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“Impact of market transparency and investors’ attention on long-term performance of IPO”



By:

(Muhammad Zeeshan Zahid)

(01-321212-041)

Supervisor:

(Dr. Sajid Ali)

Department of Business Studies

Bahria University Islamabad

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Names of Student(s):

- Muhammad Zeeshan Zahid

Enroll#: 01-321212-041

Class: (MBA Finance - Weekend)

Approved by:

(Dr. Sajid Ali)

Supervisor

(Osman Bin Saif)

Internal Examiner

(Dr. Naeem)

External Examiner

Dr.Syed Haider Ali Shah

Research Coordinator

Dr.Khalil Ullah Mohammad

Head of Department

Business Studies

Abstract

This research aims to explore and analyze the impact of market transparency and investors' attention on long-term performance of IPO. The integration of these two variables will help us analyze their independent as well as moderating effects and contribute to assess their influence on the policy level. The evidence was collected Pakistan Stock exchange. The data encompassed 29 companies, who had their IPO from 2004 onwards. The data collection included six main variables, namely Market transparency and Investors' attention being the independent variables (also tested for their moderation effect), underpricing being our Dependent variable and finally Firm size, B/M Ratio and P/E ratio being or control variables. The estimators used to analyze our data, clearly indicated that the random effect model was the most suitable for our data set, thus concurring from the results it was clear our research concluded that investors' attention and market transparency do in fact play a vital role in the performance of a particular Initial public offering.

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1. Introduction:

Initial public offering (IPO) is a process of transition for a Company by offering its equity to the general public (Busaba et. al, 2001), It is denoted a turning point for the Company with long-term consequences for the performance and behavior of the company (Chaddad & Reuer, The impact of stakeholders temporal orientation on short and long term IPO outcomes, 2009). In an organization, the funds and the source of funds has played an extremely crucial role in determining the Company's future growth prospects and in assessing the opportunities for the Company. On one hand, the issuance of shares is important for the ameliorated growth and survival of the Company and also giving a chance to the investors to diversify their risk and try their luck. On the other hand, initial public offering has many large expenses associated with it. In the U.S, the fee of the underwriters' alone amounts to 7% of the gross proceeds (Chen & Ritter, 2000).

When a private company desires to raise external capital for their expansions and future operations, they opt for initial public offering (IPO). (Anderson, Huang & Torna, 2017) found that the main motivation for the firms to go public is mainly to facilitate their future acquisitions and mergers. They conducted their research on six thousand US firms, who conducted IPO between the years 1980 to 2008; their results show that 38% of the companies within the three years of IPO became merger bidders and almost 12% of the of them became takeover targets. Therefore, it can said that almost 50% of US firms take part in Merger and Acquisition activities in initial years of going public. They also concluded in their study that the companies who tend be post IPO bidders, try to attract broader range of investors by underpricing their shares more as compared to other firms which are newly public. However, if a company become bidder or target it can dependent upon numerous other factors including the promotional activities conducted, pricing, ownership structure, underwriter quality but mainly we consider underpricing.

The benefit of initial public offering is not pertaining to funds only. While it cannot be refused that the benefits underlying the initial public offering are plenty, initial public offering is extremely demanding. On one hand, the issuance of shares is important for the ameliorated growth and survival of the Company and also giving a chance to the investors to diversify their risk and try their luck. On the other hand, initial public offering has many large expenses associated with it as discussed before. Not only is this fee, but also the costs of going public amounts to 5.7 to 17% of the gross proceeds, indicating the high amount that is related to the undertaking of initial public offering.

Moreover, the costs of going public are not associated with the financial cost, but also the opportunity cost. An example of this is the highly demanded roadshow; it is a process by which the Company introduces its Company to the institutional investors (Ljungqvist & Jenkinson, 2001). This shows how significant and imperative a roadshow is; from devising a strategy according to the potential investors and this process lasts weeks with the outcome so significant that a negative outcome will force a Company into withdrawal. Thus, the Company doing roadshows faces these dire consequences (Busaba et. al, 2001).

The purpose of this study is to evaluate the IPOs performance under the market transparency level. This research will enlighten us as to how the IPOs perform under different levels of market transparency. Moreover, it will also incorporate and assess whether the investors' attention influence this relationship of market transparency and long- term performance of IPOs.

Companies use different tactics such as underpricing, in order to attract the investors for the initial public offering. The investors may get the information directly or indirectly about the capital information of companies, which can reflect, in better long-term performance of the IPO because the relevant information with the investors can help them asses the investment risks and opportunities involved (Ljungqvist et al., 2006). However, the market can never exist in full efficiency; there is always some asymmetric information involved because naïve and potential investors both exist in the market. Moreover, the top managers or insiders never share their whole information with general public.

Keeping in mind the previous studies that focused upon the subject of underpricing of stocks during the initial years, the short-term performance of the initial public offerings, (Ibrahim & Benli, 2022) the Internal management and its relation to the success of IPOs and the studies that considered market transparency, media sentiment or investor's attention as the dependent variable. Our main contribution to this study is using market transparency and investors' attention as the independent and the moderating variable to assess whether these two variables strengthen or weaken the relationship between the market transparency and investors' attention and the long-term performance of the stock in the market. First the market transparency is considered an independent variable with investors' attention as the moderating variable, then investors' attention as the independent variable and market transparency as the moderating variable (Saleem & Usman, 2021). Thus, there are some variables that are controlled in the process that comprise of book to market ratio, price to earnings ratio, and size of the firm. Furthermore, the long-term performance of initial public offering is measured five years post initial public offering for which the data is accumulated for, and the performance is measured through the underpricing of the stock in year relative to the year the Company went public i.e., the initial public offering took place.

Furthermore, this study is concerned by various factors thus it aims to highlight how the market transparency, which is the readiness of information available to the investors and the symmetry of this information in order to pertain to the "efficient Market hypothesis" of the economic world and the attention of an investor, which roughly defines into how much the investor has been made aware of the market and the IPO at hand, influences the long-term performance of initial public offering shares issued in Pakistan Stock Exchange. This research encompasses the critical analysis of stock/IPO behavior in the Pakistan Stock Exchange; stock market of the Asian world.

Lastly, this study will next introduce the significance on the study on three levels encompassing academic level, industrial level, and social level. Then this research will further move into literature review where there is a background provided for initial public offering, then the two prime variables of the research are discussed extensively. The literature review is then

summarized. Next section will be about the hypothesis along with data collection and its limitations. Then the financial model and our variables. After that comes the section for findings and analysis, and then lastly the conclusion that we have reached during this study.

In the Pakistani market we observe that mostly investors are naïve, they rely on the advices of either their brokers or relatives. However, if talked about how much the investor himself is informed, it is a huge question mark. Firstly, the investors themselves do not have any clarity about how the market works, what are the upcoming IPOs and how the whole system is working in general. Secondly, even if the investor is informed, the companies tend to hide their financial positions pre-IPO, or circulate some false and fabricated news regarding them which can easily manipulate the investor and divert the attention from faulty ratios or other embezzlements (Newman et al., 1992). For Example, companies tend to manipulate the registration charges, or do not clearly explain their selection criteria for shareholders, which lead to false assumptions of investors. This leads to poor long-term performances of IPOs as the company does not meet the expectations that the investors have made.

Another problem which investors in Pakistan face is that although SECP is responsible for regulating and fair functioning of the financial markets but investors never get to see a fair view or the complete picture. This is due to the huge difference in communication between company and potential investors, also asymmetry of information from the company as well as the brokers. So, the investors are never clear about what are they getting into unless they are finance experts. Unfortunately, in our market and businesses, people do not make educated guess or decision; they take decisions on emotional intelligence. For instance, people are more likely to invest in a company which produces their favourite brand of clothes, accessories, services and products rather than investing in a company which even though is not producing their favourite products, even if, its ratios, market size and debt levels are way better than their favourite company. Then, there is a category of people, who have some excessive money from there ongoing current business and they just give the whole authority to the investment banker to invest and make decisions on their behalf. These people have lack of interest in the company they are investing in or its financial statements. They are only concerned to make some extra money out it.

Now, let's move on to the rational investors, who have all the information regarding the upcoming IPO, they go through the financial statements, check stock market trends and everything which is in their capacity. Here the problem arises is that the company sometimes do not disclose the whole information, or fabricate news which can change the decision of the investor. Mostly, the insiders of the company are the most informed, they leak information to specific group of people rather than the whole public, which creates asymmetry of information and the investors who are lesser informed get the disadvantage. This asymmetry can also be from the side of investment banker or broker. If they want to sell the shares to a specific group, they tend to give them more information and use their resources to counter check. However, they do not share information or give false information to those who are lesser informed and where the investment banker or broker sees fewer personal gains. These all factors and manipulations are temporary, and they are exposed soon after

IPO, due to which the confidence of the investor shatters and it leads to the poor performance of the IPO in the long run. These all factors mentioned above lead to decrease in market transparency, which is an important factor to be considered while making an investment in IPO.

Companies usually go public when they are at their growth phase and need to generate access capital to expand their production. In order to attract the investors, they make huge claims and fabricate their profits and other profitability ratios. After the IPO, companies have a huge responsibility, as now public assets are involved and each and everything is audited. Sometimes companies make decisions for investments which are totally opposite to what they told pre-IPO, it decreases the credibility of the company and the shareholders confidence gets shattered.

Another issue which arises post IPO is that companies are very tight on cash. For instance, if a company is investing in a very huge project, and the gains are expected after three to four years from that project, the companies are unable to pay dividend to the shareholders for several years. Mostly in Pakistan, the retired people invest their pensions in order to get some yearly gain, so that they can easily manage their homes. This class of shareholders are mostly affected in this scenario. Most of the times technological companies and their shareholders face this problem as they are at a huge risk because some of the times investing in Research and Development can lead to huge losses. Sometimes the research turns out to be a dead end or a better alternative comes in the market before the research is completed. There is a huge possibility that the research was being conducted in a wrong direction or even if everything goes right, a product which is developed after a huge investment of resources, its prices are high. The consumers opt for either the cheaper alternative or choose not to buy the product at all. Hence, these all factors lead to the poor performance of IPO and less confidence of the investors on the companies and the market.

Keeping in mind all the issues prevailing in our market, our group decided to extend our capabilities and knowledge which we gained over the past several years of our degree in finance and accounting, to go for the empirical research and analyze the issues like market transparency and investors' attention prevalent in our market and how do they impact the long-term performance of the IPOs. The evidence we collected, is based on the IPOs of several companies which went public in Pakistan after 2004.

1.1 Problem Statement:

The IPOs market in Pakistan faces problems like information asymmetry, underpricing and many other levels of market obscurity which eventually affects the investors' attention and leads to the poor long-term performance of the IPOs (Javid & Malik, 2016). To gain a deeper understanding regarding the impact of market transparency and investors' attention on the long-term performance of IPOs, empirical research is required. To conduct the analysis evidence will be collected from Pakistan Stock Exchange to enable us to broaden the horizons of knowledge on market

transparency and investors' attention; two crucial embedded concepts underlying the initial public offering.

