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The Performance of IPOs in an emerging market:

Evidence from Tehran Stock Exchange

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Dedication

This thesis is dedicated to my lovely wife.

Epigraph

Capital consists in a great part of knowledge and organization.

Alfred Marshall, 1890

ABSTRACT

The outstanding initial public offering (IPO) literature especially in the equity market without price limit such as the US stock market applies the first day closing price to measure underpricing. This *first day approach* assumes that the fair market price of an IPO would be reflected immediately after the stock is available for trading in the public market. This assumption is valid when investors are able to drive the stock price up or down without a predetermined limit. In this method, initial return calculates by taking the difference between the offering price and the closing price of the first trading day. However, the accuracy of the *first day approach* is problematic when the daily fluctuation of stocks is limited. As the daily price fluctuation is limited, the closing price of the first trading day is much less likely to reflect the fair price perceived by the market than it is in a no-limit market. Therefore, researchers have proposed a *non-hit day approach* to measure underpricing in these market. According to *non-hit day approach*, an IPO stock will continue to hit the upper or lower limit of daily price fluctuation if the market believes the fair price of this stock is higher or lower than the limit price. When the stock finally closes below the upper price limit for the first time after being traded publicly, the closing price on this non-hit day is the fair price of the stock. The underpricing of an IPO is therefore measured as the difference between the closing price of the non-hit day and the offering price.

This study empirically analyzes the initial and aftermarket returns for the Iranian IPOs, using *non-hit day approach* to provide an emerging market case of international evidence on performances of IPOs. The sample consists of 187 companies listed and traded on the Tehran Stock Exchange during the period of 1996–2009. The results show that initial offerings meet equilibrium price, averagely, after 3 days and the average return of initial offering in TSE, based on *non-hit day approach* is 10.8% which is less than the return in other developing markets. Our findings also confirm evidences from other stock markets around the world which showed long-run underperformance following initial equity issues. The investigation of factors influencing the initial performance of IPO shows that ex-ante uncertainty and operating history of firm prior to going public have a significant impact on the level of IPO underpricing in TSE.

KEYWORDS

Initial Public Offering (IPO), underperformance, underpricing, daily price limit, non-hit day approach, Tehran Stock Exchange.

Introduction

Initial public offering (IPO) is the first sale of stock by a private company to the public. Some companies especially small companies looking to further the growth of their company often use an IPO as a way to generate the capital needed to expand. For this reason for some entrepreneurs, making a company public is the ultimate dream and mark of success.

IPOs play an important role in the allocation of resources in the market. By accessing external sources of funds through an IPO, the firm is able to acquire the capital necessary for growth and product innovation. Financing through capital market can provide the company with not only the needed financial resources, but also other benefits essential for a financing decision making. Some of these benefits are to access a large community of investors, increase liquidity, enhance company and personal prestige and market-value for the company (Milos, 2008).

Although IPO has considerable importance and numerous advantages for issuers, if it is planned inappropriately and without full understanding of the market and potential investors, it may have undesirable consequences for issuers and challenge the capital market for lack of confidence. Thus, capital market authorities should enact proper and exact regulations, apply experienced and efficient methods and utilize services rendered by institutions related to the capital market, and accordingly gain a fair evaluation of securities and better allocation to it, in order to create an attractive and confident market for investors, attract new investors, provide profitable opportunities for existing investors and finally promote the market liquidity and depth with the most efficient method.

Statement of the Problem

Underpricing and long term underperformance is two main anomalies in IPO process. IPO underpricing occurs when the offer price of a stock is lower than the fair market value. It is widely observed in stock markets around the world (Loughran, Ritter, & Rydqvist, 1994; Ljungqvist, 2006). In. Underpricing can be seen in the difference between the offering price and the first day closing price. Academics use the terms first-day returns or abnormal return and underpricing interchangeably.

Underpricing represents a cost to the issuing company because if securities are underpriced, relatively more money is left on the table for the IPO buyers and relatively less is available as proceeds for the issuing company. This also means that owners of the firm prior to the IPO

suffer a higher dilution of their ownership and have a lower level of wealth than if the issue had been priced at market**.**

As Ritter and Welch (2002) suggested in their review of the theoretical explanations of IPO underpricing, that theories on the reasons of underpricing are conventionally grouped under two main headings: (i) those based on asymmetric information and (ii) based on corporate control or allocation of shares. Theories under the first heading emphasize the asymmetry of information possessed by investors and issuers, and accordingly argue that underpricing helps to reduce the existence of asymmetric information. One line of the theories of asymmetric information directs attention to the issue of investors having differential information (Durukan, 2005). We will explain these theories in chapter 1.

