
Explanatory Theories of Stock Returns in the Long Run after IPO – Literature Review

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Abstract: Negative returns of shares in the long run after initial public offerings have been confirmed on many markets, however the explanation for the cause of this phenomenon is ambiguous. Investigating underperformance is important because it allows for a better understanding of the role of the stock markets in the financial system. Such a market anomaly influences the behaviour of investors in the long run. Underperformance features in an extensive body of empirical literature and has been confirmed in most cases, yet it is inconclusive as to what affects such phenomena on the markets. The purpose of this paper was to present the explanatory theories based on the behaviour of market participants and to summarise the explanatory variables of underperformance that stem from the theory.

Keywords: IPO, initial public offering, underperformance, long-run performance, behavioural theories.

1. Introduction

Price reactions after the initial public offering (IPO) have been analysed for a long time. It has been observed that new issuers tend to underperform on the broad market for up to five years after their debut. Finding abnormal aftermarket performance of new listings raises doubts about the informational efficiency of the IPO markets. Such behaviour of abnormal rates of return may discourage investors from undertaking long-term investments and therefore lead to shortening their investment horizon – this also contributes to incorrect assessment of risk and expected rates of return.

Ritter (2021) described in the summary of underperformance in the USA a negative average abnormal market-adjusted return of 15.8% in the period 1980-2019. International evidence of the phenomenon was outlined by Álvarez and González (2005). With the exception of the Korean and Swedish markets, the remaining eleven

analysed countries (Australia, Brazil, Chile, France, Germany, the UK, Hong Kong, Japan, Singapore, Switzerland, and the United States) demonstrated negative abnormal returns in the long run after IPO, where the highest level was recognised in Australia (51%). Underperformance was also confirmed in many other countries such as China (Tan & Kim, 2017), Spain (Álvarez & González, 2005), Poland (Mizerka & Lizińska, 2017), New Zealand (Dang & Jolly, 2017), Tunisia, Egypt, Oman and Morocco (AlShiab, 2018).

Despite numerous empirical studies concentrating on the phenomenon of underperformance, it has not been definitively established which factors affect long-term rates of return. For example, in the group of factors based on company characteristics, the age of the issuers at the time of the IPO has been analysed quite often. Goergen, Khurshed and Mudambi (2007) did not find any statistically significant relation between the age of the issuing company and its performance in the long run. The same results were obtained by Killins and Egly (2018). Que and Zhang (2019) obtained mixed results when calculating the relation between age and underperformance as depending on the method used to calculate rates of return, their results showed either an insignificant or positive and statistically significant relation. A positive and significant relation was found by Szyszka and Zaremba (2016), who found that older companies perform significantly better than the younger ones. These results were confirmed by Al-Shawawreh and Al-Tarawneh (2015). Das, Saha and Kundu (2016) described a significant negative relation between the company's age and abnormal returns, showing that the higher the age of the issuer, the lower the long-term returns. Company's size (usually measured by its total assets or market capitalisation) is another frequently analysed feature. The opposite relation between size and long-term returns was established by Colombo, Meoli and Vismara (2019), indicating that the valuation of smaller firms benefits from higher growth opportunities. A positive impact of the company's size was presented by Czapiewski and Lizińska (2019). The same authors in the earlier study (2014) found a negative impact on post-IPO long-run performance among a group of smaller firms, yet Que and Zhang (2019) established that smaller issuers experience better aftermarket performance. Chen, Lin, Chang and Lin (2013) and Das et al. (2016) found that the size of the firm does not explain long-term returns after IPO. Studies of venture capital (VC) involvement in the ownership structure of IPO firms also showed different results. Belghitar and Dixon (2012) showed that VC-backed and unbacked IPOs underperform benchmark portfolio, but their findings are statistically insignificant. Killins and Egly (2018), as well as Goergen et al. (2007), found that issuers backed by VCs experience poorer returns in the long run.

Many researchers also took into account characteristics of the offer, and the influence of initial returns on long-run performance was investigated. Consistent with the expectation of Cai, Liu and Mase (2008), initial returns are negatively related to long-run performance. Otchere, Owusu-Antwi and Mohsni (2013) also

confirmed such a relation for up to six years after IPO, but with the exception of three-year performance when the coefficient is insignificant. No influence of initial returns on long-run returns was found by Das et al. (2016). According to these authors, the issue size is also not significant when explaining long-run performance. However, Cai et al. (2008) obtained a negative coefficient implying that the larger the size of IPO, the worse the underperformance. In line with the research of Al-Shawawreh and Al-Tarawneh (2015), there is a significant positive relation between the size of offers of the IPO firms and their long-run performance. According to Khan, Ramakrishnan, Haq, Ahmad and Khan (2018), the underwriter's reputation also has a positive impact on the long-run performance of IPOs, thus IPOs led by more prestigious underwriters perform better in the aftermarket. Dong, Michel and Pander (2011) suggested that issuers with high-quality underwriters perform significantly better than those with the lower-quality underwriters, as the latter IPO companies earn negative abnormal returns. Additionally, the effect of underwriter quality is strongest among IPOs with a high level of uncertainty. Thomadakis, Nounis and Gounopoulos (2012) obtained mixed results as – depending on the method used – they found that there is either a negative relation or no significant relation at all, therefore according to these authors, underwriter reputation offers the evidence of the determinants of long-term returns to some extent.

