



UNIVERSITY OF GOTHENBURG  
SCHOOL OF BUSINESS, ECONOMICS AND LAW

## **Is Operating Cash Flow a Contributing Factor to IPO Underpricing?**

*- A study of all IPOs conducted on the Stockholm Stock Exchange from 1995-2010*

Bachelor Thesis

Industrial and Financial Management

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## Abstract

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**Title** Is Operating Cash Flow a Contributing Factor to IPO Underpricing?  
- A study of all IPOs conducted on the Stockholm Stock Exchange from 1995-2010

**Problem** There is a substantial amount of research indicating that IPO underpricing exists. Consequently, researchers and market participants are spending vast amounts of time with the intention of identifying the underlying reasons for the existence of underpricing. However, even though considerable studies have been conducted within the area of research, the results are contradictory. The overall problem remains: what are the underlying factors behind IPO underpricing?

**Purpose** The main purpose of this thesis is to analyze the impact of Operating Cash Flows (OCFs) on the occurrence of underpricing in companies going public. This study seeks to empirically examine if a correlation exists between OCFs and the occurrence of underpricing on the listing date and 180 days later.

**Limitations** The aim of this study is to quantify the impact of OCFs on the occurrence of IPO underpricing on the Stockholm Stock Exchange from 1995-2010.

**Method** The study can be categorized as deductive as it attempts to statistically test the theories of Winner's Curse, Market Efficiency, Signaling and Adverse Selection with the support of the empirical findings.

**Findings** The main conclusion of this study is that positive OCFs are shown to be statistically correlated with the occurrence of underpricing on the day a new stock was listed on the Stockholm Stock Exchange from 1995-2010. Furthermore, the study concludes that the market has corrected for initial underpricing 180 days after the listing date.

**Suggestions** The main suggestion of this study is that future research should identify and test additional variables in conjunction with testing for the significance of positive OCFs in relation to the occurrence of IPO underpricing. The ambition is to contribute to a predictive IPO underpricing model.

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Bodin & Samuelsson

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## Glossary

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<b>Accounting Profit</b>	A company's total earnings including the costs of doing business, such as depreciation, taxes and interest
<b>Cash Flow</b>	A revenue or expense stream that changes a cash account over a given period of time.
<b>- Operating Cash Flow</b>	The cash generated from the operations of a company, generally defined as revenues less all operating expenses
<b>Closing Quotation</b>	The price at which a share is traded at the end of a trading day
<b>Dividends</b>	A share of a company's profits passed on to the shareholders on a periodic basis
<b>Equity</b>	A stock or any other security representing an ownership interest
<b>- Private Equity</b>	Equity capital that is not quoted on a public exchange
<b>- Seasoned Equity</b>	A new equity issue by an already publicly traded company
<b>GICS Sector</b>	A standardized classification system for equities developed jointly by Morgan Stanley Capital International and Standard & Poor's
<b>Initial Public Offering</b>	The first sale of stock by a private company to the public
<b>Investment Bank</b>	A financial institution that assists corporations and Governments in raising capital by underwriting and acting as the agent in the issuance of securities
<b>Listing Quotation</b>	The price at which a company publicly introduces its share
<b>Net Present Value</b>	The sum of the present values of ingoing- and outgoing cash flows over a period of time
<b>Shareholder Value</b>	The value delivered to shareholders because of management's ability to grow earnings, dividends and share price
<b>Volatility</b>	A statistical measure of the dispersion of returns for a given security or market index
<b>Working Capital</b>	A company's ability to pay off its short-term liabilities



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School of Business, Economics and Law at Gothenburg University

Gothenburg, 2010-05-26

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## Table of Contents

<b>1.0 Introduction</b>	<b>7</b>
1.1 Background Description	7
1.2 Problem Description and Analysis	9
1.3 Research Question	11
1.4 Purpose Statement	11
1.5 Scope and Delimitations	11
1.6 Research Hypotheses	12
1.7 Target Audience	13
<b>2.0 Method</b>	<b>14</b>
2.1 Initial Planning Stage	14
2.2 Evaluation of Research Approach and Methods	14
2.3 Data Collection	15
2.4 Calculation of Operating Cash Flows	16
2.5 Sample Size	17
2.6 Validity and Reliability	17
<b>3.0 Theoretical Framework</b>	<b>19</b>
3.1 Valuation of Companies Based on Operating Cash Flows	19
3.2 Underpricing and the Theory of the Winner's Curse	20
3.3 Linear Regression Analysis	20
3.4 Logistic Regression and Odds Ratio	22
3.5 The Efficient Market Hypotheses	22
3.6 The Signaling Theory and Asymmetric Information	24
3.7 Adverse Selection	26
<b>4.0 Empirical Results</b>	<b>28</b>
4.1 Characteristics of the Data Sample	28
4.2 Summary of Statistical Procedures	30
4.3 Empirical Findings	31
4.3.1 First Hypothesis	31
4.3.2 Summary First Hypotheses	34
4.3.3 Second Hypothesis	34
4.3.3 Summary Second Hypotheses	37
4.4 Sensitivity Analysis	37
4.5 Logistic Regression	38
4.6 Summary of Empirical Findings	39
<b>5.0 Analysis</b>	<b>40</b>
5.1 First Hypothesis	40
5.1.1 Sensitivity Analysis - First Hypothesis	41
5.1.2 First Sub-Hypothesis (Significant)	41
5.1.3 Second Sub-Hypothesis	43
5.2 Second Hypothesis	44
5.2.1 Sensitivity Analysis – Second Hypothesis	45
5.2.2 First Sub-Hypothesis	46



5.2.3 Second Sub-Hypothesis .....	47
<b>6.0 Conclusion and Suggestions for Further Research .....</b>	<b>49</b>
6.1 Conclusions.....	49
6.2 Suggestions for Further Research .....	50
<b>References.....</b>	<b>52</b>
<b>Appendix A – Final sample .....</b>	<b>57</b>
<b>Appendix B – Linear Regression Calculations.....</b>	<b>58</b>
<b>Appendix C – Logistic Regression Calculations .....</b>	<b>67</b>
<b>Appendix D – Regression Calculations with Sensitivity Analysis (excluding 1999). ..</b>	<b>77</b>

## Table of Figures and Tables

Equation 1 - Simple Linear Regression Equation .....	15
Equation 2 - Simple Linear Regression Equation.....	21
Equation 3 - Linear Regression Model in this Thesis.....	21
Equation 4 - Logistic Regression Equation .....	22
Equation 5 - Logistic Regression Equation Used in this Thesis.....	22
Figure 1 - Distribution of Cash Flows in the Data Sample.....	28
Figure 2 - Distribution among GICS Sectors in the Data Sample .....	29
Figure 3 - Distribution of Listing Years in the Data Sample.....	30
Figure 4 - All Operating Cash Flows on the Listing Date .....	31
Figure 5 - Positive Operating Cash Flows on the Listing Date .....	32
Figure 6 - Negative Operating Cash Flows on the Listing Date.....	33
Figure 7 - All Operating Cash Flows 180 Days Post the Listing Date.....	34
Figure 8 - Positive Operating Cash Flows 180 Days Post the Listing Date .....	35
Figure 9 - Negative Operating Cash Flows 180 Days Post the Listing Date.....	36
Table 1 - Summary of Empirical Findings .....	39



## 1.0 Introduction

*The introducing chapter of this thesis seeks to provide a descriptive explanation concerning the main features of this study. Furthermore, delimitations as well as a problem discussion will be presented, ultimately culminating in the main research question.*

## 1.1 Background Description

There are substantial amounts of research indicating that Initial Public Offerings (IPOs) of private equity are generally underpriced. Underpricing is a stock market phenomenon defined as the event when a stock has a higher closing than offering price on the listing date (Berk & DeMarzo, 2007). Several studies, including Ibbotson (1975), Ritter (1984) and Welch (1989), provide evidence that suggest an ongoing average initial return of 22% on IPOs on the US stock markets. In addition, Buckland et al., 1981, have derived similar evidence from the London Stock Exchange. One can therefore assume that it would be possible to generate returns above average by constantly investing in IPOs. Why is this? How come so many companies are continuously being offered to the market at a discount? Rather than looking at the phenomenon underpricing, this study seeks to give some clarity to what the underlying factors might be.

Previous studies have investigated the impact of several factors on IPO underpricing. Ljungqvist et al. (2001) investigated the impact of underwriters' reputation and concluded that a significant relationship exists. Krigman et. al. (1999) examined the impact on underpricing caused by the size of the underwriter and whether an IPO is "hot" or cold". The study concluded that the underwriter firm's ability to sell stock by setting a fair price in a "cold IPO" might be a result of the underwriters' size. Further, due to underwriters' intention to attract long-term investors, "hot" IPOs are often underpriced.



Several additional factors attempting to explain IPO underpricing have been tested. Garfinkel (1993) found that no significant relationship exists between insider selling and underpricing. Garfinkel also states that underpricing in an IPO does not guarantee the quality of a firm.

In addition, Ritter (1984) looked into the connection between the offering size of IPOs and IPO underpricing and could establish that a positive relationship existed. Lastly, the influences of ownership structure and corporate control have been explored in relation to underpricing in firms “going public”. Brennan and Franks’ (1997) research found that underpricing is affected by the owners’ strategic decisions to influence share dispersion. Having mentioned a few of many studies, it can be concluded that there are a number of factors that affect the occurrence of IPO underpricing. Consequently, this thesis aspires to provide an additional factor that explains the phenomenon of IPO underpricing.

In the words of John A. Tracy (2009), ”Cash inflows and outflows are the heartbeat of every business. Without a steady heartbeat of cash flows, a business would soon die”. The quotation stresses the importance of cash flows for the survival of any company. In this thesis, the focal point will lay on companies’ Operating Cash Flows (OCFs) one year prior to their respective IPOs. This is based on the reasoning that OCF is a measurement of a company’s core business performance and therefore could be a significant factor in explaining the development of newly listed firms’ equity in the public market.

By investigating a possible correlation between OCF and the occurrence of underpricing, this study will hopefully establish a first step in sorting out the confusion surrounding the markets reaction to newly listed companies. However, the reader should bear in mind that this thesis does not seek to predict the level of potential underpricing that might occur when any given company goes public. This thesis should rather be looked upon as an audacious attempt at shedding some light over what might be a contributing factor to the occurrence of underpricing.





## 1.2 Problem Description and Analysis

The problem description takes off in a conversation with Ulf Corné, founder and majority shareholder of Arise Windpower (Arise), regarding the problems Arise faced in the process preceding its recent IPO on the Stockholm Stock Exchange (SSE). Corné elaborates on the decision to go public, “We knew from the beginning that we had to go public sooner or later. The wind power industry is highly capital intensive and in order to raise sufficient funds, we could no longer rely on private placements but had to turn to the open market”. This reasoning summarizes the logic behind most IPOs but, perhaps humbly, trivializes the complicated considerations and decisions that have to be made regarding factors such as pricing of the share, timing of the market state and profiling of the company.

When asked to describe the process of deciding on a share price, Corné explains, “We started by summing up the revenues and costs for all 300 projected wind power stations and then calculated the Net Present Value (NPV). The NPV gives an indication of the value of the company. This value is then followed by a number of calculations and comparisons between industry peers conducted by the designated investment bank. Lastly, an interval estimating the value of the company per share is decided upon. Although, it is important to realize that a private company has to be publicly introduced with a discount in order for the investors to be paid-off.” In other words, the valuation of a company is based on a number of factors, discounts and future projections eventually ending up on the investor's plate.

The IPO of a company is a twofold process in which the owner wants to maximize the value of the company and avoid the risk of “leaving money on the table” (Ritter et al., 2002). On the other hand, the designated investment bank wants to please their clients, i.e. the IPO investors, by offering a lucrative investment. The result that emerges from accommodating all interested parties is a potentially underpriced stock. Consequently, this dilemma makes the theory of the Winner's Curse applicable. The theory suggests that

stocks will be rationed due to high demand in “good IPOs” whereas “bad” IPOs will have low demand, filling all initial orders (Levis, 1990).

Eventually, the question that comes to mind is what factors make an investor decide that an IPO is going to be successful and hence commit to investing? Corné clarifies the timing of Arise's IPO, saying, “We wouldn't have been bothered by a continued bearish market following the financial crisis. We already had a positive cash flow (note: from existent wind power stations) and could have kept on going as long as necessary.” Thus, Corné implies that positive cash flows signal the viability of a company's business. Corné goes on, saying, “Investors become nervous when calculations doesn't match. It (read: positive cash flows) is a fundamental condition for a successful IPO”. In other words, the calculation of future cash flows and the existence of positive cash flows prior to the IPO could have great impact on the final valuation. Accordingly, this thesis is aiming at connecting the missing dots between the occurrence of underpricing and cash flows. More specifically, the study will use OCFs, measuring how much funds a company generates through its core business, when conducting the analysis. (John A. Tracy, 2009).

