The Impact of Intellectual Property Litigation on the Stock Price of Indian Public-Listed Companies

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Abstract

Purpose : Lawsuits and litigation are important components of the business landscape, as they affect a company's financial performance and reputation. The research study explored the impact of intellectual property (IP) litigation on stock prices in India. The study utilized empirical evidence to enhance comprehension of the relationship between legal risk and financial markets.

Methodology : The study used event study analysis and hypothesis testing to analyze abnormal returns (ARs) and cumulative abnormal returns (CARs) related to the filing and judgment events in intellectual property litigation.

Findings : The data found conflicting reactions among plaintiffs, with considerable ARs reported in companies obtaining media coverage for their IP litigations, while those with low media attention exhibited minor variations in stock prices. However, defendants frequently experienced negative ARs following the filing of IP litigation, indicating investors' anticipation of bad outcomes.

Practical Implications : Investors can make better investing decisions by being aware of the complex relationship between legal events and stock prices. This knowledge also helps financial service providers and industry professionals deliver better services. However, given the limitations of our study, there is a need for more research, especially in the area of sector-specific analysis.

Originality : In contrast to earlier research on how the market responded to legal developments, the goal of this study was to examine how IP litigation affected the company's stock price.

Keywords : **intellectual property (IP), litigation, lawsuit, stock prices, NSE, event study**

JEL Classification Codes : G0, G1, K2

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Historically, lawsuits and litigations have had a negative impact on stock prices, frequently resulting in quick falls upon announcement or beginning. This phenomenon reflects investors' concerns about financial responsibilities, reputational damage, and business disruptions. Furthermore, uncertainty about judicial results can heighten market volatility and investor fear, further influencing stock prices. However, the impact of lawsuits and litigations on stock prices is multifaceted and varies across cases, industries, and market conditions. Some lawsuits result in large losses for businesses, but depending on a number of variables, including the type of claims, the strength of the company's defense, and the perception of the fairness of the legal process, other lawsuits may have little to no impact on stock prices. Furthermore, the timing and duration of legal

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challenges might have an impact on stock values. Lawsuits brought during times of heightened market sensitivity or strategic importance may trigger more severe market reactions, while long-running legal fights can prolong uncertainty and exert pressure on stock prices.

It is particularly crucial to comprehend the effects of intellectual property (IP) litigation in India, as industries like technology, pharmaceuticals, and entertainment heavily depend on strong IP protection. These sectors are frequently involved in disputes over patents, trademarks, and copyrights, which can lead to financial costs, operational disruptions, and reputational issues. In addition to helping businesses manage their IP more effectively, research on how such litigation affects stock prices is essential for empowering investors to make wise decisions. In the end, this understanding promotes a more transparent and predictable business climate, which is essential for encouraging innovation and economic growth in India.

Research Problem

IP is a vital asset for businesses, fueling innovation, competitive edge, and financial growth. Indian businesses and market players have been progressively becoming more conscious of and appreciative of IP rights. While IP plays a significant role in corporate valuation, there is a shortage of empirical research on the precise effects of IP litigation on the stock prices of Indian companies.

Research Gap

There is a significant gap in research regarding the impact of IP litigation on the stock prices of Indian companies. Although numerous studies have been carried out in Western countries, The unique legal and economic environment of India makes it impossible to directly apply those conclusions. As a result, investors and policymakers lack critical insights into the specific financial risks linked to IP litigation in the Indian market. Moreover, existing research does not sufficiently examine how these events affect investor behavior, such as prompt sell-offs or long-term price adjustments, considering India's unique market dynamics and investor characteristics.

Research Objectives

- To determine whether filing an IP litigation has a major impact on the stock price of companies.
- To ascertain whether the outcome of lawsuits has a lasting impact on the companies' stock prices.
- To explore if the market discounts or overreacts to the lawsuits, resulting in potential opportunities for investors.

Literature Review

Bhagat and Umesh (1997) proposed that simply bringing a lawsuit causes a reduction in the defendant's firm value, with these impacts being particularly severe for larger firms. Furthermore, once the dispute was resolved, the defendant's abnormal returns (ARs) declined significantly. The defendant suffered a significant loss as a result of the verdict. However, when the defendant won the case, there was no significant rise in returns. Thus, trademark infringement actions had a negative influence on the defendant both during the filing procedure and after the verdict was delivered. Hirsh and Cha (2015) suggested that there was a negative effect on stock prices, particularly in cases involving monetary payouts when analyzing employment discrimination lawsuit verdicts and settlements on publicly traded firms.