In addition to the analysis of individual factors related to the characteristics of the debuting companies, numerous theories have been presented to explain the behaviour of price reactions after IPOs. This article presents theories related to the behaviour of various market participants, which can therefore be classified into a group of behavioural theories.

2. Behavioural theories of long-run performance

This group of behavioural theories assumes that underperformance is caused by the particular behaviour of a given market participant. The theories considered in the article include: earnings management, divergence of opinion, windows of opportunity and fads theory.

2.1. Earnings management theory

Earnings management theory refers to the scope of the information that managers of IPO companies publish in their financial statements. The company, by shaping individual items of the report, and thus by creating given level of profit, can increase the attractiveness of such entity. The concept of information management does not, however, refer to data manipulation and creative accounting. In order to reflect the financial situation fairly, the legal system allows a certain degree of flexibility in the demonstration of individual accounting items in the financial statements. Such

elasticity is meant to enable a company to reflect its financial situation as accurately as possible. However, it can also be a source of abuse on the part of managers who try to present the financial condition in a better light than it really is (Lizińska & Czapiewski, 2016).

From the issuer's point of view, the use of earnings management is a good way to window-dress the results before the initial public offering. This allows to increase the attractiveness of the company in the eyes of other market participants and raise their expectations about the company's future, and as a result, increase the possibility of obtaining more share capital by the company.

When considering the theory with regard to long-term returns, it is considered that a higher level of earnings management is associated with a greater long-term price correction after the issuance of shares. Based on the assumption of Ritter (1991) that young companies attract overly optimistic investors who are highly positive about the future performance of such issuers, Teoh, Welch and Wong (1998) considered earnings management theory in the context of underperformance. Companies that plan to enter the market may manipulate their financial statements around the listing date in order to increase the attractiveness of their shares. For investors who make their decisions based on the reported financial results, it may be difficult to distinguish whether earnings have been artificially inflated or if the 'boost' was caused by the operational performance of the issuer. Consequently, an investor unaware that the company has been managing their earnings may agree to pay too high a price. However, with the passage of time, when the information about the true condition of the firm is acknowledged, investors become less optimistic about the future of the company. As a result, the stock prices of 'deceptive' issuers may be negatively affected.

The literature concentrated on earnings management theory, where discretionary accruals are used as a proxy to verify the theory. Teoh et al. (1998) used accrual data from the financial statements published in the year of IPO. The authors concentrated on current accruals as managers have more discretion over them than over long-term accruals; the sample used consisted of 1649 IPOs conducted between 1980 and 1992 on the US market divided into quartiles based on how aggressively the companies manage earnings. The results showed that the most aggressive accruals portfolio (the fourth quartile) underperformed more than the portfolio with the most conservative accruals (the first quartile) when calculating returns three years after the IPO. When adjusted by the Nasdaq Composition Index, the cumulative abnormal returns (CAR) within aggressive and conservative groups differed by 25.4% and by 26.2% when calculating value-weighted returns. The difference was greater when considering buy-and-hold returns. Using the same benchmark, the difference between the two extreme quartiles was 29.2% and 30.7%, respectively. The authors interpreted their results as proof that issuers manage earnings to inflate their offering price.

DuCharme, Malatesta and Sefcik (2001) confirmed these results. They based their work on a sample of 171 companies that entered the US market over the period of 1982-1987. Using the regression model, they proved that positive accruals in the IPO year, as well as the preceding year, are negatively related to the three-year buy-and-hold abnormal return. The same relation of earnings management and long-run performance was obtained on the Chinese (Shen, Coakley, & Instefjord, 2014), Dutch (Roosenboom, van der Goot, & Mertens, 2003) and French markets (Miloud, 2013).

Armstrong, Foster and Taylor (2016) confirmed the existence of positive abnormal accruals in the year of the IPO. However, they stated that these accruals result from the economic activity of the IPO companies as the IPO proceeds are being invested in working capital. The authors proved that the positive accruals are not linked with the benefits of the management.

