SECONDARY EQUITY OFFERINGS LONG RUN UNDERPERFORMANCE: PUZZLE OR MISTAKE

Check for updates

Wong Pik Har[1+]
Karthiyayini Visvanathan[2]

[1]Tunku Abdul Rahman University College, Faculty of Accountancy Finance & Business, Malaysia
[2]University of Essex, United Kingdom

(+ Corresponding author)

ABSTRACT

This study examines whether misvaluation which causes long run underperformance is present when firms issue additional equity and if firms time the additional equity issue when market as a whole overvalues the firms, in order to capitalise on the value appreciation. The overvaluation is measured as the difference between the market value of the issuing firm 30 days prior to the equity issue date and the fundamental value of the firm 1 year prior to the day of equity issue. The fundamental value is quantified using the residual income valuation method. The results are partially consistent with the existing empirical literature, as misvaluation is present when firms issue additional equity. However, firms do not specifically time the issuance of equity with overall market overvaluation as based on the results collected, more additional equity were issued when misvaluation levels were lower.

1. INTRODUCTION

Seasoned equity offerings or secondary equity offerings (SEO) are new equity issued by a company that is already listed on the stock exchange. Secondary equity offerings can have a diluting effect (new shares entirely) or a non-diluting effect (sale of shares by existing shareholders). Secondary equity offerings are very similar to initial public offerings (IPO), with the only difference being, that the price of the new issue will be based on the existing obtainable market price of the shares.

Due to the additional equity offering being issued according to the prevailing market price, one would expect that there would not be any issues surrounding an additional equity offering. However, there is a negative announcement effect for the firms that issue additional equity which affects the long term returns of firms. This effect is consistent with the Myers and Majluf (1984) theory, that market views the additional equity offerings negatively as the market believes that the firm is overvalued. This view arises as there is a perceived information asymmetry problem between the market and the managers of the firm. Managers of the firm are deemed to have a more precise and accurate assessment of the firm's current value and its future prospects. When the value of the firm in the market is much higher than the managers' assessment, there is an incentive for managers to issue additional equity as it would benefit the firm and its current shareholders. It is this perception that causes market to view additional equity issuance in a negative light.

This suggests that firms time the additional issue of equity to coincide with periods of market overvaluation in order take advantage of this overvaluation as suggested by Spiess and Affleck-Graves (1995). Illusion that firms are underperforming in the long run.

Long run underperformance could also be attributable to the firms' age as evidenced by Huang (2014). Additional equity financing is rather popular among young firms as these firms have plenty of business opportunities but limited funds and thus secondary equity offerings, provides a relatively low cost option of obtaining the funds needed for the projects.

Teoh et al. (1998) argues that the long run underperformance of firms are caused by firms practicing earnings management. It is difficult for investors to identify if managers of the firm are practicing earnings management and thus they get carried away with the valuation of the firm. Firms usually practice earnings management prior to acquiring another firm as firms try to reduce the amount of stocks to be exchanged with the acquired firm by making the firm's share more expensive than the acquiring company's share.

There is an opposing view held by Eckbo et al. (2000) that asserts that firms' equity value are actually not misvalued but appears to be misvalued due to the incorrect econometric techniques used. The common technique used to assess if misvaluation is present, is to compare the issuing firm to a firm in the similar industry (with similar financials) which did not issue additional equity as demonstrated by Loughran and Ritter (1995). However this is not an accurate method of assessment as firms that issue equity have lesser risk compared to firms that do not issue equity arising from lower leverage ratios which implies lower risk. As the saying goes, high risk, high returns and low risk, low returns. Thus the reason firms underperform in the long run is due to the fact that firms have lesser risk and not because of misvaluation.

This current study builds on the results of the papers discussed above and examines whether firms are actually timing the issuance of new equity to take advantage of the market misvaluation and thus affecting the firm's long term performance.

2. LITERATURE REVIEW

2.1. Pecking Order Theory

Myers and Majluf (1984) with the concept of pecking order, where, when a firm requires financing for a project or business expansion, firms should use firm's internal funds first, then seek out external debt and as last resort, issue external equity. Issuing equity is the least preferred method of raising finance because when firms issue new equity, investors view the issue negatively and places a lower value on the new equity when it is announced.

This negative view arises as there is an information asymmetry problem between investors and managers of the firm. Investors believe that managers have a much more accurate estimation of the firm's condition compared to the investors, and the only reason managers are issuing additional equity is because the firm is overvalued compared to manager's assessment and managers are taking advantage of this misvaluation.

2.2. Repurchases, Dividends and New Issues are Signals to Investors

Asquith and Mullins (1986) provides further support to the Myers and Majluf (1984) theory by stating that the distribution of dividends, repurchases of equity and new equity issues are interpreted by investors as signals of management's appraisal of the firm's current performance and firms future growth prospects. Equity repurchases are viewed favourably by the market, as investors make the presumption that managers are convinced that the firm's current equity is worth more than its current market value and is thus willing to pay a premium to repurchase the stock in order to recompense firm's shareholders. I

2.3. Opportunism vs. Optimism

On the other hand, Spiess and Affleck-Graves (1995) suggests that firms takes advantage of the periods of market overvaluation, to time the issuance of firm's equity. This overvaluation period usually arises periodically, at the peak of industry trends, when investors are extremely optimistic about the value of the firms in those specific industries. Managers issue additional equity when the firms are overvalued, due to the implicit market pressure (on the firm), to undertake ambitious financially rewarding projects that match the optimistic valuation of the firm, made by the market. Since the market fails to revalue the firm accurately after the new equity issue (as previously mentioned), investors then proceed to purchase the overvalued equity with the expectations of receiving high returns. However, when these high returns are not achieved in due time, investors then revalue the equity to a much lower value, to reflect investors lack of confidence in the firm due to the unmet return expectations.

2.4. Age Does Matter

Other than that, firms' age plays a pivotal role in the long-run underperformance of a firm, post equity issue. According to Huang (2014) the secondary equity offering market tends to be dominated by young firms with high growth prospects (approximately 70% of firms are below 5 years of age) or growth firms. Growing firms are more inclined to have vast business opportunities but low levels of financing and difficulties in obtaining these necessary financing. Therefore, growth firms will gravitate towards the equity market to obtain these funds due to the relative ease of obtaining financing associated with equity financing. Once these firms undertake the business opportunities with the financing obtained from the additional equity offering, markets will revalue the firm to a lower value. The market does this as it believes that the future prospects of the firm has reduced.