Klock's (2015) analysis found that all securities class action filings had a negative impact on the filing date, and share prices decreased significantly even before the filing. This showed that the market anticipated some aspects of such litigations. It was also discovered in the baseline case that the whole loss in valuation occurred one day after the class action was filed, observing that the market did not overreact because there was no subsequent statistically significant bounce back to the initial valuation. Ranju and Mallikarjunappa (2017) focused on the shareholder wealth effects of acquisition announcements by Indian companies. Their analysis used an event study methodology to measure the impact of these announcements on acquiring companies' stock prices. The findings revealed that shareholders experienced an AR of 0.37% on the announcement day. However, the study also found negative cumulative average abnormal returns (CAARs) during longer event windows, such as 61 and 41 days, and over the post-event window of 30 days. Positive CAARs during shorter event windows were not statistically significant at the 5% level, except for a significant negative CAAR of 1.21% during the post-event window of 20 days (+1, +20). These results indicate that acquisition announcements do not necessarily create value for acquirer company shareholders and may even diminish shareholder wealth in the post-announcement period.

Kaur and Singh (2018) examined the impact of the demonetization announcement on the Indian banking sector's stock prices. The study used event study methods to investigate the stock prices of selected Indian banks in 2016 when the demonetization program was announced. There were notable positive ARs in several banking equities during the pre-announcement period. On the day of the announcement, 15 of the 16 selected banks responded positively to the market. This implies that the announcement of demonetization had a significant effect on the share prices of the banking industry, indicating that policy changes of this nature can have a significant impact on investor behavior and market perceptions. Zala and Vel (2020) investigated the stock market reaction to green bond offerings in India between 2015 and 2019. The study is differentiated between certified and non-certified green bonds to assess their impact on stock prices. Using an event research technique, the authors observed that the stock market generally responded positively to announcements of certified green bonds, with over 80% of such bonds producing positive ARs over the event period. In contrast, non-certified green bonds experienced a less favorable market reaction. This indicates that investor trust and the market's perception of green bonds are significantly influenced by certification, emphasizing the significance of openness and verification in sustainable financing.

Figueiredo et al. (2021) determined that securities class action lawsuits represent significant risks to stock traders and investors. In one such case, the firms selected as defendants had a significant drop in ARs. By the end of the class session, investors became aware of the alleged misconduct, which caused a negative reaction in the stock price return. The universe of firms utilized in the analysis showed cumulative negative ARs of 22.8% for the affected stocks in the first five days following the release of this information. Five to ten trading days were when most of the unfavorable market reactions happened. Dey and Brown (2021) determined that the COVID-19 pandemic affected the Indian stock market and increased the level of price volatility, which in turn affected the overall GDP of the nation during the last quarter of 2020, bringing it to a negative value. In addition, the COVID-19 epidemic had an impact on every segment of the Indian stock market.

Dey and Singh (2022) found that on the day of the news, there was a significant movement in the stock market price and volume, making the stock very volatile. The overall movement following the news was noteworthy and typically greater than that on the day of the announcement. On the day of the news, the trend continued in the same direction, though to a smaller extent every day.

Research Methodology

The Annual Report published by the Intellectual Property Division of the Hon'ble Delhi High Court from 2022 to 2023 has a section dedicated to Notable cases decided during the year, from which a sample of five public limited

