



IMPACT OF PUBLIC PERCEPTION OF COMPANIES ON INVESTMENT DECISIONS

¹Sharvari¹Student¹Christ Deemed to be University

Chapter 1

1. Introduction

1.1 Need for study or Justification of the Problem

Traditional finance theories often assume the financial markets to be efficient i.e. The asset prices reflect all the available information. The Efficient Market Hypothesis (EMH) by *Eugene Fama* suggests that the markets are efficient and the associated people make rational decisions. But since 1990s, researchers and academicians have started criticizing this theory due to the anomalies and behaviours that this theory fails to explain like the 1) January effect : According to *Rozeff and Kinney*, it is an anomaly where stock prices tend to rise in the month of January for no apparent reason. 2) Winners Curve: *Thaler* (1988) states that Winners curve is an anomaly where the winning big in an auction tends to exceed intrinsic value of the item purchased, mainly due to incomplete information and emotions leading bidders to over estimating the items value. With more such anomalies coming up, behavioural economists challenge the rationality of investors while making decisions to maximize profits.

According to *Martin Sewell*, Behavioural Finance is the study of the impact of psychology or the behaviour of financial practitioners or investors, asset managers etc and the effect of their behaviours on the market. In simpler terms, it is field of study considering the influence of factors like fear, hope, optimism and pessimism etc on retail investors. It urges the financial theories to accept human behaviour as a factor. Daniel Kahneman and Amos Tversky are referred to as the fathers of the field of Behavioural Finance as they were the early proponents of 'behavioural finance' and introduced the behavioural aspects into finance through investment decision making process. They identified 3 heuristic factors – representativeness, availability and anchoring that can cause biases in an investors decision making ability.

The wave of fear or optimism needs channels to travel to individual investors and instil this emotion in their minds which later leads to bias. Stock Market announcements and communication thereof through mass media are key sources of credible information for the public. These channels could be Newspapers, radio shows, social media, news channels and articles. They can give a biased view of the situation or unknowingly favor some companies' stocks over others because at the end of the day their goal is not limited to knowledge delivery but also focused on gaining viewership. How the media paints the picture of a certain company in your head.

Even in business Valuations there exists a bias called Preconceptions and priors: When you decide to value a company, you don't start with a blank slate. Instead, your valuation is inclined towards your prior views of the company to be valued.

1.2 Highlighting the problem

When you see or hear about a particular company and their stock more frequently than others, you tend to develop an inclination towards that company and regardless of the company's performance a retail investor behaviourally becomes biased towards buying this stock. This inclination challenges their rationality in decision making.

1.3 Defining the Topic

My research study seeks to explore whether there exists a bias in the minds of retail investors towards big companies like Reliance industries, TATA group, Biocon, Birla Group or the Mahindra Group over companies like MOIL, Kaveri Seeds Co. Ltd , Deepak Nitrite, Thyrocare Tech or Heidelberg cement which are almost a 180 degrees. Since there is no parameter to measure visibility or exposure of a stock, the Market Capitalisation is chosen as the differentiating parameter as even Indices like Sensex and Nifty50 consider the same for choice of stocks. Both the lists have gainer who are likely to stay in the green on the NSE and BSE. I intend to see which list does a retail investor, with a little to nil education in finance, is inclined to choose and why. Are speculators really biased towards the list with the 'big names'? Is there an existence of a fandom when it comes to stocks of popularly known companies ? If so, to what extent do these factors contribute to this bias

1. Market Factors
2. History of the company
3. Diversification
4. Company name
5. Media Coverage

2020 was not chosen because of the Corona virus pandemic that was a black swan event and might have skewed the data.

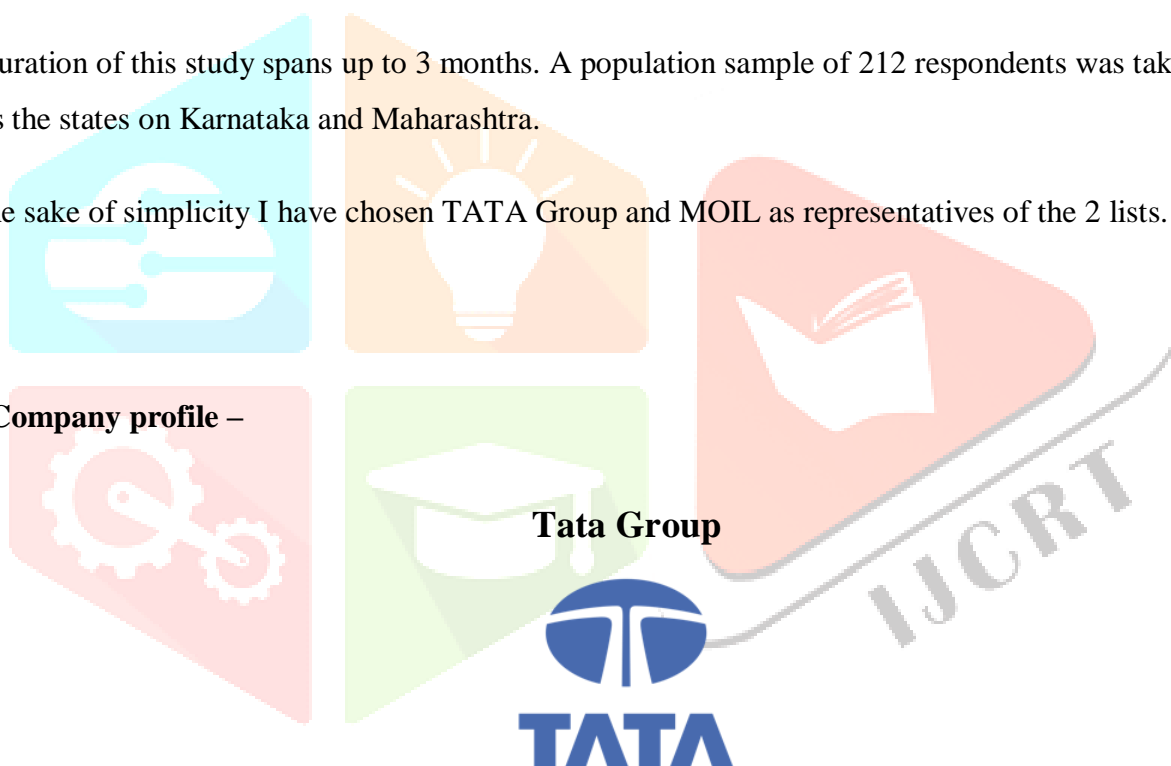
1.4 Scope of Research –

The study aims at checking for biases in investor decision due to increased visibility of the stock of a company and what factors affect this decision and to what extent. Theories and topics touched upon are a mixture of behavioural finance and influence of media and public relations on the Financial markets. Behavioural sciences tend to look at behaviour attributes of an investor but this study is limited to factors that create public perception of the company in turn giving rise to a heuristic instilled in the minds of investors making them predisposed to purchasing stocks of the ‘big’ companies.

The duration of this study spans up to 3 months. A population sample of 212 respondents was taken spanning across the states on Karnataka and Maharashtra.

For the sake of simplicity I have chosen TATA Group and MOIL as representatives of the 2 lists.

1.5 . Company profile –



A brief history of the company

At the age of 29, Jamsetji Tata worked at his family’s owned company. With 21 Cr. as capital he started his own trading company in the year 1870. Later in his career he rescued a bankrupt oil mill in the area of Chinchpokli and turned it around to a cotton mill, under the name Alexandra Mill. He later sold the mill for a profit after only 2 years. In 1874, he set up another cotton mill at Nagpur named Empress Mill. Setting up an iron and steel company was one of his dreams. Dorabji Tata son of Jamsetji tata took over the chairmanship of the company in 1904. Sir Dorabji established TISCO that is now known to us as Tata Steel . After Dorabji, J. R. D. Tata was made the chairman at Tata Group in 1938. Under his chairmanship, the company witnessed a massive rise of the net worth up to US\$5 billion. After J.R.D. Tata stepped down in 1988, Tata Sons grew to

become the giant conglomerate of 95 enterprises. In 1991, Ratan Tata filled the shoes of chairman at the Tata Group. This year is earmarked for the famous economic liberalization, opening of the Indian market to several foreign players. During this time, Tata Group began to acquire a number of companies, including Tetley (2000), Corus Group (2007), and Jaguar and Land Rover (2008). In 2017, Natarajan Chandrasekaran was appointed chairman.

Tata Group was founded in **1868** with an initial capital investment of **Rs. 21,000** by **Jamsetji Tata** headquartered in **Mumbai, Maharashtra, India**.

Founder Profile - Jamsetji Tata went to Elphinstone college. He was a merchant and went on to change the business world of India through his many ventures within the cotton and pig iron industry, and is known as one of the most important builders of the modern Indian economy. Out of his many achievements, Tata is notable for the Tata Iron and Steel Works company in Jamshedpur. In addition to the Tata Iron and Steel Works, he went on to establish businesses in many other areas that stood as a foundation to modern Indian business. His net worth in 1900 was 4 Million pounds. Nature of business back then started off from Cotton mills

Past performance - Under Dorabji Tata TISCO was established and TATA Power was given birth to. Under J.R.D. Tata chairmanship, the assets of the Tata Group grew from US\$101 million to over US\$5 billion. Starting with 14 enterprises, upon his departure half a century later in 1988, Tata Sons had grown to a conglomerate of 95 enterprises. The TATA air services were founded and TATA motors started its focus on locomotives. Under Ratan Tata Group began to acquire a number of companies, including Tetley (2000), Corus Group (2007), and Jaguar and Land Rover (2008). In 2017, Natarajan Chandrasekaran was appointed chairman.

The shareholding patterns for **Tata Steel** with promoters owning 34.41%, FIIs 16.87%, central govt. 0.25%, general public 17.06%, domestic institutional investors 15.79%.

Turnover and number of employees - Revenues were reported at 106Billion USD in 2020 and number of employees were 7,50,000.

Nature of business of the parent group– The Tata group is a conglomerate with products ranging from Automotive, airlines, chemicals, defence, FMCG, electric utility, finance, football club, home appliances, hospitality industry, IT services, retail, e-commerce, real estate, steel, telecom. Tata Steel in particular – Extraction , Refining, mining , manufacturing and marketing.

Product profile :Tata Steel - Steel , Long steel products , Structural steel , Wire products , Steel casing pipes , Household goods

Competitors – JSW steel , HindalCo, Jindal steel, NMDC, Kalyani steel, Nucor , BHEL

Subsidiaries - Tata Steel Europe, Tata Steel BSL, Jamshedpur FC

Improved turnover - The turnover during the current period was `70,611 crore, 16.7% higher than the previous year.

Strategic capital allocation- The Company spent `3,677 crore towards capital expenditure (70% towards Phase II expansion of Kalinganagar).

Movement in EBITDA - The EBITDA of the Company is at `20,744 crore, improved by 31% mainly on account of improved steel margins, attributable to higher volumes and higher realisations.

Tata Steel is currently the world's second-most geographically diversified steel producer with an annual crude steel capacity of 33 million tonnes per annum (MTPA). The company one of the few steel operations that is fully integrated – from mining to the manufacturing and marketing of finished products. Continuous improvement in its product and service portfolio, along with success in value creating initiatives for customers, allows the company to serve global growth markets. Today, it operates in 26 countries and has a commercial presence in over 50 countries with employees across five continents. The company's raw material operations are spread across India and Canada which helps it to be self-sufficient in steel production.

Share performance – Constituent of both Nifty 50 and Sensex. Current price 714.40INR. market capitalisation is 1.017 T USD. P/E ratio 13.09

Achievements and awards - Tata Steel Limited and Tata Steel Europe recognised by world steel as 2019 Steel Sustainability Champions.

Tata Steel recognised among India's Best Workplaces: Large Organization, 2020.

Tata Steel Kalinganagar bags the National Energy Conservation Award 2019.

Tata Steel wins IFSEC India Disaster Management Excellence Award.

SWOT Analysis

<p>Strength –</p> <ol style="list-style-type: none"> 1. Production of over 14M tonne of ore. 2. Ability to adapt in dynamic unpredictable environment 3. Smooth integration with Acquired company : Corus Group comprising over 2000 metallurgists 4. Firm hold over its raw materials resources 5. Achieved economies of scale 6. Popularity and support of the Tata brand name 7. Operating in 26 countries with a prominent commercial presence in 50 countries 	<p>Weakness-</p> <ol style="list-style-type: none"> 1. Lacks Operational efficiency in comparison to international players. 2. Not very up to date with technology in the sector
<p>Opportunity –</p> <ol style="list-style-type: none"> 1. Public private partnership 2. Acquisition of coal blocks in Asia, Africa etc. 	<p>Threats –</p> <ol style="list-style-type: none"> 1. Rising coking coal prices 2. India is plagued with violent agitation against land acquisition 3. Government & regulatory norms 4. International competition

Company profile:

MOIL



A brief history of the company/business group.