2.5. Long Term Underperformance is Firm's Own Doing

There is another school of thought that states, that the long-run underperformance of the additional equity offering is due to firms' own doing, in the form of earnings management. Teoh *et al.* (1998) found in their study that firms manage their earnings upwards via accounting measures prior to an equity issue. Managers do this to portray an optimistic view of firm's current standing and future prospects to the investors. This rosy picture misleads the investors into overvaluing the new equity issue. Investors find it difficult to discern whether management is managing the accruals, as the recording of accruals in the firm's accounts are up to the manager's volition. However, it should be noted that earnings management is not something that is easy to execute especially with current accounting regulations, which requires firms to conduct an independent audit of the firm annually. Nonetheless, there is still a possibility of earnings management occurring.

2.6. Misvaluation is Not Present, it is Just Wrong Technique

On the contrary, Eckbo *et al.* (2000) contends that misvaluation, in actuality, is not present at all in additional equity offerings. The misvaluation and long term underperformance of firm arises due to the wrong technique being used in measuring these two circumstances. The common technique used to assess the presence of misvaluation in firms issuing equity, is by comparing it to a non-issuing firm such as the matched firm technique used by Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995). This is an inaccurate method to employ because when firms issue additional equity, their leverage ratio drops which causes risk levels to drops and thus making issuing firms less risky. Consequently, the expected returns of the issuing firm is much lower so as to reflect the lower risk levels.

3. METHODOLOGY

In order to asses if misvaluation is present or absent when firms issue additional equity, the following equation will be used:

3.1. Estimated Misvaluation = MV$_{t-30days}$ − FV$_{t-1}$

Where the MV$_{t-30days}$ is the market value of a firm's equity 30 days prior to the additional equity issue date and FV$_{t-1}$ is the estimated fundamental value of the equity one year prior to the equity issue date. A positive or negative estimated misvaluation figure would imply that the firm's equity is currently overvalued or undervalued compared to market's valuation of the firm's equity at time of issue. The model used in the calculation of this fundamental value is the residual income valuation model to measure the intrinsic value of the 30 stocks in the Dow Jones Industrial Average (DJIA).

This model is derived from the basic concept, that a share's fundamental value is essentially the present value of its future cash flows (or dividends), based on the current information that is available to firm's management. This model is then further developed to incorporate the concept of "clean surplus accounting". The concept of clean surplus accounting requires that all gains and losses that affects the book value of equity, are to be included, when obtaining the firm's earnings amount. This indicates that the change in book value of equity (from time to time) equals to firm's earnings minus the dividends paid out to shareholders. With the inclusion of this concept, the residual income valuation method can be written as follows:

$$V(t) = B(t) + \sum_{i=1}^{\infty} \frac{E_t[\{ROE(t+i) - r_e(t)\}B(t+i-1)]}{[1 + r_e(t)]^i} \tag{1}$$

Where:

$B(t)$ = Book value of the equity at time t

E_t = Expectations of the future based on the information available currently

$ROE(t+i)$ = Return on equity for period $t + i$

$r_e(t)$ = Firm's annualized cost of capital

It should be noted that this equation is similar to the dividend discount model, the only difference, is that the firm's value is expressed in terms of accounting information instead of dividends distribution. Hence, the model is subject to the same notions and limitations of the dividend discount model. Nevertheless, due to the ease of obtaining the information for the model's components, this model is a much lesser complex model to implement when estimating the fundamental value of the firm. Additionally the equation emphasizes the importance of future forecast earnings information in valuing firm's equity. Past book values alone are inadequate proxies for the fundamental valuation of the firm as it does not place any value on the future wealth-creating opportunities available to the firm. Past earnings value are also inadequate as they are only a rudimentary stand in for the future earnings of the firm.

Equation (1) expresses the fundamental value of the firm in the form of an infinite series. This is an impractical way of obtaining the fundamental value of the firm as it impossible to obtain infinite data of a firm. Therefore, the infinite series needs to be replaced with a finite series to make it a more functional and practical model. This is done by including a terminal value estimate which is the estimate of the firm's value based on the residual income that is earned at the end of the forecasted time period (T). The terminal value is estimated by taking the residual income at time T as a perpetuity. By doing so, it is assumed that there is zero growth in the cash flows (at least that of importance) after period T. The quality of the fundamental value, V(t) estimates are not sensitive to a forecast period that is beyond 3 years, ergo Equation (1) is rewritten for a three period forecast horizon.

$$V(t) = B(t) + \frac{[f^{ROE}(t+1) - r_e(t)]B(t)}{1 + r_e(t)} + \frac{[f^{ROE}(t+2) - r_e(t)]B(t+1)}{[1 + r_e(t)]^2} + \frac{[f^{ROE}(t+3) - r_e(t)]B(t+2)}{[1 + r_e(t)]^2 r_e(t)} \qquad (2)$$

Where:

$f^{ROE}(t+i)$ = Forecasted return on equity for period $t + i$

The forecasted ROE's are calculated as follows:

$$f^{ROE}(t+1) = \frac{f^{EPS}(t+i)}{\overline{B}(t+i-1)} \qquad (3)$$

Where:

$f^{EPS}(t+i)$ = Forecasted earnings per share for period $t + i$

$$\overline{B}(t+i-1) \equiv \frac{B(t+i-1) + B(t+i-2)}{2}$$

Where:

$B(t+i-1)$ = Future book values of equity

And it is computed as follows:

$$B(t+i) = B(t+i-1) + (1-k)f^{EPS}(t+i)$$

Where:

k = Proportion of earnings that are paid out as dividends/Dividend payout ratio

$$k = \frac{D(t)}{EPS(t)}$$

The dividend payout ratio is estimated by dividing the dividends per share paid out at time t by the earnings per share earned at time t. In accordance with the dividend payout ratio or in this case, k is less than zero (k < 0), arising due to negative earnings per share, the dividends per share are then divided by (0.06 x Total assets). This alternative is used to derive an estimated dividend payout ratio where the assumption is, that on average, 6% of firm's total assets constitutes as the firm's earnings.