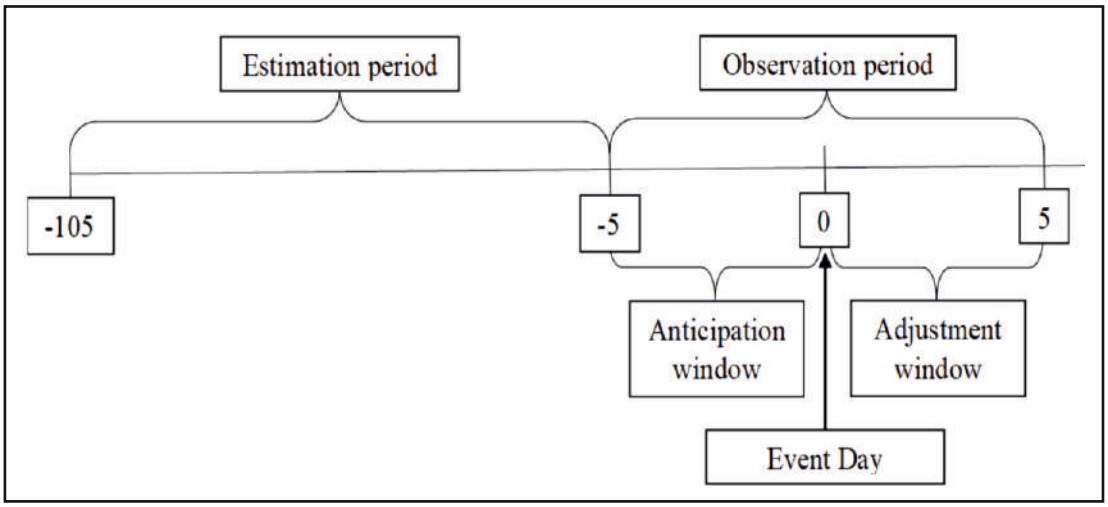
companies listed on the Indian Stock Exchange were chosen for analysis. In their instances, two of these firms are defendants, and three of these companies are plaintiffs. As a result, the study will be based on decisions made in the year 2021–2022.

In this study, we consider two hypotheses:

- **$H0_1$:** Filing of IP litigations does not significantly affect the stock price of a company.
- **Ha_1:** Filing of IP litigations significantly affects the stock price of a company.
- **$H0_2$:** There is no significant change in price as a result of the court judgment.
- **Ha_2:** There is a significant change in price as a result of the court judgment.

The variations in these companies' stock prices throughout the five days between the filing of the IP lawsuit and the judgment date are examined using event study analysis. The results of Figueiredo et al. (2021) are used to calculate the duration of the observation period. An estimation period of 100 days prior to the beginning of the observation window is utilized to calculate the expected returns. In order to assess whether there is a significant difference occurring as a result of the lawsuit, the company's return over the observation period is compared to the equivalent market returns.

The market index used is Nifty 50.



Brown and Warner (1980) introduced the market and risk-adjusted model, which was used to assess the security's expected returns and calculate ARs during the event window. It is known simply as the "market model" by MacKinlay (1997). ARs are given as follows:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i . R_{m,t}) \quad \ldots(1)$$

where,

- $AR_{i,t}$ is the abnormal return on stock i at time t.
- $R_{i,t}$ is the return of stock i at time t.
- α_i is the intercept term, representing the average stock return that is not explained by market movements.
- β_i is the slope term (beta coefficient), representing the sensitivity of the stock return to the market return.
- $R_{m,t}$ is the market return at time t.
- $(\alpha_i + \beta_i . R_{m,t})$ is the expected rate of return.

The *t*-statistic for the AR is calculated as follows:

$$^{t}AR_{i,t} = \frac{AR_{i,t}}{S_i} \qquad \ldots(2)$$

where,

- $^{t}AR_{i,t}$ is the *t*-statistic for ARs of firm *i* at time *t*.
- $AR_{i,t}$ is the ARs for firm *i* at time *t*.
- S_i is the sample standard deviation in the estimation window.

The *t*-test for testing the significance of CAR is given as follows:

$$^{t}CAR_i = \frac{CAR_i}{\sqrt{L_2}\,S_i} \qquad \ldots(3)$$

where,

- $^{t}CAR_i$ is the *t*-statistic for the CAR of firm *i* over the event window.
- CAR_i is the CAR during the observation period.
- L_2 is the length of the observation period.
- S_i is the sample standard deviation in the estimation window.

The *t*-critical value is established at 1.984 for a statistical significance of 5% with 98 degrees of freedom. The *t*-statistic from the *t*-distribution is compared with the *t*-critical value to determine whether the ARs or CARs are significantly different from zero.

All data present in the tables and figures are original and have been computed in accordance with the above methodology. * has been used to denote *t*-stats that are statistically significant.

Conceptual Framework

What is an Intellectual Property?

IPs refer to intangible creations of the mind that are protected by law. These creations can take various forms and encompass a wide range of rights (World Intellectual Property Organization, n.d.), including:

- ***Patents :*** Patents protect original creations and developments, giving inventors exclusive rights to use, create, distribute, or approve their creations for a limited time, usually 20 years from the application date. Patents include processes, goods, compositions of matter, and improvements thereof if they meet the criteria of innovation, non-obviousness, and usefulness.