The original name given to MOIL was the Central Province prospecting Syndicate. Established in 1896 in the states of Maharashtra and Madhya Pradesh in central India. The name was later changed to Central Province Manganese Ore Company Limited (CPMO) in 1935. In the 1962 the Indian Government took over the mining activities in to its own hands. Later, MOIL (Manganese Ore India Limited) was formed with a 51% share held by the Government both the central and of the aforementioned states. The remaining 49% was retained by the CPMO. In December 2010 the company went public when the government decided to divest 20% of its equity through an IPO.

Foundation - MOIL was established on 22nd June 1962. Initially the company was held by CPMO and later by the government of India. The managing Director cum Chairperson of MOIL is Shri G. P Kundargi. With 35 years of experience he is the only Indian member of the international Manganese Institute (IMnI).

Location of business - MOIL's has 11 mines out of which 8 are underground mines in Kandri, Munsar, Beldongri, Gumgaon, Chikla, Balaghat and Ukwa. They have 3 are opencast mines (Dongri Buzurg, Sitapatore, and Tirodi). Their Balaghat mine is the largest mine controlled by MOIL and the deepest at 383 metres. Its headquarters is in Nagpur Maharashtra.

Products - It is the largest producer of manganese in India. MOIL's primary business is excavating Manganese dioxide ore from its mines. Their production was 1.3 tonnes in the year 2020. The ore is used to make metal or alloys like Ferro-manganese and silicon manganese. The refined dioxide ore of manganese finds usage in the production of a supplement for cattle feed, in fertilizers and in the chemical industry. They produce supply produce to be used in the making of dry batteries from the refined ore. Its total sales in FY 18-19 were 16.3 Billion INR but only 12.2 Billion INR in 19-20.

Presently the company is owned by The Government of India, Maharashtra State Government, Madhya Pradesh State Government and the Public. The **shareholding pattern** is – Promoters have 64.35% and FII holdings are 3.32% and Mutual Funds hold 2.48% and the general public holds 18.54%. MOIL is a Manganese Ore mining company that extracts Manganese dioxide ore for various purposes like Dry batteries, metal and

alloys and cattle feed and fertilisers in the chemical industry. MOIL had a total turnover of 1038.07Cr. as off March 2020. The number of employees working at MOIL is 6305 employees.

Nature of business - MOIL Ltd's operations includes exploration, exploitation and marketing of manganese ore and the products like electrolytic manganese Dioxide and high carbon ferro manganese alloys. The company is engaged in three segments Mining, manufacturing and power generation.

Competitors of MOIL are Gujarat Mineral Development Corporation Ltd. Balasore Alloys Ltd. , TAI Industries Ltd., VBC Ferro Alloy Ltd. And Sandur Manganese & Iron Ore Ltd. Sales for the year 2020 were 1038.07 crores and the PAT is 248.22 cr.

Clients of MOIL are majorly Ferro producers, Chemical grades industries, Steel plants. Ferro manganese is sold to steel plants and Electrolytic manganese Di Oxide is sold to dry cell battery manufacturer and chemical industries.

Product segment and market share - The total market share of the company is 50%. Sales quantity of each product is – Manganese ore – 12,69,719 ; Ferro Manganese – 12,199 ; Ferro Manganese Slag – 15,134 and wind power the sales value is 8.6 cr.

Subsidiaries, collaborations and Joint ventures - MOIL has no Subsidiaries. MOIL has partnered with Maharashtra Institute of technology and Transfer for the rural areas (MITTRA) for holistic development of rural communities. MOIL and SAIL announced the closure of their Joint venture in Feb 2021 and on 23rd march they called quits on JV with Rastriya Ispat Nigam Ltd due to non-viability of the project. They have a joint venture with Gujarat Mineral Development Corporation since 2019.

Share price data - The shares were listed in 2011 at Rs.440, went down to a low of Rs.188 on July 13 and February 15, before recovering to Rs.351. The company decided to issued a bonus share for every share held on 28 Sep 2017.

Share price : 140 INR as of January 2021.

Awards and Recognitions -MOIL was awarded for having the best CSR practises by Institute of Public enterprises in Feb 2020. They were conferred the Mini Ratna status in 2008.

<p>Strength –</p> <ol style="list-style-type: none"> 1. Alliances and Joint Ventures with SAIL and ISPAT provide financial backing and brand value is increased. 2. Strong assets holding – mine locations all over India. 3. Power generation units help reach Economies of scale. 4. State controlled so enjoys buyer’s confidence. 	<p>Weakness-</p> <ol style="list-style-type: none"> 1. Government interventions affects the operations. 2. Joint Ventures weaken the bargaining power of MOIL with its buyers.
<p>Opportunity –</p> <ol style="list-style-type: none"> 1. Diversification of Manganese products 2. Expansion geographically to new markets 3. Forward integration to set up it own steel manufacturing plant 	<p>Threats –</p> <ol style="list-style-type: none"> 1. Regulated environment 2. Replacement to steel would change relations with allied industries. 3. Limited manganese dioxide ore on earth.

Why MOIL and Tata Steel ? the idea is to choose one big a large Market Cap and the other with a smaller capitalisation and less famous. To avoid errors I took the readings up to 2019 to avoid impact of 2020. The ROE of the two companies was comparable at 15.33 and 15.52. The P/E ratio for both was 6 and 8, EPS was close with 11 and 9.8. Both companies belong to closely related sectors or industries ie steel and mining(manganese) as manganese is also used in turning iron to steel. Holdings by general public were comparable at 17.06 % and 16.44%. their total income to expenditure ratios were also at 1.22 and 1.3 quite close to each other. I compared the ratio since I could compare the their net sales and expenditure due the difference in the sizes of the two companies.

Chapter 2



Review of Literature

An Indian investor today is exposed to a myriad of investment opportunities especially after the liberalization process in India since the year 1991. Over the years, the increased competition has brought drastic alterations to not just the economic environment within the country, but also a radical change in the choices and preferences of the financial consumers of the country. In the endeavour to provide more personalized advice to the retail investors, financial service providers need more insights into the minds of their consumers. However, very little research has been done in this field to understand the Indian individual investor. To study the Individual investor in India: to segment the investor into distinct behavioural groups based on their psychology, risk tolerance, biases, culture ; to understand the investment preferences and profile of the identified segments; and to understand the implications of these investments provided to the customer has started gaining importance in the markets right now. There are baskets of stocks you can buy that include green companies, baskets for non-alcoholic companies only, for companies with Female CEO to cater to the need of the financial consumer.

The definition of Behavioural finance is that it's a study of the impact of psychology analysing the behaviour of financial practitioners and the corresponding effects on markets. Behavioural finance helps explain why and how markets might be inefficient. (Sewell 2001).

Selden (1912) wrote Psychology of the Stock Market. He based the book "upon the belief that the movements of prices on the exchanges are dependent to a very considerable degree on the mental attitude of the investing and trading public".

Tversky and Kahneman (1973) introduced the availability heuristic: "a judgemental heuristic in which a person evaluates the frequency of classes or the probability of events by availability, i.e., by the ease with which relevant instances come to mind." Dependence on the availability heuristic leads to systematic biases.

In 1974, the same researchers came up with 3 heuristic factors that are employed when making judgements

– Representativeness ie. How closely does A resemble B.

Availability – When people are asked to assess the probability of occurrence of an event, they often answer as per their ease of recollection or with which occurrences come to their mind.

Anchoring and Availability – when a pre existing value is available, people tends to base their final answers around this anchor with a little bit of adjustment.

In 1985 Werner F.M. De Bondt and Richard Thaler published "Does the Stock Market Overreact?" in the Journal of Finance, effectively forming the commencement of what is now known to be behavioural finance.

They discovered that people systematically overreact to unexpected and dramatic news events resulting in substantial weak-form inefficiencies in the stock market.

Bikhchandani, Hirshleifer and Welch (1998) argue that the theory of observational learning, and particularly of informational cascades, can help explain phenomena such as stock market crashes. Motivated by a variety of psychological evidence, their study presents a model of investor sentiment that displays the underreaction of stock prices to news such as EPS or dividend Pay out ratio announcements and overreaction of stock prices to a series of good or bad public relations episodes in the news.

Huberman (2001) provide compelling evidence that people have a propensity to invest in the familiar, while often ignoring the principles of portfolio theory.

Common public announcements issued by companies and their subsequent perception by the investors range from various types like those including takeover announcements, shareholder details, periodic reports, asset acquisitions and disposals, dividend announcements, progress reports, company administrations, etc. are all the major factors that affect decisions of the investors. Even announcements like annual reports, Positive or negative financial forecasts, increase or decline in revenue or profits, changes in auditors, changes in management board, options granted to employees. Annual and extraordinary general meetings decisions and agendas etc.

Laidroo and Grigalinien (2012) investigated asymmetries in price reactions to announcements of quarterly earnings and the results have shown that reaction to positive news is higher than to negative news. All of the researches have shown that there are some inefficiencies in Lithuanian stock market that could be exploited by investors in order to gain profit, however none of the researches were based on the connection between values of stock prices and price changes caused by public announcements, which might show some inefficiencies as well.

The empirical results show that types and categories of public announcements do not play a significant part in determining the relationship between intrinsic values of stock prices and stock price changes as the average abnormal returns estimated for all the categories as well as both of the types (positive and negative) were higher in lower price ranges and vice versa. Nevertheless, the categories and the types of public announcements did have different impacts on stock prices; however, these impacts were not tendentious as in contrast to the effect of values of stock prices. In spite of that, higher average abnormal returns were estimated whenever a piece news that was of a positive nature or content and that for the news of negative nature or content was published the difference varied from 0.02 per cent to 1.05 per cent in different price ranges, which might suggest that a more remarkable reaction of investors should be associated with the news is of a good sentiment or positive in nature..

Liu and Tian confirmed that the stock price will rise abnormally in the announcement day of the stock name change as well. Li et al. found that stocks but change in stock name abbreviation is too simple and contains less information. Companies or stock Abbreviations with similar names were found to have a higher positive correlation between their respective yields.

Alexander Dyck and Luigi Zingales 2003, found out that stock prices are very reactive to the kind of earnings emphasized by the press. This effect was seen to be all the more severe for companies with less number of analysts and when the media outlet is more credible and reputed. Interestingly, the media spin tends to follow in the footsteps of the spin that is promoted by the company itself. This is more so when there are fewer alternative sources of information about a company are available, the more demand for information there is, and the less reputable media channel they seek. The evidence suggests that journalists and their sources have an exchange deal wherein they receive important private information in exchange for a positive spin on companies' news. Leaks of such kind has become a big issue brought forth the SEBI. These leaks are said to have broken mergers and made rumours all the more rampant in the market space.

Media coverage can be segregated from other information disclosure by the firm in that space as information by the firm is at a premium and coverage is more selective. Newspaper editors inevitably provide a spin in their coverage, choosing whether to include or exclude a piece of news, positioning it in the front or the last page, or in the first or the last paragraph in their report. Such editorial decision have a direct impact on the visibility and thereby spread of the information.

To get a better understanding, they focus on whether the media uses GAAP earning or the street earnings while capturing them. Street earnings are alternative earnings that are released by an organisation to eliminate the impact of extra charges that are also known as pro forma earnings. The stock market is more sensitive to the GAAP earnings than it is to the street earnings. The opposite is true when newspapers report street earnings first. The responsiveness to street earnings is even more exaggerated when the media channels only report street earnings, the same effect is seen although at a weaker pace if they choose to exclusively report GAAP earnings only.

Ideally speaking, in an internet driven world where the investor has easy access to a wide range of raw data, the media coverage should have mattered. The internet world raises too many portals of data making it difficult to find the right and reliable information, this is where media steps in and saves the investors time as finding information can take long hours. Media brings credibility to the information that is why people rely on the economic times a lot more. This impact of the media coverage on asset prices becomes all the more severe when the investors have limited alternatives to get information from.

Reasons why journalists have a bias could be sometimes to maintain a steady source of information they maintain a relationship with their sources gaining information in exchange of a positive spin. Another reason

could be that reporters are at times lazy or incompetent at their jobs and get duped by the information handed to them. Third explanation is that a journalist at the end of the day has to make sure he has viewership and so they focus on information that more people are interested in.

Dyck's study's first prediction is that in times of demand of information like in the times of a boom, the bias is severe, the correlation between news and stock prices is 0.52 in 1998-99 and only 0.20 in 2001-02. The second prediction is that companies that spend more on collecting information or have more number of analysts the correlation reduces from 0.64 – 0.49.