1.2 Significance of the study:

- i. **Industrial level:** This article seeks to contribute to the industry in some ways. Firstly, it will help the individuals get a stronger picture of the impact of market transparency as a mediating variable and how it impacts the IPO performance in the long run. Secondly, it will also help us analyze how the investors' attention mediates the performance of IPO long-run performance. Integrating the two extremely crucial factors prevalent in industry, we can assess how these two variables impact the IPO performance in the long-run; the two factors often overlooked by people in the market.
- ii. **Academic level:** This article aims to raise awareness among the students about the mediating impact of market transparency and investors' attention. It will also help students further contribute to this study by accommodating more mediating variables under different independent variables.
- iii. **Policy Level:** This study contributes to the policy level in a way that it creates a structured policy for Market transparency and analyses how the IPOs perform under that specific transparency. On a policy level, it will assess whether the investors attentions influence the relationship that might exist between market transparency and long-term performance of IPO's.

1.3 Objective of the study:

The main objective of the study was to evaluate the performance of IPO under the market transparency level. Keeping the above in consideration, the present study has been conducted with the following objectives

- i. To analyze the impact of investors' attention on the long-term performance of initial public offerings in Pakistan stock exchange.
- ii. To study the impact of Market transparency on the long-term performance of the initial public offering.
- iii. To assess the relationship of investors' attention and initial public offering performance due to Market transparency
- iv. To ascertain whether the investors' attention moderates the relationship of Market transparency and initial public offerings performance.
- v. To identify and analyze the direct or indirect effect of Market transparency and investors' attention on long term performance.

1.4 Research Questions:

- i. What is the impact of investor's attention on the long-term performance of initial public offerings in Pakistan stock exchange?
- ii. What is the impact of Market transparency on long-term performance of initial public offering?
- iii. Does the market transparency affect the relationship of investor's attention and performance of initial public offering?
- iv. Does the investor attention moderate the relationship of market transparency and initial public offering performance?
- v. Which factor (Market transparency and investor attention) directly or indirectly affects the long-term performance of the initial public offering?

2. Literature Review

2.1 Underlying theories:

Many theories underlying the frameworks of IPO explaining the narrative are significantly influential for investors and general public. The principal agent model scrutinizes the role of underwriters in the setting of prices of IPO (Lin & Chuang, 2011). It assumes that the underwriters are knowledgeable and informed about the offer's value and further postulates that the underwriters usually face a trade-off between an increased underpricing which would result in low efforts for selling the shares and in high IPO prices so the underwriters, as a result, earn a high commission. This theory recognizes a risk between the underwriter and the issuing Company. This conflict is exceptionally common in competitive underwriters' market, where the underwriter in order to minimize the risk, underprice the issues to sell all the shares.

Another theory is the winner's curse case. This theory was developed by Rock (1990) in which it was stated that the issue of adverse selection arises because the investment bank and the issuing company aren't familiar on same level with the market. Some investors are well informed than the other investors thus the well-informed investors will refrain from IPOs that they deem 'useless' and leave these shares for the investors that are less informed than them. For this sole reason, the investment bank will deliberately involve in underpricing of the offer to persuade the investors for participation. This theory was supported by Levis (Jenkinson, 1990) and Jenkinson (1990) when they performed their IPO underpricing study in the UK.

Signaling theory is another popular theory in the domain of IPOs. It states that the IPO underpricing and post-IPO long run performance is directly proportional. This tells us that the firms of high quality set a low offer price. This theory has received encouragement from the empirical evidence, an example of which is Su and Fleisher (1999).

2.2 Literature:

It is widely argued that the sole objective behind initial public offerings (IPO) is to ensure that issuer is permitted the highest possible value alongside sanguine start for the Company. It allows the private investors or shareholders that are mostly close family, friends, some venture capitalists and angel investors; to fully gain from their invested capital as well as earn premium on their invested capital. It also allows the potential public investors to invest in the equity of the company. But IPO has to be viewed two ways. The first is a way of raising financial capital from the public. (Ritter & Welch, 2002). When the companies reach their growth phase, they require large amount of capital to invest in their projects. Loans do not provide the required amount of capital. Firstly, the banks and institutions are hesitant to lend money to a small or private firm, which has a risk to default and the credibility is low. Secondly, when a company is heavily investing in its expansion and projects, its ability to repay the interest as well as the principle amount becomes low, which eventually puts a lot of pressure on the managers in efficiently managing their assets, that is why

the private companies find it feasible to raise capital from the public investors, hence, these companies get the desired access capital and funds to expedite their growth by choosing initial public offering (IPO). IPO not only helps to raise funds and capital from the public but also helps the company to increase their transparency and credibility which helps in seeking borrowed funds in the future. Another advantage for a company to go public is that they have to abide by the SEC regulations, which gives the local as well as the foreign investors a lot of confidence in the company, as it is fully regulated and audited through a system unlike the private companies. Sometimes a company goes public not for the expansions or growth but for its survival. The companies in order to repay their overhanging debts and trying to sustain their business from defaulting issue their shares to the public. The capital generated from the share equity is used for the repayments and gives a better look to the debt-to-equity ratio of the company. On the other hand, initial public offerings (IPO) demand resources encompassing various fees paid to lawyers, investments banks, underwriters and etc. Moreover, the costs are not only short-term for the company when it goes public. There are a lot of long-term costs and planning that a company has to work through before it decides to go public. Some of the costs may include the maintenance and demands of a public company which are ongoing and they increase with the growth and expansion of the company. These costs are mostly unrelated to the other costs of doing the business. When a company goes public, its costs are not only confined to monetary terms. It has to bear a lot of non-monetary costs as well. The company has to disclose the methods which are applied while making their financial statements and disclose them alongside the financial statements. These kinds of requirements give a weak edge to the company because their way of doing business is disclosed to the public. Therefore, the competitors can easily hit their weak links or adopt the strong aspects of the company. The requirements are not only restricted to that, they company has to reveal a lot of other information such the tax paid, any ongoing legal proceeding, and a lot of other business information. Initial public offering depicts a distinctive milestone that has long-term consequences associated with it. (Chaddad & Reuer, 2009). This stresses the significance and risks that are corresponding to the initial public offerings.

Thus, when a private company desires to raise external capital for their expansions and future operations, they opt for initial public offering (IPO). (Anderson, Huang & Torna, 2017) found that the main motivation for the firms to go public is mainly to facilitate their future acquisitions and mergers. They conducted their research on six thousand US firms, who conducted IPO between the years 1980 to 2008; their results show that 38% of the companies within the three years of IPO became merger bidders and almost 12% of the of them became takeover targets. Therefore, we can say that almost 50% of US firms take part in Merger and Acquisition activities in initial years of going public. They also concluded in their study that the companies who tend be post IPO bidders, try to attract broader range of investors by underpricing their shares more as compared to other firms which are newly public. However, if a company become bidder or target it can dependent upon numerous other factors including the promotional activities conducted, pricing, ownership structure, underwriter quality etc. but mainly we consider underpricing.

With the mainstream discussions regarding the initial public offerings returns, there are some cases that have surfaced related to IPO withdrawal. The underlying determinants of initial public offering's withdrawal can be classified into three major categories: life cycle and agency based. Agency theory refers to the risk inherent within a firm due to differing or conflicting interests within the firm; mainly between the management and the potential shareholders. The management looks after and controls the resources whereas these resources are generated from the shareholders (Jensen & Meckling, 1976). Not only this, it is extremely crucial and imperative for the researcher to scrutinize the various risk factors encompassing managerial risk factors and risk factors related to the environment to interpret and fully comprehend the reasons underlying the decision of IPO withdrawal (Latham & Braun, 2010). However, the decision of whether to withdraw from IPO lies with the Chief executive Officer. Irrespective of the number of parties involved, CEO has to make an informed decision regarding the withdrawal.

Furthermore, to carry the thought of growth opportunity, (Kim, 2008) found in their studies that firms and companies spend a substantial amount of the proceeds of an IPO on research and development (R&D) in the post-IPO period. However, when the companies heavily invest in the research and development, the expected returns are likely to be generated after a long period of time. It can take up to at least three to five years to have conclusive research and takes even more time to generate return or earn profits from this long period of investment. Another risk that such companies pertain is that, the research comes to a dead end or there is also a chance that the research was conducted in the wrong direction. Mostly, these kinds of risks are faced by pharmaceutical companies, technological companies etc. In case, any of these cases become true, the investment goes in vain and the company is unable to pay any dividends. In addition to that there is a high risk of default because the companies not only invest through equity but also pool in through debt in order to maintain debt to equity ratio. Through investors' point of view the drawback in such investments is that either the dividend is received after a very long period of time or there is no dividend received at all. Such companies have a lot of issues in maintaining their profitability ratios as positive cash flows are either very low or the cash flows are negative. Due to less impressive ratios, the stock price also does not rise. These all factors combined result in poor long-term performance of the IPOs.

Other studies indicated that companies use the proceeds collected from their IPOs to retire their debt, this is done as another attempt to allow the growth of companies. As (Fan, 2019) found out that firms suffering from potential debt overhang problems tend to use IPO proceeds to repay existing debt. The increased debt capacity and reduced interest burden enable firms to expand their businesses.

Accordingly, a number of studies following this nature of research attempt to find out the relation between the growth of the firm and the possible (IPO Related) factors that could affect this growth. Some start out by explaining what the company plans on doing with the proceeds raised from the IPO, as discussed previously. While others attempt to discover further variable factors that may affect this growth/growth opportunity.

Investors focus on asset prices and growth of the company more because they are the key to measure long-term performance of the IPO (Que & Zhang, 2019) studied how Total Asset Growth dominates other measures such as increase in sales etc. When the growth rate of a company is high, it may have profitable opportunities in future. However, if the float of shares in public increases, the supply of shares in the market increases and demand decreases, which may lead to decrease in long term returns as (Michel, Oded & Shaked, 2014) studied that there is nonlinear relationship between long run returns and public float of the IPOs. They found that companies who sell most of their stock in IPO or sell very little of their stock are the best long run performers. High public float results in lower returns because in the long-run the incentives for insiders of the company decrease because their post IPO ownership is very small and less control.

To discover more paradigms of this, (Hidenori Takahashi, 2015) endeavored to formulate a relation by examining the impact of relaxing listing requirements (involving IPOs) on firms' growth. Their study included using a thirty-year data covering both public and private firms, giving them a subtle opportunity to parallel the growth of these firms under both strict and relaxed listing requirements. According to their findings they, reached to a conclusion that even though relaxing listing requirements may result in a number of firms to go public, however in the long run it only enables the firm to grow in terms of size not in terms of profitability.

Another study conducted by (Janto Haman, 2017) attempted to formulate a relationship between the growth of a firm and IPO Lock-ups. According to their evidence, it was suggested that IPO firms have negative returns and basically deteriorating growth opportunities in the post-listing time period, and consistent with their evidence their research also concluded that growth opportunities are amazingly less for Mandatory lock- up firm as compared to their counterparts. Further they also attempt to investigate if corporate governance has any effect on such firms, and thus concluding that good corporate governance is positively associated with growth for both lockup type firms.

On the other hand, initial public offerings (IPO) demand resources encompassing various fees paid to lawyers, investments banks, underwriters and etc. Initial public offering depicts a distinctive milestone that has long-term consequences associated with it (Chaddad & Reuer, 2009). This stresses the significance and risks that are corresponding to the initial public offerings.

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company decreases because their post IPO ownership is very small and less control. If the investors have intellectual capital information through companies, it can lead to better long-term performance says (Nielsen, Rimmel, & Yosano, 2015). They can get the information directly or indirectly through intermediators. The study applied disclosure index method to 120 IPOs prospectuses 2003. When the potential investors have the relevant information, their perceived risks regarding the investment decreases and they have a clearer picture of the status of the company and its plans. However, Asymmetric Information will always be there, not every investor will have full information as the top manager or insiders have. Moreover, the efficiency of the market can never exist in full transparency.