- ***Trademarks :*** Trademarks are visual representations such as symbols, logos, words, or designs utilized to differentiate the products or services of one entity from those of others. Shielding trademarks prevents unauthorized use of the symbol in business and allows owners to create brand recognition, reputation, and trust among customers.

- ***Copyrights :*** Copyrights protect creative works that are original, such as plays, songs, artwork, and writings. These protections provide authors with exclusive privileges to reproduce, share, perform, exhibit, and license their works for a fixed length, typically lasting the creator's lifetime plus 70 years.

- ***Trade Secrets :*** Trade secrets are like secret recipes passed down through generations in a family-run bakery or a distinctive method a craftsman in a small town uses to create incredible furniture. They represent the concealed treasures that provide companies with their competitive advantage in the marketplace, whether it is a closely guarded formula, a distinctive process, or a wealth of valuable information.

- ***Industrial Designs :*** Industrial designs protect the visual attractiveness or ornamental components of items, such as their outer look, shape, layout, or surface embellishments. These rights give creators the only authority to replicate, market, or permit others to use their designs for a finite amount of time, often 10 to 15 years after the date of registration.

- ***Plant Varieties :*** Novel and distinctive plant varieties, such as hybrids, mutants, and genetically modified organisms (GMOs), are protected by plant variety rights. Plant breeders are able to cultivate, distribute, or authorize the use of their varieties of plants for commercial purposes, a privilege that promotes investment in plant breeding and agricultural sciences and innovation.

- ***Geographical Indications :*** Geographical indications (GIs) are markers that designate products as originating from a particular geographical area, carrying traits, reputation, or attributes linked to that specific place. GIs prevent unapproved use or misuse of geographical names, protecting traditional knowledge, cultural heritage, and local economies.

These various forms of IP act as valuable assets for individuals, businesses, and societies, fostering innovation, creativity, economic growth, and cultural development. IP rights incentivize investment in research and development, encourage the dissemination of information and innovation, and provide creators with incentives to create and share their works with the public.

Why Are Intellectual Property Litigations Filed?

There are many different reasons why IP rights are litigated, which reflects the intricate interplay of legal, strategic, and economic factors in IP protection and enforcement. Some common reasons for filing IP litigations include:

- ***Protection of Intellectual Property Rights :*** IP litigations are often filed to protect and enforce intellectual property rights, including patents, trademarks, copyrights, and trade secrets. Companies and individuals may start action to prevent unauthorized use, replication, or infringement of their intellectual property assets by rivals or third parties.

- ***Defending Against Infringement Claims :*** Conversely, companies may file IP litigations to defend themselves against allegations of IP infringement. When accused of violating the IP rights of others, firms may take legal proceedings to challenge the validity of the accusations, assert defenses, or negotiate settlements to avoid potential damages or injunctions.

- ***Monetary Damages and Remedies :*** IP owners can seek monetary damages, injunctions, or other remedies through IP litigations in response to actual or claimed infringement of their rights. When their IP is misused or used without permission, litigants are entitled to statutory damages, royalties, or financial compensation for lost earnings.

- ***Market Positioning and Competition:*** IP litigations are sometimes used as strategic tools to gain competitive advantage or protect market positioning. Companies can dispute industry norms or standards, prevent competitors from entering particular sectors, or establish dominance in developing technologies or industries by utilizing litigation to assert their IP rights.

↳ ***Preservation of Market Share and Brand Reputation :*** IP litigations can help companies safeguard their market share and brand reputation by preventing competitors from capitalizing on their intellectual property assets. Litigations have the potential to discourage unauthorized distributors, counterfeiters, and infringers from diminishing the integrity or worth of branded goods or services.

Efficient Market Hypothesis

For this analysis, we assume a semi-strong type of market efficiency due to the nature of legal events and their possible impact on stock prices. The semi-strong form of market efficiency assets is that stock prices reflect all publicly available information, including both historical price data and all publicly available information, such as news, announcements, and legal disclosures (Fama, 1970). In the context of lawsuits and litigations, assuming semi-strong form efficiency implies that stock prices fully integrate information about legal events as soon as they become publicly available. This indicates that investors cannot consistently generate abnormal profits by trading on publicly available information, such as legal occurrences, because it is already represented in stock prices. Therefore, only an unexpected incident should affect the stock price of the concerned company.