The study urges for new policy of public disclosure so that media is less captive to their sources and therefore less biased. To give disclosure would mean even the companies have to maintain a good relation with media to maintain stock prices.

Dimitrios I. Maditinos et.al. (2007) from their study concluded that individual investors rely more on newspapers and media and the noise in the market when making their investment decisions, while professional investors rely more on fundamental and technical analysis and less on portfolio analysis

Geofrey GitauMwangi (2011) found that heuristics factors like availability, anchoring and representativeness influenced the investment decision making of these individual investors.

Sohani islam (2012) had found out that psychological factor is the most dominating influence upon investor's decision making process and micro economic factors also had an influence on selection of better investments.

Warren, Gaurav Kabra, Prashant Kumar and Monoj Kumar (2010) concluded from their study that demographic factors also played a significant role in investor decision making process.

Daniel Kahneman and Amos Tversky were the first ones to study behavioural finance using heuristics ie. A simple and extremely efficient rule of thumb which have been proposed to explain people's decision making when it comes to making a judgement or at problem solving especially when they have been exposed to incomplete information.

There are studies that prove that an investors' bias can be well connected to the name of a stock or a company. Although according to traditional financial theory, stocks or company names or stock abbreviations do not necessarily contain any company information that can be used for fundamental analysis or don't affect share prices in any way whatsoever. But behavioural scientists believe that investors often happen to have cognitive biases when making their investment decisions, and they are likely to rely on or operate by pure instinct to simplify the decision-making process. When faced with risks, investors prefer to choose familiar stocks or familiar company to avoid losses. People always prefer something with a smooth

and short name, and they always like what they are familiar with and are impressed with already, because such things can make people want to be closely associated with it, resulting in their affinity towards the stock.

In stock market, most investors are not properly learned in Financial markets and have inadequate professional experience and lack information channels. This phenomenon will cause market sentiment to show systemic deviations, for example : the herding effect exhibited by investors in almost all stock markets worldwide. Same is the case for a majority of investors in the Indian Stock markets. However, even the most professional or institutional investor will be inevitably at some point in his investing career be affected by the company name.. This will not only affect the investor recognition but also affect the company.

The effect or observed impact of company name on investor recognition when the company name is short, fluent, easy to identify and containing good moral in its meaning, the investors will tend to be inclined towards the company. Qiao proved in the Chinese stock markets, through empirical analysis, that the stock with the word "China" makes a stock more attractive to Chinese investors .

Adding to this, Oppenheimer believed that short names are easier to remember than longer ones and hence the shorter names make people more positive and more favoured . Alter and Oppenheimer confirmed that companies with well-known names will attract more attention among the investors when it comes to even beginning to consider company performance as in even start an analysis . Huang, Fan and Zhou found that brands have a significant impact on consumers' attitude, quality perception, and purchase intention through intergroup.

There are evidences of biases towards companies when it gives off good morals and a family business is well known to go by good morals most of the time like Muthoot group would not indulge in businesses like alcohol business as it challenges their company values. The investors in india and countries like china tend to have an inclination towards family businesses and expect them to perform better than most non family businesses.

In the study by Caifen Xhang, Gregory Allen and Russell B, they conduct a test is to determine in broad terms whether do family firms outperform non- family firms? Their analysis used 3 different models, with Family business being the variable of interest and they concluded that for the CAPM and Fama-French Three-factor models, the family run firms outperformed the non-family firms by upto 0.5% to 0.6%, respectively, both significant at the 1% level.

Similarly the aim of Salloum Charbel And Samara Georges's study was also to provide a more clear understanding of how family involvement in the ownership or the management and direction affects the financial performance of the companies in Lebanon. The study conducted inquiries that were carried out by using the survey method on 75 Lebanese companies through a questionnaire formed by closed and semi-

open questions and modulators. While finishing the empirical study, they concluded that family involvement in ownership and management has a positive relationship with the financial performance of the Lebanese company. On top of this, some issues like entrenchment and asymmetric altruism did not prove to have a significant relationship with the financial performance. The essential reason to the results previously stated is that family managers in Lebanon act as stewards by considering the success of the company as their own, rather than agents of the company seeking to achieve their personal benefit at the expense of the company.

Among individual investors a very common heuristic mistake and that is herding effect. Herding is an imitation carried out by many at once, convergence of action in the financial markets (Hirshleifer and Teoh, 2003) herding is a common mistake investors make when they start following the investment decisions of the other investors in majority. A similar thing was witness in the Reliance power IPO in 2008 where many investors subscribed without being in possession of complete information and details about the issue. Thinking that the probability of such a huge majority of people being wrong is much less likely than them taking a different approach and failing alone.

In a study conducted by E Vijaya (2016), they considered behavioural factors like anchoring availability representativeness, over confidence and herding behaviour even prospect variables like loss aversion mental accounting, disposition effect were used to pitch against the market factors like price changes, price trends, government policies, market information and theories etc. According to their model of Structured equation modelling, Overconfidence loss aversion and herding effect were the most significantly regressed. They found a positive relationship existing between all four categories of factors with investment decision making but herding did have less significant influence on investment performance. It was also found that overconfident traders ended up making better returns than rational traders. Loss aversion was one of the biggest emotional factors that delayed investor action keeping them investing at all at times.

A study by Dr. Vinay Kandpal and Rajat Mehrotra, states that behaviour and certain factors like goals of the investor, his expenses and income, attitude towards investment, risk tolerance, saving attitude, conservatism and natural habits also affect investment decisions. SEBI (1998) confirmed the influence of objective of investment, risk appetite and income or availability of funds to have been causes of varied investor behaviours. Madhusudhan and Jambodekar (1996) also said that a bias existed for investors who invested in a certain company as they automatically expected that company to perform better when they had a vested interest in the performance.

Kendriya (2012) studies the Nepalese capital market to see factors like capital structure, media coverage, politics, luck and financial education affected decisions. He observed most investors to be youngsters who were reliant on recommendations from their friends considering it as a very reliable source of information.

In Kandpal and Mehrotra's study, they have asked questions on implications of investment decision by friends, relatives, investment consultants, Financial dailies, TV channels, colleagues and newspapers. They inferred that investment decision in India is heavily dependent on perception, word of mouth, and these factors by pass returns and honestly, investment decisions in India are not taken seriously and lack proper planning.

In Shalini Kalra Sahi and Ashok Pratap Arora' paper on 'individual Investor biases' they highlight how after the liberalisation the competition of domestic firms increased manifolds and the Indian market saw an information overload where the Indian financial investors are exposed to several varieties of investment products, but their skills and expertise to analyse and understand these products are limited and holding them back. In such a scenario the individual investor has to rely on speculation to guide their financial investment decisions rather than rational thoughts and these are called biases. They differentiate in the *homo economicus* that is the rational man form *homo sapien* who is rather controlled by emotions. The study then segments the types of investors depending on their behaviour by first using the Myers-Briggs Type Indicator (MBTI) personality test and came up with the following 4 segments –

1. Risk Intolerant traders
2. Confident traders
3. Loss averse young traders and
4. Conservative long term traders

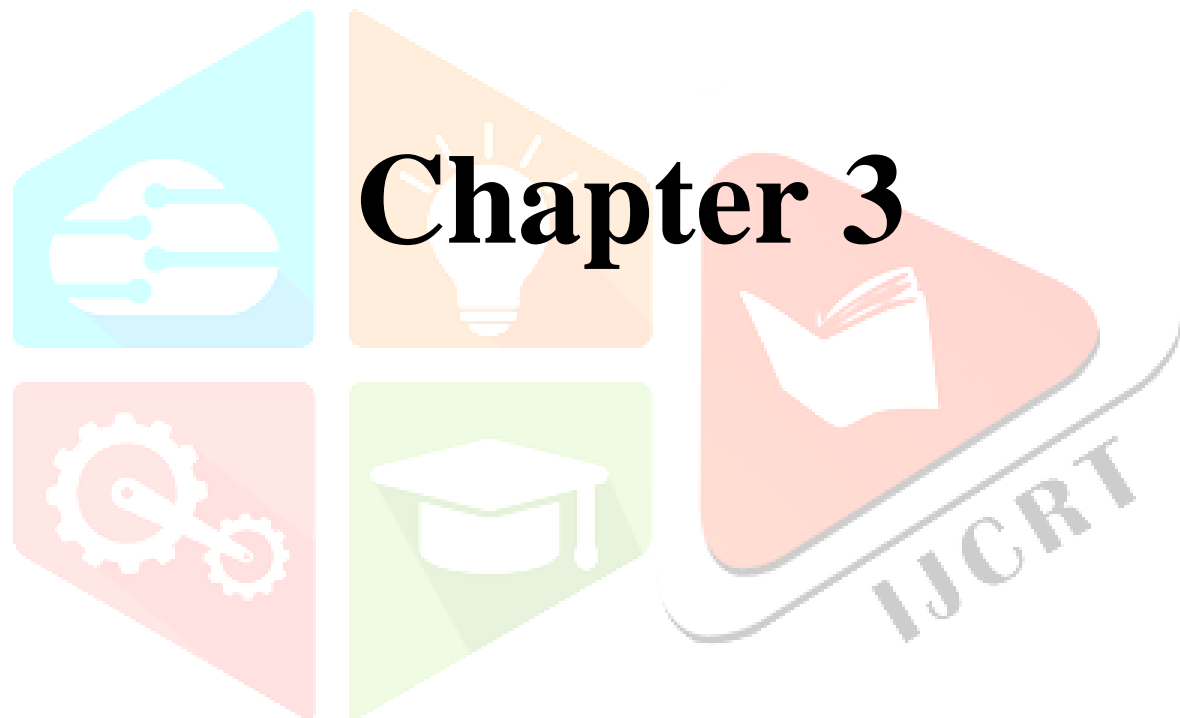
To arrive at this they use several constructs like reliance on experts and being swayed by their decision, overconfidence bias, socially responsible investors having biases towards green share are given higher priority, spouse effect where they ask their spouse for advice, adaptive tendency where they are able adapt to changing financial requirements.

Haselton et. Al (2005) said that there are investors who have biases and are also having high financial satisfaction levels. This implies that biases are not necessarily to be seen as errors in the decision making process which need to corrected for better returns but are rather features of the human mind that could lead to an even more satisfied financial performance owing it to a more holistic understanding of the financial markets.

Pries Reith and Stanley's 2013 study seeks to make useful interpretations from the large corpus of daily print issued by the Financial Times to assess the existence of a relationship between investment decisions taken by investors in the financial markets daily and the developments reported by financial times in the UK. The study provides evidence on the theory that more the google searches a person does about a company and tried to correlate that with volumes of transaction of the same company's stock. The same can be inferred from Wikipedia views of companies. Traders may not receive information through directly

attempting to research about a share on the internet but also passively pick up information from the news from broadcasts by large financial news outlets. But they cannot prove the same for the prices of the company to change or any changes in the absolute returns of the share. The number of mentions in the financial news were witnesses on the same day and the previous day of the volume increase and they seemed to support their theory.





Research Design

3.1 Objectives of the study –

The objective of the study is to explore whether or not the individual investors without any significant experience or knowledge in the financial markets, follow a rational approach in the investing activity. Often human beings are irrational and let their emotion make decisions. The study seeks to explore the behavioural biases of investors that incline them towards a set of big companies taking away their focus from other gainers in the market that could have earned them similar or perhaps even higher returns. The biases particularly focussed here are perception biases which include media coverage, the company's public relations, CSR activities, and an in general corporate image and visibility that creates a heuristic in the minds of the investors making certain companies their 'go to companies' while making the investment decision despite it being against the well-known financial theories.

3.2 Statement of the problem –

An individual investors is not always likely to follow the modern portfolio theory rationally sometimes humans are irrational. The study explores the biases that are caused by the public perception of companies, their media presence and visibility that influence investment decision among retail investors.

3.3 Scope of the study –

The study aims at checking for biases in investor decision due to increased visibility and exposure of the stock of a company and what factors affect this decision and to what extent. theories and topics touched upon are a mixture of behavioural finance and influence of media and Public relations on the stock prices. Behavioural sciences tend to look at behavioural attributes of an investor but this study is limited to factors that create public perception of the company in turn giving rise to a heuristic instilled in the minds of investors making them predisposed to purchasing stocks of the big companies.

The study is limited to equity shares only in financial assets. The duration of this study spans upto 3 months. A population sample of 212 respondents was taken spanning across the states on Karantaka and Maharashtra. For the sake of simplicity I have chosen TATA Group and MOIL as representatives of the 2 lists.

3.4 Variables and operational definition –

These factors and their operational variables describe the visibility and perception of a company that create biases in the minds on investors.