Furthermore, when asked about the near future of the Arise stock, Corné replied, “For the first 30 days called the 'Greenshoe', the stock movement was intervened by the Investment bank with the intention of stabilizing the rate. In addition, speculators are currently shorting the stock, resulting in an unrepresentative picture of the markets actual valuation. What will happen in the near future is that the stock eventually will find a self-supporting level.” This implicit logic implies that the market will correct for any initial mispricing only given some time. When asked about efforts to speed up the markets correction of initial mispricing, Corné mentions, “We have to perform roadshows and have an ongoing communication with analysts. A stock has to be marketed at all times or it will soon become cold”. In other words, it is implied that a company will try to send signals to the investors with the ambition of promoting the stock and helping its climb to the “true” value. Field (1995) demonstrates that the level of institutional investment in IPOs, measured approximately six months after the IPO, is highly variable. Field's



findings imply that investment behaviors change in the period of 6 months following an IPO. Consequently, this thesis will also investigate the correlation between the occurrence of underpricing and OCFs 180 days post the listing date in order to test for the efficiency of the market. In this case, underpricing 180 days post the listing date is defined as the difference between the listing quotation and the closing quotation 180 days later. Summing up, using the words of Corné, “The investors know that once a positive cash flow is generated, the business is able to take care of itself”. The question that lingers is if the market can appreciate the stock’s “true” value?

### **1.3 Research Question**

This thesis attempts to answer the following research question:

*What is the influence of Operating Cash Flows on the occurrence of IPO underpricing on the listing date and 180 days post the listing date?*

In order to fully be able to answer the research question of this study, hypotheses have been formulated as stated in 1.6 RESEARCH HYPOTHESES.

### **1.4 Purpose Statement**

The main purpose of this thesis is to analyze the impact of OCFs on the occurrence of underpricing in companies going public. This study seeks to empirically examine if a correlation exists between OCFs and the occurrence of underpricing on the listing date and 180 days later. The overall aspiration is to provide evidence indicating whether companies with positive or negative OCFs, one year prior to their IPOs, will experience different frequencies of underpricing. Depending on the outcome, this study could provide an area for further research and hopefully shed some light on the phenomenon referred to as IPO underpricing.

### **1.5 Scope and Delimitations**

The aim of this study is to quantify the impact of OCFs on the occurrence of IPO underpricing on companies listed on the Stockholm Stock Exchange between 1995 and 2010. Although the Stockholm Stock Exchange has existed long before 1995, the study is



constrained by limited access to data prior to 1995. Furthermore, the study includes all IPOs and does not regard different methods of listing a company. The reason behind the inseparable IPO approach is the limited amount of time available to conduct the study. Consequently, the above delimitations could cause the theoretical findings and conclusions to differ from any attempts of practical implementations.

## 1.6 Research Hypotheses

The following hypotheses have been formulated and tested for significance in order to provide evidence for the research question defined above.

### First Hypothesis

**H<sub>01</sub>**: There is no correlation between *all* OCFs and the occurrence of underpricing on the listing date

**H<sub>11</sub>**: There is a correlation between *all* OCFs and the occurrence of underpricing on the listing date

### First Sub-Hypothesis

**H<sub>01,1</sub>**: There is no correlation between *positive* OCFs and the occurrence of underpricing on the listing date

**H<sub>11,1</sub>**: There is a correlation between *positive* OCFs and the occurrence of underpricing on the listing date

### Second Sub-Hypothesis

**H<sub>01,2</sub>**: There is no correlation between *negative* OCFs and the occurrence of underpricing on the listing date

**H<sub>11,2</sub>**: There is a correlation between *negative* OCFs and the occurrence of underpricing on the listing date



## **Second Hypothesis**

**H0<sub>2</sub>**: There is no correlation between *all* OCFs and the occurrence of underpricing 180 days post the listing date

**H1<sub>2</sub>**: There is a correlation between *all* OCFs and the occurrence of underpricing 180 days post the listing date

## **First Sub-Hypothesis**

**H0<sub>2,1</sub>**: There is no correlation between *positive* OCFs and the occurrence of underpricing 180 days post the listing date

**H1<sub>2,1</sub>**: There is a correlation between *positive* OCFs and the occurrence of underpricing 180 days post the listing date

## **Second Sub-Hypothesis**

**H0<sub>2,2</sub>**: There is no correlation between *negative* OCFs and the occurrence of underpricing 180 days post the listing date

**H1<sub>2,2</sub>**: There is a correlation between *negative* OCFs and the occurrence of underpricing 180 days post the listing date

## **1.7 Target Audience**

The results of this thesis can be of interest to a number of different parties with an interest in the financial markets. First, the research community can benefit from findings in a unique study that contributes to the contradictory results of previous research within the area of IPO underpricing. In addition, entrepreneurs and business owners may benefit from the outcome of this study as it can provide insight into IPO pricing decisions. Accordingly, business owners, investors and researchers are intuitively the main target group as the results of the thesis can facilitate investment decisions related to companies conducting IPOs.



## **2.0 Method**

*The following chapter embodies the methodological approach to investigating the subject. It includes a thorough description and evaluation of the research approach, the applied method and the collection and the selection of data. The intention is to help the reader create a clear understanding of the methodological approach to analyzing the empirical findings on which the conclusions of this thesis is drawn upon.*

### **2.1 Initial Planning Stage**

The occurrence of IPO underpricing has led to an extensive area of academic research as well as comprehensive coverage by the contemporary media. Consequently, the factors affecting IPO underpricing comprises an interesting topic to examine further. First, literature regarding the subject of IPO underpricing was collected and reviewed in order to establish a conception of the theoretical framework available. In addition, previous research and press were scanned for further information about IPO underpricing in order to fully comprehend the nature of the subject. Following the review of the theoretical framework, emphasis was put on defining the purpose and the scope of the thesis. Finally, a discussion with the tutor was initiated concerning the scope and delimitations of the study.

### **2.2 Evaluation of Research Approach and Methods**

The study can be categorized as deductive as it attempts to statistically test the theories of Winner's Curse, Market Efficiency, Signaling and Adverse Selection with the support of the empirical findings. A deductive study is defined as a study that emanates from a theory and tests if this theory can prove the empirical findings (Johansson-Lindfors, 1993).

The statistical calculations have been conducted through regression- and logistic analyses. The statistical procedures are formulated using level of underpricing as the dependent variable and OCF as the independent variable. The level of underpricing represents the difference between closing- and listing quotation given in percent.

In this study, the regression analyses have been formulated as:

$$Y_{\text{underpricing}} = \beta_0 + \beta_{\text{operating cash flows}} + \varepsilon \quad (\text{Equation 1})$$

$\beta_0$  represents the y-intercept of the regression line,  $\beta_x$  is the slope of the regression line and  $\varepsilon$  symbolize the model's error terms (Berk & DeMarzo, 2007).

However, the main research question and, thus, the hypotheses formulated are investigating the occurrence of underpricing and not the degree of underpricing that is present. In order to test for the occurrence of underpricing using regression analysis, the dependent variable has to be denoted as the level of underpricing. The statistical computation is carried out by at statistical software named SPSS. In order to test the collected data, hypotheses have been created in order to accept or reject the findings. In statistics, hypotheses come in pairs where the null hypotheses is tested and, in the case of rejection, the second hypotheses is the mirroring outcome (Lee et al., 2000).

### 2.3 Data Collection

Qualitative data needed to perform the study has been collected from several sources and is of secondary nature. Secondary data is information that has been publicized and interpreted (Nyberg, 2000). Initially, various literature regarding IPOs was studied in order to grasp the essence of the research field. The purpose was to find relevant previous research and theoretical frameworks that were applicable to the occurrence of IPO underpricing. The theoretical framework has mainly been collected through databases such as JSTOR and Google Scholar. Previous research has been considered without any constraints regarding when the research was conducted. In addition, Google has been used to search for relevant academic papers to ensure a thorough scanning of the available literature. Key phrases such as “IPO underpricing”, “IPO underpricing and Operating Cash Flow” and “IPO mispricing” were used separately or in combination when conducting the searches.



The quantitative data has mainly been collected from different databases such as DataStream, CisionWire and NASDAQ OMX. The thesis is based on data from Swedish companies that have conducted their IPOs on the Stockholm Stock Exchange from 1995-2010. The collected market data consists of company GICS information, historic stock prices and dates, mainly originating from the NASDAQ OMX Nordic website.

In addition, information regarding the companies' OCFs, one year prior to their IPOs, have been collected and calculated through annual reports originating from the companies websites or CisionWire. Foreign currencies have been converted using historic rate information from the Swedish Riksbank's (note: the Swedish Central bank) website and represents the average rate the year of the trading date.

#### **2.4 Calculation of Operating Cash Flows**

Information regarding OCFs has been collected from annual reports, which, in turn, have been downloaded from the company websites. In a few cases, when annual reports have not been available, information has been gathered from interim reports and year-end reports.

The OCF information is sourced from the statement of cash flows including changes in working capital. In the absence of cash flow statements, OCFs have been calculated by adding back any depreciation and deducting taxes from the net income (Berk& DeMarzo, 2007). This information is readily available in most annual reports and can be found under the Statement of Income. Cash flows denoted in foreign currencies have been converted at the average rate of each year. The reasoning is that the average rate most accurately reflects the average values denoted in the annual reports.

The collected OCFs, stemming from financial reports published one year prior to the IPO, constitute the most recent available information prior to a listing. In addition, all companies in the sample used have released financial reports around one year prior to their IPO, increasing the comparativeness between the different OCFs.





## 2.5 Sample Size

The initial sample consisted of 197 companies, including all the companies that have been listed on the Stockholm Stock Exchange from 1995 to 2010. However, due to lack of market data regarding historic stock prices and OCFs, the sample has been reduced. The reason is that a considerable amount of the companies have either ceased to exist or have been delisted from the Stockholm Stock Exchange and, consequently, no information could be obtained regarding such companies. The final sample amounts to 73 companies from various sectors.

## 2.6 Validity and Reliability

The validity of a study measures the ability to correctly estimate the data it aims to measure (Eriksson and Wiedersheim, 2001). Reliability measures the certainty and occurrence of unsystematic errors of a method (Esaiaason et al., 2007). This study has collected data in a systematic and consistent manner. Data regarding stock prices have been collected from reliable and updated databases such as NASDAQ OMX and systematically documented in Excel. Annual reports have been gathered with the help of databases like CisionWire. Any figures retrieved from financial reports have been documented following the same systematic procedure when conducting calculations used to find additional information. In addition, to secure a high quality sample, only reports signed off by authorized auditors have been used.

Further, it is reasonable to assume that the general movement of the market during a certain day will affect the level of underpricing of a stock. However, over time, the general movement of the market will not affect the actual existence of underpricing. By this reasoning, the sample size and assumption of normal distribution should eliminate the impact of the majority of individual variations. Hence, the stocks have not been filtered from the average market return. The assumption of a normally distributed population means that estimations will be more precise as the variability is reduced (Sweeney et al., 2006). In addition, sample sizes larger than 30 units generally can be assumed to follow a normal distribution. The final sample consists of 73 companies that



have conducted IPOs from 1995-2010. In accordance with the assumption of normal distribution, the final sample size well exceeds the necessary requirements to assume normal distribution. Further, to ensure the validity of the findings the study includes sensitivity analyses that take factors into consideration affecting the occurrence of underpricing.

In conclusion, it is believed that this study will show the same results if the study was to be repeated using the same methodology as described above. By this reasoning, the reliability of the study is considered high.



### **3.0 Theoretical Framework**

*The following chapter seeks to present theoretical findings of relevance for this study. Theories regarding underpricing and the behavior of investors will be explained and subsequently used as tools to analyze relevant empirical data in chapter 5.0 ANALYSIS.*

### **3.1 Valuation of Companies Based on Operating Cash Flows**

In this study the main goal is to see if a correlation between OCFs and the occurrence of underpricing exists. One might wonder why OCF is chosen instead of, for example, profit. A common misconception is that the profit found at the bottom of the Income Statement is the cash the company earns each year and, thus, it is the same thing as the cash a company generates each year. However, as implied, this is incorrect; the profit one finds in the Income Statement is the *accounting* profit. In other words the final entry that is left after non-cash expenses such as depreciation has been taken into account. A company's cash flow can therefore differ a lot from the profit generated (John A. Tracy, 2009). Depreciation is a non-cash expense meaning that it is an accounting measure designed to reflect the economic lifetime of an asset and accordingly used to diminish taxes paid. Consequently, it is more correct to regard a company's cash flow when analyzing profitability because actual funds generated can differ greatly from the profit a company chooses to state.

"Cash inflows and outflows are the heartbeat of every business. Without a steady heartbeat of cash flows, a business would soon die" (John A. Tracy, 2009). This quotation stresses the importance of cash flows for all companies. Two types of cash flows exist; first off is the cash generated from a company's primary profit-making activities. In other words, sales create an inflow of cash while expenses cause an outflow. Further, funds used for investments and payouts to shareholders and so on make up the second type of cash flow. The former, and the primary measurement used in this study, is referred to as the OCF and is a measurement of how much funds a company generate through its core business. (John A. Tracy, 2009).