Also, there are independent variables used in the literature as determinants of IPOs' abnormal returns, and they made researchers to test them in one way or another, making such massive body of literature in this respect. Variables such as ex-ante uncertainty, oversubscription, proportion of shares offered, market volatility and market sentiment.

Other puzzle in the IPO literature is long term underperformance or why IPO investments perform badly after going public. Ritter (1991) was among the first to document poor abnormal returns following an IPO. Investors who buy IPO shares at the end of the first trading day appear to earn a long term cumulative return far less than non-IPO stocks. Most subsequent research, using larger and longer sample periods in the US market and overseas, confirmed Ritter's initial results.

A theory that could explain the long-run underperformance is the so-called 'fads theory'. Both Aggarwal and Rivoli (1990) and Ritter (1991) reported strong underperformance of IPOs after three years. Both studies point out that the abnormal price behavior of IPOs might be due to overoptimistic investors, who expect high excess returns, but sell the shares acquired in the IPO whenever their high expectations are not fulfilled in the longer run. This so-called fad causes extremely high demand in the early aftermarket, but at the same time drives the disappointed investors to sell their shares, thereby causing the long-run underperformance (Brounen 2002). Ritter (1998) also defined other hypotheses to explain the phenomena of the long-run underperformance of IPOs which we will define them in next chapter.

Over the years, lots of empirical studies have been done to enhance knowledge about IPO performance, IPO underpricing and long run underperformances. But most studies are preformed in developed markets and there are little researches in emerging markets, especially in an emerging market with tight daily price limit.

This study examines performance of IPOs at Tehran Stock Exchange (TSE) as an emerging market with price limit regulation. A limited number of studies carried out in the emerging and underdeveloped markets have supported the general findings of similar studies on the performance of IPOs in the developed markets. However Aggarwal, Leasl, and Hernandez (1993), Wong and Chiang (1986), R. Bildik and M. Yilmaz (2006) and M. Islam et al (2005) concluded that certain conditions and situations dominant in the developing markets might lead to the conclusions and findings that are contrary to the results of studies done in the developed markets.

Emerging markets generally do not have the level of market efficiency[1] and strict standards in accounting and securities regulation equal to the advanced economies (such as the United Stated, Europe and Japan) therefore, investments in emerging markets entail substantial risk with the potential for above–average returns. The financial markets of developing countries are typically small, with a short operating history. Emerging markets exist in developing regions of the world, which are very volatile and therefore have great growth potentials but also pose significant risks.

On the other hand, though TSE has some common characteristics with emerging markets, such as low liquidity, little or no diversity in financial instruments and small capital markets' significance in the national economy, it has some specifications which makes it different from other markets.

A narrow daily price limit (4 percent), no time span between IPOs and aftermarket trading (listed shares can be traded in the market a day after IPO, but daily price limit will be exercised on their trading), use of auction mechanism for IPOs and absence of investment banks – as institutions having vital role in pricing and allocation of shares in IPOs – are amongst the specifications of TSE which make it different from other emerging markets. On the other hand, the mass privatization program in recent years is considered to have significant influence on IPO performance. Since, it is generally believed that IPOs performance of such firms is different from that of privately held companies which plan to go public (Ariff et.al. (2007)).

[1] the degree to which stock prices reflect all available information.

Research question

A review of the related literature leads us to the main research question of the present study as follow:

Does IPO performance in TSE verify findings from empirical studies in other markets?

Thus the objective of this study is to present evidence of IPOs underpricing and IPOs long run performance in TSE and find possible explanations for these phenomena. Finding differences between governmental-linked and non-government affiliated firms and large and small companies IPOs are other objectives of the study.

Research Method

This study examines new companies listed on TSE for the period 1996-2009 and the population of the study includes IPOs in all 37 sectors such as financial, manufacturing, food and beverage, chemicals and pharmaceuticals, textile, metals, services and real estate.

The method used to determine underpricing or abnormal return is based on *non-hit day approach* used by Ding (2009) and Kim (2009) in studies on Taiwan Stock Exchange, an exchange with daily price limit.