Analysis and Results

ITC Ltd.

Background

↳ In the case of ITC Limited versus Central Park Estates Pvt. Ltd., 2022: DHC: 005190, the plaintiff, ITC Limited, had filed an action seeking protection of its trademark "BUKHARA," claiming that Central Park Estates had infringed upon its trademark by using a similar name.

↳ The trademark "BUKHARA" is used with regard to restaurants and other hospitality services.

Judgment

↳ The Delhi High Court declared the "BUKHARA" mark as a well-known trademark for restaurants and other hospitality services and directed the Registrar of Trade Marks to add the "BUKHARA" mark to the list of well-known trademarks (Editor_4, 2022).

Data

Analysis

An analysis of ITC Limited's stock values during the filing and judgment days reveals some fascinating results. Table 2 displays the CARs for the anticipation window prior to the filing date, which indicates a 2.12% increase in ITC Ltd.'s stock price. This increase is noteworthy, but it falls short of the necessary threshold to be considered statistically significant, as the *t*-value is less than 1.984. Figure 1 illustrates a notable and abrupt decrease in the adjustment window immediately upon filing. Analogously, Table 4 around judgment day indicates that the CAR for the anticipation period is –1.34%, while the CAR for the adjustment phase is –7.36% overall, as illustrated visually in Figure 2. With the event and total AR *t*-statistics being higher than the critical value, this is statistically significant. The total CAR observed for the filing event, as per Table 2, does not exhibit statistical significance; therefore, the null hypothesis $H0_1$ is accepted. With regard to the judgment event, as the total CAR during the observation period is significant, we reject the null hypothesis $H0_2$ and accept the alternative hypothesis Ha_2. It is

Table 1. ***Filing Date : Abnormal Returns for ITC Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	–0.02%	1.50%	1.50%	1.449515
–4	0.09%	–0.36%	1.13%	–0.35073
–3	0.44%	–0.47%	0.67%	–0.45285
–2	0.52%	–0.54%	0.12%	–0.52671
–1	0.04%	2.00%	2.12%	1.935657
0	–0.26%	–1.04%	1.08%	–1.00713
1	1.38%	–1.28%	–0.20%	–1.2403
2	0.13%	–2.70%	–2.90%	–2.61323*
3	0.47%	–1.03%	–3.93%	–1.00013
4	0.23%	–0.56%	–4.49%	–0.54196
5	–0.03%	–0.09%	–4.57%	–0.08237

Note. * Statistically significant.

Table 2. ***Filing Date : Cumulative Abnormal Returns***

CAR	Event	–1.04%
	Anticipation	2.12%
	Adjustment	–5.66%
	Total	–4.57%
***t*-stat**.	Event	–1.01
	Anticipation	0.92
	Adjustment	–2.45*
	Total	–1.34
***p*-value**	Event	31.64%
	Anticipation	36.04%
	Adjustment	1.61%*
	Total	18.47%

Note. * Statistically significant.

Table 3. ***Judgment Date : Abnormal Returns for ITC Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.44%	–0.47%	–0.47%	–0.45068
–4	0.52%	–0.55%	–1.02%	–0.52431
–3	0.04%	2.00%	0.98%	1.919676
–2	–0.27%	–1.04%	–0.05%	–0.99662
–1	1.39%	–1.29%	–1.34%	–1.23634
0	0.13%	–2.70%	–4.04%	–2.59116*
1	0.47%	–1.03%	–5.07%	–0.99349
2	0.23%	–0.56%	–5.63%	–0.53793
3	–0.03%	–0.08%	–5.72%	–0.0809
4	0.07%	–0.84%	–6.56%	–0.81122
5	–0.33%	–0.80%	–7.36%	–0.7674

Note. * Statistically significant.

Table 4. ***Judgment Date : Cumulative Abnormal Returns***

CAR	Event	–2.70%
	Anticipation	–1.34%
	Adjustment	–3.32%
	Total	–7.36%
***t*-stat.**	Event	–2.59*
	Anticipation	–0.58
	Adjustment	–1.43
	Total	–2.13*
***p*-value**	Event	1.10%*
	Anticipation	56.58%
	Adjustment	15.67%
	Total	3.55%*

Note. * Statistically significant.