### **3.2 Underpricing and the Theory of the Winner's Curse**

There are substantial amounts of research indicating that IPOs generally are underpriced. As previously stated, underpricing is a stock market phenomenon defined as the event when a stock has a higher closing than offering price on the listing date (Berk & DeMarzo, 2007). Several studies, including Ibbotson (1975), Ritter (1984) and Welch (1989), provide evidence that suggest an enduring average initial return of 22% on IPOs on the US stock markets. In addition, similar evidence has been derived from the London Stock Exchange by i.e. (Buckland et al., 1981). In other words, the pre-IPO shareholders are selling stock at a lower price than they would receive in the aftermarket. Rationally it would therefore be possible to generate returns above average by continuously investing in IPOs. However, this is not for certain as in the case denoted as the Winner's Curse. It reasons that when an IPO is "good", the demand for the stock exceeds the supply, i.e. the stocks will be overpriced and the stocks are rationed. However, when an IPO is "bad" the demand is low and all initial orders are filled. In other words, one "wins" all the shares when an IPO is "bad" because the demand is low. Consequently, the Winner's Curse makes it difficult to earn excess returns by indifferently investing in every IPO (Levis, 1990).

### **3.3 Linear Regression Analysis**

Linear regression analysis is a statistical procedure, which is used to develop an equation showing how variables are related. As earlier mentioned, the variable being predicted in this thesis is the occurrence of underpricing is named the dependent variable. The variable or variables being used to predict the dependent variable is named the independent variable(s).

In this thesis the independent variable used to predict the occurrence of underpricing is the existence of either positive or negative OCFs one year prior to the IPO. The linear regression analysis is formulated as:

$$Y = \beta_0 + \beta_x + \varepsilon \quad \text{(Equation 2)}$$

$\beta_0$  represents the y-intercept of the regression line,  $\beta_x$  is the slope of the regression line and  $\varepsilon$  symbolize the model's error terms.

The regression analysis assumes that four different requirements are fulfilled:

1. The error term,  $\varepsilon$ , is a random variable with a mean or expected value of zero;  
 $E(\varepsilon)=0$
2. The variance of  $\varepsilon$ , denoted by  $\sigma^2$ , is the same for all values of  $x$
3. The values of  $\varepsilon$  are independent
4. The error term,  $\varepsilon$ , is a normally distributed random variable.

In order to ensure that the assumptions are fulfilled, F-tests have been conducted that tests the significance of the simple linear regression (Appendix B, D)(Gujarati, D. N. 2006). An F-test is based on the F probability distribution and tests the significance of the overall regression by accepting or rejecting the null hypotheses (Anderson et al., 2007). It can be concluded that a significant relationship exists between the dependent and independent variables. In this thesis we assumed that the level of underpricing (Y) is a linear function of the size the OCFs (X).<sup>1</sup> In this study, the regression analyses have been formulated as:

$$Y_{\text{underpricing}} = \beta_0 + \beta_{\text{operating cash flows}} + \varepsilon \quad \text{(Equation 3)}$$

In order to establish the level of linear relationship between the two variables, a correlation coefficient is calculated and validated. The correlation coefficient describes

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<sup>1</sup> For more information about regression analysis, Gujarati, D. N., 2006  
Bodin & Samuelsson

the strength of the linear relationship and is always between +1 and -1. A larger value indicates a stronger relationship and vice versa. A value around zero is indicative of a non-existent relationship between the two variables.

### 3.4 Logistic Regression and Odds Ratio

In many regression applications the dependent variable can only result in one of two possible discrete values, often denoted  $y=1$  and  $y=0$ . Logistic regression is used to give a probability of a certain outcome. Underpricing is, as previously mentioned in 3.3 LINEAR REGRESSION ANALYSIS, the dependent variable and OCF the independent variable. A possible way to make the logistic regression result more comprehensible is to use an odds ratio. By dividing the probability of an event by the probability that the event will not occur one can calculate the odds that an event will occur. The odds ratio is, in other words, a measurement of the impact on the odds of the occurrence of underpricing when the OCFs are increased with one unit (Anderson et al., 2007).

The general logistic regression model is formulated as:

$$E(Y) = \frac{e^{\beta_0 + \beta_1 x_1}}{1 + e^{\beta_0 + \beta_1 x_1}} \quad \text{(Equation 4)}$$

When the two values of the dependent variable  $y$ , level of underpricing, are coded as  $y=0$  (overpriced) or  $y=1$  (underpriced), the value of  $E(Y)$  gives the probability that  $y=1$  (underpriced) given a set of values represented by the regression coefficient,  $\beta_{1 \times 1}$ . In this thesis,  $\beta_{1 \times 1}$  symbolizes the companies' OCFs. In this thesis the logistic regression model is stated as:

$$E(\text{underpricing}) = \frac{e^{\beta_0 + \beta_{\text{operating cash flows}}}}{1 + e^{\beta_0 + \beta_{\text{operating cash flows}}}} \quad \text{(Equation 5)}$$

The significance of the model is tested using the Deviance statistic. It can be concluded at 0.05 significance that none of the logistic regression models are significant (Appendix C).



### 3.5 The Efficient Market Hypotheses

The efficient market hypothesis is based on a few key assumptions listed below (Fama, 1969):

- There are no transaction costs when dealing with securities
- All information is available to all market participants free of charge
- All investors interpret the information in the same way, which means that every stock price fully reflects the markets opinion based on all available information

Since the most extreme version of the efficient market hypothesis states that there are no transaction- or information costs (Grossman, Stiglitz, 1980), it is not hard to see why this is not applicable in the “real world”. It is therefore possible for one to reject this hypothesis (Fama, 1991). These conditions cannot be fully met but the assumptions stated above cannot be fully rejected either. Even though transaction costs exist, one cannot say that the market does not take these into account and therefore that stock prices are not adjusted for information of this sort.

Transaction costs, asymmetric information and the different ways market participants interpret available information constitute deviations from the assumptions underlying the efficient market hypothesis. One cannot define these deviations as market imperfections per se; one should rather look upon these deviations as potential market imperfection *sources*. Further, ruling out the possibility that investors take all deviations into consideration is not possible and for this reason the assumptions that constitute the very foundation of the efficient market hypothesis still holds (Fama, 1969).

The assumption that all investors behave in the same way does not hold when comparing individuals with one another (Copeland et al., 2005). If one would consider a larger group of investors with access to the same information, it is not far fetched to assume that different opinions will cancel each other out. Consequently, this leads to the conclusion



that the market is still efficient. Only when the same investors continuously interpret the available information in a more profitable way than the stock prices indicate, one can assume that the market is inefficient (Fama, 1969). When relating the theory of the efficient market hypothesis to the occurrence of IPO underpricing, one can assume that the market will be efficient in the pricing of a newly listed company if the information is fairly distributed. On the other hand the market can be assumed to be inefficient in the pricing of IPOs if a group of investors consistently interpret the distributed information in a more profitable way than the rest of the market. The perception of the value of a firm is according to Fama (1969) affected by all available information. Field (1995) showed that investors' behavior change during the period of 6 months following an IPO. This theory is in line with the Efficient Market Hypothesis as it provides an explanation for the differences in valuating a company on the listing date and, approximately, 180 days later.

### **3.6 The Signaling Theory and Asymmetric Information**

The Signaling theory introduced by Ross (1977) suggests that the market values the perceived cash flows of a firm. This is different from Miller Modigliani's (1958) irrelevancy proposition, assuming that all market participants know the cash flows a company generates with certainty (Copeland et al., 2005). The difference might appear to be trivial but, Ross' modification leaves room for investors to change their individual perception of a company and, consequently, also change the market's opinion. Changes in a company's cash flow would as a result alter an investors view, causing a domino effect altering the value the market, in its entirety, would assess a newly introduced company.

The Signaling theory is intimately related to the theory of efficient markets and the presence of asymmetric information. Asymmetric information relates to the imperfect distribution of information among different groups of agents in the market. (Berk and DeMarzo, 2007). Consequently, some agents have better information regarding the valuation of firms than others and are able to act according to their informational advantage (Allen and Faulhaber, 1988).





The background of the Signaling theory is that managers unveil indications, i.e. signals, of their perceived value of a firm. “A signal is an action undertaken by the more informed part that provides credible information to the less informed part” (Copeland et al., 2005). In other words, the less informed part relies on signals that the informed part unveils in order to make decisions under uncertainty. With regards to the effect of signals and the according investor behaviors, it can be inferred that OCFs will present a signal about the value of the firm. Dann and Mikkelson (1984) found that announcements about increases in investments or in dividends raise the company’s expected future cash flows, which in turn, results in a higher stock price and thus increases shareholder wealth.

Managers with access to private information can send formal signals in terms of buying stock in the company. Myers and Majluf (1984) developed a Signaling model in which they concluded that managers are best at predicting the future value of their respective firms. Further, the managers act in favor of longtime shareholders and not investors who seek to speculate in the company stock. Although, in reality, regulations regarding insider trading are strict, leaving as options more informal signals to be sent through either raising the payouts to shareholders or by increasing the leverage of the firm. The markets reaction to either of above is that the company commits to a financial change of this sort by acting on confidence that future earnings will be sufficient to meet the commitments to shareholders and creditors. Consequently investors predict a rise in earnings and the price of the stock will rise (Copeland et al., 2005).

According to a renowned study by Allen and Faulhaber (1988), the Signaling theory can be applied to the events of IPO underpricing. In Allen and Faulhaber's model, the initial assumption is made that the firm has the “best” information about the quality of the firm. The underpricing of a firm's IPO (resulting in an immediate loss to the initial owners) conveys a signal to the investors that the firm is “good”. The reasoning is that only profitable and thus “good” firms can be expected to recover the initial loss when the potential of the company is realized. “Good firms find it worthwhile to underprice their IPOs, because by doing so they condition the investors to more favorably interpret

subsequent dividend results” (Allen and Faulhaber, 1988). Accordingly, high dividends are supposed to upgrade the value of the firm and low dividends will achieve the opposite. Thus, the model gives a potential explanation for the underpricing of IPOs as a signal of the quality of a firm.

Furthermore, it is suggested that one reason for underpricing is caused by the desire to “leave a good taste in the mouth of investors” in order to remain an attractive investment at the point of issuance of seasoned equity (Allen and Faulhaber, 1988). This implies that issuers plan to sell seasoned equity at a later stage and therefore will underprice the initial offering of equity in order to receive a more favorable price at a later stage. Furthermore, the owner maximizes the value of the shares through the IPO and the following issuance of seasoned equity. A company with a low value does not signal through an initial discount, as the issuer does not expect to recover the investment through initial underpricing followed by issuance of seasoned equity (Su, 2004). As a result, the issuers of low value companies do not underprice their shares because they do not expect any future returns. “The best a low-value issuer can do is to “take the money and run” when its stock is initially offered” (Su, 2004).

Jenkinson and Ljungqvist (2001) elaborate on the occurrence of IPO underpricing by observing differences in scale of IPO underpricing. The researchers conclude that differences in scale of underpricing are caused by uncertainty regarding the valuation of companies. The uncertainty is a result of informational asymmetries in the market.

### **3.7 Adverse Selection**

George Akerlof (1970) presented the idea of Adverse Selection. By elaborating on the idea of asymmetric information, Akerlof argues that buyers will be skeptical of a seller's motivation for selling due to the fact that the seller possesses private information about the object. Thus, sellers are only motivated to sell if their object is of low quality. The Adverse Selection phenomena lead to the “lemons principle”. The principle concludes; “when a seller has private information about the value of a good, buyers will discount the price they are willing to pay due to Adverse Selection”(Berk & DeMarzo, 2007). Thus,



the theory of Adverse Selection presents an additional view on the existence of IPO underpricing and provides an explanation for the allocation of shares between informed and uninformed investors.

A study by Rock (1985) attempts to specifically explain the underpricing of IPOs by observing the degree of rationing of shares on the offer date. It is implied that equity will be allocated in a preferential way leading to informed investors ending up with the “good” shares and the uninformed investors with the rest. Through observations, Rock confirms that rationing occurs more often for “good” shares than “bad” ones. Rock concludes that the uninformed investor will be earning the equivalent of the risk free rate when participating in the issuance of new equity. The result is achieved by calculating the weighted returns and probabilities of receiving an allotment of shares on the issue date. However, it is important to consider the lack of direct evidence as Rock was unable to gather information from the underwriters and, instead, had to focus on indirect methods.

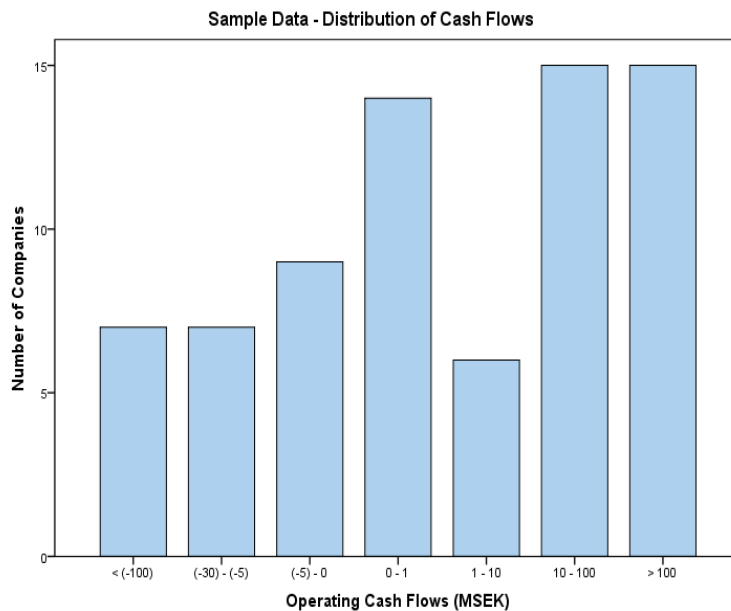
In conclusion, the theory of Adverse Selection has experienced slight modifications since the introduction but, in essence, boils down to the “lemons principle” and the distinction between informed and uninformed investors.