Ding (2009) believes while IPO underpricing is calculated by subtracting the closing price of the first trading day to the pre-market offer price of the IPO equity in the United States, this approach may not be applicable to measure underpricing in stock markets with daily price limit. This policy, limits daily range of price fluctuation of a stock (Kim & Park, 2008). For example, a share listed in TSE has a 4% daily fluctuation limit. If a stock opens at 1000 Rials at the beginning of a trading day, its price cannot exceed 1040 Rials or fall below 960 Rials in that day. This policy limits the stock market's ability to reflect the fair market value of an IPO in the first trading day. As a result, the price adjustment in these markets may take days, or even weeks. Therefore, tracing and identifying the fair market price of IPO stocks in the markets with daily limits are time-consuming and complicated. Ljungqvist (2004) showed, because of daily price limit in developing markets, a longer time is needed to adjust the price and balance the demand and supply, therefore, in these markets, underpricing should be measured in a longer window.

Hence, in a market with price limit regulation, it may take the stock market more than one day to reflect the fair value of an IPO stock. Therefore, calculation of initial return by the *first day approach* (the difference between the offering price and the first day closing price) results in

unreal answers. Therefore, IPO researchers have proposed a *non-hit day approach* to measure underpricing in these market. According to *non-hit day approach*, an IPO stock will continue to hit the upper (lower) limit of daily price fluctuation if the market believes the fair price of this stock is higher(less) than the upper (lower) limit price. When the stock finally closes below the upper price limit for the first time after being traded publically, the closing price on this non-hit day is the fair price of the stock. The underpricing of an IPO is therefore measured as the difference between the closing price of the non-hit day and the offer price.

As mentioned before, daily price fluctuation of shares price in TSE is ±4%. Thus, first day return in this market may not be more than 4%. Few reviews of underpricing in TSE support general findings on underpricing, but the findings are not convincing because of the information uncertainty, using *first day approach* and shortage of data collected.

This research also uses Buy and Hold Abnormal Returns (BHARs) and Cumulative Abnormal Returns (CARs) to detect IPO long term returns. We calculate the BHARs and CARs from the IPO price to the anniversary date of the offering. We have not examined beyond one year like Loughran (1993), who shows that IPO underperformance extends beyond three years, since our sample period is limited to only 13 years. Market return, which is computed by the daily change in TEPIX as a representative of market portfolio, is used as a benchmark to measure the abnormal return of IPOs.

To review more exactly, companies with shares initially public offered in TSE have been classified into two groups of large cap companies and small cap companies according to the market value of each company, and into two groups of state-owned companies and privately owned companies in terms of ownership.

Research Hypotheses

As mentioned before, studies carried out in the emerging and underdeveloped markets have supported the general findings of similar studies on the performance of IPOs in the developed markets. However some of them concluded that certain conditions in emerging markets may cause finding in these markets differ from those in developed markets. So, we examine performance of IPOs at TSE as an emerging market with daily price limit, to access following hypotheses:

H1: IPOs in TSE are underpriced.

H2: IPOs in TSE are underperformance in long term.

H3: There is a positive relation between abnormal return and long term performance.

This paper uses *non-hit day approach* to calculate initial and long term abnormal returns and integrates the literature on underpricing of State-owned and private hold IPOs in TSE as an emerging market. Therefore, this study will contribute to the existing literature.

Key terms Definitions

The definitions of the key terms used in this research are as follows:

- *Initial public offering (IPO):* the first sale of stock by a private company to the public. IPOs are often issued by smaller, younger companies seeking the capital to expand, but can also be done by large privately owned companies looking to become publicly traded.
- *Initial return:* the differences between first day closing price and offering price
- *Underpricing:* underpricing is estimated as the percentage difference between the offer price and the price at which the shares subsequently trade in the market. If the true value to be revealed by an investor is P* and the offer price of a firm is P, then the extent of underpricing is (P*-P), assuming zero transaction costs.
- *Hot market:* An initial public offering that appeals to many investors and for which there is great demand. Hot IPOs are often oversubscribed - meaning market demand far exceeds the supply of shares - which results in the stock price surging as soon as it is offered on the market.
- *Cold market:* An initial public offering that appeals to few investors and for which there is little demand. Cold IPOs are often undersubscribed.
- *First day approach:* In this method, initial return calculates by taking the difference between the offering price and the closing price of the first trading day.
- *Non-hit day*: the day that stock finally closes below the upper or lower price limit for the first time after being traded publically.
- *Non-hit day approach:* in this method, underpricing is measured as the difference between the closing price of the non-hit day and the offering price.

The rest of this paper is structured as follow; in the first chapter we provide theories and evidence to explain underpricing and low long-term performance of IPOs. At the second chapter, we provide an overview about TSE and IPO process in TSE. The third chapter documents research methodology and the forth chapter presents conclusions of the study.