The first part of the study focussed on a paired 2 sample T test and the score to this would determine whether an average individual investor has a bias or not. The variables were –

Familiarity

Growth Prospects

Expected Returns

Safety (Risk)

Regularity of dividends

Likelihood of continuing business in the next 5 years

Likelihood of including them in the investment portfolio

The second part of the study was set to find out the influence of 3 parameters for each variable that help measure a total of 5 latent variables that affect investor decision making.

1. **Media Coverage** – Newspapers, news channels, online blogs and educational videos often discuss the markets and give recommendations for shares to invest in. The more a company is featured in these media channels the more visibility it gets. To measure this I consider 3 operational variables –

1.1. *Newspaper mentions* – How often do financial newspapers mention a company's name or information about the company stock.

1.2 *CSR activities* – the company's social responsibility projects captured in by media in terms of advertisement or social media and newspapers etc creating a perception of a company that gives back to the society.

1.3 *Leaders features(experts)* – The decision of Business leaders or investing Gurus publicly declaring their trades or suggesting a company or article and websites giving a buy or sell call for certain stocks.

2. **Company Characteristics** – Important details about company like their experience and their founders, the kind of business and types of operations they are into. This variable covers fundamental information about a company.

2.1 *Company History* – Every company has an origin story, a compelling story often becomes a legend for the public.

2.2 *Family Business* - A family business is a business organization which governed of its decisions are influenced by a family, related by blood or marriage or adoption all of whom share a common vision for the enterprise. Family Businesses are more likely to have better performance in the market especially in countries like India where cultural

2.3 *Diversification* – Diversification is a growth strategy of companies to enter into a new market with its existing products or new industry through innovation of new products. The more diversified a company is the more visibility its parents company gets.

3. *Company announcements* – Important information about the company passed on by the company to the shareholders and the public.

3.1 *Shareholder's meetings*– Annual General Meeting and extraordinary general meeting are meetings for all the shareholders of the company where important decisions regarding the company and the shares is taken.

3.2 *Dividend decision* – the decision by the company to pay dividends and at what payout ratio.

3.3 *Annual Report* – A Report created to encompass all the important financial, audit, operations information and important achievements of the company of that year.

4. *Company name* – Title given to recognise the company or commonly associated words or gestures that bring brand recall.

4.1 *Catchy name* – A name that is easy to remember and stays in the minds of public for long is likely to get purchased more in the market.

4.2 *Ease of pronunciation* – Ease to pronunciation can make a company name more accepted in the country and makes it easy to remember creating a heuristic to think of the name while making investment decision.

4.3 *Good morals* – Morals of a company are the building blocks that set the culture of the company. The visions and mission of the company is set in line with their morals.

5. Market factors given on websites – Key ratios and numbers that are important to an investor to make investment decision broadcasted on websites like Money control or the NSE and BSE websites also captured by online issues of the economic times

5.1 Market Cap – The value of the company that is traded on the stock market calculated using total number of shares multiplied by share price.

5.2 P/E ratio – it is a ratio of earnings per share EPS of a company with its Market Price per share MPS.

5.3 ROE – Return on equity is a ratio that gives net income divided by the shareholders equity. It assess how efficiently a company is capable of handling and maximising shareholder's worth.

3.5 Hypotheses –

To check for existence of bias -

Ho = Both Tata Steel and MOIL should get an equal response if no investor bias exists

H1 = Tata steel and MOIL should not get equal responses thereby proving existence of a bias

$d = \text{Tata Steel's score} - \text{MOIL's score}$

Ho = $Ud = 0$

H1 = $Ud \neq 0$

To find out the factors that affect this bias –

H0 – No significant influence is detected on investment decision.

H1 = Media Coverage has significant influence on investment decision

H2 = Company characteristics have significant influence on investment decision

H3= Company name has significant influence on investment decision

H4 = Company Announcements have significant influence on investment decision

H5 = Market factors of the Company has significant influence on investment decision

3.6 Questionnaire

Investor profile –

Name

Age

Gender

Investing experience

Email ID

Investor perception

How familiar are you with the stocks of the following companies ?

Rate the growth prospects of the companies according to you ?

Which of these shares do you expect to give better return ?

How safe do you expect these companies' shares to be ?

How likely are these companies to pay regular dividends ?

Rate the companies on the likelihood of continuing business for the next 5 decades.

How likely are you to include these stocks in your portfolio ?

Factors causing biases in investor perception

Factor 1 : Influence of Media Coverage

To what extent is your investment decision affected by the frequency of mentions of a Company name in the News.

To what extent does the media coverage of a Company's CSR project influence your investment decision ?

To what extent is your investment decisions inclined to that of an investing Guru or the buy/sell calls by various websites ?

Factor 2 : Influence of Company Characteristics

How much does a company's history matter to your investment decision ?

How likely are you to invest in a company's stock if the company is a family business ?

To what extent is your investment decision biased towards highly diversified companies ?

Factor 3 : Influence of Company announcements

How often do you consider the Shareholder's meetings while making investing decisions?

To what extent does dividend decision of a company affect your investment decision ?

How often do you keep updated with the annual reports of the company ?

Factor 4 : Influence of Company name and ideals

To what extent does a catchy name of a company affect your Investment decision ?

To what extent does the ease of pronunciation of company name affect your Investment decision ?

To what extent is your Investment decision affected if the company is associated good morals ?

Factor 5 : influence of Market Factors

How much does the Market Capitalisation of the company affect your investment decision ?

How much does the PE ratio of the company affect your investment decision ?

To what extent does the Return on Equity (ROE) of the company affect your investment decision ?

3.7 Method of data collection

The nature of the study is quantitative. The study is descriptive and explanatory, it was attempting to find a cause effect relationship between the above mentioned factors and investment decision All information collected is primary. The questionnaire method was adopted for collection of information. Google Form links were circulated to reach the questionnaire. The questionnaire comprised of variables being rated on a 5 point Likert scale (1-5) where one was the least and 5 the most of the given parameter in the question.

1st section had the investor profile asking questions to identify the demographic. 2nd section pertained to a Likert scale simultaneously asking same questions for 2 different companies. The names of the companies have been interchanged in the questions to avoid favouring of one on the top or bottom in progressive questions. The 3rd section exploring causes of investor biases.

3.8 Sampling Type / size –

Out of the list of famous ‘big’ companies and lesser known small cap companies 2 representatives were chosen – Tata Steel and MOIL. They belong to similar sectors or industries and had a comparable ROE in the year 2019. 2019 data was chosen in selection so as to avoid the disturbance in the financial data that can be attributed to the COVID 19 pandemic.

The questionnaire was circulated among a large group of inexperienced individual investors. Inexperienced investors were used because they make up a major part of the investing population in India and because they are more likely to clearly show perception biases than professional investors who have higher education in finance and have the resources and institutional framework to analyse investments decisions as a team. The sampling technique was simple random sampling. Over 300 questionnaires were circulated out of which 212 responses were received.



3.9 Statistical design –

Two Sample paired T test –

The first stage of the study was exploring the existence of bias among investors towards companies with a larger public presence and visibility. For this purpose, the data collected for 2 companies on the 5 point Likert scale is considered. Ideally if there was no bias then both the companies would have the same rating for each parameter. If the rating is not similar it means there is a bias for one of the companies. This is what the Two Sample paired t test will help ascertain. Expected differences in the scores of the 2 companies should be 0 for each parameter which is also our null hypothesis Using a significance level of 5% ($\alpha = 0.05$) the test was conducted. The T statistic obtained should be more than critical value for the given significance level and degrees of freedom for our null hypothesis to be rejected and thus proving the existence of the bias. This is done using Microsoft Excel's Data Analysis function.

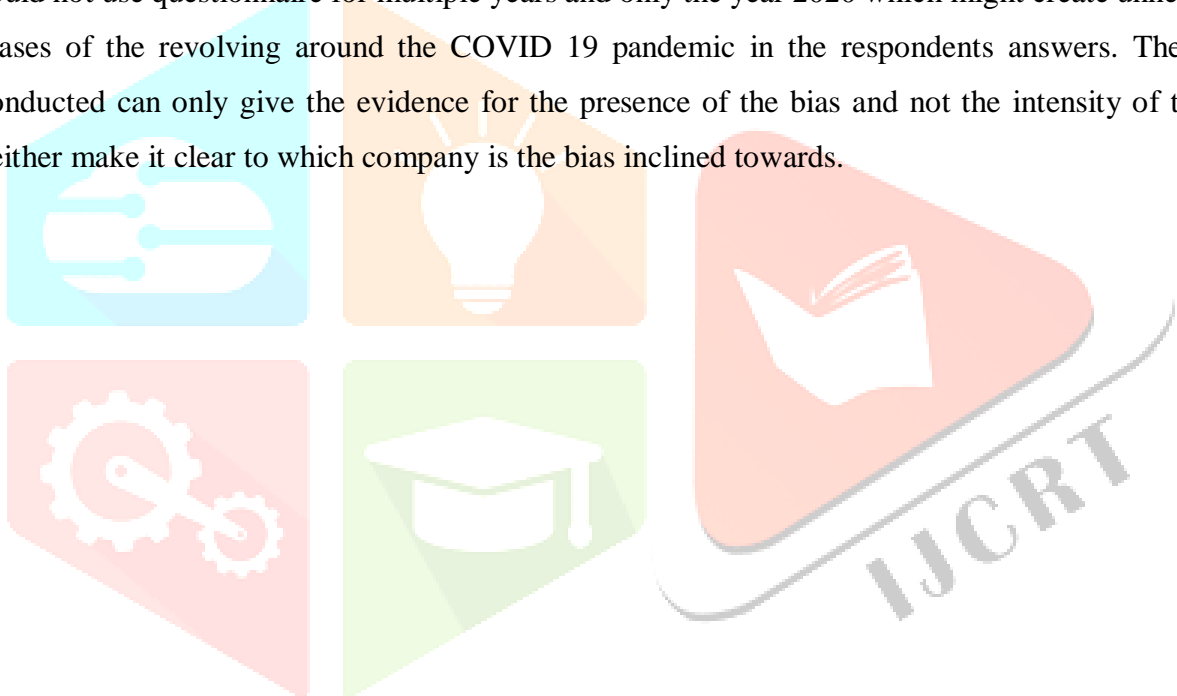
Confirmatory factor analysis –

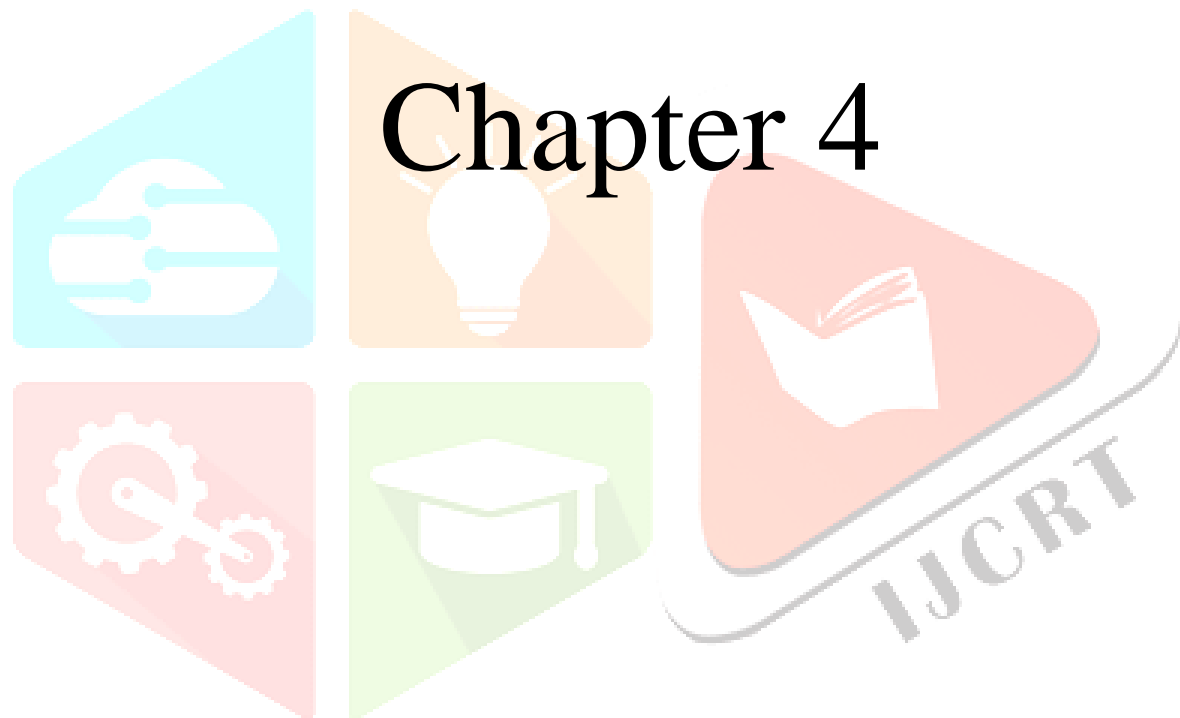
To check which factor are well suited to be the causes of the biases among individual investors in the second part of the study is ascertained by the method of Confirmatory Factor Analysis. Using the R software. CFA is commonly used in social research. It is used to test whether the measure of that construct are consistent with a researcher's understanding of the nature of that construct or factor. Its objective is to check whether a data fits a hypothesised measurement model. CFA is a multivariate statistical procedure that is used to test how well the measure variables represent the number of constructs. Unlike exploratory factor analysis, here the number of factors is specified and which measured variable is related to which latent variable is also given. Latent variables are the factors aforementioned and the observable factors being the parameters asked in the questions of the questionnaire's section 2. The observable factors are loaded based on their impact or strength of influence on the latent variables.