2.2.1 Market transparency:

Initial public offerings (IPO) influence the ability of firm to stimulate future risk and future performance of the firm (Raggozino, 2016). But how does the investor really know if the market is transparent and that the value that is being paid is accurate? This is where signaling theory comes to play. Researchers rely primarily on signaling theory to explain the end result of an initial public offering (Raggozino, Shafi, & Blevins, 2018). Since there may be a varying gap of information asymmetries between the IPO firms and the investor, the IPO firms will be inclined to eliminate this gap and persuade the audience on the true and fair value of the stock (Daily et al., 2005). Signaling theory is the indicators that send signals to the market; mainly the potential investors about the potential of the firm and its firm value in the future to minimize the information asymmetries prevalent in the market (Deeds et al., 1977).

Given the information provided in an “efficient market”, investing in IPOs or any stocks would be a fair game overall. However, in reality, there is a lot of gray area surrounding the information possessed by the Investors. At times even they are rendered confused as to what step to take or what information to trust. This may make it difficult for the investors to make a distinction between a good or bad quality stock and even company.

This is used as an opportunity by the bigger firms to establish their credibility through a number of ways, for instance non-mandatory lockups on insider’s shares. (Janto Haman, 2017). These signals are costly and technical to implement, and are not foreign to risk thus firms with high resources and strong future growth prospects would employ these signals in order to distinguish themselves from the others (Connelly et al., 2010). Thus, it is eminently important for a firm to differentiate themselves from their counterparts. This reveals that while having strong optimistic signals is likely to boost the aggregate demand of the shares, negative signals will have an adverse impact on the Company’s success (Brau & Fawcett, 2006). The evaluation of a Company is based on the fundamentals of all the factors encompassing strong, weak, negative, and positive signals by the firm and a conclusion is formed on the basis of subjective probability (Owen-Smith et al., 2015).

The role of investor in asset price patterns is a renowned concept familiar to many; especially when assessing how the attention of an investor impacts his investments. (Ritter, 1991) argues with relevant evidence on how high returns on the first day are followed by a drastic drop in returns in the long run. This evidence was further enhanced when (Ritter & Welch, 2002) denoted that this pattern of high returns on the first day followed by abnormally low returns in the long run is especially strong in the case of hot market. . (Purnanandam & Swaminathan) state that issues that tend to be overpriced in comparison to its fair value have higher first day returns but in the long run, the returns drop significantly. This exhibits how the attention of the investor influences the long- term performance of the initial public offerings.

When a company wants to attract investors, they underprice their shares, (Boonchuaymetta & Chuanrommanee, 2013) studied the sample of 153 IPO listed between 2001 to 2011 in Thailand, through cross-sectional regression, to study the effect of IPO allocation and other variables such as issue size, lock up period etc. on underpricing. They concluded that IPO allocation has a strong negative relation with underpricing of shares whereas lock-up period and issue size have a positive relationship with underpricing. However, investors' interest does not have a significant relationship with underpricing. Nevertheless, better media coverage can play a role grabbing investors' attention, as it would indicate that something is happening in the company.

However, (Kao, Wu, & Yang, 2009) says the firms inflate their pricing period earnings to attract investors but post IPO they fail to improve or maintain their operational efficiency. These overoptimistic forecasts may lead to lower first day returns and worst post IPO performance. These issues can be catered if they mitigate opportunistic behavior to protect the investors.

Seshadev and Prabina (2010) critically analyzed the performance of the IPO in India over a period of 2002-2006. The findings of the study indicated that the IPOs in India are underpriced by 46.55% on the listing day relative to the market index. The long run performance was evaluated through buy-and-hold abnormal rate of return (BHAR) and Wealth relative (WR) and adjusted by market index. The results indicate that the underperformance is most noticeable during the initial year of trading and further followed by high performance in the long run.

Many studies have provided factual evidences that IPOs are generally underpriced and under compared in the long term (Grammenos & Arkoulis, 1999). When IPO is done for the first time in primary market, shares are issued substantially lower than the market price on the first day of listing. It is seen that on average the closing market price is generally higher than the offering price on the first day when shares are traded. In every country with a stock market, IPOs are underpriced (Ritter J. , 2003). Existing literature shows that underpricing is caused by existence of asymmetry of information at the time of going public. High information asymmetry creates high uncertainty about the issuer, and this generates high underpricing which acts as a compensation for the risk that investors bear. Some past theories such as the principle agent theory and the signaling theory recommend that underpricing and under performance of IPO's begin from asymmetric information that exists in the market. (Baron, 1982; Allenand Faulharber, 1989; Ljungqvist and Wilhelm,

2003). And, the long term returns for IPOs underperform, which restores equilibrium after the short-term IPO underpricing initially.

2.2.2 Investors' attention:

The literature relating to IPO assumes that investors are homogenous, having same sentiments or information of market while in reality investors are heterogeneous. (Park, Lee, & Song, 2014). Investors can be of two different types i.e., institutional and retail. It is more commonly understood and seen that institutional investors are more informed about the market and IPO and their sentiments are different than retail investors.

Retail investors are influenced by returns of IPOs. (Chiang, Qian, & Sherman, 2010). Their participation is affected by the participation of institutional investors, since they are more informed. So, the bids of institutional investors are generally more consistent with the IPO auction for informed bidders, while those of individual investors are not. Particularly, returns are higher when more institutional investors enter the auction or bid higher prices, signifying institutional investors are informed and are also able to shave bids effectively.

In order to ensure that the investor is well aware of an upcoming IPO the media is one of the most important tools to make the news of going public, 'public'. As claimed by (Emanuele Bajo, 2015), the way the news of an IPO is presented in the media i.e., Television, Newspaper, Online etc. Shapes the way an IPO is perceived among the retail investors. They argue basing their research on over 2800 US IPOs and over 27,000 newspaper articles, that

- I. Positive tones are positively associated with IPO underpricing;
- II. This effect is stronger when news is reported close to the IPO date
- III. And finally by more established and well-known newspapers.

According to the research of (Ruwei Zhao, 2018) there is a strong relation among abnormal investors' Attention and first day returns of IPOs. However, building on this hypothesis it was also tested if the same was true for long term performance. The results were on the contrary, displaying that there is weak correlation between abnormal investor's attention and long-term performance of an IPO Firm.

Concluding on the results that show, IPO first day return has weak predictive power for long term underperformance. Rock (1986) provided a brief but a convenient underlying framework of underpricing being the information asymmetry between well informed investors and less informed firms. A major implication of the model of Rock was that the higher the uncertainty associated with the post-issue value of IPO, the higher will be the advantage to become an informed investor. This will further indicate that the higher the level of underpricing therein, the more tempting the investment is to the uninformed investors in the market.

If the investors have intellectual capital information through companies, it can lead to better long-term performance says (Nielsen, Rimmel, & Yosano, 2015). They can get the information directly or indirectly through intermediators. The study applied disclosure index method to 120 IPOs prospectuses in 2003. When the potential investors have the relevant information, their perceived risks regarding the investment decreases and they have a clearer picture of the status of the company and its plans. However, Asymmetric Information will always be there, not every investor will have full information as the top manager or insiders have. Moreover, the efficiency of the market can never exist in full transparency.

Mcguiness, (1992) analyzed 80 initial public offerings (IPO) of Hong Kong for a period of 10 years. The findings reveal that there are significantly higher returns observed on the first day and with time, decrease or disappear completely. The reason behind the excessive initial returns is explained by underpricing, nearly 18% on average observed.

A research article undertaken by Alvarez (2005) was based initially on the Spanish initial public offerings (IPOs) during the period of 1987-1997 period, and determined the influence of signaling mechanism of underpricing in the functioning of post listing IPOs. Omran (2005) on the other hand, analyzed 53 Egyptian firms from the sample period of 1994 to 1998. His findings also point to the direction of excessive initial returns observed in the firms. There were, however, mixed results observed. The regression results indicated that over subscription of shares and ex ante uncertainty are the two predominant variables explaining the initial excessive returns arising due to initial public offering (IPO).

Sullivan and Unite (1999) displayed initial returns on the first day of the initial public offering (IPO) that were earned by the investors in a company in Philippine were similar to that of other countries. They further conclude how these returns are attributable to the concept of underpricing of IPOs. The returns earned initial were 22.69% higher than those reported in the United States. This further enlightens us on how the investors in smaller countries in comparison to the bigger countries are subject to more risk (Akhtar, Ali, & Sadaqat, 2011). Furthermore, this risk is still deemed less severe and critical in comparison to other emerging market countries.

Stressing on the IPOs in auction, Kandel et al. (1999) scrutinized the schedules of demand of Israeli initial public offerings (IPOs) and discovered that a trend of great information and curves of high elastic demand. This depicts the imperative role information plays in IPOs. Furthermore, Lin et al. (2007) inspected the relative capability of investors in Tiawanese auction of the IPOs and discovered that institutional investors are more knowledgeable about the value of initial public offerings (IPOs) than retail investors and also as a result, bid a greater amount in IPOs that result in higher initial returns. This argument is advanced by distinguishing that the participation of institutional investors relies on the information of the value of issue whereas, on the contrary, the participation of retail investors relies on the returns achieved by the recent initial public offerings (IPOs).

There is a significant amount of decision making underlying whether to issue IPOs or not. The decision is mainly influenced by the firm's ability to perform effectively in the long run. Thus, whether to do initial public offering or not is matter of performance of the particular firm and risk assessment. Loughran (1993) and Ritter (1995) discovered that the initial public offerings (IPOs) in the United States in comparison to the non-issuing firms underperform to a great extent. This denotes the underperformance of IPOs in the long run, which is the same trend that is observed in the United States. But shedding light on the conventional point of view, the returns drop significantly in the long run. Ibbotson (1975) discovered that the initial returns on average were 15.3% and after 3 years of initial public offerings, the returns declined to negative returns.

Many other empirical studies undertaken encompassing emerging markets find results that are similar but with altering level of risk in these markets Aggarwal et al. (1993); Dawson (1987); Ghosh (2005); Lee et al. (2011); Lin et al. (2008); Omran (2005); Seshadev and Prabina (2010); Sohail and Nasr (2007). The conclusion drawn from these studies is that the higher the degree of information asymmetry and the transparency, the higher the degree of positive and negative returns in the short as well as long term.

The literature relating to IPO assumes that investors are homogenous, having same sentiments or information of market while in reality investors are heterogeneous (Park, Lee, & Song, 2014). Investors can be of two different types i.e. institutional and retail. It is more commonly understood and seen that institutional investors are more informed about the market and IPO and their sentiments are different than retail investors.

Retails investors are influenced by returns of IPOs. (Chiang, Qian, & Sherman, 2010). Their participation is affected by the participation of institutional investors, since they are more informed. So, the bids of institutional investors are generally more consistent with the IPO auction for informed bidders, while those of individual investors are not. Particularly, returns are higher when more institutional investors enter the auction or bid higher prices, signifying institutional investors are informed and are also able to shave bids effectively.

2.2.3 Other variables that affect the IPO and Long-term performance:

An IPO is usually the time in a company's life when the most important information is revealed, all at once and in one consistent, publicly available form – through the Prospectus. Issuing firms face striking visibility shock, which is caused by large amount of information being released to the public. (Bajo & Raimondo, 2017) In this particular situation media plays a crucial role in conveying information to some investors who are more reliant on news, while some of rational investors are focusing on the major market events. The way in which news is presented may shape investors beliefs and in turn drive the demand for shares and the return. During the IPO filing period, (Da et al., 2011) founded that high level of Google searches are related to high initial returns. Retail investors are mostly involved in these Google searches. The tone used in the article

may change the perception of the reader regarding the IPO quality and pricing. Timing of the coverage and newspaper reputation is equally important.