The residual income model also requires a discount rate that correlates the risk associated with the future cash flows of the firm to the firm's shareholders. There are two commonly used models that could be applied to estimate the cost of capital, the capital asset pricing model or the Fama and French (1992). However, there is no substantive evidence that the three-factor model is a better model than the other. Therefore, the annualized cost of equity, $r_e(t)$ of firm was calculated using the Capital Asset Pricing Model (CAPM).

$$r_e(t) = r_f + \beta_{it}(r_m - r_f)$$

Where:

r_f = Risk free rate

β_{it} = Beta of firm i at time period t

r_m = Expected market return

The annual firm-specific historical beta was used as the proxy for the beta in the CAPM, while the annualized 3-month US Treasury Bills was used to represent the risk free rate component in the model. For the expected market return component, the annualized price index of the S&P500 was used as the stand-in. The annualized price index was selected as it was indicative of the average returns market expects to receive. Estimates of the proportion of dividends paid out of earnings are used as an estimate for the growth rate of the firm.

4. DATA SAMPLE

4.1. Data Selection

The sample of secondary equity offerings used in this research were obtained from the Thomson ONE database (available in the Albert Sloman Library). The initial sample contained 6,215 additional equity offerings from the period of January 1980 to December 2010. For the above equity issues to be included in the final sample, the following criteria had to be satisfied:

(a) The firms issuing the additional equity has to be domiciled in the United States of America (I/B Nation Code: USA) and the additional equity issue has to be targeted to the US market (Target market: USA).

(b) The issuing firms have to be publicly listed companies (I/B Public Status: Public) that are listed on the stock exchanges in US (Listing: Stock Exchange Grouped by Country: NY).

(c) The issue type has to be a secondary equity offering (Issue type: Follow on) and the equity offering has to be for an issue of ordinary shares, not preference shares, warrants or etc. (Security type: Common stock and ordinary shares). The sample excludes additional equity issues issued by closed-end funds, real estate investment trusts (REIT's) and unit investments trusts.

(d) Last but not least, firms issuing the equity should have a valid Datastream code as well as the sufficient data needed for the residual income valuation model (EPS, DPS, BV and etc.). The data for all the components of the valuation model are obtained from the Datastream database (available in the Albert Sloman library as well)

Any of the follow on equity offerings from the Thomson ONE database, that does not meet the above criteria, is removed from the sample of study. From the initial sample of 1,913 issuing firms, only 1,467 issuing firms had Datastream codes. Out of these 1,467 issuing firms, only 1,389 firms had daily price information obtainable from the database. Another 576 issuing firms were removed, as the necessary data required to execute the residual income valuation model were not available on the Datastream database for those respective issuing firms. Therefore, the final and usable sample for this study consists of 1,934 seasoned equity offerings from 813 separate issuing firms, i.e. an average of 2.4 equity issues over the sample period of 30 years.

4.2. Data Description

Table 1 presents the distribution of the (final) sample of additional equity offerings by the respective years together with the aggregate gross proceeds (stated in US dollars) from the equity issue. Due to the equation requiring the fundamental value of firm one year prior to the issue date, the sample for this study begins in 1981 instead of 1980. The number of equity issues fluctuates wildly from year to year, ranging from 10 equity issues per year (1989) to 194 equity issues per year (2009). This fluctuation could be indicative of Spiess and Affleck-Graves (1995) theory that firms time equity issues according to the periods of high market valuation to take advantage of the overvaluation. Perhaps a more graphical form of the data would provide a much clearer view.

Based on the graph below (Figure 1), there is a sharp increase in additional equity offerings by firms between year 2008 and 2009, followed by a short drop in 2010, which coincidentally, coincides with the 2008 financial crisis. This incident signifies that, the theory of managers' observing the market for periods of high valuation, in order to time firms' additional equity issue, actually holds water. Managers' of issuing firms, time the equity offering when

there is high optimism in the market, in order to capitalise on the high valuation, for the benefit of the firm. This market-wide optimism benefit firms in the sense, that issuing firms are viewed more favourably and thus increasing the valuation of the firm's shares as well the demand for the additional equity offering by investors (in the form of increased gross proceeds from equity issue). Nevertheless, this view is only relevant if the manager's assessment of firm's value is lesser than market valuation of firm.

The sample consists of secondary equity offering data extracted from the Thomson ONE database, for periods January 1981 to December 2010 that meet the following criteria: (1) the issuing firm is domiciled in the US and issues equity, solely for the US market, (2) the issuing firm is a publicly listed firm on stock exchanges in the US (3) the equity issue should be a secondary equity issue and the issuing firm only issues ordinary shares for the equity issue and (4) the issuing firms should have a valid Datastream code and sufficient data to execute the residual income valuation model.
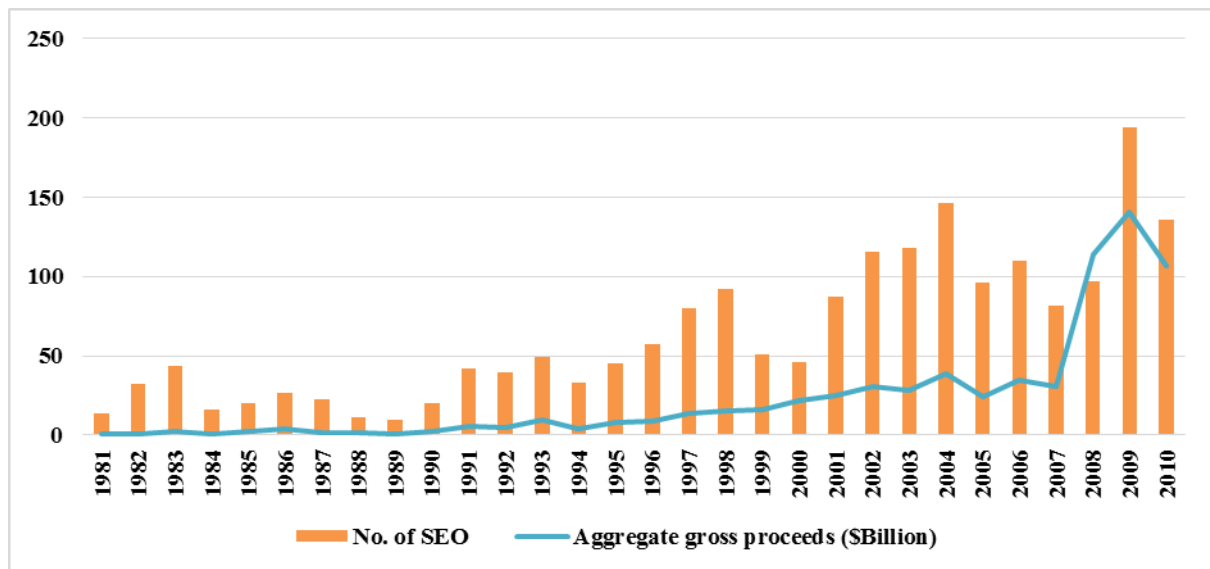