Sletten, Ertimur, Sunder and Weber (2018) analysed quarterly data regarding accruals, and proved that debuting companies manage earnings, not before IPO but before the lock-up expiration date, in order to inflate the price before the sale of shares by pre-IPO shareholders. Consistent with this study, Ball and Shivakumar (2008) found no evidence of positive abnormal accruals prior to the IPO.

2.2. Divergence of opinion theory

Divergence of opinion theory is another theory explaining the behaviour of long-term rates of return based on the behaviour of investors. It states that due to uncertainty regarding the true value of stocks, there is a divergence of opinion about expected rates of return from a given investment and its risk. The prices reflect the sentiments of all investors, i.e. those who perceive the company positively and negatively. However, under the condition of no short selling (and therefore excluding the opinions of investors that are pessimistic about the company's value), the prices are determined only by the marginal, optimistic investors. Due to the amount of publicly available information, the divergence of opinion about the share value is in particular greater for companies that are just entering the market. Thus, offers from investors who are able to pay a high price for shares may cause the market prices to exceed their offer price shortly after the IPO. As time passes and more information about the company becomes available, the divergence of opinion among investors decreases, in effect causing the rates of return to diminish in the long run (Miller, 1977). In line with the theory, the higher the divergence of opinion, the higher the underperformance.

The research of Houge, Loughran, Suchanek, and Yan (2001) based on 2,025 US IPOs that took place in 1993-1996 supported the hypothesis and associated poor long-run returns of IPOs with a higher divergence of opinion. As a proxy of divergence of opinion, the authors applied three factors: percentage opening bid-ask spread, exact time of the first trade and flipping ratio. When considering the regression model, all three proxies negatively influenced the long-run performance.

The US market was also examined by Gao, Mao and Zhong (2006), however they used return volatility for the first 25 days after IPO as a proxy of divergence of opinion. Using such a proxy, the authors also confirmed that the divergence of opinion is negatively related to subsequent long-run abnormal returns of IPOs.

Based on data from Polish IPOs, Jewartowski and Lizińska (2012) found a significant positive relation between early aftermarket volatility; however, the returns in the long term were insignificant. As divergence of opinion is correlated with uncertainty (Miller, 2000), the authors decided to apply factors used as proxies of uncertainty, i.e. size of the issuing company and market-to-book value, representing either value or growth company, depending on the level of the ratio. Based on this, they also confirmed that smaller issuers underperform on the market after three years from their listing, and issuers with higher MV/BV (reflecting growth companies) or ROE (according to the authors, above-average profitability should attract overoptimistic investors) have higher initial returns but underperform issuers with lower ratios in the long run. Thus, their results only partially confirm the theory of divergence of opinion.

Narayanasamy, Ibrahim, and Kyid (2018) confirmed that retail investors' participation influences the relation between initial performance and aftermarket opinion of investors in the Malaysian IPO market. According to the authors, retail investors that participate in IPOs take advantage of the divergence of opinion effect.

2.3. Window of opportunity theory

The window of opportunity theory anticipates that managers are able to distinguish periods when investors are overoptimistic, and therefore they can successfully time the most favourable moment for their IPO. Going public during 'hot' periods provide issuers with an opportunity to sell shares at a higher price in comparison to 'cold' periods. Poor-performing entities may take advantage of such a situation and carry out a successful IPO which ends up with being valued above their fair value. Obtaining share capital on such attractive terms may not be possible for worse-performing companies in other periods. Therefore it may be expected that in periods with high IPO activity, not only 'good' companies entered the market, but also the 'bad' ones. A concentration of IPO volume followed by low long-run returns indicates that issuers take advantage of windows of opportunity and that such companies are the most likely to provide high initial returns and poor long-run performance (Ritter, 1991). Schultz (2003) demonstrated that underperformance is related to IPO clustering at market peaks.

Coakley, Hadass, and Wood (2008), based on 591 UK IPOs that took place between 1985 and 2003, distinguished 46 hot periods out of the 228 analysed months. Although the authors did not find a confirmation of underperformance based on the entire sample, they obtained negative long-run abnormal returns in hot periods (3-year CAR for the hot markets was -18.52%).

Kooli and Suret (2004) confirmed that hot IPOs underperform more than issues conducted in cold periods. The authors analysed the aftermarket performance of 445 IPOs that took place during 1991-1998 on the Canadian market. The 5-year returns were -4.6% in the cold period, and -39.08% in the hot period.

Consistent with previous research, Helwege and Liang (2004) confirmed the windows of opportunity as a reason for underperformance. Based on 3698 IPOs from the US market from 1975 to 2000, the authors calculated 1-, 3- and 5-year wealth relatives for the sample using value and equal-weighted Nasdaq indices as benchmarks. A wealth relative compares average raw returns on the IPO firms with average returns on the equal number of benchmark observations. Wealth relatives for all analysed periods in the cold market were bigger than 1, and for the hot periods, all the wealth relatives were below 1, except for the 5-year wealth relative based on the equally-weighted benchmark.