Why CFA? Because the study is theory driven and there are hypothesised factors already in place so no need for EFA to be done beforehand

3.10 Limitations of the Study –

The study only collects data from a selected states and is unable to give a full representation of India's biases as a whole. The two representative companies chosen are not exact equals of each other, apart from public perception and media coverage there are other factors involved regarding the companies that may disturb the study data collected. There are chances that the investors filling the questionnaire are holding or have held in the past the same securities they are being asked question regarding which can create an unwanted bias to choose that company. The study does not have access to secondary data about pre and post announcement abnormal returns for a company to prove the effect of announcement or media coverage biases that could support the study well by an event study methodology. The author could not use questionnaire for multiple years and only the year 2020 which might create unnecessary biases of the revolving around the COVID 19 pandemic in the respondents answers. The T test conducted can only give the evidence for the presence of the bias and not the intensity of the bias neither make it clear to which company is the bias inclined towards.





4.1 Analysis of 2 sample paired T test

The Two Sample T test was conducted because I had 2 samples of responses for the same question one sample of Tata Steels and another for MOIL, paired because it is answered by the same person for both companies. Since I was not looking for the relationship between them no regression correlation was needed and to check which one is more preferred a Two sample paired T test was the way to go. T statistic tells us how far away (how many standard deviations away) is our observed value from the Mean.

$$\text{Paired t-test} \quad t = \frac{\bar{X}_D - \mu_0}{s_D / \sqrt{n}} \quad \text{df} = n - 1$$

D = tata steel' score – MOIL's score

Ho = Ud = 0

H1 = Ud ≠ 0

The results were gathered for all the aforementioned 7 characters. In the Data analysis if the value of the T statistic is more than that of the T critical value (paired) then the null hypothesis should be rejected. And if it is less, then the null hypothesis should be assumed to be right. The critical values show the extreme 5% of values at the tail ends if we plot our observations into a normal distribution. If the T statistic lies between these Critical values on both sides then the T statistic must be smaller and the hypothesis will be accepted and when the T statistic lies outside these values it means it is more than the critical values, talking in terms of positive side, the null hypothesis should be rejected. The following data gives the mean and variance of all 212 samples. The output also gives the Pearson's correlation but it not required in this analysis. The major values pertinent to our study are the last 5 values. They explain the T statistic and T critical values for both one tailed and 2 tailed analysis. P values for the same are also given to be compared with the Alpha value for checking whether it is significant or not.

The excel commands used to conduct the test are as follows,

On the ribbon, Select Data and then click on data analysis this gives out a dialogue box where we can choose the two sample paired T test. The range of our two samples needs to be added in the wizard thus opened and the alpha value needs to be put. By default it is usually 0.05 ie. 5 % significance level for 95% confidence interval. The null value will have to put in as 0 this is because

our null hypothesis is that Tata Steel and MOIL are considered the same put in different manner, the difference between the 2 scores of Tata steel and MOIL is 0.

Factor 1 : Familiarity

t-Test: Paired Two Sample for Means

	<i>How familiar are you with the stocks of the following companies ? [Tata Steel]</i>	<i>How familiar are you with the stocks of the following companies ? [MOIL]</i>
Mean	3.188679245	2.122641509
Variance	1.935795404	1.169721899
Observations	212	212
Pearson Correlation	0.482176057	
Hypothesized Mean Difference	0	
df	211	
t Stat	12.06763232	
P(T<=t) one-tail	3.82768E-26	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	7.65537E-26	
t Critical two-tail	1.971270646	

T stat – 12.06763232

t Critical two-tail – 1.971270646

T stat is greater than T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 2 : Growth prospects

t-Test: Paired Two Sample for Means

	<i>Rate the growth prospects of the companies according to you ? [Tata Steel]</i>	<i>Rate the growth prospects of the companies according to you ? [MOIL]</i>
Mean	3.556603774	2.452830189
Variance	0.892515425	0.722882947
Observations	212	212
Pearson Correlation	0.510767469	
Hypothesized Mean Difference	0	
df	211	
t Stat	18.0260527	
P(T<=t) one-tail	6.85112E-45	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	1.37022E-44	
t Critical two-tail	1.971270646	

T stat – 18.0260527

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 3 : Better returns

t-Test: Paired Two Sample for Means

	<i>Which of these shares do you expect to give better return ? [Tata steel]</i>	<i>Which of these shares do you expect to give better return ? [MOIL]</i>
Mean	3.811320755	2.811320755
Variance	0.703567916	0.551909148
Observations	212	212
Pearson Correlation	-0.057400392	
Hypothesized Mean Difference	0	
df	211	
t Stat	12.63950722	
P(T<=t) one-tail	6.18401E-28	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	1.2368E-27	
t Critical two-tail	1.971270646	

T stat – 12.63950722

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 4 : Safety

t-Test: Paired Two Sample for Means

	<i>How safe do you expect these companies' shares to be ? [Tata Steel]</i>	<i>How safe do you expect these companies' shares to be ? [MOIL]</i>
Mean	3.990566038	3.330188679
Variance	0.710811052	0.942591433
Observations	212	212
Pearson Correlation	0.281743683	
Hypothesized Mean Difference	0	
df	211	
t Stat	8.806262262	
P(T<=t) one-tail	2.38027E-16	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	4.76054E-16	
t Critical two-tail	1.971270646	

T stat — 8.806262262

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 5 : Likelihood of regular dividends

t-Test: Paired Two Sample for Means

	<i>How likely are these companies to pay regular dividends ? [Tata Steel]</i>	<i>How likely are these companies to pay regular dividends ? [MOIL]</i>
Mean	3.471698113	3.08490566
Variance	0.894929804	0.912188143
Observations	212	212
Pearson Correlation	0.091844458	
Hypothesized Mean Difference	0	
df	211	
t Stat	4.39614038	
P(T<=t) one-tail	8.72963E-06	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	1.74593E-05	
t Critical two-tail	1.971270646	

T stat - 4.39614038

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 6 : Likelihood of continuing business for the next 5 decades.

t-Test: Paired Two Sample for Means

	<i>Rate the companies on the likelihood of continuing business for the next 5 decades. [Tata Steel]</i>	<i>Rate the companies on the likelihood of continuing business for the next 5 decades. [MOIL]</i>
Mean	4.009433962	3.386792453
Variance	0.919341858	1.110346061
Observations	212	212
Pearson Correlation	0.512362728	
Hypothesized Mean Difference	0	
df	211	
t Stat	9.09144194	
P(T<=t) one-tail	3.6605E-17	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	7.321E-17	
t Critical two-tail	1.971270646	

T stat – 9.09144194

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

Factor 7 : Likelihood of including in portfolio

t-Test: Paired Two Sample for Means

	<i>How likely are you to include these stocks in your portfolio ? [Tata Steel]</i>	<i>How likely are you to include these stocks in your portfolio ? [MOIL]</i>
Mean	3.735849057	2.481132075
Variance	1.143163731	1.028078333
Observations	212	212
Pearson Correlation	0.205222384	
Hypothesized Mean Difference	0	
df	211	
t Stat	13.9045829	
P(T<=t) one-tail	6.26014E-32	
t Critical one-tail	1.652107286	
P(T<=t) two-tail	1.25203E-31	
t Critical two-tail	1.971270646	

T stat – 13.9045829

t Critical two-tail – 1.971270646

T statistic is greater than our T critical two tail value

Or

P value is much less significant than the alpha of 0.05

4.2 Interpretation of 2 sample paired T test

Since the T statistic value is more than the T critical 2 tail value for all of the above factors, (ie. it lies outside the given values) the critical T values denote the 0.05 % extreme ends of the normal distribution of this data and our T statistic calculated lies outside the T critical two tails. It is therefore safe to say that the null hypothesis can be rejected. So the value of Mu (μ) is not equal to zero, that is it could be either greater or less than zero. The difference between the scores of Tata steel and MOIL is not zero meaning they are not perceived similarly for each parameter.

Since this is the case in all the factors meaning that difference between perceptions in these factor between Tata Steel and MOIL is not 0 that is people do not view both companies as equals in these regards it is safe to conclude that there exists a bias towards at least one of these companies in the minds of the public. The same results can be ascertained by comparing the p value with Alpha (significance level) 0.05 and since all of them will be significantly less than alpha the null hypothesis will end up being rejected.

Which company are people more inclined to cannot be ascertained by this test however. Neither does it give the strength of effect or the strength of this bias and the causation of the bias cannot be determined from this test.

4.3 Confirmatory factor Analysis

Confirmatory Factor Analysis is a multivariate statistical procedure to see how well our variable factors can measure our latent factors that is the hidden factors that are not easy to test or measure by themselves but can be ascertained through a few observable variables.

Here we measure 4 important parameters -

Latent variables or indicators

Factor pattern loading

Latent factor correlation

Error variance (uniqueness)

Latent variables are the hidden variables that our observable variables can help measure.

The factor analysis models or measurement models are essentially a linear regression model only except here the predicted variables are the latent variable which mean they are unobservable unlike the dependant variable of a regression analysis which is observable. Factor analysis are multivariate and there are many outcomes possible here whereas in linear regression there is only one outcome per subject.

They use the equation –

$$y_1 = \tau_1 + \lambda_1\eta_1 + \epsilon_1$$

$$y_2 = \tau_2 + \lambda_2\eta_1 + \epsilon_2$$

$$y_3 = \tau_3 + \lambda_3\eta_1 + \epsilon_3$$

Tau is the intercept term

Lambda denotes the factor loading

Eta is the latent predictor

Epsilon denotes the residual of the factor model or the error term

Factor pattern loading gives the strength of the effect of these observable variables on each of our latent factor. This can be interpreted as the correlation of the factor with the latent items. A CFA model also looks at the Correlation between latent factors and it must be less than 0.9 or 0.8 would be ideal, and the square of the correlation should be less than the factor loading average score. This is to make sure that they are different enough to be tested separately if they are very closely related the model would not be an ideal model. The error variation in the unexplained variability that is the variance of the indicator that is not explained by the factors. There are several test of the model

that are also printed alongside the Confirmatory factor analysis, these help give an idea of whether the model is a good fit or not. At least 4 constructs should be chosen for a good model and they should have 3 parameters measuring each. This is because they have to identified, a 4 parameter model can be over identified and a 2 parameter model can be under identified.