## 4.0 Empirical Results

Subsequent to a thorough analysis of the data that has been collected, this chapter will present the empirical findings of this study. The results will be displayed in diagrams and charts with the intention to visualize important results. Initially, a short description of the sample as well as the different statistical procedures will be presented. Finally, the results of each tested hypothesis will be described and interpreted.

### 4.1 Characteristics of the Data Sample

The sample used in this study consists of 73 stocks containing information regarding their individual listing quotation, closing quotation on the first day, and closing quotation six months post IPO<sup>2</sup>. Furthermore, the sample contains information regarding each company's OCF, originating from financial reports published one year prior to the IPO.



**Figure 1**

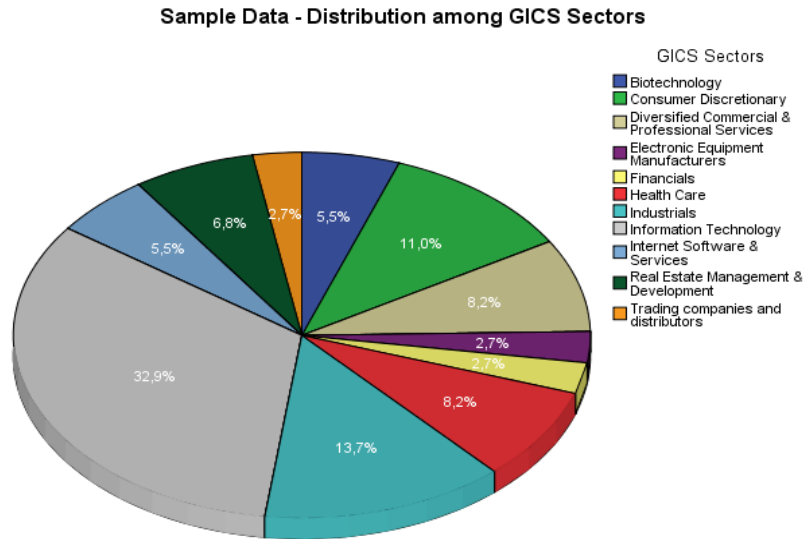
*It can be observed that approximately 40% of the companies that have gone public during the last 15 years have had an OCF of at least 10 million SEK one year prior to their listing date.*

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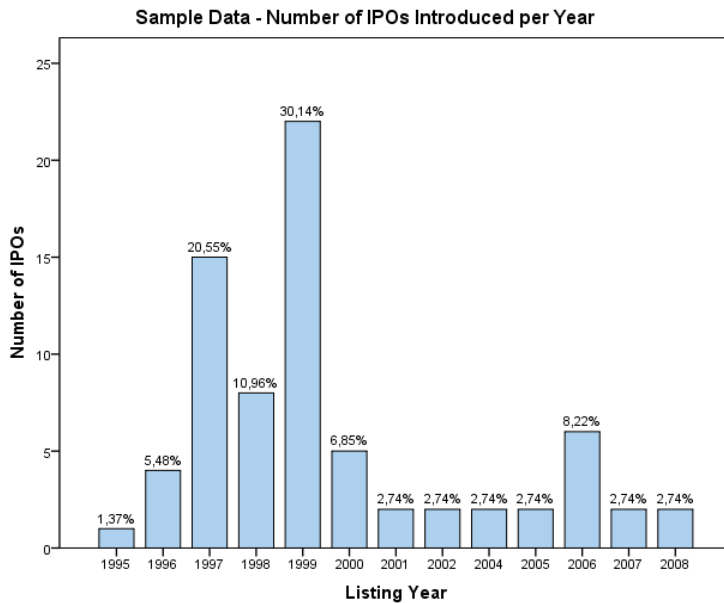
<sup>2</sup> The data has been retrieved from NASDAQ OMX. List over stocks and other important comments can be found in Appendix A.

The sample is distributed over a period ranging from 1995-2010 and contains IPOs from different GICS sectors. In the same sample used, one can observe negative OCFs in 22 companies one year previous to their actual listings. In other words, negative OCFs are present in approximately 30% of all the cases analyzed in this study.

**Figure 2**  
*The pie chart illustrates the distribution among GICS sectors in the data sample*



The distribution among GICS sectors in the data sample is best explained by the progression the IT sector has experienced. 13.7% consists of the Industrial sector and 11% of the sample falls under Consumer Discretionary. The majority of IPOs were conducted during the years 1997 and 1999. A more in depth discussion of all the IPOs introduced can be found in 5.0 ANALYSIS.



**Figure 3**  
*The bar chart shows the distribution of listing years among the IPOs in the data sample*

Finally, the data has been selected randomly with the only common denominator being that all the companies were listed on Stockholm Stock Exchange from 1995-2010

#### 4.2 Summary of Statistical Procedures

The empirical findings presented in this chapter were generated through hypotheses testing of the data previously gathered. Previous to any statistical testing could be conducted the data had to be altered in a few key ways so the results would be representative for the majority of companies who have conducted an IPO over the past 15 years. The sample used in the hypothesis tests have been limited to companies with OCFs ranging from negative SEK 100 million to positive SEK 700 million. A total of eight outliers, i.e. companies with either extremely positive or negative OCFs, have consequently been disregarded because of their distorting effect.

The statistical analyses have been conducted through regression- and logistic analyses. The statistical procedures are formulated using level of underpricing as the dependent variable and OCF as the independent variable. However, the main research question and, thus, the hypotheses formulated are investigating the occurrence of underpricing and not the degree of underpricing that is present. Please note that in order to test for the

**Bodin & Samuelsson**

2010-05-26

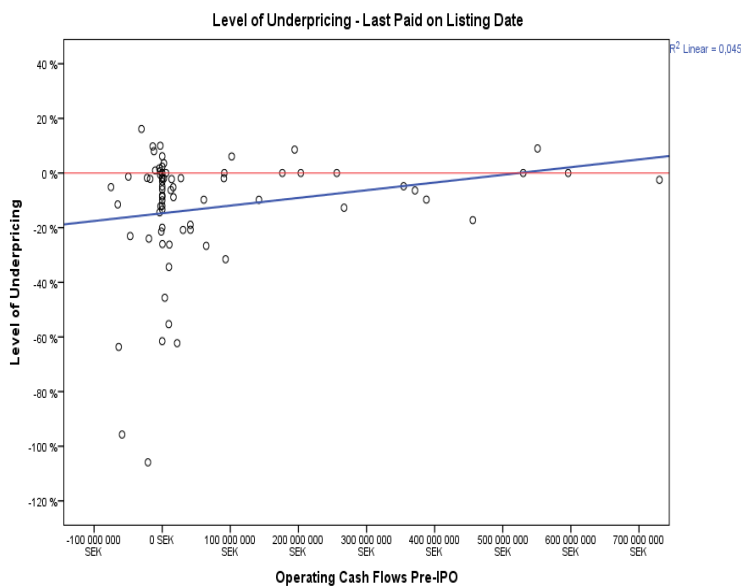
occurrence of underpricing using regression analysis, the dependent variable has to be denoted as the level of underpricing. Additional information concerning the database used in the tests can be found in Appendix A.

### 4.3 Empirical Findings

In the following section, the empirical findings of the study are presented and a discussion regarding the rejection of each null hypothesis is initiated. The results are presented in conjunction with the respective research hypothesis. Finally, the hypotheses will be tested using logistic regression.

#### 4.3.1 First Hypothesis

The following scatter plot was constructed with the aim to quantify and present an overview of the impact of *all* OCFs on underpricing on the listing date.



**Figure 4**

*The figure illustrates the distribution of shares and their respective level of underpricing on the listing date with regards to the size of the OCFs.<sup>3</sup>*

It can be observed that the vast majority of shares are underpriced. The fitted regression line presents a  $R^2$  value of 0.045, indicating that the OCFs explain 4.5% of the changes in level of underpricing. The regression line produces a p-value of 0.073 which is higher than 0.05.<sup>4</sup> Hence, the null hypothesis cannot be rejected (Appendix B).

<sup>3</sup> Level of underpricing is illustrated in percent where negative numbers indicate underpricing and positive numbers indicate overpricing.

<sup>4</sup> All the hypotheses have been tested at 95% level of significance

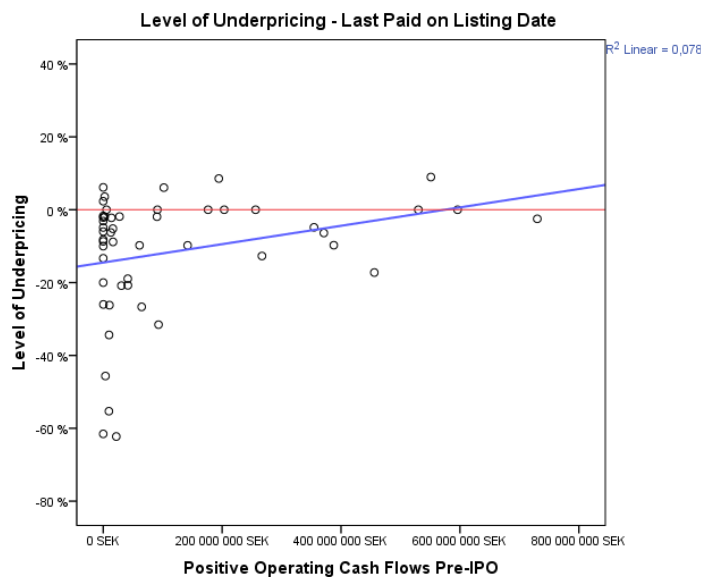
**H0<sub>1</sub>**: There is no correlation between *all* OCFs and the occurrence of underpricing on the listing date

**H1<sub>1</sub>**: There is a correlation between *all* OCFs and the occurrence of underpricing on the listing date

*It can be concluded that all Operating Cash Flows do not have an impact on the occurrence of underpricing on the listing date.*

#### 4.3.1.1 First Sub-Hypothesis

In addition to the first hypothesis, the sub-hypothesis testing the impact of *positive* OCFs on the occurrence of underpricing was developed.



**Figure 5**

*The figure illustrates the distribution of shares and their respective level of underpricing on the listing date with regards to the size of the positive OCFs.*

The regression model produces a  $R^2$  value of 0.078, indicating that the positive cash flows explain 7.8% of the changes in the level of underpricing. The  $R^2$  value is moderately higher than in 4.3.1 FIRST HYPOTHESIS, measuring the impact of all cash flows. The regression line gives a p-value of 0.049 which is lower than 0.05. Accordingly, the null hypothesis can be rejected (Appendix B).



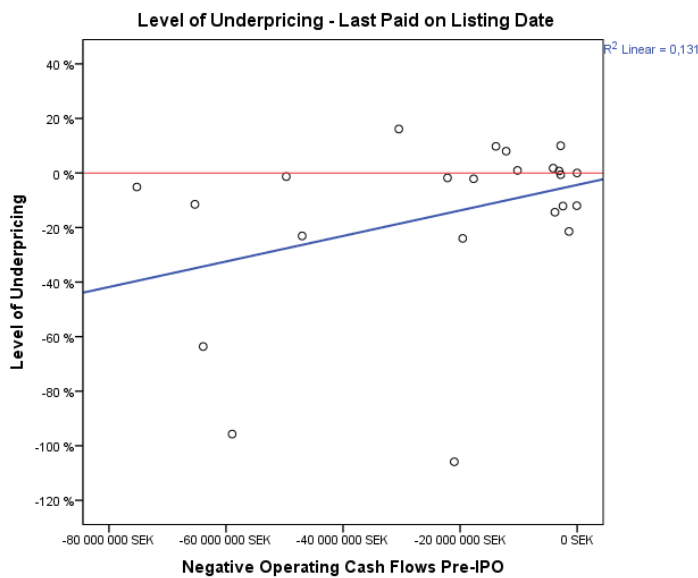
**H0<sub>1,1</sub>:** There is no correlation between *positive* OCFs and the occurrence of underpricing on the listing date

**H1<sub>1,1</sub>:** There is a correlation between *positive* OCFs and the occurrence of underpricing on the listing date

*It can be concluded that positive Operating Cash Flows do have an impact on the occurrence of underpricing on the listing date.*

#### 4.3.1.2 Second Sub-Hypothesis

Finally, a test of the second sub-hypothesis was conducted, measuring the impact of *negative* cash flows on the occurrence of underpricing.



**Figure 6**

*The figure illustrates the distribution of shares and their respective levels of underpricing on the listing date with regards to the size of the OCFs.*

It can be observed that the dispersion of negative OCFs is relatively high compared to previous hypotheses. The majority of shares are underpriced with greater underpricing present in shares with larger negative OCFs. The regression line gives a  $R^2$  value of 0.131, indicating that the negative cash flows explain 13.1% of the changes in level of underpricing. The result does not imply a linear relationship, which is confirmed by the p-value of 0.09, resulting in not rejecting the null hypothesis (Appendix B).