Another factor that can affect the process of IPO is political activities. (Fan, Wong, & Zhang, 2007). Political connections influence the process of going public. Innovation is a key driver for value of a company in the capital market. (Zhou & Sadeghi, 2019). Firms often raise money to do R&D and to develop more innovative products. Firms often decide to go public following an improvement in innovation. IPO firms prefer to disclose their innovative proprietary information to signal their innovation ability to the market and also to make their IPO a success.

A number of studies have focused their research upon Growth of the firms in relation to IPOs etc. Although Growth is an important factor but it also depends on the success of the IPOs. For instance, (Xiaoming WANG, 2015) states that the poor performance of certain IPOs in the Chinese Market is mainly caused by the IPOs with ownership-control wedge. To back this up, according to (La Porta, 1999) in Emerging markets especially, the shareholders can obtain rights which surpass their cash flow claims by claiming through a pyramid structure and the common practice of ownership concentration. Later on (Xiaoming WANG, 2015) also states that a number of research paper also fail to explore implication of the first-order agency problems that arise from ownership concentration; that is, the conflicts between controlling and minority shareholders, and this is an important consideration in light of post-IPO performance as it would determine what type of companies do people want to invest in.

There is also the difference of Founder-CEO Firms and Non-Founder-CEO firms. (Ning Gao, 2011) Attempted to explain which type of firm performs better in an IPO. The research states that Founder-CEO firms are perceived as being better as the CEO would be more focused on the Success of the company rather than personal incentives, their research shows strong correlations for this in the technology Industry.

There is quite less attention on the performance of family business in the primary market. IPO underpricing for family businesses are smaller than that of non-family businesses (Huang, Li, & Zhang, 2019). Similarly underpricing is lower for family firms with CEO who is also from the same family. This can possibly be due to the reason that external investors perceive greater information asymmetry as well as agency problems for family firms with outside CEO's and hence demand higher discounts.

Price limits and IPO may be manipulated because prices can arouse investor sentiments. (Kim & Park, 2010). It is argued that several IPO firms may increase their price of shares to attract investors who are looking for high prices. Similarly, some firms may reduce their share prices to price down limits to encourage investors to sell or short sell their shares. Sentiments of investors are easily aroused by Initial public Offering (IPO).

After issuance, there is an effect on operating performance of firms. IPO firms exhibit a decline in their operating performance. (Jain & Kini, 1994). There might be several reasons for this, one

being agency cost. This occurs when a firm is making transition from private to public. Ownership management declines here as described in (Jensen & Meckling, 1976). Due to the conflict of interest between shareholders and initial owners the performance of firm could suffer. Another reason could be that managers try to overdress their accounting numbers which leads to pre-IPO performance being overstated. (Stein, 1989) Uses a signaling jamming model and according to that model managers may attempt to manipulate belief of investors by pumping up pre-IPO earnings. But in equilibrium market this is accounted for as Nash equilibrium.

2.3 Improvement:

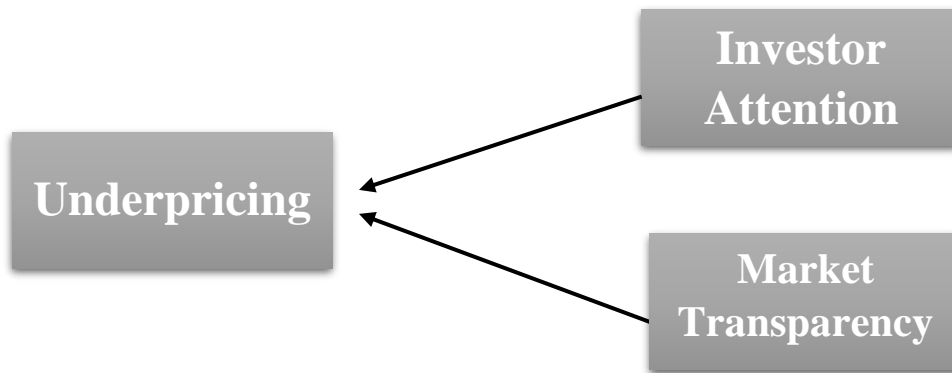
To reduce high returns on first day and improve issuing system of IPOs, the Chinese Securities and Regulatory Commission regulated the IPO process to make them more consistent like as that of in developed countries. In developing economies, the firms get less financing benefit through

IPOs compared to the countries having developed stock market. (Aktas, Andries, Croci, & Ozdakak, 2019) studied firms from developed markets experience higher profits and increase in size in post IPO periods. In these markets, the effect on acquisition activities is significantly positive. (Zhou & Sadeghi, 2019). says the firms reach to peak of their innovative activities before their IPO to inflate yield up to 200%, even though it sends reliable signals to the market but it is not sufficient to decipher the irregularity of the IPOs when the firm goes public.

3. Data and Proposed Methodology

The purpose of this chapter is to discuss the multiple hypotheses which encompass our research, and to walk through the reader, as to how the data was collected for research purposes and the constraints which were faced on the data collection stage. Furthermore, the chapter confers about dependent, independent and control variables in detail and deliberates about the models and tests that were used, keeping in mind the hypotheses, data and the variables.

3.1 Theoretical Framework:



3.2 Hypothesis:

- i. **Ho:** Long-term Performance of IPO is not strengthened or weakened by the variation in investors' attention and market transparency
- ii. **Ho:** Long-term Performance of IPO is not strengthened or weakened by the moderation in investors' attention while market transparency variates Independently
- iii. **Ho:** Long-term Performance of IPO is not strengthened or weakened by the moderation in market transparency while investors' attention variates Independently

3.3 Data Collection:

The data was collected of 29 companies who issued their shares publicly during 2004 or afterwards. This research is undertaken for Companies within Pakistan. The data for Companies is collected from PSX (Pakistan Stock Exchange) and Security and Exchange Commission of Pakistan (SECP) that enlightened us. If there were some limitations pertaining to any financial statements, opendoors.com was used to extract the financial statements of the Companies. The website of Pakistan stock exchange was used to determine the year the Company went public. There are many criterions on which we had to test data and 29 companies were able to meet it. These Companies encompassed Companies from varying industries. However, we managed to collect complete data for 29 companies from Pakistan Stock Exchange and based our research, analyses and results over those 29 Companies operating within Pakistan.

3.4 Variables:

3.4.1 Under-pricing (UP-Dependent Variable):

Companies use various strategies such as under-pricing, mainly to persuade the investors to participate in the initial Public Offering. However, due to information asymmetry in the market, and various strategies undertaken by Companies encompassing roadshows etc., the investors stipulate a better initial public offering now, and enhanced performance of the Company in the future. This will aid in assessing the risks and opportunities that lie therein. This is because, the market can never exist in full efficiency; there is always some asymmetric information involved because both the naive and potential investors exist in the market. Furthermore, the top managers or insiders never disclose the information fully, rather they tend to display one side of the picture mostly.

3.4.2 Independent Variables:

- i. **Investors' Attention:** ASVI refers to Investors' attention. This is the independent variable that is incorporated in our study. This variable is measured by assessing critically the

Google Analytics to evaluate the trend or the number of times an individual visits the website (Düz Tan & Taş, 2019). This is analysed from the year the Company went public i.e., the year of the Initial Public offering, until the 5-year mark. The 5 years used in the research is sufficient to evaluate the long-term performance of the Initial Public offering. This results in knowledge about the attention that is being paid by the investor, and how it influences the long-term performance.

- ii. **Market Transparency:** MT refers to market transparency denoting how transparent a market is, how much is known about the market, or if there lies any information asymmetry in the market. Is all the information disclosed by the Company that is performing initial public offering? Many questions prevail when the phenomenon of market transparency surfaces. Market Transparency is measured by public ratio, Amihud, and Turnover ratio in our research. This is done so that the market transparency is explained sufficiently from all angles, and there lies no discrepancy in the explanation or representativeness.

3.4.3 Control Variables:

The control variables used in the study are as follows:

- **Size (Size):** This is the firm size which is measured by the number of years since the date of the initial public offering. Firm size may greatly influence the performance, thus to easily assess and clearly study the relationship between the independent and dependent variable, along with the moderation impact, we controlled the size of the firm.
- **Price to Earnings ratio (P/E):** The price-to-earnings ratio is the amount that the investor is likely to earn on the amount he invests. This is also controlled in the experiment because it may influence the relationship between the two variables.
- **Book to Market ratio (B/M):** It is the comparison of the book value of the company to its market value, thus used in valuing the company. This is also controlled

These variables are controlled so that the impact of independent variable is justified and clear, so there is no indirect influence of these control variables on the dependent variable.

3.5 Estimations applied:

3.5.1 Fixed effect Model:

In this case, the group means are fixed. This stipulates there is no random sampling undertaken.

3.5.2 Random Effect Model:

In this case, the group means are random.

3.5.3 Generalized Least Square:

This is used to determine the parameters that are not known in the linear regression model.

These three models are suitable for each, but the random effect model is considered the most appropriate in the context of this research. However, all three models are accommodated in the study.

4. Financial model and Variables:

The financial model sheds light on the heart of the research paper that we have undertaken (Huang et al., 2019). It tells us the embedded equations that are used to extract all the results, and on the basis of which all the findings and analysis is derived. These equations are of extreme significance to continue the study further, thereby forming a sound conclusion. It tells us how the moderating impact is accommodated, what the underlying variables in the study are, what are the variables that are controlled during the research, and how the market transparency is measured. It goes on to enlighten us on the tests that are encompassed in our study and their relative equations separately are denoted to make the tests clearer and more comprehensive and understandable.

4.1 Financial Model:

We began our financial model by the construction of the regression equation. The regression equation is given below.

$$UP_{it} = \alpha + \beta_1 ASV_{it} + \beta_2 MT1_{it} + \beta_3 ASV_{it} \times MT1_{it} + \beta_4 Size_{it} + \beta_5 (PERatio)_{it} + \beta_6 (BMratio)_{it} + \varepsilon$$

Equation 1

$$UP_{it} = \alpha + \beta_1 ASV_{it} + \beta_2 MT2_{it} + \beta_3 ASV_{it} \times MT2_{it} + \beta_4 Size_{it} + \beta_5 (PERatio)_{it} + \beta_6 (BMratio)_{it} + \varepsilon$$

Equation 2

$$UP_{it} = \alpha + \beta_1 ASV_{it} + \beta_2 MT3_{it} + \beta_3 ASV_{it} \times MT3_{it} + \beta_4 Size_{it} + \beta_5 (PERatio)_{it} + \beta_6 (BMratio)_{it} + \varepsilon$$

Equation 3

4.2 Variables:

UP = The IPO's initial return (under-pricing) is defined as the percentage difference between the first day's closing price and the offering price

MT1= Market Transparency, measured by proxies, MT1 being Public Ratio.

MT2= Market Transparency, measured by proxies, MT2 being Stock Illiquidity (Amihud),

MT3= Market Transparency, measured by proxies, MT3 being Turnover Ratio

ASVI = Investors' attention. Search frequency from Google Trends based on popularity index

MTxASVI: Moderation effect of the two independent variables

Size: The Natural log of total Assets of a company

P/E Ratio: The Price to earnings ratio of a company

B/M Ratio: The Book to market Ratio of a company

ε = Stochastic factors.