Figure 1. ***ITC Ltd. - Stock Price Reaction to Filing***

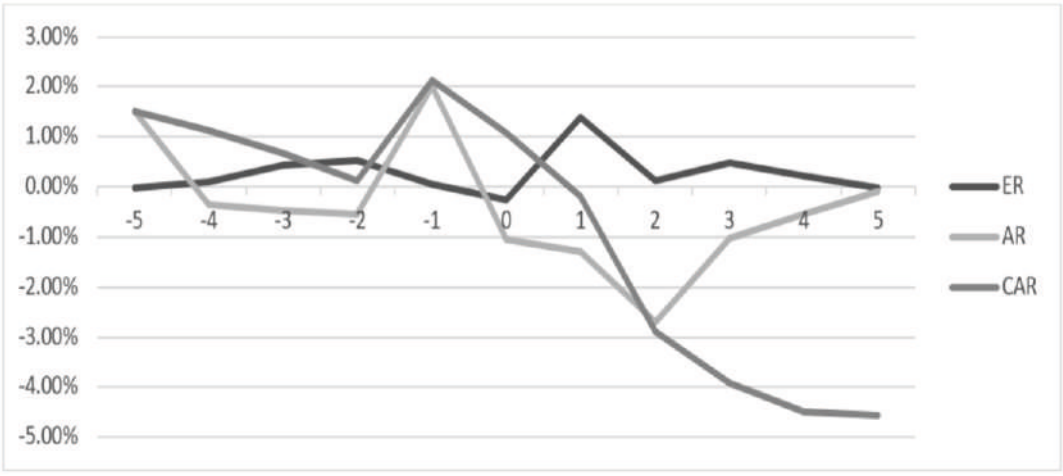
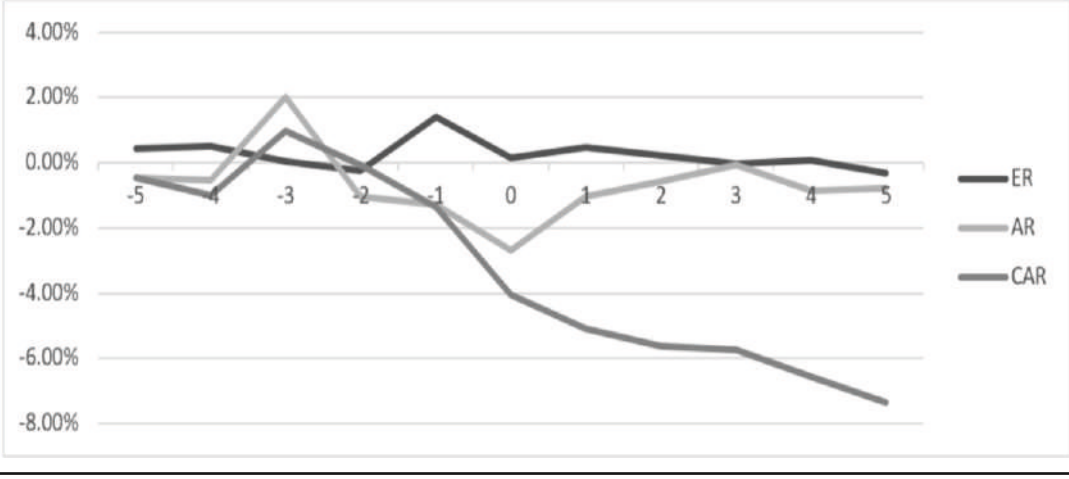


Figure 2. ***ITC Ltd. - Stock Price Reaction to Judgment***



important to note that Day 0 in Table 3 and Day 2 in Table 1 correspond to the same day. Since the matter was settled within two trading days of filing, the largest move in the stock price happened on the day the verdict was issued. However, the nature of change defies the idea that a favorable ruling ought to raise the company's stock price.

The price reduction, despite the favorable finding, could be explained by investors pricing in the positive conclusion of the lawsuit prior to the verdict announcement, if we assume a semi-strong type of market efficiency. Presumably, a favorable ruling is anticipated, as evidenced by the rise in stock price. If the litigation is resolved favorably, investors may interpret this as a signal to sell, which would cause profit-taking and a subsequent drop in the stock price. Additional study and analysis may be necessary to pinpoint the exact reason behind the market's response.

Sona BLW Precision Forgings Ltd.