**H0<sub>1,2</sub>:** There is no correlation between *negative* OCFs and the occurrence of underpricing on the listing date

**H1<sub>1,2</sub>:** There is a correlation between *negative* OCFs and the occurrence of underpricing on the listing date

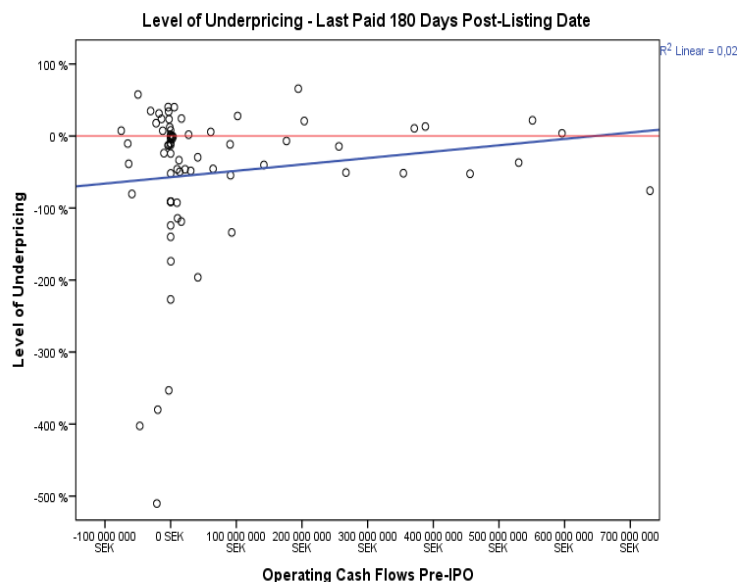
*It can be concluded that negative Operating Cash Flows do not have an impact on the occurrence of underpricing on the listing date.*

### 4.3.2 Summary First Hypotheses

The above hypotheses tests imply that all or solely negative OCFs do not have an impact on the occurrence of underpricing on the listing date. However, the statistical regression analysis shows that positive OCFs do have an impact on underpricing on the listing date.

### 4.3.3 Second Hypothesis

The second hypothesis tests the impact of *all* OCFs on the occurrence of underpricing 180 days post the listing date. The analysis is conducted through a regression model and illustrated by the construction of the following scatter plot.



**Figure 7**  
*The degree of dispersion is higher than on the listing date (Figure 4) with more extreme levels of underpricing.*

The regression analysis renders a  $R^2$  value of 0.02, implying a negligible degree of linear relationship. Furthermore, the analysis extracts a p-value of 0.235, resulting in not rejecting the null hypothesis (Appendix B).

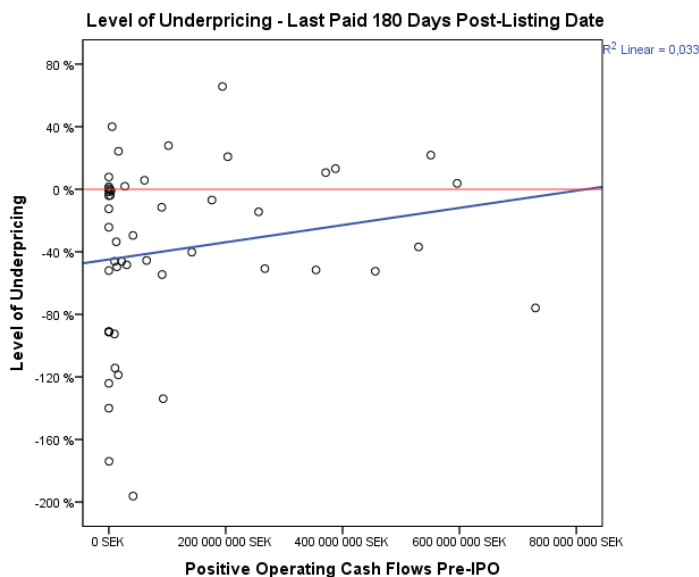
**H<sub>0</sub>**<sub>2</sub>: There is no correlation between *all* OCFs and the occurrence of underpricing 180 days post the listing date

**H<sub>1</sub>**<sub>2</sub>: There is a correlation between *all* OCFs and the occurrence of underpricing 180 days post the listing date

*It can be concluded that all Operating Cash Flows do not have an impact on the occurrence of underpricing 180 days post the listing date.*

#### 4.3.3.1 First Sub-Hypothesis

By elaborating on the second hypothesis, the correlation between *positive* OCFs and the occurrence of underpricing 180 days post the listing date, is tested. The following scatter plot presents an overview of the statistical result from the regression analysis.



**Figure 8**

*The scatter plot demonstrates a sprawl data sample with high levels of underpricing in relation to the listing date (Figure 5).*

The regression model renders a  $R^2$  value of 0.033, implying that positive OCFs explain 3.33% of the changes in level of underpricing 180 days post the listing date.

In addition, the analysis generates a p-value of 0.205, resulting in not rejecting the null hypothesis (Appendix B).

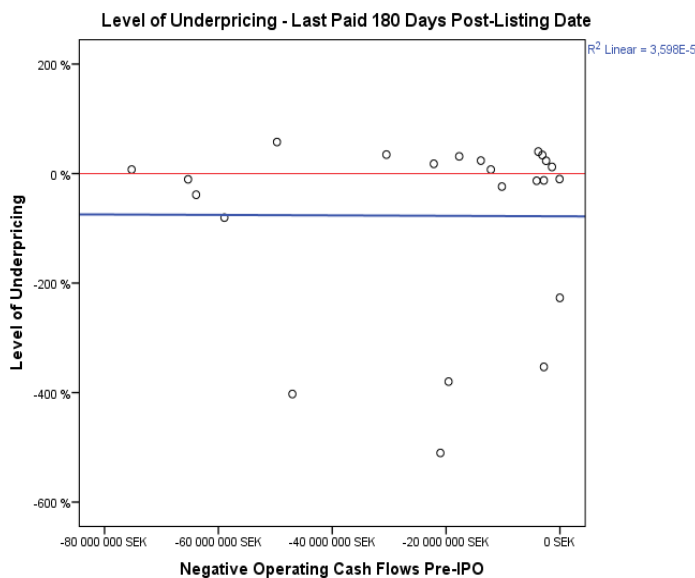
**H<sub>0,1</sub>**: There is no correlation between *positive* OCFs and the occurrence of underpricing 180 days post the listing date

**H<sub>1,1</sub>**: There is a correlation between *positive* OCFs and the occurrence of underpricing 180 days post the listing date

*It can be concluded that positive Operating Cash Flows do not have an impact on the occurrence of underpricing 180 days post the listing date.*

#### 4.3.3.2 Second Sub-Hypothesis

Lastly, the impact of *negative* OCFs on the occurrence of underpricing 180 days post the listing date is tested using regression analysis. The following scatter plot illustrates the distribution of the sample data.



**Figure 9**

*It can be observed that there are significantly higher levels of underpricing present than on the listing date (Figure 6).*

The regression model provides a  $R^2$  value approaching zero, implying no degree of explanation in the changes of level in underpricing. Moreover, the analysis extracts a p-value of 0.978, exceeding the 0.05 level of significance. Thus, the null hypothesis cannot be rejected (Appendix B).



**H0<sub>2,2</sub>**: There is no correlation between *negative* OCFs and the occurrence of underpricing 180 days post the listing date

**H1<sub>2,2</sub>**: There is a correlation between *negative* OCFs and the occurrence of underpricing 180 days post the listing date

*It can be concluded that negative Operating Cash Flows do not have an impact on the occurrence of underpricing 180 days post the listing date.*

### **4.3.3 Summary Second Hypotheses**

The statistical regression analysis does not provide any evidence that OCFs have an impact on the occurrence of underpricing 180 days post the listing date. Consequently, none of the null hypotheses included in the second hypotheses have been rejected.

### **4.4 Sensitivity Analysis**

In order to test the validity of the empirical findings previously stated in this chapter, the impact of the dot-com bubble was excluded from the sample. The revision excluded all the observed IPOs during the year of 1999 based on the reasoning that this year marks an extraordinary period of time and cannot be assumed to reflect the overall sample. The year of 1999 saw extreme levels of underpricing due to the dot-com bubble (Ljungqvist et al., 2003).

The hypotheses stated in 1.6 RESEARCH HYPOTHESES were subsequently tested with the revised sample (Appendix D). The sensitivity analyses recognized one significant relationship between positive OCFs and underpricing on the listing day whereas all the other null hypotheses could not be rejected. One can therefore assume that the dot-com observations excluded from the original sample do not have a significant impact on the overall relationship between OCFs and underpricing. This is based on the fact that the outcome was identical compared to the previous testing which included the extreme IPO activity during the dot-com year of 1999 (4.0 EMPIRICAL FINDINGS).



In addition, to further examine the results the original sample generated, analyses testing the correlation between the occurrence of underpricing and OCFs of certain GICS sectors were executed. Three sectors: *Information Technology*, *Industrials* and *Consumer Discretionary*, were chosen on the basis that they constitute the three largest sectors and account for approximately 50% of all IPOs executed since 1995. Tests for the correlation of each of the above GICS sectors' respective OCFs and the occurrence of underpricing were carried out. No significant relationships were found leading to no further analyses.

#### **4.5 Logistic Regression**

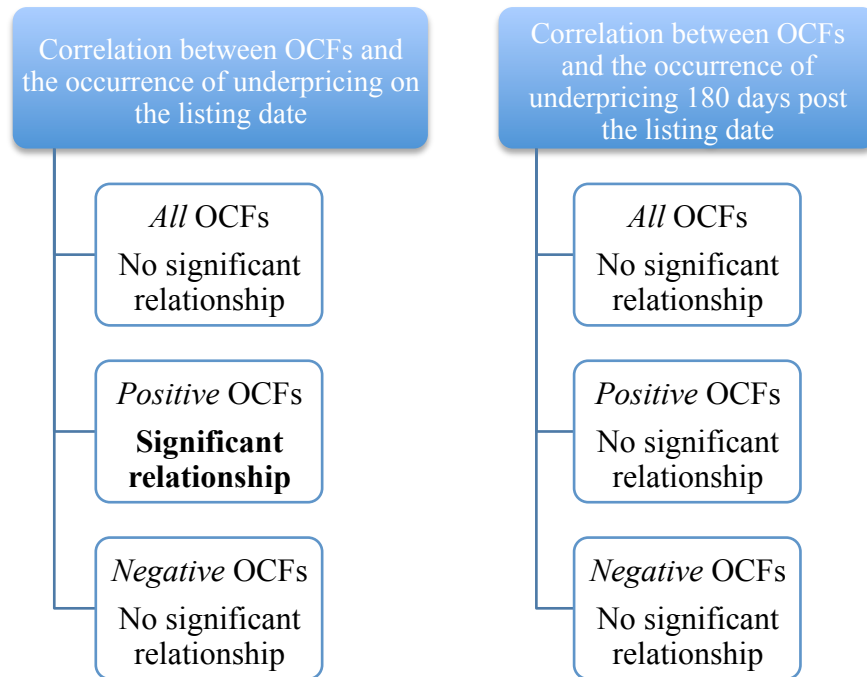
In addition to the regression analyses, each of the main hypotheses (4.3.1 FIRST HYPOTHESIS, 4.3.3 SECOND HYPOTHESIS) has been tested using logistic regression. In constructing the logistic regression model, the level of underpricing was programmed as the dependent variable and the OCFs were coded as the independent variable. The underlying logic for conducting the test was to receive an odds-ratio, explaining the probability that underpricing would occur given a change in the OCFs.

The logistic regression tests did not generate any significant p-values (0.05 level of significance) and consequently no useful information could be derived from the odds-ratios (Appendix C). Accordingly, no further analyses were performed. In conclusion, the regression tests could not reject any of the null hypotheses.

#### 4.6 Summary of Empirical Findings

The statistical findings have been compiled in Table 1. It shows that one significant relationship is present between *positive* OCFs and the occurrence of underpricing on the listing date. Furthermore, the significant relationship does not remain 180 days post the listing date, indicating that the market has corrected for initial underpricing.

**Table 1 - Summary of Empirical Findings**





## 5.0 Analysis

*The analysis presented in this chapter takes off in the findings stated in chapter 4.0 EMPIRICAL FINDINGS and is then analyzed using the theories previously introduced in chapter 3.0 THEORETICAL FRAMEWORK. The analysis will discuss all hypotheses in their respective order with the ambition to reach a conclusion regarding the main research question of this thesis.*

### 5.1 First Hypothesis

The chapter 4.3.1 FIRST HYPOTHESIS, did not present any significant results when tested for a correlation between all OCFs, one year prior to the IPO, and the occurrence of underpricing on the listing date. Consequently, the null hypothesis, stating that no correlation is existent between all OCFs and the occurrence of underpricing on the listing date, cannot be rejected.

Similar studies, investigating IPO underpricing, have not tested for any connection between OCFs and the occurrence of underpricing. However, the formulation of the hypotheses is in line with the expectations of a study by Ross (1977). Ross based the valuation of a company on the perceived cash flows that a company generates. Hence, a relationship between OCFs and the occurrence of underpricing could be expected. However, the first hypothesis did not signal any relationship. Accordingly, the result could be related to the findings of Fama (1969), stating that the market is efficient in valuating a company and pricing its shares. By this reasoning, the occurrence of underpricing is constantly expected and, thus, recognized by market participants. As such, any underpricing is continuously taken into consideration by the dynamics of the market.