Clarifying the underlying narrative of the regression equation that we incorporated in our study, UP refers to Under-pricing, which is the dependent variable in our research paper. Furthermore, the under-pricing is incorporated to directly measure the long-term performance of the initial public offering. This regression equation 1 scrutinizes the impact of independent variables on the dependent variables, without the intervention of any moderating variable. This equation is used to get results of individual effects, without any moderation.

4.3 Models and Estimations:

It is always important to discuss about the tests being performed and how our variables fit into the test models. Evidently clear, our models consist of two independent variables, ASVI (investors' attention) tested by search frequency from Google Trends based on popularity index, MT (Market Transparency), Tested by proxies:

- MT1: Public Ratio
- MT2: Stock Illiquidity (Amihud)
- MT3: Turnover Ratio

One moderating variable and three control variables. Each model is in turn test under three different conditions: i.e., Fixed Effect, Random Effect and Factor Generalized Least Square Model.

- **Fixed Effect Model:**

Fixed-effect models are a type of regression models where the numerical variables (i.e., values) of independent variables are considered to be stable (i.e., constant), and only the dependents vary in the response to the independents.

- **Random Effects Model:**

Random effects model is used in panel analysis and is an econometric model that is used which assumes there are no fixed effects, but rather stipulates that there exist individual effects. All the

differences are in-turn adjusted in the error term of the model; thus, the error term is a good representation of the randomness.

- **Factor Generalized Least Square:**

The FGLS Model aids to estimate the unknown parameters for the linear regression model. It is used when certain level of correlation exists between the residual in the model. It also addresses homoskedasticity and auto correlation.

Further Tests:

- **Wooldridge Test:**

Wooldridge's approach uses the first-differences residuals from the regression. Recognize that the first differencing of the data in the model eliminates the individual-level effect, the time-invariant covariate term as well as the constant;

$$\Delta y_{it} = \Delta X_{it}\beta_1 + \Delta \epsilon_{it}$$

The procedure for Wooldridge starts by parameter estimation of β_1 by regressing Δy_{it} upon $\Delta X_{it}\beta_1$ and acquiring the residuals $\Delta \epsilon_{it}$. Wooldridge's observation that if the ϵ_{it} is not serially correlated, then $\text{Corr}(\epsilon_{it}, \epsilon_{it-1}) = -0.5$, is essential to this method.

- **Hausman's Test:**

The Hausman test is used to differentiate situations where it is well to assume that some predictors can be regarded as random effects in a mixed effect model, meaning that they are exactly equivalent to the fixed effects and are distributed normally around zero.

If the Hausman test is not significant ("non-systematic difference in coefficients"), then a framework assuming the random effects becomes more efficient as fixed effects is not significantly different.

$$W = (\beta_{RE} - \beta_{FE})' \Sigma^{-1} (\beta_{RE} - \beta_{FE}) \sim \chi^2(k)$$

- **Pesaran's test:**

Pesaran's statistics considers a normal standard distribution and is capable of handling balanced and as well as unbalanced panels and is in turn used to determine the cross-sectional dependence. Cross sectional dependence has to do with impact of changes or variation in one variable on another variable when both variables belong in the panel data set.

$$\bar{y}_t = N^{-1} \sum_{i=1}^N y_{it}, \quad \& \quad \bar{x}_t = N^{-1} \sum_{i=1}^N x_{it}$$

5. Findings and Results

Firstly, our study is divided into three parts encompassing MT1, MT2, and MT3. These three parts are used to measure the market transparency in the best way possible. Three main tests used are fixed effect, random effect, and GLS. But the most feasible test on which our conclusion was based on was random effect; which was the most feasible that was applicable in our study.

Our findings are based on P-value of co-efficient, the value of R-square, the T-stat, AIC, BIC, the value of CHI. Some of the cases that were incorporated in our results hunt were the Wald test, Pesaran test, Wooldridge test, Hausman test, and lastly the Sargan-Hansen test. All these tests were used as a reasonable basis to base our findings on, to strengthen the findings for our research, and to enhance the conclusion on which we arrive in the end.

5.1 Descriptive Statistics:

Variable Dev.	Obs	Mean	Std.	Min	Max
asvi	145	12.90795	14.08009	.0943	58.5
size	145	18.54226	2.286066	14.11291	23.90853
pe	145	30.30383	164.8545	- 148.1333	1888
bm	145	113.5003	672.7631	0	6400.621
up	145	4.262979	6.334613	-.835	34.753
mt1	145	1.157745	1.92503	.00604	9.537852
mt2	145	.0108391	.0411089	5.62e-08	.3678755
mt3	145	.5324918	.8236737	.0003357	3.878667

This table above summarizes the descriptive statistics of our research. The first variable, i.e. the independent variable of our study which is the investors' attention shows a mean value of 12.907. The standard deviation in the table tells us the amount by which the measurements in the study deviate from the mean value. The standard deviation for investors' attention is 14.08. The minimum and maximum value for investors' attention is 0.0943 and 58.5 respectively.

The next variable is the control variable of the study i.e. the size. This variable has a mean value of 18,54 and a standard deviation of 2.286. However, the minimum and maximum values for the

control variable is 14.112 and 23.908. The other variable is also the control variable of the study which is the price-to-earnings ratio. This variable has a mean value of 30.303 and a standard deviation of 164.864. Furthermore, the minimum and maximum values for the price-to-earning ratio is -148.133 and 1888. The next variable is also the control variable utilized in our study, which it the book-to-market ratio. This variable has a mean value of 113.500 and a standard deviation of 672.763. The minimum and maximum values for the book-to-market ratio is 0 and 6400.621 respectively. Moving further, next variable is also the dependent variable utilized in our study, which is the underpricing. This variable has a mean value of 4.262 and a standard deviation of 6.334. The minimum and maximum values for the underpricing is -835 34.753 respectively. Next is the MT1, which is the public ratio that we have used in our research to measure the market transparency phenomenon. MT1 has a mean value of 1.157 and a standard deviation of 1.925. The minimum and maximum values for the MT1 is 0.00604 and 9.537 respectively. MT2 is the Amihud ratio that we have used in our research to measure the market transparency phenomenon. MT2 has a mean value of 0.0108 and a standard deviation of 0.041. The minimum and maximum values for the MT2 are reported to be 5.62e-08 and 0.367. MT3 is the Turnover ratio that we have used in our research to measure the market transparency phenomenon. MT3 has a mean value of 0.532 and a standard deviation of 0.823. The minimum and maximum values for the MT3 are 0.0003 and 3.878.

5.2 Correlation Matrix:

	asvi	size	pe	bm	up	mt1	mt2	mt3
asvi	1.0000							
size	0.0787	1.0000						
pe	-0.0606	-0.1694	1.0000					
bm	0.0054	-0.2318	-0.0034	1.0000				
up	0.2618	-0.1538	0.0039	0.5415	1.0000			
mt1	-0.0622	0.2348	-0.0318	-0.0558	-0.0281	1.0000		
mt2	0.1286	0.0825	-0.0217	-0.0440	-0.0337	-0.0781	1.0000	
mt3	0.1390	-0.0357	0.0277	0.0269	0.1006	-0.0913	-0.0717	1.0000

The correlation matrix is a matrix that clearly shows the correlation coefficient between the variables encompassed in our study. Firstly, the correlation between investors' attention and investors' attention is 1, which is an obvious fact in the world of statistics. As we move on to the size, we can clearly see that the correlation between size and investors' attention is 0.0787 which

is a weak positive correlation. As we move towards the price to earnings ratio, the correlation between price-to-earnings ratio is -0.0606 which is a weak negative correlation. As for the price-to-earnings ratio correlation with size, it is -0.1694, which can also be deemed a weak negative correlation. And this price-to-earnings ratio correlation with itself is 1.

Moving onto the book-to-market ratio, the correlation of book-to-market ratio with investors' attention is 0.0054, which is a weak positive correlation. The correlation of book-to-market ratio with size is -0.2138, which is a weak negative correlation. Its correlation with price-to-earnings ratio is -0.0034, which is also a weak negative correlation. The correlation of price-to-earnings ratio with itself is 1. The next is the dependent variable, which is the underpricing. Its correlation with investors' attention is 0.2618, which is a weak positive correlation. The correlation of underpricing with size is -0.1538, which is deemed a weak negative correlation. From the table, it can be seen that the correlation between underpricing and price-to-earnings ratio is 0.0039, which is also a weak positive correlation. The correlation between underpricing and book-to-market is 0.5415, which is a relatively higher correlation than previously reported in our findings. The correlation between underpricing and underpricing is reported to be 1.

As for MT1, this is the public ratio. The correlation between MT1 and investor's attention is 0.0622, which is a weak negative correlation. As for its correlation with size, it turned out to be 0.2348, which is also a weak negative correlation. The correlation of MT1 with price-to-earning ratio is -0.0318, which is also a weak negative correlation. As for its correlation with underpricing, which is -0.0281, which is also a weak negative correlation. The next is the MT2, which is the Amihud ratio. The correlation between MT2 and investor's attention is 0.1286, which is a weak positive correlation. As for its correlation with size, it turned out to be 0.0825, which is also a weak positive correlation. The correlation of MT2 with price-to-earnings ratio is 0.0217, which is also a weak negative correlation. As for its correlation with underpricing, which is -0.0337, which is also a weak negative correlation. The correlation that exists between MT1 and MT2 is -0.0781, which is a weak negative correlation. Lastly, MTT3 ratio is the Turnover ratio. The correlation between MT3 and investor's attention is 0.1390, which is a weak positive correlation. As for its correlation with size, it turned out to be -0.0357, which is a weak negative correlation. The correlation of MT3 with price-to-earnings ratio is 0.0277, which is a weak positive correlation. As for its correlation with book-to-market ratio, it is 0.0269, which is also a weak positive correlation. The correlation between MT3 and underpricing is 0.1006, which is a weak positive correlation. The correlation that exists between MT3 and MT1 is -0.091, which is a weak negative correlation. The correlation of MT3 with MT2 is -0.0717, which is also a weak negative correlation. Lastly, as obvious, the correlation of MT3 with MT3 is 1.

5.3 Model Estimation:

The independent variable encompassed in our study i.e., the market transparency is measured by 3 ratios that are crucial to test the market transparency accurately. Basically, the results of our study are divided into 3 separate parts, this is to ensure sound and fair results in our study;

1. Fixed Effects Model
2. Random Effects Model
3. FGLS Model

Firstly, displayed below are the results after running our data through the models as explained in the previous chapters. Classified between MT1: Public ratio, MT2: Amihud Stock illiquidity and finally MT3: Turnover Ratio.

Further down the road, the interpretation of the table is explained in detail. Also, how the results fit into our model and hypothesis.