Analysis Input -

The R commands given for the Confirmatory factor analysis are as follows,

After importing our data into the R environment we must download the Lavaan package that facilitates factor analysis.

```
library(lavaan)
```

Our model must be specified in the following manner –

```
model<-'  
Factor1=~F1+F2+F3  
Factor2=~F4+F5+F6  
Factor3=~F7+F8+F9  
Factor4=~F10+F11+F12  
Factor5=~F13+F14+F15'
```

Create a variable in R and name it fit this store your Confirmatory factor analysis outcome. A summary statistic of this will give us all the required information.

```
fit<-cfa(model,data=res)  
summary(fit,fit.measure=TRUE, standardized=TRUE)
```

Analysis Outcome -

lavaan 0.6-8 ended normally after 70 iterations

<i>Estimator</i>	<i>ML</i>
<i>Optimization method</i>	<i>NLMINB</i>

Number of model parameters 40

Number of observations 212

Model Test User Model:

Test statistic 449.460
Degrees of freedom 80
P-value (Chi-square) 0.000

Model Test Baseline Model:

Test statistic 1760.885
Degrees of freedom 105
P-value 0.000

User Model versus Baseline Model:

Comparative Fit Index (CFI) 0.777
Tucker-Lewis Index (TLI) 0.707

Loglikelihood and Information Criteria:

Loglikelihood user model (H0) -4076.164
Loglikelihood unrestricted model (H1) -3851.434

Akaike (AIC) 8232.327
Bayesian (BIC) 8366.591
Sample-size adjusted Bayesian (BIC) 8239.844

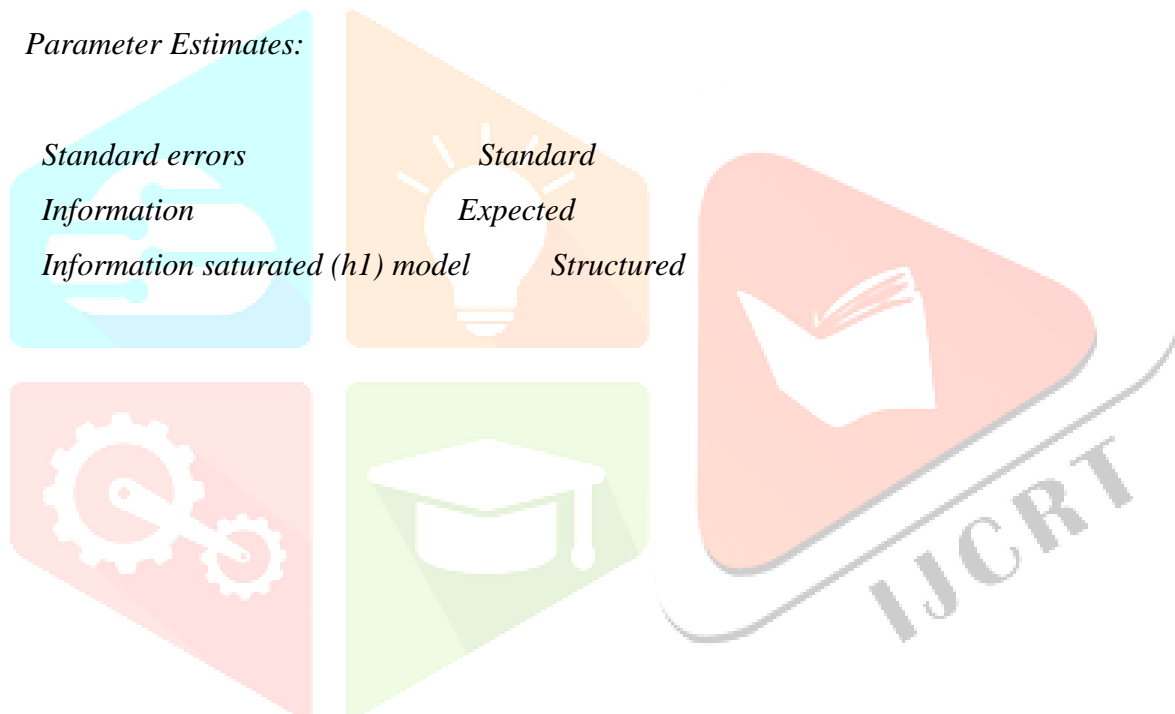
Root Mean Square Error of Approximation:

<i>RMSEA</i>	<i>0.048</i>
<i>90 Percent confidence interval - lower</i>	<i>0.134</i>
<i>90 Percent confidence interval - upper</i>	<i>0.161</i>
<i>P-value RMSEA <= 0.05</i>	<i>0.000</i>

Standardized Root Mean Square Residual:

<i>SRMR</i>	<i>0.821</i>
-------------	--------------

Parameter Estimates:



Latent Variables:

Estimate Std.Err z-value P(>|z|) Std.lv Std.all

Factor1 =~

F1	1.000				0.391	0.372
F2	2.461	0.502	4.906	0.000	0.962	0.811
F3	1.312	0.288	4.557	0.000	0.513	0.585

Factor2 =~

F4	1.000				0.257	0.307
F5	-3.444	0.683	-5.039	0.000	-0.885	-0.661
F6	1.303	0.323	4.031	0.000	0.335	0.336

Factor3 =~

F7	1.000				0.988	0.729
F8	1.289	0.109	11.785	0.000	1.273	0.870
F9	-0.248	0.075	-3.299	0.001	-0.245	-0.240

Factor4 =~

F10	1.000				1.307	0.968
F11	0.848	0.047	18.188	0.000	1.109	0.899
F12	0.220	0.048	4.569	0.000	0.287	0.310

Factor5 =~

F13	1.000				0.751	0.847
F14	1.030	0.071	14.524	0.000	0.774	0.868
F15	1.016	0.075	13.575	0.000	0.763	0.814

Covariances:

Estimate Std.Err z-value P(>|z|) Std.lv Std.all

Factor1 ~~

<i>Factor2</i>	-0.063	0.020	-3.108	0.002	-0.632	-0.632
<i>Factor3</i>	0.286	0.069	4.132	0.000	0.741	0.741
<i>Factor4</i>	0.336	0.080	4.224	0.000	0.658	0.658
<i>Factor5</i>	0.023	0.026	0.900	0.368	0.079	0.079

Factor2 ~~

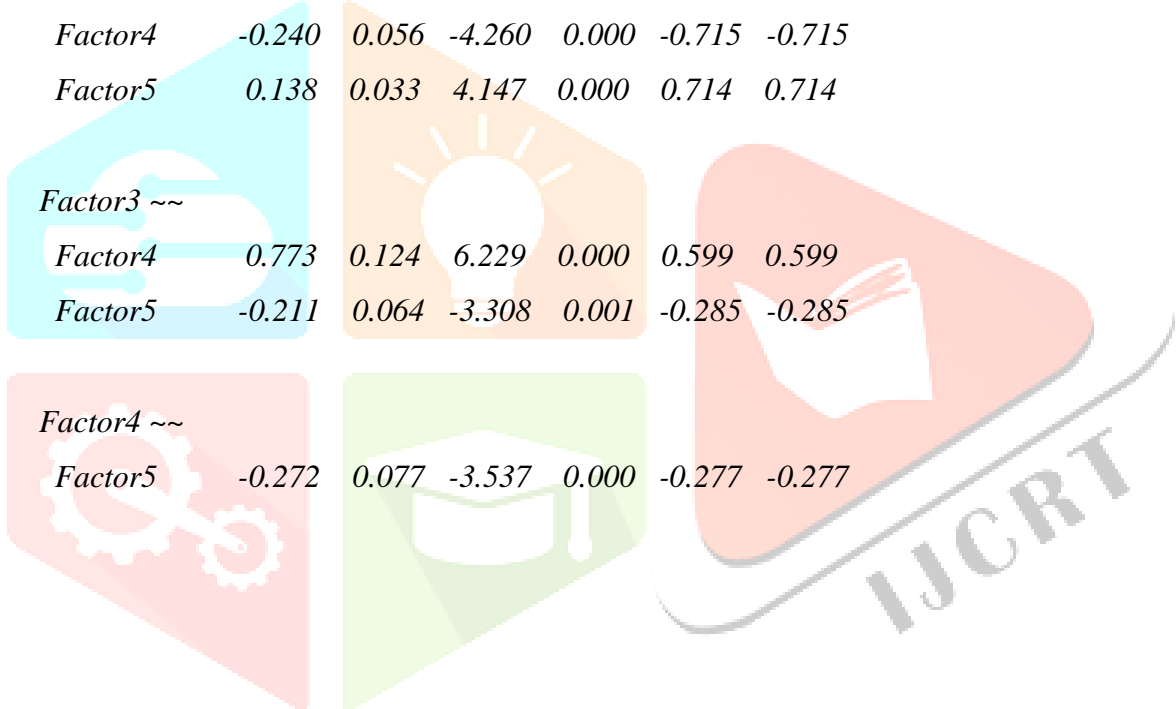
<i>Factor3</i>	-0.290	0.064	-4.547	0.000	-1.144	-1.144
<i>Factor4</i>	-0.240	0.056	-4.260	0.000	-0.715	-0.715
<i>Factor5</i>	0.138	0.033	4.147	0.000	0.714	0.714

Factor3 ~~

<i>Factor4</i>	0.773	0.124	6.229	0.000	0.599	0.599
<i>Factor5</i>	-0.211	0.064	-3.308	0.001	-0.285	-0.285

Factor4 ~~

<i>Factor5</i>	-0.272	0.077	-3.537	0.000	-0.277	-0.277
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Variances:

	<i>Estimate</i>	<i>Std.Err</i>	<i>z-value</i>	<i>P(> z)</i>	<i>Std.lv</i>	<i>Std.all</i>
<i>.F1</i>	0.952	0.096	9.922	0.000	0.952	0.862
<i>.F2</i>	0.480	0.098	4.922	0.000	0.480	0.342
<i>.F3</i>	0.505	0.056	9.042	0.000	0.505	0.658
<i>.F4</i>	0.632	0.061	10.327	0.000	0.632	0.905
<i>.F5</i>	1.008	0.144	7.026	0.000	1.008	0.563
<i>.F6</i>	0.879	0.086	10.272	0.000	0.879	0.887
<i>.F7</i>	0.860	0.099	8.731	0.000	0.860	0.469
<i>.F8</i>	0.521	0.099	5.250	0.000	0.521	0.243
<i>.F9</i>	0.984	0.096	10.216	0.000	0.984	0.942
<i>.F10</i>	0.113	0.070	1.606	0.108	0.113	0.062
<i>.F11</i>	0.293	0.058	5.086	0.000	0.293	0.193
<i>.F12</i>	0.777	0.076	10.239	0.000	0.777	0.904
<i>.F13</i>	0.222	0.033	6.777	0.000	0.222	0.282
<i>.F14</i>	0.196	0.032	6.107	0.000	0.196	0.247
<i>.F15</i>	0.296	0.039	7.625	0.000	0.296	0.337
<i>Factor1</i>	0.153	0.060	2.539	0.011	1.000	1.000
<i>Factor2</i>	0.066	0.028	2.325	0.020	1.000	1.000
<i>Factor3</i>	0.976	0.166	5.879	0.000	1.000	1.000
<i>Factor4</i>	1.708	0.190	9.002	0.000	1.000	1.000
<i>Factor5</i>	0.565	0.077	7.298	0.000	1.000	1.000

4.4 CFA Interpretation –

Chi Sq test statistics goodness of fit has a p value of 0.000, usually chi sq is heavily influenced by the sample size and with a small sample size it may be insignificant but that is not considered to be a very reliable test for model fit nowadays much less weight is given to it out of all the indices. Ideally the chi sq value should be as less as possible for our model to have a good fit. A baseline model is the same as Chi sq except here it sets all covariance to zero.

A norm chi sq value can be calculated by dividing the test measure with the degrees of freedom. This value for our case is $449.4 / 80 = 5.6125$.

The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) are also based on chi sq and the values for our analysis are 0.777 and 0.707. This test too gives the fit of the model. Ideally a good score is considered to be above 0.9 so 0.7 is signifying a very mediocre model fit. They try to judge the discrepancies between data and the hypothesised model.

AIC and BIC values are used when we are comparing two different models with each other. A smaller AIC is considered to be better. It is used as the estimator for prediction of errors.

Root mean squared error of approximation RMSEA is ideally considered to be a close fit for 0.05 to 0.08 below 0.05 means it must be a good fit. Our data portrays a value is 0.048 which is a very good fit. The p value must be insignificant for the model to be a close fit.

Standardised Root Mean Square Residual SRMR where it is ideally considered to be a good fit for values upto 0.080. Our value is well above this number indicating an okay fit at 0.821

Both of these root mean squares are based of observed data and what the data would look like if it fit the model.

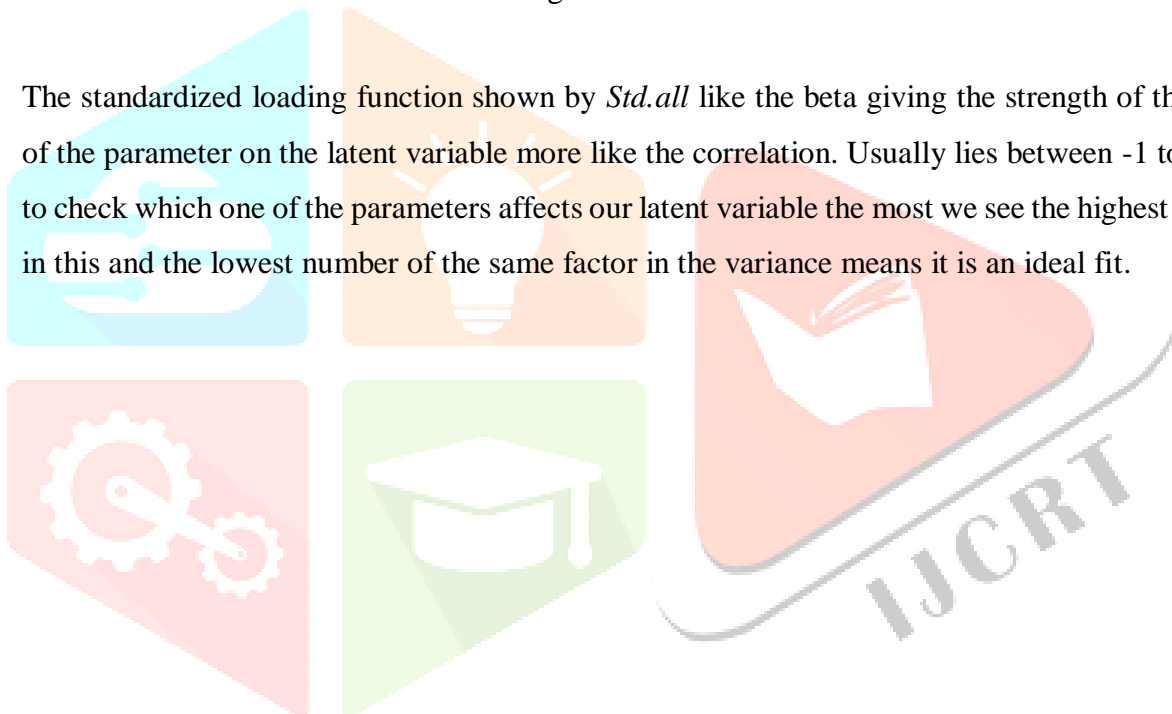
The latent variable table gives an estimate of the values taking the first parameter of each factor as 1.00 and all the others are taken in comparison to this value. That is why a standardised value is also requested. These are considered to be the real factor loading values.