Furthermore, it is reasonable that the occurrence of underpricing could be explained by several other studies such as Rock (1985) or Allen and Faulhaber (1988). The former suggests that underpricing is caused by the rationing of shares in IPOs, resulting in surplus demand of good shares and vice versa. The latter concludes that underpricing is a



conscious decision by the owners with the ambition to signal of the firm's "good" quality. In both cases underpricing is a result of strategies used to affect the market in its valuation of a firm's equity.

### **5.1.1 Sensitivity Analysis - First Hypothesis**

A sensitivity analysis was conducted by not regarding any data from 1999. IPO underpricing showed a large increase in 1999 related to the dot-com bubble (Ljungqvist et al., 2003). In the data sample, it can be observed that over 30% of the IPOs were conducted during 1999 causing a skewed dataset (Figure 3). However, neither the linear nor logistic regression models returned significant results after the sample data was adjusted, reinforcing the original findings. Accordingly, the null hypothesis, stating that no correlation is existent between all OCFs and IPO underpricing on the listing date, could not be rejected.

### **5.1.2 First Sub-Hypothesis (Significant)**

The regression analysis in chapter 4.3.1.1 FIRST SUB-HYPOTHESIS, concludes a significant relationship between positive OCFs and the occurrence of underpricing on the listing date. Consequently, the null hypothesis, stating no correlation between positive OCFs and the occurrence of underpricing on the listing date, can be rejected. The result strongly implies that companies which have generated a positive OCF, one year prior to their IPO, is likely to experience underpricing on the listing date. By extrapolating the result and putting it in the context of Ritter (2002): IPOs with positive OCFs one year prior to their listing, are likely to "leave money on the table" for investors and, simultaneously, create an immediate loss for the founders.

Previous studies have observed the underpricing phenomenon, including Ibbotson (1975), Ritter (1984) and Welch (1989). These studies provide evidence that suggest an enduring average initial return of 22% on IPOs on the US stock markets. The finding in this thesis constitutes an additional factor that helps to explain the occurrence of underpricing.

Furthermore, the finding reinforces the importance of cash flows in valuating a company, as stressed by Ross (1977). In the introductory problem discussion, Corné comments on the importance of cash flows, saying, “Investors become nervous when calculations doesn't match. It (read: positive cash flows) is a fundamental condition for a successful IPO”. In other words, it is possible that OCFs are considered as a signal of the quality of a firm's business and, thus, a signal of a company's potential to become successful. In accordance with this reasoning, companies with greater potential are more likely to generate initial excess returns. The initial returns are reflected by the occurrence of underpricing on the listing date, ultimately benefitting the shareholders.

Allen and Faulhaber (1988) put forward the theory of owners consciously underpricing IPOs with the ambition to signal of a firm's good state. In the case of OCFs, it is difficult for owners to manipulate figures with the intention of improving investors' perceptions of a firm's quality. The underlying reason is that OCFs are generated by a company's core business and as such are difficult to fabricate. In addition, the transparency in the form of IPO prospectuses, annual reports etc. required to list a company on the Stockholm Stock Exchange makes it difficult to “create” a positive OCF. Thus, it is possible that OCFs can be considered as a trustworthy signal of the firm's quality. Accordingly, it can be inferred that by regarding positive OCFs, investors could avoid investing in IPOs backed by owners with the intention to “take the money and run”, as predicted by Su (2005). Thus, the Signaling theory provides an explanation to the occurrence of underpricing when a company has positive OCFs.

#### **5.1.2.1 Sensitivity Analysis – First Sub-Hypothesis**

In addition to the previous analysis, a sensitivity analysis was conducted that excluded all data from the year 1999. As mentioned in 5.2.1 SENSITIVITY ANALYSIS – FIRST HYPOTHESIS, the year of 1999 saw an extreme increase in IPOs as a result of the dot-com bubble. In accordance with the earlier finding, the data sample, not considering listings during 1999, presented a significant result. Hence, the null hypothesis, stating no correlation between positive cash flows and the occurrence of underpricing on the listing



date, can be rejected. In other words, the regression analysis show that the occurrence of underpricing is related to positive OCFs, one year prior to the IPO, on the listing date. This result cements the finding that positive OCFs one year prior to the IPO are correlated to underpricing.

### **5.1.3 Second Sub-Hypothesis**

As previously shown in 4.3.1.2 SECOND SUB-HYPOTHESIS, the statistical analysis did not present a significant result when testing for a correlation between negative OCFs, one year prior to the IPO, and the occurrence of underpricing on the listing date. Therefore, the null hypothesis cannot be rejected. As shown in 4.3.1.2 SECOND SUB-HYPOTHESIS, similar studies have investigated the phenomenon of IPO underpricing, although, none have previously tested the correlation between negative OCFs and the occurrence of underpricing. The result in the second sub-hypothesis implies that the occurrence of underpricing cannot be predicted based on the impact of negative OCFs. By the use of the Signaling theory, as presented by Allen and Faulhaber (1988) in previous hypotheses, the existence of negative OCFs one year prior to the IPO cannot be seen as a signal of the quality of a firm. It can be observed in the highly dispersed data sample that both significant occurrences of under- and overpricing exist given negative OCFs (Figure 6). Hence, it is possible for an IPO to become underpriced even though a company is generating a negative OCF one year prior to the listing. Logically, it follows that negative OCFs, one year prior to an IPO, is not a significant factor when valuating a company on the listing date.

It is possible that the high dispersion in under- and overpricing, observed in stocks with negative OCFs, is a result of a data sample consisting of companies with less proven financial track records in the data sample. In other words, it could be argued that negative OCFs are more prevalent in newer companies that, perhaps, have not yet started to generate revenues. Hence, the various levels of under- and overpricing could potentially reflect the risks as well as expectations associated with future performances of newer companies. For example, the valuation of IT companies during the dot-com era suggest that expectations about future potential rather than fundamentals, such as positive OCFs,



made some companies' stocks climb to astronomic levels whilst other stocks had more moderate developments. It can therefore be concluded that the existence of negative OCFs one year prior to the IPO does not affect the occurrence of underpricing on the listing date.

### **5.1.3.1 Sensitivity Analysis – Second Sub-Hypothesis**

A sensitivity analysis was performed due to the risk of a skewed data sample that included data from the dot-com bubble. In accordance with previous hypotheses, year 1999 was excluded from the data sample in the sensitivity analysis. The new data sample did not show any significant results in the regression analysis, resulting in not rejecting the null hypothesis. Accordingly, the sensitivity analysis did not provide any additional finding but rather reinforces the result from the second sub-hypothesis.

## **5.2 Second Hypothesis**

The second hypothesis aims to test if there is any correlation between all OCFs, one year prior to the IPO, and the occurrence of underpricing 180 days post the listing date. The regression analysis executed in chapter 4.3.3 SECOND HYPOTHESIS, resulted in not rejecting the null hypothesis. Hence, the hypothesis tested did not provide any indication that a significant relationship exists between all OCFs and the occurrence of underpricing 180 days post the listing date. One can therefore conclude that all OCFs neither have an impact on underpricing on the listing date (4.3.1 FIRST HYPOTHESIS) nor 180 days post the listing date. Consequently, it is irrelevant to consider all OCFs when seeking to explain underpricing regardless if it is on the day of the listing or 180 days later.

Ross (1977) suggested that the market values a firm using its perception of the cash flows a firm generates. One can therefore argue that if all investors are rational, one investor's reaction to new information regarding the valuation of a company will also change the overall market's opinion. Hence, the market uses all available information when assessing a value to newly introduced companies (Fama, 1969). This reasoning is in line with the great variation in how newly listed stocks developed in the period of 180 days following the initial offering date.



In other words, it can be inferred that if more information is available about the company in the 180 days subsequent to the listing than on the listing date, the information will result in different valuations of the companies in the sample data.

Another plausible explanation for the occurrence of underpricing is that a company offers their stock to the public at a discount to create a “stir”. The “stir” will then be reflected positively in the development of their equity. It is possible, when relating to the second hypothesis that the initial “stir” will have settled down a short period after the introduction of the stock. Therefore, the stock price 180 days post the listing date might be more accurate than the closing quotation on the opening day, in terms of appreciating the “true” value of the stock. That is, the market is presumably more efficient in pricing stocks when the initial turbulence has slowed down and market interventions are no longer present. Consequently, the markets efficiency could explain the variations in under- and overpricing and provide a reason for why some stocks have moved from under- to overpriced and vice versa 180 days post the listing date.

In conclusion, one cannot expect to explain the occurrence of underpricing neither on the day of an IPO nor 180 days later when considering all OCFs. If underpricing exists on either occasion, it is plausible that it is a consequence of information asymmetry or by conscious efforts of the owners. Regardless, any arbitrage opportunities that appear will be exploited by the competitive nature of the market, leaving the window of opportunity for arbitrage trades to be short-lived.

### **5.2.1 Sensitivity Analysis – Second Hypothesis**

A sensitivity analysis was performed due to the risk of a skewed data sample that included data from the dot-com bubble (Ljungqvist et al., 2003). In accordance with previous hypotheses the year 1999 was excluded from the data sample in the sensitivity analysis. The new data sample did not show any significant results in the regression analysis, resulting in not rejecting the null hypothesis, which reinforces earlier findings. Accordingly, no correlation is existent between all OCFs and IPO underpricing 180 days post the listing date.

### 5.2.2 First Sub-Hypothesis

The third sub hypothesis is an extension of the second hypothesis and seeks to investigate the potential correlation between positive OCFs one-year prior to the IPO and the occurrence of underpricing 180 days post the listing date. The statistical tests conducted in 4.3.3.1 FIRST SUB-HYPOTHESIS, states that the null hypothesis could not be rejected. The result implies that positive OCFs do not have an impact on the occurrence of underpricing 180 days post the listing date. The observant reader might have noticed that this differs from the significant relationship found when the first sub-hypothesis was tested. Intuitively, it might appear contradictory that there is a correlation between positive OCFs and underpricing on the day of the IPO but not 180 days later.

In contrast to the previous intuitive perception, Ross argues that perceived cash flows affects the value an investor would assess a company's stock. Therefore, all information regarding a company's cash flows could alter the value of the individual company's equity. Further, Adverse Selection states that if a shareholder wants to sell, potential buyers will discount the price of the stock due to Adverse Selection. Consequently, information asymmetry, i.e. stemming from the way companies chooses to market their stock, plays a potentially large part in explaining the development of their equity value 180 days post the listing date. It is possible that marketing efforts of different companies have different impact on the investors' perception of the value of the companies. Even though it is beyond the scope of this text it is undeniably interesting to speculate in the newly listed companies ability to engage investors to the point where the companies own perception of their stock's "true" value is fully reflected in the actual market stock price.

Furthermore, if the market is assumed efficient, the value of any stock can be assumed to mirror all the available information 180 days post the initial listing date. Any intervened buying have probably been eliminated by this time and speculators who seek short term gains have presumably had their chance to exploit the volatility following an IPO. When a period of six months has elapsed, one can argue that the market participants have had



time to review and evaluate the information available about a certain company and, as a result, have an understanding of a suitable stock price. Any underpricing that initially could be predicted by positive OCFs have probably been eliminated by now and speculators will have a harder time picking up “money on the table”. One can therefore argue that the market is efficient in correcting for initial underpricing.

#### **5.2.2.1 Sensitivity Analysis – First Sub-Hypothesis**

A sensitivity analysis was performed due to the risk of a skewed data sample that included data from the dot-com bubble (Ljungqvist et al., 2003). In accordance with previous hypotheses the year 1999 was excluded from the data sample in the sensitivity analysis. The new data sample did not show any significant results in the regression analysis, resulting in not rejecting the null hypothesis, which reinforces earlier findings. Accordingly, no correlation is existent between positive OCFs and IPO underpricing 180 days post the listing date.

#### **5.2.3 Second Sub-Hypothesis**

The second sub-hypothesis tests for correlation between negative OCFs one year prior to an IPO and the occurrence of underpricing 180 days post the listing date. The analysis executed in chapter 4.3.3.2 SECOND SUB-HYPOTHESIS, extracts a p-value that exceeds the level of significance (Appendix B). Consequently, the null hypothesis cannot be rejected. Thus, it can be concluded that negative OCFs do not have an impact on the occurrence of underpricing 180 days after the listing date.

Furthermore, the result is in line with the second sub-hypothesis previously tested in 4.3.1.2 SECOND SUB-HYPOTHESIS, showing that negative OCFs, one year prior to the IPO, does not correlate with the occurrence of underpricing on the day of the offering. The data sample, 180 days post the listing date, displayed a high dispersion of over- and underpricing. The dispersion indicates that investors rely on other factors than negative OCFs when pricing a stock 180 days post the listing date.



By the use of the Signaling theory (Allen and Faulhaber, 1988), as presented in previous hypotheses, the existence of negative OCFs one year prior to the IPO cannot be seen as a signal of the quality of a firm. The Signaling theory provides a potential explanation to the reason why the occurrence of underpricing does not correlate with negative OCFs 180 days post listing. In so many words, market participants most probably consider other factors than negative OCFs when assessing a value to a company. As Ross (1977) stressed, it is the perceived cash flows that will be valued and, hence, reflected in a company's stock price. In the case of negative OCFs, the valuation of a company can be interpreted as the investors paying greater attention to other factors, i.e. growth potential, and, accordingly, these factors are what make a stock attractive. In addition, a company with a history of negative OCFs will cause uncertainty among investors and might influence the market in its pricing. If so, a more modest pricing can be expected and, thus, would be below the "true" value of a company. Just as Dann and Mikkelsen (1984) implied, signals about what a company's future will bring is key to a "true" stock price.