Figure-1. Distribution of the number of secondary equity offerings and respective aggregate gross proceeds by year from 1981 to 2010
Source: Outputs from E view

5. EMPIRICAL MODEL AND STATISTICAL ANALYSIS

5.1. Model Application

As previously mentioned, to test for the presence of misvaluation, the following equation will be used:

5.2. Estimated Misvaluation = $MV_{t-30days} - FV_{t-1}$

The market value of firm, 30 days before equity issue date is readily available from the Datastream database. For the one year prior to issue date fundamental value, the residual income valuation method is used to estimate the figure (Equations (2) and (3)).

$$V(t) = B(t) + \frac{[f^{ROE}(t+1) - r_e(t)]B(t)}{1 + r_e(t)} + \frac{[f^{ROE}(t+2) - r_e(t)]B(t+1)}{[1 + r_e(t)]^2} + \frac{[f^{ROE}(t+3) - r_e(t)]B(t+2)}{[1 + r_e(t)]^2 r_e(t)} \quad (2)$$

$$f^{ROE}(t+1) = \frac{f^{EPS}(t+i)}{B(t+i-1)} \quad (3)$$

Where:

$f^{EPS}(t+i)$ = Forecasted earnings per share for period t + i

$$\overline{B}(t+i-1) \equiv \frac{B(t+i-1)+B(t+i-2)}{2}$$

Where:

$B(t+i-1)$ = Future book values of equity

And it is computed as follows:

$$B(t+i) = B(t+i-1)+(1-k)f^{EPS}(t+i)$$

Where:

k = Proportion of earnings that are paid out as dividends/Dividend payout ratio

$$k = \frac{D(t)}{EPS(t)}$$

The dividend per share figures were readily available on the database while the earnings per share were calculated by dividing earnings before interest, tax, depreciation and amortisation (EBITDA) by the number of the shares (both types of information obtained from the Datastream database). In the instances that the earnings per share (EPS) figure is negative, the dividend payout ratio is set as 6% of the total assets of the firm (divided by number of shares to obtain total assets per share figure). The dividend payout ratio that is calculated is then fed into the computation of future book values of equity (refer Equation (3)). An example of how the future book values to equity is calculated is shown below:

Example: i = 1

B (t + 1) = B (t + 1 − 1) + (1 − k) f^EPS (t + 1)

B (t + 1) = B (t) + (1 − k) f^EPS (t + 1)

B (1981) = B (1980) + (1 − k) f^EPS (1981)

The annual forecasted EPS figures for the respective firms are obtained from the database. All these components are then used to calculate the forecasted return of equity (f^ROE) figure that is essential for the calculation of Equation (1). Another essential component of Equation (1) that needs to be estimated is the annualized cost of capital of firm. As mentioned before, the CAPM was used to calculate this figure. Once all the necessary components of the residual income model have been calculated, the annual fundamental value of the firm can be estimated and the presence of misvaluation can be confirmed or rejected. Table 2 reports the yearly descriptive statistics for the research sample from 1981 to 2010.

Based on the median figures reported in Table 2, it is clear that misvaluation, specifically overvaluation, is present when firms issue additional equity. There were relatively low levels of misvaluation at beginning of the sample period, gradually increasing over the next few years and reaching its peak in 1986. The misvaluation levels then proceeds to drop and peak again in year 1990. Misvaluation continues to grow rapidly over the next few years, suffering a small dip in 1994 before doubling itself in 1995. After the year 1995, the misvaluation levels, does not fluctuate as wildly as the years before 1995, instead it varies between 20% and 36%. The misvaluation levels tend to (on the whole) coincide with the number of equity offerings that were issued in that year. This is consistent with the notion that firms do indeed issue more equity when the market as a whole is overvalued, as equity is the preferred method of financing when markets are overvalued Myers and Majluf (1984). However, it should be noted that out of the 1,934 additional equity offerings issued by the firms, 39 of the equity issues were undervalued (market value of equity issue was lesser than the estimated fundamental value of firm).

Figure 2 indicates that the peaks in the misvaluation levels, happens to occur as the same time as the various financial crises that have affected the market. The peak during the year 1986, was a precursor of the 1987 stock market crash also known as the Black Monday. The sharp increase in misvaluation from 1996 to 1997 and peaking

in 1998 could be a possible domino effect brought about by 1997-1998 Asian financial crisis on the US financial market. The 2000 peak is concurrent with the Dot.com bubble crash that affected the market between the years 1999 to 2000. The final misvaluation peak of the sample period occurs simultaneously with the recent 2008 global financial crisis. These simultaneous occurrences of high misvaluation levels and financial crises further solidifies the perception of firms timing their additional equity issue as there are intense price run-ups prior to the stock market crashing. The price run-ups occur due to the irrational optimism that plagues the market investors and hence clouding their judgement when valuing the firms' equity issue.

5.3. Data Analysis

Nevertheless, let's focus on the data collected that substantiates the existing empirical literature on misvaluation in secondary equity offerings. Asquith and Mullins (1986) states that equity repurchases, dividends and equity offerings are viewed as signals of management valuation of the firms, by investors. Investors interpret equity repurchases as a positive signal as they are of the opinion that management are not going to waste away valuable resources if they are concerned about the firm's future.