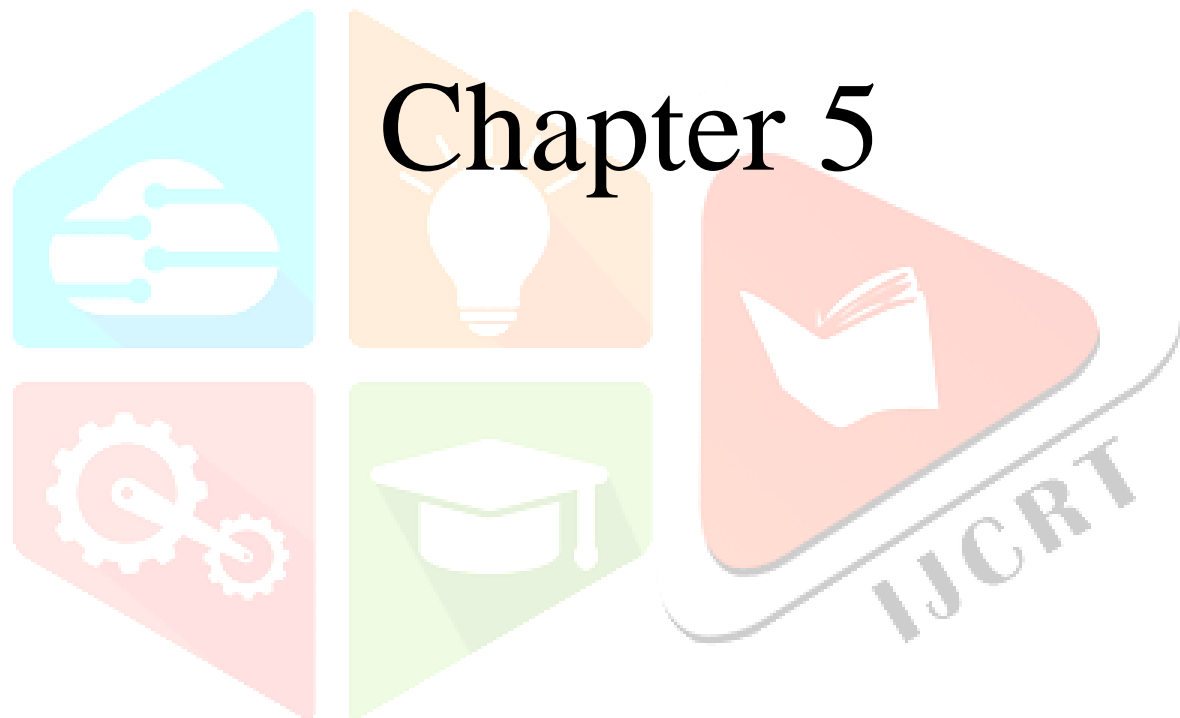
The z value score and the p values are expected to be significant and insignificant respectively for the parameter to be important or have an impact on the latent variable.

The variance in this report is the variance not accounted for by our latent variable table so it is the left over variance in the parameter after we have accounted for the variance explained by the latent factor. Variance is the squared value of the standard deviation, covariances is variance that also takes correlation into account it is calculated as the variance of one multiplied by the variance of the other multiplied by the correlation between them. We want our variances to be as non-significant as possible because here we treat it like our error term.

Degrees of freedom are determined by the number of variable that you give in and their potential relationship ie the number of covariances given in the model. Models with 0 degrees of freedom are called saturated models and it shows the model is perfect because it doesn't generate any fit test but such models have no statistical significance.

The standardized loading function shown by *Std.all* like the beta giving the strength of the effect of the parameter on the latent variable more like the correlation. Usually lies between -1 to +1. So to check which one of the parameters affects our latent variable the most we see the highest number in this and the lowest number of the same factor in the variance means it is an ideal fit.





Summary of Findings

Finding of the paired 2 sample T test –

Our null hypothesis was that the mean difference between the scores for parameters like Familiarity, Growth prospects, Expected Returns, Riskiness, Frequency of regular dividends, Likelihood of Continuation of business for the next 5 decades and finally Likelihood of the responders including these stocks in their investment portfolios. For these aforementioned parameters score were taken from responder in 2 sets, one set for Tata Steel and another one for MOIL. T statistics value exceeds the T critical value or the T statistics lies outside the T critical value the null hypothesis is rejected. For each of the 7 parameters the T test rejected the null hypothesis. This is an indicator that the score are not equal and people do not view the 2 companies alike. In the parameter of Risk (to check which one was seen as a safer investment) most responders responded with Tata Steel and not MOIL despite MOIL being a 100% government owned company. The bias of the investors towards Tata Steel was visible very clearly here.

The T statistic of the parameter growth prospects was the highest with a 18.02. this tells us that the actual answer lies about 18 standard deviations away from the mean. But one must not confuse it for the parameter of highest bias or inclination or tell us to which company is it inclined. Our T test simply confirms that there exists a bias in the minds of retail investors between the 2 companies.

Findings of the Confirmatory factor analysis

By using the Confirmatory Factor Analysis we were trying to ascertain which parameters affect the latent variable the highest. The parameters again are a way to measure a latent variable that is not easily observable.

Comparing each standard factor loading, more the value of the loading the higher is the correlation between the latent factor and give the strength of effect on the factor and we should also look in to the standard variation which should be as less as possible for the parameter to have the most significant impact on the latent factor.

Loading usually range from -1 to +1. For factor 1 the highest loading lies with its second Parameter called F2 with a loading of 0.811 which has an error of only 0.342. This means in the factor of media coverage, company's CSR initiatives seems to have affected investor decision the most.

The parameter F6 has the highest loading For factor 2. Indicating that among the given company characteristics the fact that the company is amply diversified motivates investors to invest in it.

Factor 3 that is company announcements, F8 has the highest rating of 0.870 with a standard error of only 0.243. This parameter stands for the Dividend policy of the company is the announcement most looked out for by the investors thereby influencing their judgement.

Factor 4 with good loadings for both F10 and F11 at 0.968 and 0.899 respectively suggests that a catchy name that is easy to pronounce is often the one that investor recall easily and could therefore cause a bias towards such stock names or abbreviations.

Factor 5 is best being affected by all 3 of its parameters where F13, F14 and F15 are 0.847, 0.868, 0.814 respectively. All loadings are almost alike but the one that stands out is F14 which means investor gives importance to the P/E ratio a little more over the market capitalisation of the company and the ROE (Return on Equity).

These ratings function in the same way the beta value for stock does by comparing its movement with that of an index.

There are a few factor loadings that also give negative values indicating that this particular factor too affects the investors' decision but just in a negative direction. F5 and F9 have negative loadings of 0.661 and 0.240. indicating that factors like whether the company is a family business or not and the content of the annual reports of the company deter the investor's motivation to invest.

AVE Table

Latent Variable	Factors	Factor Loading	Factor loading Squared	AVE (Average Variance extracted)
Media Coverage	F1	0.372	0.138	0.379
	F2	0.811	0.658	
	F3	0.585	0.342	
Company Characteristics	F4	0.307	0.094	0.215
	F5	-0.661	0.437	
	F6	0.336	0.113	
Company Announcements	F7	0.729	0.531	0.449
	F8	0.87	0.757	
	F9	-0.24	0.058	
Company and name and Values	F10	0.968	0.937	0.614
	F11	0.899	0.808	
	F12	0.31	0.096	
Market Factors	F13	0.847	0.717	0.711
	F14	0.868	0.753	
	F15	0.814	0.663	

The above table shows the AVE that is the average loading of each latent factors that we could not have assessed directly or observably the influence of the given factors is hard to see explicitly and hence the factor loadings given to them are used to calculate a AVE Average Variance extracted. According to this the table we can see that the Influence of these latent variables on decision making of investors Values above 0.5 in AVE are considered to have significant influence on investor Decision making the Factor 5, 4 and 3 fulfil this criteria and can be called significant factors while factor 1 and 2 and below 0.5 and so their impact on Investor decisions is not very significant.

Factors	Factor loading	Loading squared	Average of squared loadings	Sum of loadings	Error terms	Sum of error terms	CR (Composite Reliability)
F1	0.372	0.138	0.379	1.768	0.862	1.862	0.487
F2	0.811	0.658			0.342		
F3	0.585	0.342			0.658		
F4	0.307	0.094	0.215	0.643	0.905	1.241	0.341
F5	-0.661	0.437			0.563		
F6	0.336	0.113			0.887		
F7	0.729	0.531	0.449	1.599	0.469	0.712	0.692
F8	0.87	0.757			0.243		
F9	-0.24	0.058			0.942		
F10	0.968	0.937	0.614	1.867	0.062	0.255	0.880
F11	0.899	0.808			0.193		
F12	0.31	0.096			0.904		
F13	0.847	0.717	0.711	2.529	0.282	0.866	0.745
F14	0.868	0.753			0.247		
F15	0.814	0.663			0.337		

Composite Reliability Table

Similar to the AVE, but the Composite reliability takes into the errors of the terms as well along with factor loadings. The Composite ratio of about 0.7 is considered to be significant as in the factor having significance in our model. Both AVE and CR help establish that there is significance of the latent variables in our model that seeks to find causes of bias in investment decisions. Factor 3, 4, 5 give values near 0.7 and above which is again confirming that they are significant. The composite Ratio gives a higher value for Factor 4 than the AVE value would suggest. But that does not mean Factor 4 has a higher influence on investor decision, it simply means there is more evidence to believe it has an influence on investor decision.

Some of the parameters with lesser loading are skipped in the process of CR calculation so that the Latent factor loading can be achieved above the designated value.

Chapter 6



Recommendations and Conclusions

This study makes use of the 2 sample paired T test and Confirmatory factor analysis. But such a study could also make use of an Event study model, which is an experimental method very suitable to check biases among investors. It is conducted around a major announcement by the company the stock price 50 days before the announcement are recorded and then a day after and then 2 days after the announcement. There are often drastic changes in returns (ie Stock prices that are not natural to the growth of the stock) after a public relations success or debacle. Such experiments help find abnormal returns after an announcement by analysing the data from before and after the 'event'.

The 2 sample paired T test can be further extended to incorporate an additional formula that will help ascertain a range between which the μ_d (Mu d) that is the mean difference as in the hypothesis where it says the μ_d must be 0 meaning the difference in the scores of Tata Steel and MOIL should be 0, indicating they are treated alike and therefore no bias exists. This extension can give a good estimate of the actual value of μ_d , mean difference or at least specify a range within which it lies. This could help develop a clear bias towards Tata Steel with statistically significant evidence pointing out the inclination of investors and the strength of the evidence ie the impact of the inclination.

Formula –

$$\bar{X}_d \pm t * S_d / \sqrt{n}$$

This will give 2 answers one with + sign and the other as a result of the negative sign that would be the range between which our mean difference lies.

The t test only points out the strength of evidence it does not however give the strength of the effect. Another drawback is that causation of the bias cannot be determined for that we will require a controlled experiment much like that in the Event study model.

In the goodness of fit test of the Confirmatory factor analysis model. The Chi sq test statistics and the CFI and TLI test (that are also based on the Chi square test) give very poor results for the model fit. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values for our analysis are 0.777 and 0.707. A good fit is considered to have a value of 0.9 or above. This could be because the chi square statistics are often dependent on the sample size. Since the data in this study is not as large the model fit statistics are not ideal at the moment. These low values will probably get altered as more and more

responses are added and instead a sample size of 212 people a larger sample size of approximately 400-500 is taken into consideration for the study.