Background

- In Sona BLW Precision Forgings Ltd. versus Sonae EV Pvt. Ltd. (2022: DHC: 2927), the plaintiff filed a suit seeking a permanent injunction against the defendant, Sonae EV Pvt. Ltd., from using the trademark/trade name/logo "SONAE" or any deceptively similar mark to the plaintiff's "SONA" or its derivatives.
- The plaintiff alleged that such use would infringe on its registered trademarks and statutory rights.

Judgment

- The Delhi High Court ruled that the plaintiff had established a good prima facie case of established reputation in its mark "SONA" for both EV and non-EV components of autos (Chawla, 2022).
- The court prohibited the defendant from using the term "SONAE" in relation to any goods or services while the suit was pending.
- The defendant was found guilty of suppressing material facts, and a cost of ₹10 lakh was imposed on them.

Data

Analysis

According to Table 5, *t*-statistics is smaller than the *t*-critical value of 1.984, showing that the ARs around the day the litigation is filed typically do not reveal any statistically significant departures from the market. No AR reaches statistical significance at the 5% level despite changes in the observation time. In a similar vein, ARs around the judgment day have minimal statistical significance, with *t*-statistics falling below the crucial value. Table 7 demonstrates that daily ARs vary, although none of them are statistically significant. Tables 6 and 8 show that the CARs show potential market responses during the anticipation phase leading up to the judgment event and the adjustment period that follows the filing event. None of the CARs, however, reach statistical significance according to the determined *t*-statistics and *t*-critical value. Thus, null hypotheses $H0_1$ and $H0_2$ are accepted. Figurative examples of this can be found in Figures 3 and 4.

The filing and judgment events of Sona BLW Precision Forgings Ltd. appear to have elicited largely subdued reactions from the market. Even while ARs vary somewhat, they do not deviate significantly from what would be expected by chance alone. Therefore, the analysis seems to suggest that the market does not react strongly to either filing or judgment events of lawsuits related to Sona BLW Precision Forgings Ltd, and the lack of

Table 5. ***Filing Date : Abnormal Returns for Sona BLW Precision Forgings Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	–0.60%	–2.33%	–2.33%	–1.02564
–4	–0.92%	3.05%	0.72%	1.344692
–3	–1.01%	–2.12%	–1.40%	–0.93474
–2	1.08%	–0.86%	–2.26%	–0.37717
–1	1.39%	–0.75%	–3.00%	–0.32967
0	2.45%	–0.33%	–3.33%	–0.14344
1	–0.80%	2.26%	–1.07%	0.995411
2	–0.67%	3.28%	2.21%	1.441653
3	0.72%	–0.49%	1.72%	–0.2161
4	–0.52%	0.49%	2.20%	0.214608
5	–0.28%	1.20%	3.40%	0.527734

Table 6. ***Filing Date : Cumulative Abnormal Returns***

CAR	Event	–0.33%
	Anticipation	–3.00%
	Adjustment	6.73%
	Total	3.40%
***t*-stat.**	Event	–0.14
	Anticipation	–0.59
	Adjustment	1.33
	Total	0.45
***p*-value**	Event	88.62%
	Anticipation	55.56%
	Adjustment	18.82%
	Total	65.27%

Table 7. ***Judgment Date : Abnormal Returns for Sona BLW Precision Forgings Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.28%	2.20%	2.20%	1.096466
–4	0.02%	0.55%	2.76%	0.27448
–3	–0.42%	0.15%	2.90%	0.072834
–2	–0.45%	2.47%	5.37%	1.228293
–1	–0.13%	–1.20%	4.18%	–0.59525
0	–1.14%	–0.71%	3.47%	–0.35221
1	–0.23%	1.70%	5.16%	0.843029
2	–0.24%	–0.41%	4.76%	–0.20233
3	–0.35%	–1.08%	3.68%	–0.53689
4	–0.42%	–0.95%	2.73%	–0.47114
5	0.55%	2.10%	4.83%	1.043984

Table 8. ***Judgment Date : Cumulative Abnormal Returns***

CAR	Event	–0.71%
	Anticipation	4.18%
	Adjustment	1.36%
	Total	4.83%
***t*-stat.**	Event	–0.35
	Anticipation	0.93
	Adjustment	0.30
	Total	0.72
***p*-value**	Event	72.54%
	Anticipation	35.53%
	Adjustment	76.28%
	Total	47.08%

Figure 3. ***Sona BLW Precision Forgings Ltd. - Stock Price Reaction to Filing***