The table reports the mean and median values of the misvaluation that is present in additional equity offerings every fiscal year. Additionally, the standard deviation figures together with the minimum and maximum figures have been calculated as well. Positive figures indicate overvaluation and negative figures indicate undervaluation. The estimated misvaluation figures were calculated using the following equation, $MV_{t-30days} - FV_{t-1}$

Table-2. Yearly descriptive statistics for the period 1981 to 2010

Year	No. of equity offerings	Median (%)	Mean (%)	Standard deviation (%)	Minimum	Maximum
1981	14	0.36	-4.11	11.72	-28.31	8.93
1982	32	2.99	7.25	14.53	-0.81	63.74
1983	44	4.67	7.09	9.84	-2.59	60.09
1984	16	5.86	12.38	22.32	1.08	93.88
1985	20	8.10	18.19	40.17	1.99	187.32
1986	27	10.55	17.22	23.10	0.46	109.26
1987	23	8.59	14.93	18.12	0.76	85.33
1988	11	7.59	10.04	8.72	1.10	31.32
1989	10	9.65	9.87	3.98	3.73	15.34
1990	20	13.29	65.25	168.76	1.76	652.76
1991	42	13.02	36.07	147.88	1.51	970.04
1992	40	16.60	18.96	15.75	1.29	65.93
1993	49	16.14	22.85	40.64	0.49	284.05
1994	33	11.87	16.11	17.50	-2.72	95.30
1995	45	23.25	48.31	121.78	-14.93	690.90
1996	57	20.85	26.40	22.03	4.08	130.47
1997	80	26.93	29.61	23.02	-3.48	156.08
1998	92	34.61	34.42	16.25	2.23	110.98
1999	51	24.63	36.37	55.72	7.20	416.21
2000	46	36.79	39.96	24.20	3.08	126.35
2001	87	32.80	51.49	61.26	-3.07	291.10
2002	116	24.30	30.61	48.25	-124.73	312.01
2003	118	22.93	32.35	42.47	-41.11	312.35
2004	146	25.76	38.32	48.33	-46.67	368.23
2005	96	32.66	43.68	57.09	-9.10	407.30
2006	110	34.73	45.26	42.02	2.82	281.55
2007	82	33.73	40.22	36.33	-71.71	690.90
2008	97	36.67	48.78	50.36	-51.07	260.21
2009	194	27.67	35.90	32.11	-5.78	271.62
2010	136	33.15	42.86	38.82	-6.06	313.04

Source: Outputs from E view

Hence, investors regard equity offerings negatively as they believe that managers are sending out the signal that they are unsure if the business has the necessary funds to grow further and need additional funds to expand the business further. A slightly different explanation was also looked at, that states managers are subtly communicating with investors, that firm's management does not foresee the current high returns to continue (or even increase) in the upcoming years and therefore management would like to take advantage of the current optimistic valuation period for the benefit of the firm. Based on Table 2, these assumptions would be tenable as there is an increase in the number of additional equity issue, when the misvaluation levels are high.
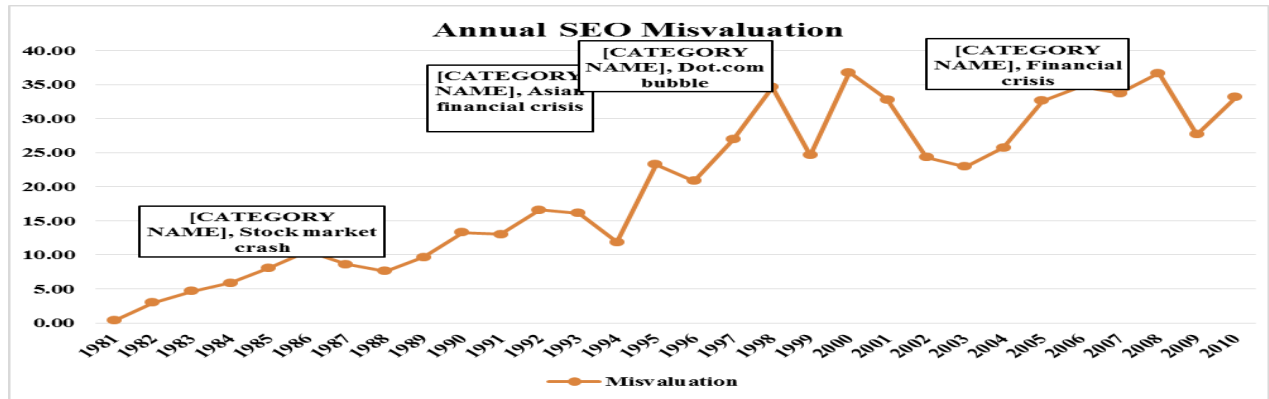

Figure-2. Distribution of misvaluation throughout the sample period of 30 years (using the median figures)
Source: Outputs from E view

As previously mentioned, the misvaluation in additional equity issues corresponds with the financial crises that hits the market. Therefore, firms do indeed time the additional equity offering, as they can foresee that the financial markets will be crashing and affecting the whole market. This effect transpires itself in the form of firm's inability to undertake upcoming, available and profitable business opportunities. Accordingly, firms will issue additional equity now to obtain the funds now, for when firms will need it in the near future. It is akin to consumers saving their income now to purchase a car or a house later (future plans).

Additional equity issues affects the long term performance of the firm as evidenced by Loughran and Ritter (1995). Firms that issue additional equity tends to underperform, 5 years after the secondary equity offering, compared to firms that do not issue equity. The investors also have to invest a substantial amount in the issuing firm, in order to receive the same amount of returns as the firms that are not issuing equity. The credibility of this theory is proven in Table 3 and Figure 3 that presents the annual average offer price and annual average market value of equity, when firms issue additional equity offerings. It clearly demonstrates that the average offer price of the equity issue is much higher than the average market value of the firm. In some years, specifically from the year 1981 to 1989 of the sample period, the offer price of the equity is between 3 to 8 times of the average market value of the firm.