#### **5.2.3.1 Sensitivity Analysis – Second Sub-Hypothesis**

A sensitivity analysis was performed due to the risk of a skewed data sample that included data from the dot-com bubble (Ljungqvist et al., 2003). In accordance with previous hypotheses the year 1999 was excluded from the data sample in the sensitivity analysis. The new data sample did not show any significant results in the regression analysis, resulting in not rejecting the null hypothesis, which reinforces earlier findings. Accordingly, no correlation is existent between negative OCFs and IPO underpricing 180 days post the listing date.





## 6.0 Conclusion and Suggestions for Further Research

*The following chapter is based on the theoretical framework and empirical findings, presenting the final conclusions of this study. In addition, suggestions for future research are discussed.*

### 6.1 Conclusions

In order to conclude the impact of OCFs, existent one year prior to an IPO, on the occurrence of underpricing, a regression- and logistical analysis have been conducted. The conclusions of this study are presented below:

- The main conclusion of this study is that positive OCFs, calculated from financial reports one year prior to a company's IPO, are shown to be statistically correlated with the occurrence of underpricing on the day a new stock is listed on the Stockholm Stock Exchange in the period from 1995-2010. The result implies that companies with positive OCFs are likely to have a higher closing- than offering price on the listing date. It is discussed that the impact of positive OCFs on the occurrence of underpricing could be the result of investors perceiving the positive OCFs as a fundamental signal of a firm's good quality.
- The study did not find any correlation when considering all- or solely negative OCFs and the occurrence of underpricing on the listing date. The relationship was studied for companies listed on the Stockholm Stock Exchange during the period from 1995 to 2010.
- Furthermore, the correlation between OCFs and the occurrence of underpricing was tested 180 days post the listing date. The relationship was tested with the ambition of investigating the markets efficiency in correcting any initial underpricing. The statistical analysis did not present any relationship between all OCFs or solely positive or negative OCFs and the occurrence of underpricing 180 days after the listing date.



- The impact of positive OCFs on the occurrence of underpricing is only present on the listing date and not 180 days later. The result implies that the market is efficient in correcting for initial underpricing. It is discussed that the market is efficient in its valuation 180 days later because the initial “stir” surrounding an IPO has settled and investors have had time to consider and evaluate all available information.

## 6.2 Suggestions for Further Research

The main finding of this study indicates that a correlation exists between positive OCFs one year prior to an IPO and the occurrence of underpricing on the listing date. Furthermore, the empirical findings imply that the market is efficient in correcting for initial underpricing 180 days post the listing date. The correlation was tested with the intention of identifying a variable that could help to explain which stocks that are likely to be underpriced when conducting an IPO.

The correlation between OCFs and the occurrence of underpricing has never previously been tested and, as such, the study has produced unique results. The findings provide a first piece of groundwork, potentially laying the first brick within a new area of research. The limited amount of time available for conducting the study has restricted the number of independent variables that could be considered when conducting the statistical testing. Due to the complex process surrounding the introduction and valuation of an IPO, it is reasonable to assume that several factors should be considered in order to provide a complete picture of the underpricing phenomenon. Consequently, it is suggested that future research should identify and test additional variables in conjunction with testing the significance of positive OCFs in relation to IPO underpricing. By considering additional variables in conjunction with positive OCFs, it might be possible to establish a predictive underpricing model.



In addition, it could be of interest to compare the effects of positive OCFs on the occurrence of IPO underpricing in different countries. Furthermore, any future research should consider the impact of the maturity of the firms included in a data sample. It is reasonable to assume that the OCFs are influenced by the longevity of a company's businesses activities. Finally, the market's efficiency in correcting for initial underpricing in relation to positive OCFs could be an additional area of research to investigate further.



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### **Basic Internet Data (definitions etc.)**

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[www.nasdaqomxnordic.com](http://www.nasdaqomxnordic.com)

[www.huginonline.com](http://www.huginonline.com)

[www.company.info](http://www.company.info)

<http://www.riksbank.se/templates/Page.aspx?id=15867>

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### **Data**

- Reuters
- DataStream
- SPSS version 18

### **References for Statistical Procedures**

- Margareta Westberg, lecturer, School of Business, Economics and Law at Gothenburg University
- Roger Wahlberg, researcher, School of Business, Economics and Law at Gothenburg University

### **Interview**

- Ulf Corné, founder & partner of Arise Windpower, 2010-04-27



## Appendix A – Final sample

Id	Company	GICS Sector	First listing date	List	Opening quotation	Last paid first listing date
a1	Global Health Partner AB	Health Care	2008-10-03	Small cap	14,00 kr	14,30 kr
a2	DGC One AB	Information Technology	2008-06-16	Small cap	33,00 kr	37,00 kr
a3	Systemair AB	Real Estate Management & Development	2007-10-12	Mid cap	78,00 kr	78,00 kr
a4	Nederman Holding Aktiebolag	Industrials	2007-05-16	Small cap	87,00 kr	95,50 kr
a5	Tilgin AB	Trading Companies & Distributors	2006-12-15	Small cap	25,00 kr	22,00 kr
a6	LinkMed AB	Financials	2006-12-12	Small cap	70,00 kr	69,50 kr
a7	Lindab International AB	Real Estate Management & Development	2006-12-01	Mid cap	110,00 kr	112,75 kr
a8	Rezidor Hotel Group	Diversified Commercial & Professional Services	2006-11-28	Mid cap	52,00 kr	52,00 kr
a9	BE Group	Trading companies and distributors	2006-11-24	Mid Cap	62,00 kr	65,00 kr
a10	Biovitrum	Biotechnology	2006-09-15	O	100,00 kr	111,50 kr
a11	Aerocrine AB	Health Care	2006-06-15	Small cap	25,00 kr	28,00 kr
a12	Dios Fastigheter AB	Real Estate Management & Development	2006-05-22	O	31,00 kr	28,60 kr
a13	Hakon Invest	Consumer Discretionary	2005-12-08	O	77,00 kr	81,50 kr
a14	Tradedoubler AB	Internet Software & Services	2005-11-08	O	110,00 kr	110,00 kr
a15	Indutrade AB	Trading Companies & Distributors	2005-10-05	O	65,00 kr	73,25 kr
a16	NOTE AB	Electronic Equipment Manufacturers	2004-06-23	O	75,00 kr	69,00 kr
a17	Oriflame Cosmetics S.A.	Consumer Discretionary	2004-03-24	O	190,00 kr	208,50 kr
a18	Nobia AB	Consumer Discretionary	2002-06-19	O	78,00 kr	71,00 kr
a19	Intrum Justitia AB	Diversified Commercial Services	2002-06-07	O	47,00 kr	50,00 kr
a20	Alfa Laval AB	Industrials	2002-05-17	O	91,00 kr	98,00 kr
a21	Vitrolife AB	Biotechnology	2001-06-26	O	40,00 kr	36,10 kr
a22	Biolnvent International AB	Biotechnology	2001-06-12	O	62,00 kr	52,00 kr
a23	Neonet AB	Information Technology	2000-10-20	O	20,00 kr	18,00 kr
a24	Orc Software AB	Information Technology	2000-10-19	O	120,00 kr	145,00 kr
a25	Eniro AB	Internet Software & Services	2000-10-10	O	84,00 kr	84,00 kr
a26	Axis AB	Internet Software & Services	2000-06-27	O	38,00 kr	38,50 kr
a27	Telia AB	Telecommunication services	2000-06-13	A	85,00 kr	88,50 kr
a28	Micronic Laser Systems AB	Electronic Equipment Manufacturers	2000-03-09	O	105,00 kr	205,50 kr
a29	Q-Med	Health Care	1999-12-06	O	58,00 kr	59,00 kr
a30	Cyber Com	Information Technology	1999-12-01	O	62,00 kr	213,00 kr
a31	Enlight	Diversified Commercial & Professional Services	1999-10-12	O	105,00 kr	104,00 kr
a32	Proffice	Diversified Commercial & Professional Services	1999-10-11	O	84,00 kr	110,50 kr
a33	Clas Ohlson	Consumer Discretionary	1999-10-05	O	106,00 kr	128,00 kr
a34	Connecta	Information Technology	1999-09-20	O	68,00 kr	140,00 kr
a35	ProAct IT Group	Information Technology	1999-07-01	O	48,00 kr	50,50 kr
a36	Novotek	Information Technology	1999-06-30	O	21,00 kr	26,50 kr
a37	Boss Media	Diversified Commercial & Professional Services	1999-06-24	O	39,00 kr	48,00 kr
a38	Poolia	Diversified Commercial & Professional Services	1999-06-23	O	75,00 kr	85,00 kr
a39	ReadSoft	Information Technology	1999-06-22	O	25,00 kr	31,00 kr
a40	Arete	Information Technology	1999-06-15	O	135,00 kr	138,00 kr
a41	Adera	Information Technology	1999-06-10	O	160,00 kr	161,00 kr
a42	RKS	Information Technology	1999-05-17	O	64,00 kr	68,00 kr
a43	Digital Vision Sweden	Internet Software & Services	1999-04-28	O	68,00 kr	74,00 kr
a44	Jeeves	Information Technology	1999-04-21	O	40,00 kr	40,00 kr
a45	Kungsleden	Real Estate Management & Development	1999-04-14	O	66,00 kr	66,00 kr
a46	Religent	Information Technology	1999-04-12	O	26,00 kr	26,00 kr
a47	HIQ	Information Technology	1999-04-12	O	106,00 kr	99,50 kr
a48	Malmbergs	Consumer Discretionary	1999-03-12	OTC	41,00 kr	43,00 kr
a49	Telelogic	Information Technology	1999-03-08	O	50,00 kr	63,00 kr
a50	Sectra	Information Technology	1999-03-03	O	35,00 kr	42,00 kr
a51	NoCom	Information Technology	1999-01-04	O	43,00 kr	42,00 kr
a52	Opcon	Consumer Discretionary	1998-12-30	O	28,00 kr	28,50 kr
a53	Softronic	Information Technology	1998-12-03	O	64,00 kr	86,00 kr
a54	City Mail	Consumer Discretionary	1998-07-01	O	68,00 kr	71,50 kr
a55	Affärsstrategerna	Financials	1998-06-26	O	66,00 kr	75,50 kr
a56	SAAB	Industrials	1998-06-18	O	45,00 kr	84,00 kr
a57	Broströms	Industrials	1998-06-17	O	35,00 kr	32,00 kr
a58	Prevas	Information Technology	1998-05-29	O	47,00 kr	73,00 kr
a59	Nilörngruppen	Industrials	1998-04-06	OTC	115,00 kr	125,00 kr
a60	Karo Bio	Biotechnology	1998-04-03	O	92,00 kr	134,00 kr
a61	New Wave Group	Consumer Discretionary	1997-12-11	OTC	115,00 kr	113,00 kr
a62	Jaakko Pöyry*	Information Technology	1997-12-02	O	94,00 kr	90,65 kr
a63	Artimplant	Health Care	1997-11-05	O	45,00 kr	57,00 kr
a64	Svenska Orient Linien	Industrials	1997-10-29	O	16,50 kr	15,50 kr
a65	Munters	Industrials	1997-10-21	O	80,00 kr	80,00 kr
a66	Svedbergs	Consumer Discretionary	1997-10-03	OTC	66,00 kr	78,50 kr
a67	Pandox	Real Estate Management & Development	1997-06-23	O	52,00 kr	53,00 kr
a68	Profilgruppen	Industrials	1997-06-19	OTC	50,00 kr	55,00 kr
a69	Nibe	Industrials	1997-06-16	OTC	70,00 kr	71,50 kr
a70	Partnertech	Industrials	1997-06-12	O	53,00 kr	54,00 kr
a71	Semcon	Information Technology	1997-05-26	O	32,00 kr	33,00 kr
a72	Castellum	Real Estate Management & Development	1997-05-23	O	51,00 kr	56,00 kr
a73	Alfaskop	Information Technology	1997-02-24	O	70,00 kr	85,00 kr
a74	Sigma	Information Technology	1997-02-21	O	53,00 kr	86,00 kr
a75	Mandator	Information Technology	1997-01-03	O	66,00 kr	108,00 kr
a76	Biacore	Health Care	1996-12-03	O	106,75 kr	115,50 kr
a77	Medvir	Health Care	1996-11-14	O	125,00 kr	132,50 kr
a78	Resco	Information Technology	1996-10-31	O	39,00 kr	63,00 kr
a79	Scania	Industrials	1996-04-01	A	180,00 kr	183,50 kr
a80	Lindex AB	Consumer Discretionary	1995-04-07	A	98,00 kr	108,50 kr
a81	Cardo AB	Industrials	1995-02-27	A	72,50 kr	85,00 kr



## Appendix B – Linear Regression Calculations

### 1. Regression First Hypothesis – All Operating Cash Flows on the Listing Date

Variables Entered/ <sup>Removed</sup>			
Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,211 <sup>a</sup>	,045	,031	21,99501	2,066