The Lavaan package in R programming also allows to have different models for the response data collected from different categories or locations. We could have separated the data collected from different places that is Maharashtra and Karnataka, from where the sample is taken of course due to a small sample size the bifurcation was not made between Karnataka and Maharashtra in this study but that can be done for data collected from different countries in large numbers.

For AVE we only used the factor loadings, we can also use the standard error values to create a table for Cronbach's alpha which checks the internal consistency in scale items but this complicated the study as both CR and Cronbach's alpha are checking reliability in our model so any one of these tests can be applied.

Conclusion –

From the above study, we understand that there exists a bias between the big companies like Tata and Reliance etc and the lesser known companies with less visibility, smaller market capitalisation, not very popular CEO, not too diversified operations and do not function under a well-known brand name despite having comparable performance on the stock market.

The study sought out to find the impact of latent factors that are significant to the causation of this bias and the measurable variables that lead us to these latent factor and their effect on the same.

One might learn about these biases not only to be able to straighten their decisions when not taken rationally but also understand these biases to predict the stock performances better by predicting Investor Behaviour.

Appendix

Questionnaire –

Section 1 of 3

A Study on Individual Investor decision biases

Form description

Name *

Short answer text

Age *

below 18

18 - 25

25 - 45

45 - 65

above 65

Gender *

Female

Male

Others

Prefer not to say

Investing experience *

Less than 1 year

1-5 years

5-10 years

More than 10 years

Email Address

Short answer text

Section 2 of 3

Capturing Investor Perception



Please answer the questions based on your perception of the given companies on a scale of 1 -5 , 1 being the least and 5 being the highest of the asked criteria

How familiar are you with the stocks of the following companies ? *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Rate the growth prospects of the companies according to you ? *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Which of these shares do you expect to give better return ? *

	1	2	3	4	5
Tata steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How safe do you expect these companies' shares to be ? *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely are these companies to pay regular dividends ? *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

⋮

Rate the companies on the likelihood of continuing business for the next 5 decades. *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely are you to include these stocks in your portfolio ? *

	1	2	3	4	5
Tata Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MOIL	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

After section 2 Continue to next section

Section 3 of 3

Exploring causes of Investor Bias ⌵ ⋮

This section explores the factors of public perception and visibility of companies' stocks. These factors are possible causes of bias in investor decision making processes.

Factor 1: Media Coverage

Description (optional)

To what extent is your investment decision affected by the frequency of mentions of a Company name in the News. *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

⋮

To what extent does the media coverage of a Company's CSR project influence your investment decision ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

To what extent is your investment decisions inclined to the investment decisions of investing Gurus and their 'Buy/Sell' recommendations ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

Factor 2 : Company Characteristics

Description (optional)

⋮

How much does a company's history matter to your investment decision ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

How likely are you to invest in a company's stock if the company is a family business ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

To what extent is your investment decision biased towards highly diversified companies ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

Factor 3 : Company announcements

Description (optional)

⋮

How often do you consider the discussions of Shareholder's meetings while making investing decisions ? *

	1	2	3	4	5	
Seldom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Often

To what extent does dividend decision of a company affect your investment decision ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

How often do you keep updated with the annual reports of the company ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

Factor 4 : Company name and ideals

Description (optional)

To what extent does a catchy name or slogan of a company affect your Investment decision ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

...

To what extent does the ease of pronunciation of company name affect your Investment decision ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

To what extent is your Investment decision affected if the company is associated good morals ? *

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

Factor 5 : Market Factors

Description (optional)

How much does the Market Capitalisation of the company affect your investment decision ? (The total market value of the company's outstanding shares in the market)

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

...

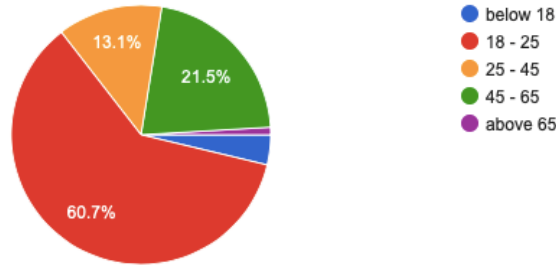
How much does the PE ratio of the company affect your investment decision ? (PE ratio relates a company's share price to its earnings per share)

	1	2	3	4	5	
No Effect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly Influenced

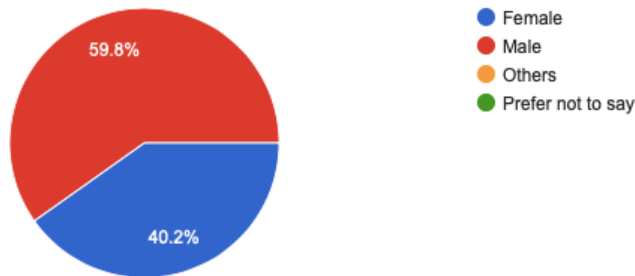
To what extent does the Return on Equity (ROE) of the company affect your investment decision ? (How efficiently a company is handling the money that shareholders have contributed to it)



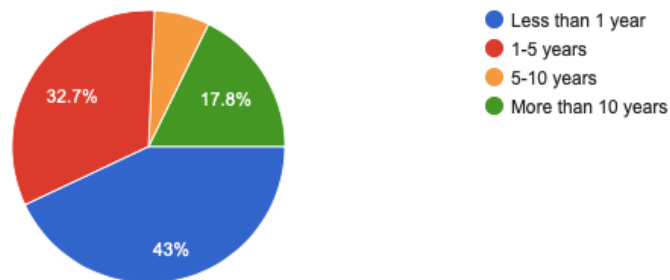
Age



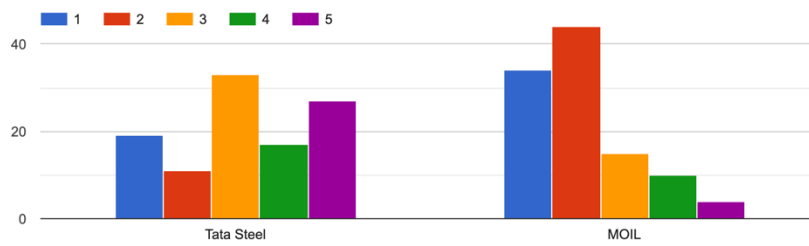
Gender



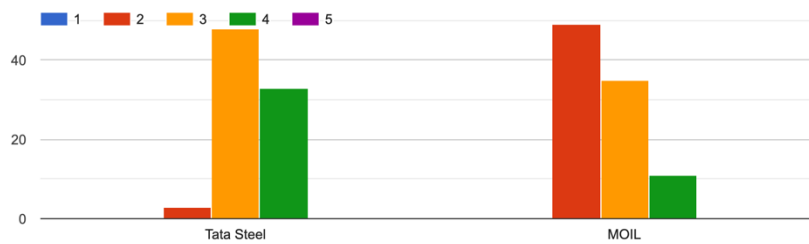
Investor Experience



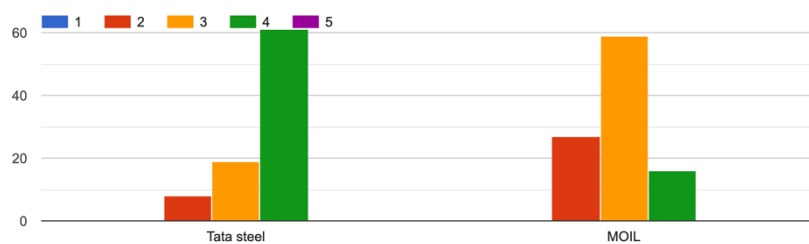
How familiar are you with the stocks of the following companies ?



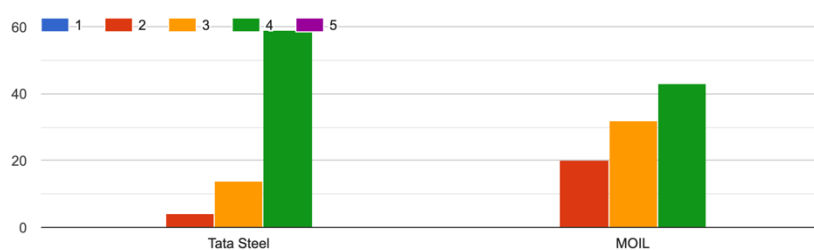
Rate the growth prospects of the companies according to you ?



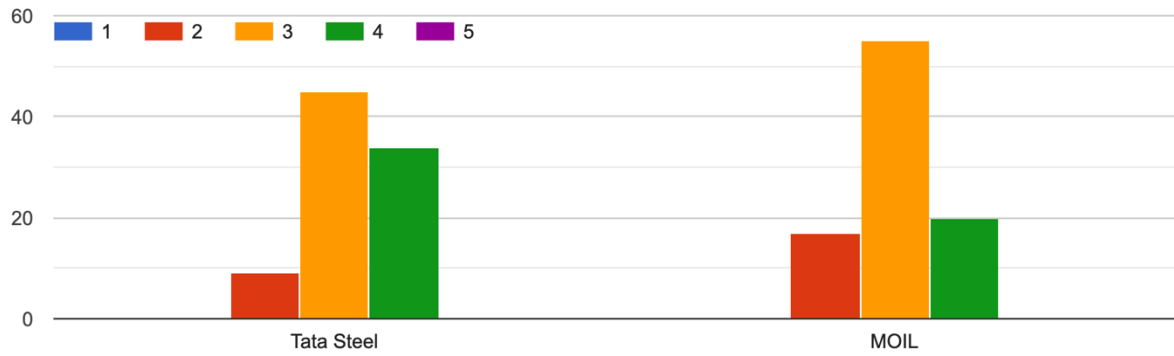
Which of these shares do you expect to give better return ?



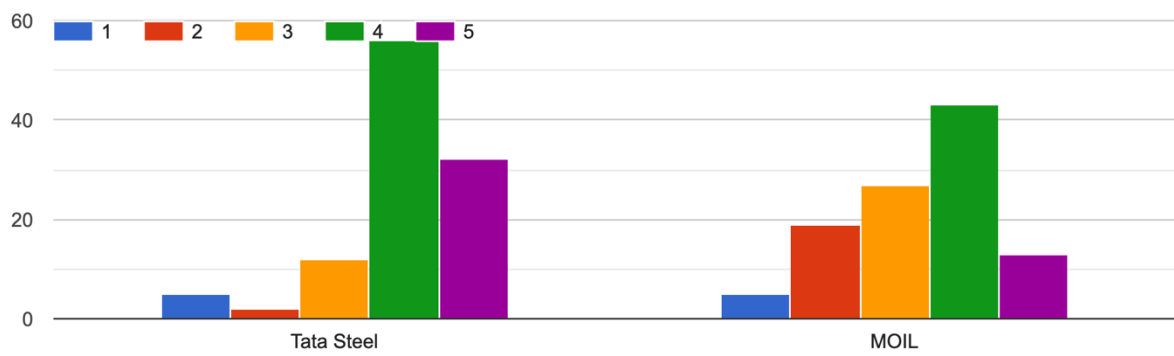
How safe do you expect these companies' shares to be ?



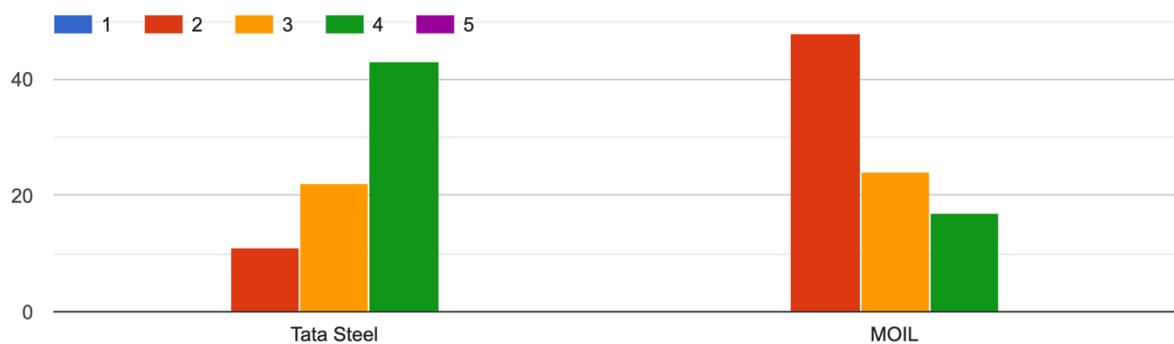
How likely are these companies to pay regular dividends ?



Rate the companies on the likelihood of continuing business for the next 5 decades.



How likely are you to include these stocks in your portfolio ?



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