2.4. Fads theory

Another theory is based on the assumption that IPO markets are prone to the occurrence of fads (Shiller, 1990), which are temporary overestimations of the value of shares caused by the excessive optimism of investors. Aggarwal and Rivoli (1990) focused on verifying this theory with regard to long-term post-IPO price reactions. In their opinion, the IPO market is particularly prone to fads as estimating the intrinsic value of securities on such markets is difficult due to the lesser availability of public information, and therefore there is a greater likelihood of fads. The other arguments they used for testing IPO markets are: noise trading is more likely for more risky securities; it is assumed that decisions made by IPO investors are more often based on speculation; a marginal investor is overly optimistic. Aggarwal and Rivoli (1990) found that market valuation immediately after issuance ineffectively reflects the true value of the issuer because investors are irrational. Due to the fact that investors are overly optimistic about the value of companies going public, IPOs are underpriced. In time, with the inflow of new information about the issuing company, investors' excessive optimism cools down, which is reflected in rates of return through underperformance. Therefore, the fad theory states that IPOs are priced correctly, but overoptimistic investors overvalue them shortly after their debut.

In line with the fads theory, high initial returns are positively correlated with the long-run underperformance, however there are no direct proxies reflecting market fads. Instead, the measures of the fads hypothesis focus on the relationship between underpricing and long-term rates of return. Aggarwal and Rivoli (1990) confirmed that when adjusting for the Nasdaq index, the returns 250 days following the offering were significantly negative (-13.7%).

In terms of the fads theory, the negative relation between underpricing and underperformance was also confirmed based on the Indian market (Bhatia & Singh,

2012). The 648 Bombay Stock Exchange companies that conducted IPOs between June 1992 and March 2002 were categorised by the size of initial returns. The results confirmed that when analysing the rates of return calculated by BHAR for up to 5 years after IPO, underpriced companies recorded negative rates of return in the long run, except for the 1-year return (in this period, a negative relation with underpricing was indicated only in the group of companies with the highest level of initial returns). The group of companies with the highest initial returns underperformed at most for up to 4 years after IPO.

A negative relation between underpricing and underperformance was also confirmed, i.e. on the market in Malaysia (Ahmad-Zaluki & Kect, 2012), Canada (Kooli & Suret, 2004), Turkey (Durukan, 2002) and Japan (Kirkulak, 2008).

3. Conclusion

The article concentrates on the behaviour of long-run stock returns after initial public offerings. Based on the research, IPO markets recorded average negative rates of return. The literature on the subject not only focuses on underperformance itself but also attempts to explain the cause of such phenomenon. Therefore, this article took into consideration not only the levels of underperformance but also presented the explanatory theories, as well as the proxies that stem from each theory.

The described theories can be attributed to the group of behavioural theories that state that the cause of underperformance lies in the behaviour of particular market participants. The earnings management theory assumes that issuers window-dress their information published in the financial statements before IPOs to attract more investors. The divergence of opinion theory is based on the assumption that there is a divergence of opinion among investors about expected rates of return of the issuing company. The window of opportunity theory assumes that management can time the market and issue shares when investors are overly optimistic. The fads theory states that underperformance is caused by the overoptimism of investors regarding the value of issuers shortly after IPOs. Depending on the adopted theory, the proxies used to verify each of them will differ.

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Teorie wyjaśniające stopy zwrotu akcji w długim okresie po IPO – przegląd literatury

Streszczenie: Ujemne stopy zwrotu z akcji w długim okresie po pierwszych ofertach publicznych zostały potwierdzone na wielu rynkach, jednak wyjaśnienie przyczyny tego zjawiska jest niejednoznaczne. Badanie niedowartościowania jest istotne, ponieważ pozwala to lepiej zrozumieć rolę rynków akcji w systemie finansowym. Taka anomalia rynkowa wpływa na zachowanie inwestorów w dłuższej perspektywie. Niedowartościowanie jest szeroko opisywane w literaturze i zostało potwierdzone w większości przypadków. Nie wiadomo jednak, co wpływa na takie zjawisko na rynkach. Celem artykułu jest przedstawienie teorii wyjaśniających zjawisko, które opierają się na zachowaniach uczestników rynku, oraz podsumowanie zmiennych objaśniających zjawisko niedowartościowania wynikających z teorii.

Słowa kluczowe: IPO, pierwsza oferta publiczna, niedowartościowanie, długoterminowe reakcje cenowe, teorie behawioralne.