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1606,319	1	1606,319	3,320	,073 <sup>a</sup>
	Residual	34348,414	71	483,780		
	Total	35954,733	72			

Bodin & Samuelsson

2010-05-26



- a. Predictors: (Constant), OCF Pre-IPO  
b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14,723	2,821		-5,219	,000
	OCF Pre-IPO	2,813E-8	,000	,211	1,822	,073

- a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-16,8399	5,8150	-12,6199	4,72334	73
Residual	-90,56840	31,70982	,00000	21,84173	73
Std. Predicted Value	-,893	3,903	,000	1,000	73
Std. Residual	-4,118	1,442	,000	,993	73

- a. Dependent Variable: Level of Underpricing

## 2. Regression First Sub-Hypothesis – Positive Operating Cash Flows on the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

- a. All requested variables entered.  
b. Dependent Variable: Level of Underpricing



**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,280 <sup>a</sup>	,078	,059	16,28953	2,616

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1079,913	1	1079,913	4,070	,049 <sup>a</sup>
	Residual	12736,746	48	265,349		
	Total	13816,659	49			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14,496	2,748		-5,276	,000
	OCF Pre-IPO	2,524E-8	,000	,280	2,017	,049

a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-14,4960	3,9263	-11,4754	4,69458	50
Residual	-48,32183	20,62803	,00000	16,12246	50
Std. Predicted Value	-,643	3,281	,000	1,000	50
Std. Residual	-2,966	1,266	,000	,990	50

a. Dependent Variable: Level of Underpricing



### 3. Regression Second Sub-Hypothesis – Negative Operating Cash Flows on the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,362 <sup>a</sup>	,131	,090	30,12484	2,089

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2872,564	1	2872,564	3,165	,090 <sup>a</sup>
	Residual	19057,626	21	907,506		
	Total	21930,190	22			

Bodin & Samuelsson

2010-05-26



- a. Predictors: (Constant), OCF Pre-IPO  
b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
				Beta		
1	(Constant)	-4,370	8,711		-,502	,621
	OCF Pre-IPO	4,679E-7	,000	,362	1,779	,090

- a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-39,5749	-4,3811	-15,1081	11,42677	23
Residual	-91,68616	34,76300	,00000	29,43222	23
Std. Predicted Value	-2,141	,939	,000	1,000	23
Std. Residual	-3,044	1,154	,000	,977	23

- a. Dependent Variable: Level of Underpricing

#### 4. Regression Second Hypothesis – All Operating Cash Flows 6 months after the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

- a. All requested variables entered.  
b. Dependent Variable: Level of Underpricing



**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,141 <sup>a</sup>	,020	,006	105,31878	1,404

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15922,948	1	15922,948	1,436	,235 <sup>a</sup>
	Residual	787535,240	71	11092,046		
	Total	803458,188	72			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-57,142	13,509		-4,230	,000
	OCF Pre-IPO	8,858E-8	,000	,141	1,198	,235

a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-63,8062	7,5214	-50,5200	14,87118	73
Residual	-451,29218	119,17646	,00000	104,58484	73
Std. Predicted Value	-,893	3,903	,000	1,000	73
Std. Residual	-4,285	1,132	,000	,993	73

a. Dependent Variable: Level of Underpricing



### 5. Regression First Sub-Hypothesis – Positive Operating Cash Flows 6 months after the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,182 <sup>a</sup>	,033	,013	55,74859	1,434

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing





**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5126,563	1	5126,563	1,650	,205 <sup>a</sup>
	Residual	149179,474	48	3107,906		
	Total	154306,037	49			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-44,894	9,403		-4,774	,000
	OCF Pre-IPO	5,498E-8	,000	,182	1,284	,205

a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-44,8941	-4,7555	-38,3128	10,22857	50
Residual	-153,61179	99,91970	,00000	55,17680	50
Std. Predicted Value	-,643	3,281	,000	1,000	50
Std. Residual	-2,755	1,792	,000	,990	50

a. Dependent Variable: Level of Underpricing



## 6. Regression Second Sub-Hypothesis - Negative Operating Cash Flows 6 months after the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,006 <sup>a</sup>	,000	-,048	172,58287	,584

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing



**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22,507	1	22,507	,001	,978 <sup>a</sup>
	Residual	625481,760	21	29784,846		
	Total	625504,267	22			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
				Beta		
1	(Constant)	-78,008	49,906		-1,563	,133
	OCF Pre-IPO	-4,142E-8	,000	-,006	-,027	,978

a. Dependent Variable: Level of Underpricing

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-78,0067	-74,8915	-77,0572	1,01146	23
Residual	-433,15619	133,58046	,00000	168,61491	23
Std. Predicted Value	-,939	2,141	,000	1,000	23
Std. Residual	-2,510	,774	,000	,977	23

a. Dependent Variable: Level of Underpricing

## Appendix C – Logistic Regression Calculations

### 1. Logistic regression First Hypothesis – All Operating Cash Flows on the Listing Date

**Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	,141	1	,707
	Block	,141	1	,707
	Model	,141	1	,707



**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	68,256 <sup>a</sup>	,002	,003

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

**Classification Table<sup>a</sup>**

Observed		Predicted			
		posornegunderpricing2		Percentage Correct	
		,00	1,00		
Step 1	posornegunderpricing2	,00	0	13	,0
		1,00	0	60	100,0
Overall Percentage					82,2

a. The cut value is ,500

**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	
Step 1 <sup>a</sup>	OCFPreIPO	,000	,000	,132	1	,717	1,000
	Constant	1,479	,331	19,996	1	,000	4,390

a. Variable(s) entered on step 1: OCFPreIPO.



## 2. Logistic Regression First Sub-Hypothesis – Positive Operating Cash Flows on the Listing Date

### Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	,092	1	,762
	Block	,092	1	,762
	Model	,092	1	,762

### Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	36,601 <sup>a</sup>	,002	,004

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

### Classification Table<sup>a</sup>

Observed			Predicted		Percentage Correct
			posornegunderpricing2	1,00	
			,00	1,00	
Step 1	posornegunderpricing2	,00	0	6	,0
		1,00	0	44	100,0
	Overall Percentage				88,0

a. The cut value is ,500



**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup> OCFPreIPO	,000	,000	,096	1	,756	1,000
Constant	2,080	,530	15,374	1	,000	8,005

a. Variable(s) entered on step 1: OCFPreIPO.

**3. Logistic Regression Second Sub-Hypothesis – Negative Operating Cash Flows on the Listing Date**

**Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	3,021	1	,082
Block	3,021	1	,082
Model	3,021	1	,082

**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	25,246 <sup>a</sup>	,123	,174

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.



Classification Table<sup>a</sup>

Observed		Predicted			
		posornegunderpricing2		Percentage Correct	
		,00	1,00		
Step 1	posornegunderpricing2	,00	0	7	,0
		1,00	0	16	100,0
Overall Percentage					69,6

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	OCFPreIPO	,000	,000	2,065	1	,151	1,000
	Constant	,072	,621	,014	1	,907	1,075

a. Variable(s) entered on step 1: OCFPreIPO.

#### 4. Logistic Regression Second Hypothesis – All Operating Cash Flows 6 Months after the Listing Date

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	,367	1	,544
	Block	,367	1	,544
	Model	,367	1	,544



**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	93,461 <sup>a</sup>	,005	,007

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than ,001.

**Classification Table<sup>a</sup>**

Observed		Predicted	
		posornegunderpricing6months2	
		,00	1,00
Step 1	posornegunderpricing6mont	0	25
	hs2		
	1,00	0	48
Overall Percentage			

a. The cut value is ,500

**Classification Table<sup>a</sup>**

Observed		Predicted
		Percentage Correct
Step 1	posornegunderpricing6mont	,0
	hs2	
	1,00	100,0
Overall Percentage		65,8

a. The cut value is ,500





**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup> OCFPreIPO	,000	,000	,373	1	,541	1,000
Constant	,721	,273	6,966	1	,008	2,056

**5. Logistic Regression First Sub-Hypothesis – Positive Operating Cash Flows 6 Months After the Listing Date**

**Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	1,923	1	,165
Block	1,923	1	,165
Model	1,923	1	,165

**Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	57,372 <sup>a</sup>	,038	,054

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.



**Classification Table<sup>a</sup>**

Observed		Predicted	
		posornegunderpricing6months2	
		,00	1,00
Step 1	posornegunderpricing6mont hs2	,00	13
		1,00	35
Overall Percentage			

a. The cut value is ,500

**Classification Table<sup>a</sup>**

Observed		Predicted
		Percentage Correct
Step 1	posornegunderpricing6mont hs2	,00
		1,00
Overall Percentage		72,0

a. The cut value is ,500

**Variables in the Equation**

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	OCFPreIPO	,000	,000	1,930	1	,165	1,000
	Constant	1,244	,397	9,839	1	,002	3,471

a. Variable(s) entered on step 1: OCFPreIPO.



## 6. Logistic Regression Second Sub-Hypothesis – Negative Operating Cash Flows 6 Months after the Listing Date

### Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	,128	1	,721
	Block	,128	1	,721
	Model	,128	1	,721

### Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	31,714 <sup>a</sup>	,006	,007

a. Estimation terminated at iteration number 2 because parameter estimates changed by less than ,001.

### Classification Table<sup>a</sup>

Observed		Predicted	
		posornegunderpricing6months2	
		,00	1,00
Step 1	posornegunderpricing6months2	4	7
	1,00	5	7
Overall Percentage			

a. The cut value is ,500



**Classification Table<sup>a</sup>**

Observed	Predicted
	Percentage Correct
Step 1 posornegunderpricing6mont ,00	36,4
hs2	
1,00	58,3
Overall Percentage	47,8

a. The cut value is ,500

**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup> OCFPreIPO	,000	,000	,127	1	,722	1,000
Constant	-,056	,579	,009	1	,923	,945

a. Variable(s) entered on step 1: OCFPreIPO.



**Appendix D – Regression Calculations with Sensitivity Analysis (excluding 1999)**

**1. Sensitivity Analysis First Hypothesis – All Operating Cash Flows on the Listing Date**

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,230 <sup>a</sup>	,053	,033	21,70739

a. Predictors: (Constant), OCF Pre-IPO



**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1286,547	1	1286,547	2,730	,105 <sup>a</sup>
	Residual	23089,330	49	471,211		
	Total	24375,877	50			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14,585	3,429		-4,254	,000
	OCF Pre-IPO	2,814E-8	,000	,230	1,652	,105

a. Dependent Variable: Level of Underpricing

## 2. Sensitivity Analysis First Sub-Hypothesis – Positive Operating Cash Flows on the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing



**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,344 <sup>a</sup>	,118	,091	17,98796

a. Predictors: (Constant), OCF Pre-IPO

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1389,628	1	1389,628	4,295	,046 <sup>a</sup>
	Residual	10354,129	32	323,567		
	Total	11743,757	33			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-17,280	3,936		-4,390	,000
	OCF Pre-IPO	3,325E-8	,000	,344	2,072	,046

a. Dependent Variable: Level of Underpricing



### 3. Sensitivity Analysis Second Sub-Hypothesis – Negative Operating Cash Flows on the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,455 <sup>a</sup>	,207	,154	25,83556

a. Predictors: (Constant), OCF Pre-IPO





**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2613,556	1	2613,556	3,916	,067 <sup>a</sup>
	Residual	10012,144	15	667,476		
	Total	12625,700	16			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
		1	(Constant)	,596		
	OCF Pre-IPO	4,798E-7	,000	,455	1,979	,067

a. Dependent Variable: Level of Underpricing

#### 4. Sensitivity Analysis Second Hypothesis – All Operating Cash Flows 6 Months after the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing



**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,147 <sup>a</sup>	,022	,002	38,47484

a. Predictors: (Constant), OCF Pre-IPO

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1610,471	1	1610,471	1,088	,302 <sup>a</sup>
	Residual	72535,343	49	1480,313		
	Total	74145,814	50			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9,924	6,077		-1,633	,109
	OCF Pre-IPO	-3,148E-8	,000	-,147	-1,043	,302

a. Dependent Variable: Level of Underpricing



### 5. Sensitivity Analysis First Sub-Hypothesis – Positive Operating Cash Flows 6 Months after the Listing Date

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,020 <sup>a</sup>	,000	-,031	37,99698

a. Predictors: (Constant), OCF Pre-IPO



**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18,105	1	18,105	,013	,912 <sup>a</sup>
	Residual	46200,660	32	1443,771		
	Total	46218,764	33			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
		1	(Constant)	-23,523		
	OCF Pre-IPO	3,796E-9	,000	,020	,112	,912

a. Dependent Variable: Level of Underpricing

**6. Sensitivity Analysis Second Sub-Hypothesis – Negative Operating Cash Flows 6 Months after the Listing Date**

**Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	OCF Pre-IPO <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Level of Underpricing



**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,350 <sup>a</sup>	,122	,064	32,04125

a. Predictors: (Constant), OCF Pre-IPO

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2147,888	1	2147,888	2,092	,169 <sup>a</sup>
	Residual	15399,624	15	1026,642		
	Total	17547,512	16			

a. Predictors: (Constant), OCF Pre-IPO

b. Dependent Variable: Level of Underpricing

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18,249	10,840		1,683	,113
	OCF Pre-IPO	4,350E-7	,000	,350	1,446	,169

a. Dependent Variable: Level of Underpricing