Table1: MT1 “Public Ratio”

Model	Fixed								Random					FGLS					
	Co-eff	T-s t a t	AIC	BIC	Chi	F	Value	R-square	Co-e f f	T-s t a t	AIC	BIC	Chi	R-square	Co-e ff	T-stat	AIC	BIC	Chi
						91.64*		0.2044						558.99*	0.460				
ASVI	(0.02)	(1.13)**							0.05	3.51*					0.16	3.61*			
MT1	0.58	3.53*							0.30	3.05*					0.62	1.28**			
Asvi xMT2	(0.00)	(0.55)**							(0.02)	(3.24)*					(0.05)	(1.2)**			
Size	1.01	4.46*							(0.13)	(1.45)**					(0.19)	(0.97)**			
PE	(0.00)	(0.12)**							0.00	0.34**					0.00	0.18**			
BM	0.00	22.68*							0.00	24.73*					0.00	7.74*			
Const	(15.26)	(3.66)*							5.70	3.56*					5.15	1.41**			
Akaike			11442.05	11481.84							12804.760	12831.55					892.80	913.644	
Wald					24678.91*									44.71*					8521*
Pesaran						4.29*													
Wooldridge						34.79*													
Hausman														(36.30)					
Sargan-Hansen														2.022**					

Legend: UP = The IPO's initial return (underpricing), MT= Market Transparency, measured by proxies Here, Public Ratio, ASVI = Investors' attention. Search frequency from Google Trends based on stock ticker, MTxASVI: Moderation effect of the two independent variables, ε = Stochastic factors, ' * ' = Probability is < 5, ' ** ' = Probability is > 5

Table2: MT2 “Amihud Stock illiquidity”

Model	Fixed							Random					FGLS						
	Co-eff	T-stat	AC	BIC	Chi	F	Var	R-Square	Co-eff	T-stat	AIC	BIC	Chi	R-square	Co-eff	T-stat	AIC	BIC	Chi
						9745*		01146					573.28*	0.41					
ASVI	(0.04)	(3.02)*							0.02	1.17**					0.13	3.53*			
MT1	(11.62)	(3.93)*							(12.06)	(3.73)*					(6.72)	(0.65)**			
Asvi xMT2	0.05	4.47*							0.03	3.12*					(0.01)	(0.34)**			
Size	1.22	5.42*							(0.06)	(0.68)**					(0.13)	(0.65)**			
PE	(0.00)	(0.37)**							0.00	0.18**					0.00	0.21**			
BM	0.00	22.53*							0.00	24.49*					0.00	7.74*			
Const	(18.15)	4.35*							4.87	3.08*					4.50	1.24**			
Akaike			11414030	11453820							1279048	12817270					893.975	914812	
Wald					29008.59*								49.90*						8337*
Pesaran						4A45*													
Wooldridge					58.26*														
Hausman													(4297)						
Sargan-Hansen													5.135**						

Legend: UP = The IPO's initial return (underpricing), MT= Market Transparency, measured by proxies Here, Amihud Stock illiquidity, ASVI = Investors’ attention. Search frequency from Google Trends based on stock ticker, MTxASVI: Moderation effect of the two independent variables, ε = Stochastic factors, ‘ * ‘ = Probability is < 5, ‘ ** ‘ = Probability is > 5

Table3: MT3 “Turnover Ratio”

Model	Fixed							Random					FGLS							
	Co-eff	T-stat	AIC	BIC	Chi	F	Value	R-Square	Co-eff	T-stat	AIC	BIC	Chi	R-square	Co-eff	T-stat	AIC	BIC	Chi	
						99.99*		0,219												
ASVI	(0.041)	(3.03)*							0.016	1,24**	0,214				0.136	3,67*	0,000			
MT1	1.024	5.24*							0.413	2,17*	0,030			0.780	1,17"	0,242				
Asvi xMT2	0.024	2.01*							0.025	2,08*	0,037			-0.027	(0,95)**	0,341				
Size	1.396	6.17*							-0.059	(0,69)**	0,493			-0.111	(0,58)**	0,564				
PE	(0.001)	(1,13)**							0.000	(0,07)**	0,946			0.001	0,22**	0,828				
BM	0.004	22.29*							0.005	24,33*	0,000			0.005	7,77*	0,000				
Const	(21.820)	(5.2)*							4.626	2,87*	0,004			3.801	1,03**	0,301				
Akaike			1140193011441.720								12799.621282641					893.033	913.870			
Wald				1068320*																84.86*
Pesaran						4.42*														
Wooldridge							36629*													
Hausman													(4906)							
Sargan-Hansen														4.0248*						

Legend: UP = The IPO's initial return (underpricing), MT= Market Transparency, measured by proxies Here, Turnover Ratio, ASVI

= Investors' attention. Search frequency from Google Trends based on stock ticker, MTxASVI: Moderation effect of the two independent variables, ε = Stochastic factors, ' * ' = Probability is < 5, ' ** ' = Probability is > 5

6. Results and Interpretation:

In our research, the MT1 in the table denotes market transparency ratio 1. This ratio is the public ratio., which is the percentage of public shareholding at the time of initial public offering. Moving onto MT2, that is the Amihud ratio. This ratio is the ratio for stock illiquidity, in which the yearly stock illiquidity is determined the initial public offering year. Lastly, MT3 is the turnover ratio. This ratio is the turnover ratio for the shares since the year of initial public offering.

Each one in will be explained in relation to the three different variables defined to act as a proxy for Market transparency i.e. MT1, MT2 and MT3.

6.1 MT1: public ratio

6.1.1 Fixed Effects:

Fixed-effect models are a type of regression models where the numerical variables (i.e., values) of independent variables are considered to be stable (i.e., constant), and only the dependents vary in the response to the independents.

R-Squared: The value for R-squared is 0.2044 i.e., 20.44%. This denotes that the performance of initial public offering is explained 20.44% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: Starting with the investors' attention that is denoted by ASVI, we can state that for every 1 unit increase in the investors' attention the underpricing decreases by 0.02, however relying on the T-stat and its probability this relation is shown to be statistically insignificant. As for the market transparency with every 1-unit increase in the market transparency, the under-pricing will increase by 0.58 and relying on the T-stat and its probability this relation is shown to be statistically significant. Similarly, we test the moderation effect of $ASVI \times MT1$, and discuss the changes brought by moderation as well as its significance. So, with every 1-unit increase in the moderation of either ASVI or MT1 the under-pricing will decrease by 0.0042 and depending on the T-stat and its probability this relation is shown to be statistically insignificant.

Moving onto the control variables, with every 1-unit increase in the size, the underpricing will increase by 1.01 and from the given T-stat and P value it is statistically significant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the underpricing will decrease by 0.0000582 and from the given T-stat and P value it is statistically insignificant. The next control variable that is incorporated in our study is the book-to-market ratio. For this ratio, for every 1 unit increase in the Book to market ratio, the underpricing will increase by 0.004384 and from the given T-stat and P value it is statistically insignificant. In order to assess the importance of any of the independent variables used in our research paper with respect to the performance of initial public offerings, we will begin by objectively evaluating the probability of checking its value and whether that independent variable affects the results. Beginning with investors' attention denoted by ASVI, the probability value (P-Value) for it is 0.260, which is insignificant and depicts that investors' attention does not significantly influence the performance of initial

public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.000, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Moreover, in determining the moderating impact in our study of both these independent variables, the probability value is 0.581, which means that there does not exist a moderating impact in this research. Thus, the P-value in this case, confirms the inexistence of moderation within the dependent and independent variable. As we move forward towards the size, which is one of or control variables, the probability value is 0.000, which means that the value is significant, thus further indicating that size does in fact influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.903 and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 11442.05 and as for the Bayesian Information criterion, the value has turned to be 11481.84 and the F-value for the overall fixed model is 91.64, which is way above 4 and the probability of 0.000 makes it statistically significant.

Wald-test: Wald test is undertaken in our research to assess the significance of the explanatory variables. Thus, if the value for the Wald test turns out to be significance, we can stipulate that they add something to the model.

The value for Wald test is 24678.91 and is statistically significant. We can denote that it adds something to the model due to its significance. Since the H_0 has been rejected, it is a clear indication that group wise heteroskedasticity exists. Thus, concluding that the fixed effect model is not perhaps the best judge for our test.

Pesaran's test: Since significant it confirms out theory concluding from the wald test, that random effects model is a better judge of our data

The current value is 4.293 with a significant (less than 5%) probability.

Wooldridge test: The Woolridge test is another test that confirms about the significance of either the random effects model, or the fixed effect model. The test is based upon the fact that if H_0 is accepted, the fixed effect model is more reliable. However, if H_0 is rejected and the probability is significant, it is taken as a confirmation that the random effects model is reliable.

Here the value is 34.709 and its probability indicates it being significant. Thus, H_0 is rejected and it is concurred that the random effects model is more suited for out data type.

6.1.2 Random effects model:

Random effects model is also incorporated in this study to expand the horizons of our results, thereby enhancing our results in the best possible way that it can. Random effects model is used in panel analysis and is an econometric model that is used which assumes there are no fixed effects, but rather stipulates that there exist individual effects. To elaborate the concept further, the systematic effects in the random effect model are considered to be random.

R-Squared: The value for R-squared is 0.4609 i.e., 46.09%. This denotes that the performance of initial public offering is explained 46.09% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: Beginning with the investors' attention, that is denoted by ASVI, we can state that for every 1 unit increase in the investors' attention, the underpricing increases by 0.05 and is shown to be statistically significant. As for the market transparency with every 1-unit increase in the market transparency, the underpricing will increase by 0.30 and is statistically significant.

Moving onto the control variable, with every 1-unit increase in the size, the underpricing will decrease by 0.03 and it is statistically insignificant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the underpricing will remain unchanged and is statistically insignificant. The next control variable that is encompassed in our study is the book-to-market ratio. The same interpretation is applicable for this ratio as the interpretation for the price to earnings ratio, except the p-value for book-to-market ratio is statistically significant. To determine the significance of each of the independent variables that are encompassing our research paper with respect to the performance of initial public offerings, we will begin by critically analysing the probability to test its significance and if that independent variable does influence the performance. Beginning with investors' attention denoted by ASVI, the probability value (P-Value) for it is 0.000, which is significant and depicts that investors' attention does significantly influence the performance of initial public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.002, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Furthermore, in determining the moderating impact in our study of both these independent variables, the probability value is 0.001, which means that there does exist a moderating impact in this research. In this case, it means that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role. Thus, the P-value in this case, confirms the existence of moderating within the dependent and independent variable. As we move forward towards the size, which is the controlling variable, the probability value is 0.148, which means that the value is not significant, thus further indicating that size does not influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.734 and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 12804.76 and as for the Bayesian Information criterion, the value has turned to be 12831.55. The value for chi is 558.99 for the model and is statistically significant.

Wald-test: Wald test is undertaken in our research to assess the significance of the explanatory variables. Thus, if the value for the Wald test turns out to be significance, we can stipulate that they add something to the model. The value for Wald test is 44.71 and is statistically significant. We can denote that it adds something to the model due to its significance.

Hausmann test: Hausman test was undertaken to determine the efficiency of fixed effect model and random effect mode. Thus, this model will help us investigate which model is better applicable to the research that is undertaken on the subject matter. Upon analysing the value of chi-square in the Hausman test, the value can be clearly seen as -36.30. Since the value is negative, this denotes the value is insignificant. This indicates clearly that the random effect model is more efficient than fixed effect model.

Sargan-Hansen Statistic: Another test known as Sargan-Hansen test was run. This test was also run to determine which model, that is fixed effect or random effect is more applicable in our research. This is to bolster our results through more than one finding surrounding a single phenomenon. The P-value for this is 0.9176, which is insignificant. This also further indicates that the random effect mode is more efficient than fixed effect model; thus, random effect model is more applicable and more supported, through the tests run, in our research paper.

6.1.3 Factor Generalized Least Square Model:

The FGLS Model aids to estimate the unknown parameters for the linear regression model. It is used when certain level of correlation exists between the residual in the model. It also addresses homoskedasticity and auto correlation. All three tests Random Model, Fixed Model and FGLS all tells on average results, that is why these results are not applicable on every variable. The reason behind it is that every variable has different dynamics, so we check which variable is efficient in which model.