Table 2 clearly shows that misvaluation is present, all throughout the sample period (market value exceeding the estimated fundamental value) and for firms to set an offer price that is much higher than esisting market value of firm, points to a serious overvaluation problem. The announcement of an equity issue is synonymous with the revaluation of the firm's value by the market. Since the offer price is much higher than the market value, market revalues the firm to a much higher value. Thus, it would be incorrect to state that markets fails to revalue firms accurately just because firm's equity remains overvalued when the additional equity issue is announced.
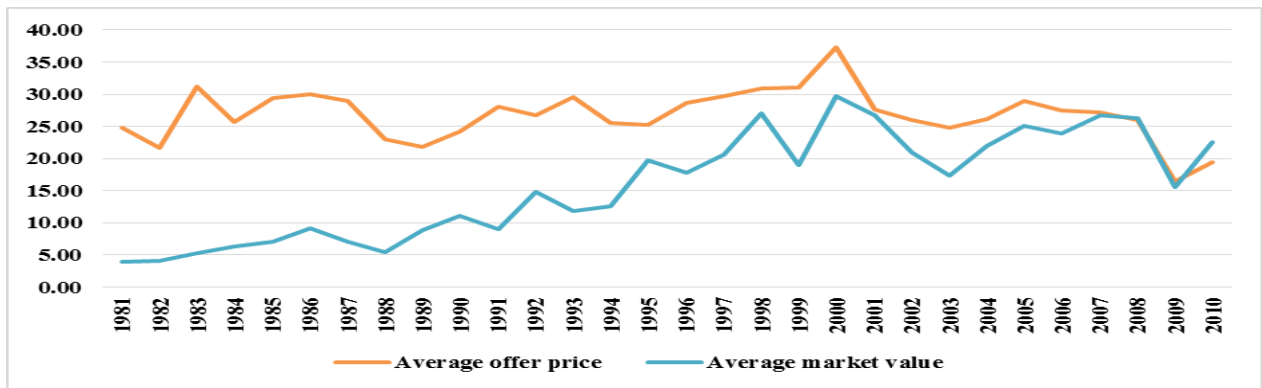
198

Figure-3. Distribution of the average offer price and average market value of equity for years 1981 to 2010. Median values were used to plot this graph.
Source: Outputs from E view

This huge difference dies down from 2007 onwards, where the offer price of the equity issue is similar to the existing market value. There is even the presence of under-pricing that occurs from 2009 onwards. One of the determinants of the under-pricing in additional equity offerings, is the firm's initiative to attract investors to subscribe to firm's equity issue. Firms price their equity issue lower in order to appear as an attractive investment to investors. As shown in Figure 4, there is a large number of additional equity being issued in 2009, right after the market crashed (due to the 2008 global financial crisis). With the market crash, there will be increased investor pessimism in the financial market, thus for firms to attract investors to purchase the equity, firms will have to under-price the equity issue. An additional equity is viewed as a temporary liquidity shock that hits the market. In order for market to be incentivised to absorb the excess liquidity in the market, market players need to be attracted with discounted offer prices.

Spiess and Affleck-Graves (1995) states that firms are pressured by the markets to issue additional equity in order to obtain the funds necessary to undertake lucrative business projects. Firms feel the urgency to undertake the ambitious projects as firms' feels that they need to match the current value of firm to the optimistic valuation of firm as valued by the market. The high peaks in misvaluation is indicatory of market as a whole being overvalued. When this occurs, undervalued firms become high valued firms and currently overvalued firms become even more overvalued. Managers of the firms are well informed of the current financial standing of the firm, hence they are aware when the firm is overvalued or undervalued in the market. When firms are positively valued by the markets, managers interpret this optimism as investor's confidence in the firm.

In order to retain this confidence (positive valuation of firm), firms will need to undertake business projects that boosts firm's earnings and to match the market valuation of firm. In pursuance of these profitable business projects, firms issue additional equity to obtain the requisite financial resources. Due to lack of accuracy in revaluing the firm on issue announcement date, investors proceed to purchase overvalued equity. As peak misvaluation levels coincide with the occurrence of the financial crises, firm's value would also be affected by these crises as the expected return of firm will take a hit. When the expected returns are low, investors would not be very confident of the firm and would value the firm lower. However, with the addition of a market crash, investors tend to be overly pessimistic and revalue firm the firm to a much lower value. This gives the impression that firms are underperforming in the long run when instead it is due to market valuation of firm's equity.

Table-3. Distribution of the average offer price and average market value of equity for years 1981 to 2010. Median values were used.

Year	Average offer price	Average market value
1981	24.75	3.95
1982	21.69	4.01
1983	31.21	5.23
1984	25.63	6.33
1985	29.38	7.02
1986	30.00	9.09
1987	29.00	7.06
1988	23.00	5.41
1989	21.88	8.90
1990	24.19	11.05
1991	28.13	8.97
1992	26.75	14.88
1993	29.50	11.88
1994	25.50	12.63
1995	25.25	19.67
1996	28.63	17.72
1997	29.72	20.57
1998	30.94	27.00
1999	31.00	19.00
2000	37.25	29.68
2001	27.63	26.70
2002	26.00	20.92
2003	24.83	17.34
2004	26.08	21.96
2005	28.93	25.10
2006	27.43	23.96
2007	27.20	26.72
2008	25.95	26.31
2009	16.50	15.51
2010	19.50	22.53

Source: Outputs from E view

Myers and Majluf (1984) stated in their paper that equity is the least preferred method of financing of firm as firm's value drops once equity is issued. Firms value drops because investors view the equity issue as a negative signal as investors believe that managers of the firm are aware their firm is overvalued in the market and is seeking to take advantage of this overvaluation at the expense of the new shareholders. Based on Table 2 and Figure 2, investor's belief seems to ring true.
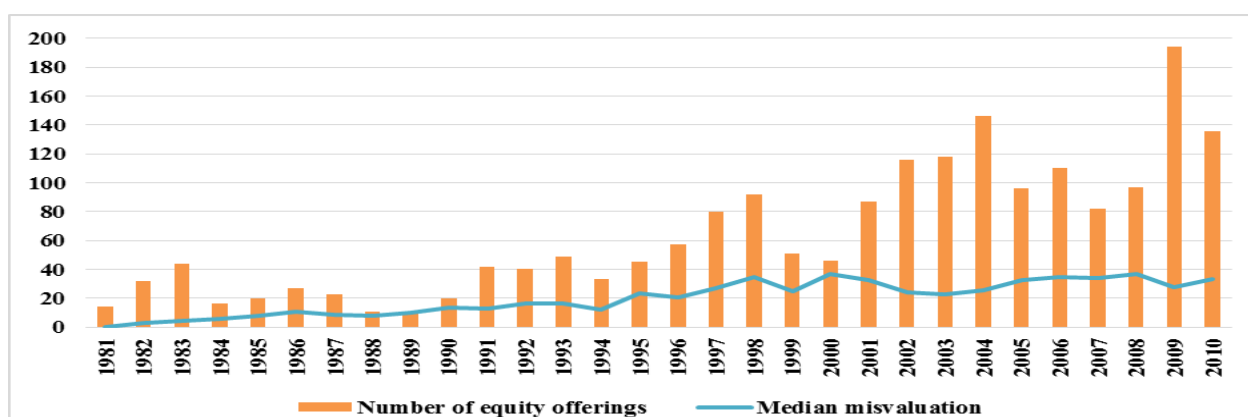

