006 to 2007 saw a major increase in basic materials (resources) to capitalize on the higher mineral prices that were typical of that period. What is also interesting to observe is the significant increase in IPOs getting listed on the alternative board (AltX) from hot market 1 to hot market 2. A possible explanation for this phenomenon could be that many companies find it difficult to comply with the main board requirements. Lastly the IPOs were classified as successful or failed over a period of seven years, with the "Other" category as all those IPOs who either delisted or merged or a with share price of less its original offer price.

Table 7. Failed versus Successful IPOs

	Percentage IPOs Listed	
Sector	Hot Mark. 1	Hot Mark. 2
No. of IPOs	168	94
Success	17.9%	**21.3%**
Failed	32.7%	**27.7%**
Other*	49.4%	**51.1%**
Significance	*0.302*	

From Table 7 it can be observed that there is no significant change regarding the failure or success of IPOs on the JSE in the two consecutive hot market periods. Although not significant, it appears that the IPOs performed marginally better in the last hot market period.

Over the period 1996 to 2011 two distinct hot market periods can be observed (1997 to 1999 and 2006 to 2007) with, as expected, significantly higher levels of underpricing in the hot markets (53.3%) than in the colds markets (7.3%). However, the main focus of this research was to establish to what extent the characteristics of the two consecutive hot market periods have changed and the results were in many cases quite contradictory to popular belief. As was expected, the number of IPOs listed in the second hot market period (94) was substantially less than in the first hot market period (168). What was, however, surprising was that the level of underpricing (MAAR) decreased from 70.3% for the first hot period to only 22.8% for the second hot market period

Closer examination revealed significant Skewness of the MAARs in the two hot periods, indicating that the mean MAAR is not a true reflection of the level of underpricing. If the outliers with MAAR in excess of 100% were excluded from the sample, the two hot periods had very similar levels of underpricing (16.2% in 1997-99 compared to 19.01% in 2006-07). Hot market period 1 had just more outliers (20.8%) than hot market period 2 (3.2%).

Focusing on the characteristics, the offer price, the market capitalization (size) and the maturity (years in existence before listing) of the IPOs indicate no significant differences between the two consecutive hot periods. Using the sectors in which the sampled IPOs were listed, there was a significant change with fewer IPOs in the last hot market period listed in the Technology, Consumer and Financial Sectors, but an increase of IPOs in the Basic Materials and AltX Sectors. Although there was no significant difference regarding the survival rate of the sampled IPOs between the two hot market periods, it seems as if the IPOs in the last hot market period did marginally better in terms of both success and failure, which could explain the lower levels of underpricing of IPOs in 2006-07 as compared to 1997-99.

5 Conclusions and Recommendations

The main goal of this research paper was to verify whether the IPO landscape in South Africa, focusing on two consecutive hot market periods (1997-99 and 2006-07), show similar trends of declining numbers of newly listed companies, increasing failure rates and thus higher levels of underpricing over time. Gao, Ritter and Zhu (2012:1), reporting a major decline in the number of IPOs listed in the USA, ask the question "where have all the IPOs gone?" They came to the conclusion that small company IPOs have had declining profitability, consistently lower returns for investors and an increasing likelihood of being involved in acquisitions.

The results of this study highlights, in many cases, remarkably different results for the South African IPO market over time. With the focus on two consecutive hot period markets, the results indicated that the number of IPOs listed did decline substantially, but that the level of underpricing, against all expectations, decreased significantly from 70.3% for 1997-99 to 22.8% for 2006-07. However, closer examination of the level of underpricing indicated that huge difference in the level of underpricing between the two hot markets was primarily caused the skewness of the data, thus the number of IPOs with a MAAR exceeding 100% was much higher in the first hot market period. If these few outliers with excessive underpricing were

excluded from the sample, there was little change in the level of underpricing over time.

In contrast to previous studies (Weild, 2011; Demers and Joos, 2005), other surprising findings were that the characteristics of the IPOs listed in two consecutive hot markets, such as the inflation adjusted offer price and market capitalization (size) did not change significantly, nor did the age of the companies prior to listing decreased. Regardless of a shift in the number of IPOs listed in the AltX Sector, there was also no significant change in IPO failure rates over time, which most probably explains the improvement in the level of underpricing in the South African stock market.

It could therefore be concluded that all indications are that the IPO market in South Africa has stabilized after the huge IPO bubble in the late 1990s. Some of the most important recommendations emanating from this research are a) compare similar periods with each other, such as two consecutive hot markets, before coming to any conclusions regarding changing IPO characteristics, levels of underpricing or IPO failure, and b) given the typical skewness of IPO data, specifically in hot periods, isolate outliers or even use the median to report on changing levels of underpricing. All indications are that the IPO market in South Africa is alive and well and showing marginal improvements regarding underpricing and failure since 1996. Further research could be conducted on the long-term performance of the IPOs over time to find potential explanations for the improvement in the levels of underpricing.

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