Co-efficient: Firstly, Lets discuss the co-efficient of investors' attention, it is denoted by ASVI, we can state that for every 1 unit increase in the investors' attention, the under-pricing increases by 0.16 and it is shown to be statistically significant. In market transparency with every 1-unit increase in the market transparency, the under-pricing will increase by 0.62 which is statistically insignificant.

Let's move on to the control variable with every 1-unit increase in the size, the under-pricing decreases by 0.05 which is statistically insignificant. The control variable, price to earnings ratio, the under-pricing remains unchanged with per unit increase for this ratio. The next control variable that incorporates in our analysis is book-to-market ratio. The statistics is same as that for the price to earnings ratio, apart from the p-value for book-to-market ratio, which is significant. The P-value determines the significance the independent variables that are engulfing our study with respect to the performance of initial public offerings. First of all, beginning with investors' attention that is denoted by ASVI, the probability value (P-Value) for ASVI is 0.000, which is significant and depicts that investors' attention does significantly influence the performance of initial public offering. Next variable is market transparency that is also an independent variable incorporated in our research; it has the probability value of 0.199, which is insignificant value and means that the market transparency does not influence the performance of initial public offering. Moreover, in determining the moderating effect in our research of both these independent variables, the probability value is 0.229, which means there does not exist a moderating impact in this research. In this case, it means that the long-term performance of initial public offering is not impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is not influenced by the market transparency, while

investors' attention plays a moderating role. Thus, the P-value in this case, does not check the existence of moderating within the dependent and independent variable. Moving onto the size, which is a controlling variable in our research, the probability value is 0.333, which means that the value is not significant, which means that the size does not influence the performance of initial public offering. The other control variable in our research is price to earnings, which is 0.858 and insignificant. It means price to earnings ratio does not influence the performance of initial public offering. Lastly, we have a controlling variable that is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 892.807 and as for the Bayesian Information criterion, the value has turned to be 913.644.

Wald-test: Wald test helps to assess the significance of the explanatory variables in our analysis. Therefore, if the value of the Wald test is significant, we can say that they add value to our model. The value for Wald test is 85.21, which is statistically significant. We can say that the resultant adds value to our analysis model due to its significance.

6.2 MT2: Amihud ratio (stock illiquidity)

6.2.1 Fixed Effects Model:

R-Squared: The value for R-squared is 0.2146 i.e., 21.46%. This denotes that the performance of initial public offering is explained 21.46% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: Starting with the investors' attention that is denoted by ASVI, we can state that for every 1 unit increase in the investors' attention the under-pricing decreases by 0.04, however relying on the T-stat and its probability this relation is shown to be statistically significant. As for the market transparency with every 1-unit increase in the market transparency, the under-pricing will decrease by 11.62 and relying on the T-stat and its probability this relation is shown to be statistically significant. Similarly, we test the moderation effect of ASVIxMT1, and discuss the changes brought by moderation as well as its significance. So, with every 1-unit increase in the moderation of either ASVI or MT1 the under-pricing will increase by 0.05 and depending on the T-stat and its probability this relation is shown to be statistically significant.

Moving onto the control variables, with every 1-unit increase in the size, the underpricing will increase by 1.22 and from the given T-stat and P value it is statistically significant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the underpricing will decrease by 0.0001761 and from the given T-stat and P value it is statistically insignificant. The next control variable that is incorporated in our study is the book-to-market ratio. For this ratio, for every 1 unit increase in the Book to market ratio, the underpricing will increase by 0.0043333 and from the given T-stat and P value it is statistically significant. In order to assess the importance of any of the independent variables used in our research paper with respect to the performance of initial public offerings, we will begin by objectively evaluating the probability of checking its value and whether that independent variable affects the results. Beginning with investors' attention

denoted by ASVI, the probability value (P-Value) for it is 0.003, which is significant and depicts that investors' attention does significantly influence the performance of initial public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.000, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Moreover, in determining the moderating impact in our study of both these independent variables, the probability value is 0.000, which means that there does in fact exist a moderating impact in this research. Thus, the P-value in this case, confirms the existence of moderation within the dependent and independent variable. As we move forward towards the size, which is one of or control variables, the probability value is 0.000, which means that the value is significant, thus further indicating that size does in fact influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.711 and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 11414.03 and as for the Bayesian Information criterion, the value has turned to be 11453.82 and the F-value for the overall fixed model is 97.45, which is way above 4 and the probability of 0.000 makes it statistically significant.

Wald-test: Wald test is undertaken in our research to assess the significance of the explanatory variables. Thus if the value for the Wald test turns out to be significant, we can stipulate that they add something to the model. The value for Wald test is 29008.59 and is statistically significant. We can denote that it adds something to the model due to its significance. Since the H_0 has been rejected, it is a clear indication that group wise heteroskedasticity exists. Thus concluding that the fixed effect model is not perhaps the best judge for our test.

Pesaran's test: Since significant it confirms our theory concluding from the Wald test, that random effects model is a better judge of our data. The current value is 4.445 with a significant (less than 5%) probability.

Wooldridge test: The Wooldridge test is another test that confirms about the significance of either the random effects model, or the fixed effect model. The test is based upon the fact that if H_0 is accepted, the fixed effect model is more reliable. However, if H_0 is rejected and the probability is significant, it is taken as a confirmation that the random effects model is reliable.

Here the value is 58.263 and its probability indicates it being significant. Thus, H_0 is rejected and it is concluded that the random effects model is more suited for our data type.

6.2.2 Random Effects model:

R-Squared: The value for R-squared is 0.4109 i.e., 41.09%. This denotes that the performance of initial public offering is explained 41.09% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: Beginning with the investors' attention denoted by ASVI, we can state that for every 1 unit increase in the investors' attention, the underpricing increases by 0.02 and is shown

to be statistically insignificant. As for the market transparency with every 1-unit increase in the market transparency, the underpricing will decrease by 12.07 and is statistically significant.

Moving onto the control variable, with every 1-unit increase in the size, the underpricing will decrease by 0.06 and it is statistically insignificant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the underpricing will remain unchanged and is statistically insignificant. The next control variable is the book-to-market ratio. The same interpretation is applicable for this ratio as the interpretation for the price to earnings ratio, except the p-value for book-to-market ratio is statistically significant. To determine the significance of each of the independent variables that are encompassing our research paper with respect to the performance of initial public offerings, we will begin by critically analysing the probability to test its significance and if that independent variable does influence the performance. Beginning with investors' attention denoted by ASVI, the probability value (P-Value) for it is 0.242 which is insignificant and depicts that investors' attention does not significantly influence the performance of initial public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.000, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Furthermore, in determining the moderating impact in our study of both these independent variables, the probability value is 0.002, which means that there does exist a moderating impact in this research. In this case, it means that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role. Thus, the P-value in this case, confirms the existence of moderation within the dependent and independent variable. As we move forward towards the size, which is the controlling variable, the probability value is 0.495, which means that the value is not significant, thus further indicating that size does not influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.856 and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 12790.480 and as for the Bayesian Information criterion, the value has turned to be 12817.270 and the value for chi is 573.280 for the model and is statistically significant.

Wald-test: Wald test is undertaken in our research to assess the significance of the explanatory variables. The value for Wald test is 49.90 and is statistically significant. We can denote that it adds something to the model due to its significance.

Hausmann test: Hausman test was undertaken to determine the efficiency of fixed effect model and random effect mode. Thus, this model will help us investigate which model is better applicable to the research that is undertaken on the subject matter. Upon analyzing the value of chi-square in the Hausman test, the value can be clearly seen as -42.97. Since the value is negative, this denotes the value is insignificant. This indicates clearly that the random effect model is more efficient than fixed effect model.

Sargan-Hansen Statistic: Another test known as Sargan-Hansen test was run. This test was also run to determine which model, that is fixed effect or random effect is more applicable in our research. This is to bolster our results through more than one finding surrounding a single phenomenon. The P-value for this is 5.135, which is insignificant. This also further indicates that the random effect mode is more efficient than fixed effect model; thus, random effect model is more applicable and more supported, through the tests run, in our research paper.

6.2.3 Factor Generalized Least Square Model:

Co-efficient: The co-efficient of investors' attention is denoted by ASVI, we can say that for every 1 unit increase in the investors' attention, the under-pricing increases by 0.13 and it depicts that the value is statistically significant. In market transparency with every 1-unit increase in the market transparency, the under-pricing will decrease by 6.72 which is statistically insignificant.

Moving on to the control variable with every 1-unit increase in the size, the under-pricing decreases by 0.01 which is statistically insignificant. In control variable, price to earnings ratio, the under-pricing remains unchanged with per unit increase for this ratio. Lastly, the control variable that incorporates in our analysis is book-to-market ratio. The statistics is same as that for the price to earnings ratio, apart from the p-value for book-to-market ratio which is significant. The P-value determines the significance the independent variables that are ingulfing our study with respect to the performance of initial public offerings. Starting off with investors' attention which is denoted by ASVI, its probability value (P-Value) is 0.000 which is significant and represents that investors' attention does significantly influence the performance of initial public offering. Next, we have market transparency that is also an independent variable of our research, it has the probability value of 0.517, which describes the value is insignificant value which means market transparency doesnot influence the performance of initial public offering. Moreover, in determining the moderating impact for both these independent variables, the probability value is 0.734, which means that there does not exist a moderating impact in this research. It means that the long-term performance of initial public offering is not wedged by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is not affected by the market transparency, while investors' attention plays a moderating role. Hence, the P-value in this case, does not confirm the existence of moderation within the dependent and independent variable. Moving onto the controlling variables, firstly, size it has probability value of 0.515, which means that the value is not significant which means that the size does not influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.832 and insignificant. It means the price to earnings ratio does not influence the performance of initial public offering. Lastly, the controlling variable book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 893.975 and as for the Bayesian Information criterion, the value has turned to be 914.812

Wald-test: Wald test shows the significance of the explanatory variables. The value for Wald test is 83.37 and is statistically significant. We can denote that it adds something to the model due to its significance.

6.3 MT3: Turnover ratio

6.3.1 Fixed Effects Model

R-Squared: The value for R-squared is 0.219 i.e., 21.90%. This denotes that the performance of initial public offering is explained 21.90% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: Starting with the investors' attention that is denoted by ASVI, we can state that for every 1 unit increase in the investors' attention the under-pricing decreases by 0.04, however relying on the T-stat and its probability this relation is shown to be statistically significant. As for the market transparency with every 1-unit increase in the market transparency, the under-pricing will increase by 1.024 and relying on the T-stat and its probability this relation is shown to be statistically significant. Similarly, we test the moderation effect of ASVIxMT1, and discuss the changes brought by moderation as well as its significance. So, with every 1-unit increase in the moderation of either ASVI or MT1 the under-pricing will increase by 0.024 and depending on the T-stat and its probability this relation is shown to be statistically significant.