Figure-4. Distribution of annual average misvaluation levels with the annual number of additional equity issued. (Median values were used for the misevaluation levels)
Source: Outputs from E view

Misvaluation (overvaluation in this case) is present in every year that firms issue equity. The misvaluation reaches its peak just prior to the market crash that occurs soon after. The number of additional equity issues issued also rises simultaneously with the misvaluation. However, the authors posed a question in their paper, where it was asked whether equity issue can be solely seen as a confirmation of profitable investment opportunities. There is a possibility that this query can be validated based on the results presented in Figure 4, specifically the sample period of 2001 to 2010.

During this time period, despite the increased numbers of equity issue that occur at the misvaluation peaks, there is an even higher increase of additional equity offerings by firms when misvaluation levels drop. From years 2002 to 2004 and year 2009, misvaluation levels were quite low, however secondary equity offerings were increasing instead. These circumstances could be indicatory that firms are not timing their equity issues according to market overvaluation but instead issuing equity when investment opportunity arises.

5.3. Summary of Analysis

Based on the research conducted and results obtained, it is clear that there is a divide in the sample period in terms of theory validation. There is a sample period which supports the empirical literature on secondary equity offerings that have been reviewed and another sample period that contradicts the theories presented about additional equity offerings. For the sample period from 1981 to 2000, the results are in line with the theories about misvaluation in secondary equity offerings as discussed in Section 2. Firms do indeed issue additional equity when firm's market value is overvalued compared to firm's fundamental value. As per figure 4, there is an increase in additional equity issues when misvaluation levels are high and a decrease in additional equity issues when misvaluation levels are low.

Therefore, the notion that investors view equity issues as a negative signal is objective. Investors view equity issues negatively as they believe that managers are just taking advantage of the overvaluation in order to obtain more funds at inflated rates. Managers are clearly well-informed on the firm's current value and know when firm is overvalued. Firms issue equity when it is overvalued in order to capitalize on the positive valuation. Managers are possibly also aware that over the next few years firms will be generating any high returns and hence decide to issue equity now while investors are still confident of firm's wealth creating abilities.

The next common theory, is market failing to value firm accurately when firms issue the additional equity. This theory is also valid as high levels of misvaluation reported corresponds with the occurrence of financial crises in the markets. The high peaks in misvaluation tend to occur just prior to the market crashing. This implies that investors are irrationally optimistic in valuing firms, thus there is a tendency for investors to overvalue the firm. Additionally, firms issue additional equity at a much higher offer price compared to the current market value as indicated in Figure 3. This higher offer price insinuates that managers of the firm are equally overoptimistic about the assessment of firm's current value and it future prospects. As investors believe that managers of the firm have better knowledge of firm's current standing, investors are possibly getting carried away with such irrational optimism and valuing firms incorrectly. This optimism perpetuates itself throughout the whole market affecting all firms. Investors value a firm positively as they expect firms to generate higher returns over the next few years. However, as the returns expectations are not met, investors begin to revalue the firm to a much lower value and therefore causing firm's value to drop.

For the sample period, year 2000 to year 2010, there is some conflict with the existing theories reviewed. Firms issue the most equity offerings when the misvaluation levels are low as reported in Figure 4. In spite of that, firms have issued more additional equity from year 2001 to 2004 when misvaluation levels were very low and also in 2009 where there was a drastic drop in misvaluation levels. This is indicative that firms do not time the additional equity issue to when firm's equity is overvalued and thus issue equity when firms need financing. Furthermore, offer price of additional equity from 2001 to 2010 is closer to the fundamental valuation of the firm. This could signify that

managers are valuing firms more realistically and thus pricing the equity issue with only a slight premium. In the 2009 and 2010 sample period, under-pricing is present in the additional equity issue.

Firms usually under-price the equity as a way to attract the market to subscribe to the firm's equity as well as to compensate the market for absorbing the sudden excess equity liquidity in the market. This suggests that there are possible profitable projects that firms would like to embark on but do not have the necessary financial resources. Thus, firms under-price the equity issue in order for equity to be attractive to investors and for more investors to be able to purchase the equity (as shown in Figure 1 where the aggregate gross proceeds are high from year 2001 to 2004 and year 2009). Essentially, the sample period post year 2000 is seen to implicitly imply that managers are more sensitive and cautious towards market's perception of the firm. Hence, it could be said that managers issue additional equity when it necessary and price the additional issue accordingly to firm's internal assessment of itself. The question that comes to mind now is whether markets will now start to value firms more accurately and will the problem of misvaluation in issuing equity fade away.

6. CONCLUSION

This paper studies whether misvaluation is present or absent when firms issue additional equity. The interest for this study came about from the papers written by Loughran and Ritter (1995) and Eckbo *et al.* (2000). Loughran and Ritter (1995) noted that firms that issue either secondary equity offerings or initial equity offerings underperform substantially compared to firms that do not issue equity for five years after the issue date. The underperformance manifests itself in the form of investors having to invest a significant amount of money in firms that issue equity in order to receive the same amount of returns as investing in non-issuing firms. The authors were of the opinion that the poor long term performance was due to firm's returns reversing itself as a majority of additional equity offerings are issued when firms are enjoying a period of superior returns. However, based on their research, returns reversals was not the reason for the underperformance and hence they came to the conclusion that firms time the issue of additional equity when the firm's equity is significantly overvalued. The authors arrived to this conclusion as they stated that the announcement of an equity issue is linked to market conducting a revaluation of firm's value so that firms are neither overvalued nor undervalued. Nonetheless, their evidence indicates that market fails to revalue the firm on announcement day and thus when the additional equity offerings are issued, the equity is overvalue.