Moving onto the control variables, with every 1-unit increase in the size, the under-pricing will increase by 1.39 and from the given T-stat and P value it is statistically significant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the under-pricing will decrease by 0.001 and from the given T-stat and P value it is statistically insignificant. The next control variable that is incorporated in our study is the book-to-market ratio. For this ratio, for every 1 unit increase in the Book to market ratio, the under-pricing will increase by 0.004 and from the given T-stat and P value it is statistically significant. In order to assess the importance of any of the independent variables used in our research paper with respect to the performance of initial public offerings, we will begin by objectively evaluating the probability of checking its value and whether that independent variable affects the results. Beginning with investors' attention denoted by ASVI, the probability value (P-Value) for it is 0.002, which is significant and depicts that investors' attention does significantly influence the performance of initial public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.000, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Moreover, in determining the moderating impact in our study of both these independent variables, the probability value is 0.044, which means that there does not exist a moderating impact in this research. Thus, the P-value in this case, confirms the inexistence of moderation within the dependent and independent variable. As we move forward towards the size, which is one of or control variables, the probability value is 0.000, which means that the value is significant, thus further indicating that size does in fact influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.258 and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 11401.93 and as for the Bayesian Information criterion, the

value has turned to be 11441.72 and the F-value for the overall fixed model is 99.99, which is way above 4 and the probability of 0.000 makes it statistically significant.

Wald-test: Wald test is undertaken in our research to assess the significance of the explanatory variables. Thus, if the value for the Wald test turns out to be significant, we can stipulate that they add something to the model. The value for Wald test is 10683.20 and is statistically significant. We can denote that it adds something to the model due to its significance. Since the H_0 has been rejected, it is a clear indication that group wise heteroskedasticity exists. Thus, concluding that the fixed effect model is not perhaps the best judge for our test.

Pesaran's test: Since significant it confirms our theory concluding from the Wald test, that random effects model is a better judge of our data. The current value is 4.422 with a significant (less than 5%) probability.

Wooldridge test: The Wooldridge test is another test that confirms about the significance of either the random effects model, or the fixed effect model. The test is based upon the fact that if H_0 is accepted, the fixed effect model is more reliable. However, if H_0 is rejected and the probability is significant, it is taken as a confirmation that the random effects model is reliable.

Here the value is 36.629 and its probability indicates it being significant. Thus, H_0 is rejected and it is concluded that the random effects model is more suited for our data type.

6.3.2 Random effects Model

R-Squared: The value for R-squared is 0.4272 i.e., 42.72%. This denotes that the performance of initial public offering is explained 42.72% by the independent variables i.e., market transparency and investors' attention.

Co-efficient: With the first independent variable in our study i.e., the investors' attention denoted by ASVI, we can state that for every 1 unit increase in the investors' attention, the underpricing increases by 0.016 and is shown to be statistically insignificant. As for the market transparency with every 1-unit increase in the market transparency, the underpricing will increase by 0.413 and is statistically significant.

Moving onto the control variable, with every 1-unit increase in the size, the underpricing will decrease by 0.059 and it is statistically insignificant. Furthermore, the next control variable is price to earnings ratio. As for this ratio, for every 1 unit increase in the price to earnings ratio, the underpricing will remain unchanged and is statistically insignificant. The next control variable that is encompassed in our study is the book-to-market ratio. In the case of book-to-market ratio, with 1 unit increase in the book-to-market ratio, the underpricing will increase by 0.005 and is statistically insignificant. To determine the significance of each of the independent variables that are encompassing our research paper with respect to the performance of initial public offerings, we will begin by critically analyzing the probability to test its significance and if that independent variable does influence the performance. Beginning with investors' attention denoted by ASVI, the probability value (P-Value) for it is 0.214, which is insignificant and depicts that investors' attention does not significantly influence the performance of initial public offering. Moving onto the market transparency that is also the independent variable included in our study, it has the probability value of 0.030, which depicts a significant value and thus means market transparency does influence the performance of initial public offering. Furthermore, in determining the moderating impact in our study of both these independent

variables, the probability value is 0.037, which means that there does exist a moderating impact in this research due to its significance. In this case, it means that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role. Thus, the P-value in this case, confirms the existence of moderating relationship within the dependent and independent variable. As we move forward towards the size, which is the controlling variable, the probability value is 0.493, which means that the value is not significant, thus further indicating that size does not influence the performance of initial public offering. The other control variable in our study is price to earnings, which is 0.946, and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. The last controlling variable used in this study is book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Moving on to the Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 12799.620 and as for the Bayesian Information criterion, the value has turned to be 12826.410 and the value for chi is 564.14 and is statistically significant.

Wald Test: Wald test is undertaken in our research to assess the significance of the explanatory variables. The value for Wald test is 47.03 and is statistically significant. We can denote that it adds something to the model due to its significance.

Hausmann test: Hausman test was undertaken to determine the efficiency of fixed effect model and random effect mode. Thus, this model will help us investigate which model is better applicable to the research that is undertaken on the subject matter. Upon analysing the value of chi-square in the Hausman test, the value can be clearly seen as -49.06. Since the value is negative, this denotes the value is insignificant. This indicates clearly that the random effect model is more efficient than fixed effect model.

Sargan-Hansen Statistic: Another test known as Sargan-Hansen test was run. This test was also run to determine which model, that is fixed effect or random effect is more applicable in our research. This is to bolster our results through more than one finding surrounding a single phenomenon. The P-value for this is insignificant. This also further indicates that the random effect model is more efficient than fixed effect model; thus, random effect model is more applicable and more supported, through the tests run, in our research paper.

6.3.3 Factor Generalized Least Square Model:

Co-efficient: The first independent variable of our research is the investors' attention denoted by ASVI; its value states that for every 1 unit increase in the investors' attention, the underpricing increases by 0.136 and is statistically significant. Next independent variable is market transparency with every 1-unit increase in the market transparency, the underpricing will increase by 0.780 and it is statistically insignificant.

Moving forward to the control variables of our research, with every 1-unit increase in the size, the underpricing will decrease by 0.027 and it is statistically insignificant. The next control variable is price to earnings ratio which means with every 1 unit increase in the price to earnings ratio, the underpricing will remain unchanged and is statistically insignificant. Lastly, we have

book-to-market ratio. In the case of book-to-market ratio, with 1 unit increase in the book-to-market ratio, the underpricing will increase by 0.005 and is statistically significant. The P-value determines the significance of the independent variables that are engulfing our study with respect to the performance of initial public offerings. Starting off with investors' attention which is denoted by ASVI the probability value (P-Value) for it is 0.000, which is significant and shows that investors' attention does significantly influence the performance of initial public offering. Next variable we have is the market transparency that is also the independent variable it has the probability value of 0.242, it shows an insignificant value which means market transparency does not influence the performance of initial public offering. Moreover, in finding the moderating effect in our research of both these independent variables, the probability value is 0.341, which means that there does not exist a moderating impact in this research due to its insignificance. In this case, it means that the long-term performance of initial public offering is not affected by the investors' attention, while the market transparency plays a moderating role. Nevertheless, the long-term performance of initial public offering is not influenced by the market transparency, while investors' attention plays a moderating role. Hence, the P-value does not confirm the existence of moderating relationship within the dependent and independent variable. Moving onto the controlling variable, the probability value is 0.564, which shows that it is not significant, and the size does not influence the performance of initial public offering. Next control variable is price to earnings, which is 0.828, and insignificant. This means that the price to earnings ratio does not influence the performance of initial public offering. Lastly, we have the book to market ratio, which is 0.000 and significantly influences the performance of the initial public offering. Next, we have Akaike Information Criterion and Bayesian Information Criterion. The value for Akaike Information Criterion is 893.0327 and as for the Bayesian Information criterion, the value has turned to be 913.8698

Wald Test: Wald test shows the significance of the explanatory variables. The value for Wald test is 84.84 and is statistically significant. We can say that it adds some value to the model due to its significance.

Deduction:

Since mentioned before in the research paper that the random effect model is the most applicable and in-line with our research, thus whether to assess if the theory is aligned with our results and findings, we will evaluate the results derived from the random effect model and link it to our hypothesis to get an understandability and a strong grip over the paradigm of the research.

In the MT1 model which is public ratio, our findings indicate that the Investors' attention does impact the underpricing. It also indicates that the market transparency does impact the underpricing. Therefore, long term IPO performance is strengthened by market transparency and investors' attention. Lastly, there is a moderating impact of investors' attention and market transparency in our model. This indicates that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role. In the MT2 model that is Amihud ratio; our findings indicate that the Investors' attention does impact the underpricing. It also indicates that the market transparency does impact the

underpricing. Therefore, long term IPO performance is strengthened by investors' attention but weakened by market transparency. Lastly, there is a moderating impact of investors' attention and market transparency in our model. In this case, it means that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role.

In the MT3 model, which is the turnover ratio, our findings indicate that the Investors' attention does impact the underpricing. It also indicates that the market transparency does impact the underpricing. Therefore, long term IPO performance is strengthened by investors' attention and market transparency. Lastly, there is a moderating impact of investors' attention and market transparency in our model. In this case, it means that the long-term performance of initial public offering is impacted by the investors' attention, while the market transparency plays a moderating role. Furthermore, this also means that the long-term performance of initial public offering is influenced by the market transparency, while investors' attention plays a moderating role.

7. Conclusion:

Our research on market transparency and investors' attention seeks to expand the horizons of initial public offering and its long-term performance, and how these factors which are integral, play a vital role on the performance of Initial public offering. Thus, the purpose of this research is to critically analyze the moderating impact of both these imperative phenomena, known as market transparency and investors' attention.

For our research study and analysis, we started off with observing and researching about the variables that are included in our study and what factors are affecting their trends in the Pakistani market. After that we did an extensive literature review which incorporated studies and previous work done on our relevant variables which helped us to shift our focus in relevant direction. Our focus for the study were 29 companies from Pakistan Stock Exchange which went public after 2004. Firstly, we analysed how IPOs perform under different levels of market transparency. Secondly, we assessed, whether the investors' attention influence market transparency and long-term performance of IPOs. Furthermore, we incorporated some control variables in our research that are Size, Book to Market ratio, and Price to Earnings ratio, in order to get fair impact of independent variable and to make sure that indirect influence of these variables on the dependent variable is mitigated. We evaluated our data through Fixed Effect Model, Random Effects Model, and Factor Generalized Least Square. The estimators used to analyze our data, clearly indicated that the random effect model was the most suitable for our data set, thus concurring from the results it was clear our research concluded that investors' attention and market transparency do in fact play a vital role in the performance of a particular Initial public offering.

This research has many implications that can be translated in industry, academics and social context. For the industry, it will help enlighten the people that are working in an industry to reflect on the significance of market transparency and investors' attention both as an independent variable and a moderating variable. This may also help them make informed decisions in the future, and therefore, enhance their decision-making skills. As for the academic level, this article aims to raise awareness among the students about the significance of these two fundamental variables that influence the long-term performance of initial public offering, a topic that is embedded in the world of finance. As for the policy level, this study contributes to the policy level in a way that it creates a structured policy for Market transparency and analyzes how the IPOs perform under that specific transparency. On a policy level, it will assess whether the investors attentions influence the relationship that might exist between market transparency and long-term performance of IPOs.

Data collection is definitely an imperative part of research conduction. However, with data collection, are some limitations underlying therein. The first obstacle we faced was that the information for Google trends were not available before 2004. Therefore, we had to exclude all the IPOs, which were conducted before 2004. The second problem that we came across was for the smaller companies and mutual funds, people did not research about their IPO due to several reasons comprising issues like lack of information among investors or lack of interest etc. The third obstacle that we came across was the unavailability of financial statements of the IPO year of several companies. However, many companies which were fulfilling the above criterion, somehow defaulted or their license was cancelled. Thus, a specific industry could not be targeted due to these constraints that led us with a very little authority over the data.

Despite the limitations, there are some future prospects that can be worked upon, by the researchers of the future. Firstly, incorporating some Asian Countries and doing a comparison for them can also be an efficient way to strengthen the future prospects of this research. This would provide us with their individual impact on the country, and also a country-by-country comparison to comprehend the concept better.

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