Eckbo *et al.* (2000) disagrees with the new issue puzzle as they theorise that the long run underperformance of firms issuing equity is due to lower market risk exposure compared to non—issuing firms. The authors believe that the technique used by Loughran and Ritter (1995) to test for long term underperformance is inappropriate as they argue that when firms issue equity they become less risky. Issuing firms become less risky because they have lower leverage levels due to the increase in the amount of firm's equity. With lower leverage levels, comes a decrease in sensitivity to inflation levels as well as lower default risks. Hence, on the whole, firms that issue additional equity face lower risk and thus require lower expected returns compared to firms that did not issue equity. Therefore, the authors state that the technique used by Loughran and Ritter (1995) is inaccurate as issuing firms are not being compared to similar firms, in order to ascertain that issuing firms suffer long term underperformance. The authors conduct their study issuing models that take into account risks faced by issuing firms. Based on the results obtained, none of the models implemented provided evidence of long term underperformance in firms that issue additional equity (five years after issue). As a result, interest was sparked as to whether misvaluation by market was indeed present or is it just a result of using wrong econometric techniques.

In order to test for the presence of misvaluation, the difference between the market value of equity and the intrinsic value is deemed as the estimated misvaluation. Specifically the difference between market value of equity 30 days prior to issue date and fundamental value of equity 1 year prior to issue date. The method selected for estimating the fundamental value of firms is the residual income valuation method with the inclusion of the clean

surplus accounting concept. The sample period that was used was from year 1981 to 2010. The results of this study indicated that misvaluation was present, all throughout the sample period but just with differing levels. The number of additional equity issued increased together with the misvaluation levels indicating the firms actually time the issue of additional equity to when firm's equity is overvalued as stated by Loughran and Ritter (1995) proving that Eckbo *et al.* (2000) point of view does not hold true. Having said that, the opposite starts to occur to the sample period starting from 2001 onwards, where more secondary equity offerings were issued when misvaluation were low, implying that firms were issuing equity when firm's market value was closer to firm's fundamental value. There was even the presence of under-pricing in the additional equity issue in 2009. The results obtained brings to fore the question, is market becoming more adept at valuing firm and are managers more attuned to and cautious of market's perception of the firm.

6.1. Limitations and Recommendations

This study was subject to a number of known limitations particularly in data collection and model application. Limitations in data collection was caused by restrictions to the data available in the Datastream database. As previously mentioned in Section 4 of this study the original sample of additional equity offerings consisted of 1,931 issuing firms with 4,047 additional equity offerings but due to the data for all these additional equity offerings being unavailable on the Datastream database they had to be removed. The removal of these data samples could have produced a biased sample which could affect the efficacy of the results of this study. Therefore gathering data from multiple sources would improve this study further as larger samples may be more representative of actual market conditions.

Furthermore, although the fundamental values were successfully estimated using the model mentioned in Section 5 of this study, the method used was not as comprehensive as the model used by Rhodes-Kropf *et al.* (2005) which took into account firm's age, and firm's leverage ratios among other factors in estimating firm's fundamental value. The current fundamental valuation method does not take into account other factors that causes long term underperformance in additional equity such as firm's age, firm's risk levels and etc. Firm's age could possibly be a cause for the long term underperformance instead of market misvaluation. Huang (2014) states in their paper that the long term underperformance that occurs post equity issue is more frequent in younger firms. The reasoning behind this theory is that young firms tend to be uncertain about the future profitability of the firm as they have a vast array of business opportunities to undertake which leads to an increase in the volatility of firm's return. When firms have selected a project to undertake, then firm's returns are more tangible and can be estimated. Due to the increase in returns tangibility of firm, firms risk level drops to reflect reduced volatility of firm.

As previously mentioned, when firms have lower risks, the expected returns of firms are lower. A possible alternative model that could be applied to the valuation of additional equity in future studies would be the fundamental valuation method used in the paper by Rhodes-Kropf *et al.* (2005). The method was used to estimate the fundamental value of acquiring firm and takes into account firm's leverage ratios and firm's age among other factors and would be applicable for estimating the fundamental value of additional equity offerings.

In spite of the shortcomings in this study, this study successfully highlights the presence of misvaluation in additional equity offerings which causes firms to perform poorly in the long run. There are other causes of long run underperformance, but were more difficult to test due to the limitations mentioned above. With access to multiple data sources and a more comprehensive method of estimating the fundamental value of firms, an inclusive conclusion of the reasons for long run underperformance in additional equity offerings, could have been explained.

REFERENCES

Asquith, P. and J.D.W. Mullins, 1986. Signalling with dividends, stock repurchases, and equity issues. Financial Management, 15(3): 27–44. *View at Google Scholar | View at Publisher*

Eckbo, B.E., R.W. Masulis and Ø. Norli, 2000. Seasoned public offerings: Resolution of the new issues puzzle. Journal of Financial Economics, 56(2): 251–291. *View at Google Scholar | View at Publisher*

Fama, E.F. and K.R. French, 1992. The cross-section of expected stock returns. Journal of Finance, 67(2): 427–466. *View at Google Scholar*

Huang, C.W., 2014. Firm age, idiosyncratic risk, and long-run SEO underperformance. International Review of Economics & Finance, 34: 246–266. *View at Google Scholar | View at Publisher*

Loughran, T. and J.R. Ritter, 1995. The new issues puzzle. Journal of Finance, 50(1): 23–51. *View at Google Scholar | View at Publisher*

Myers, S.C. and N.S. Majluf, 1984. Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics, 13(2): 187–221. *View at Google Scholar | View at Publisher*

Rhodes-Kropf, M., D.T. Robinson and S. Viswanathan, 2005. Valuation waves and merger activity: The empirical evidence. Journal of Financial Economics, 77(3): 561–603. *View at Google Scholar | View at Publisher*

Spiess, D.K. and J. Affleck-Graves, 1995. Underperformance in long-run stock returns following seasoned equity offerings. Journal of Financial Economics, 38(3): 243–267. *View at Google Scholar | View at Publisher*

Teoh, S., I. Welch and T. Wong, 1998. Earnings management and the underperformance of seasoned equity offerings. Journal of Financial Economics, 50(1): 63–99. *View at Google Scholar*