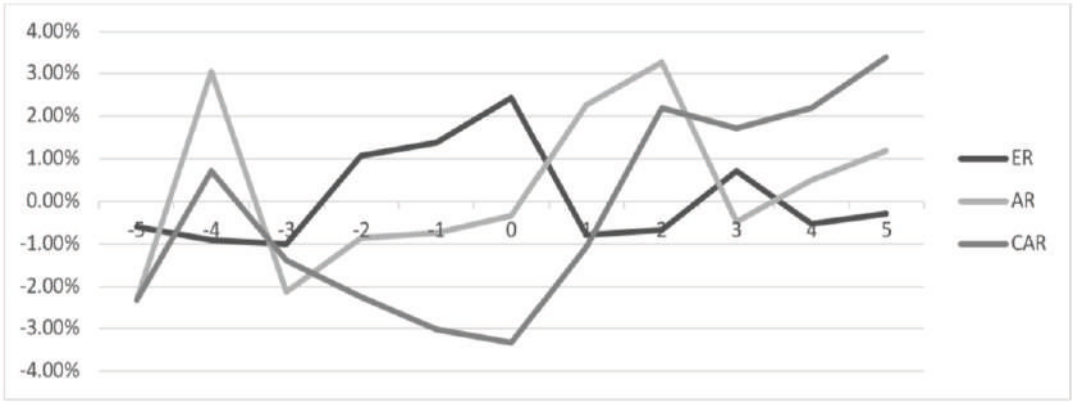
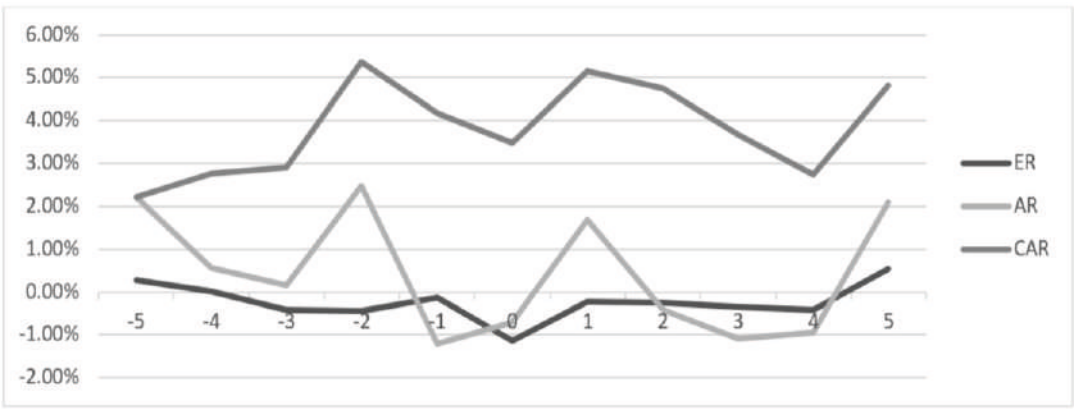


Figure 4. ***Sona BLW Precision Forgings Ltd. - Stock Price Reaction to Judgment***



statistically significant ARs may indicate that investors do not perceive these events as having a substantial impact on the company's prospects or valuation in the short-run.

V. Guard Industries Ltd. and Crompton Greaves Consumer Electricals Limited

In the case of V. Guard Industries Ltd. versus Crompton Greaves Consumer Electricals Ltd., the details of both companies are available in the public domain. We will assess how IP litigation affects the plaintiff and defendant's stock values.

Background

- The plaintiff, V. Guard Industries Ltd., applied Order 39 Rules 1 and 2 of the Code of Civil Procedure (CPC) seeking restraint against the defendant, Crompton Greaves Consumer Electricals Ltd., from using the mark "PEBBLE" for the sale of electric irons.
- V Guard claimed to have sold electrical items under its well-known brand "V-GUARD" as well as other trademarks such as PEBBLE, VICTO, INSIGNIA, and so on. The present turnover is about 2,600 crores.
- V Guard is the proprietor of the trademark/label "PEBBLE," registered under TM Application No. 2,503,134 in Class 11 on March 26, 2013.

Judgment

- The Delhi High Court granted a temporary injunction restraining Crompton from using the mark "CROMPTON PEBBLE" for electric irons (Singh, 2022b).
- The court acknowledged V Guard's exclusive rights over the word "PEBBLE" in relation to any electric items under Section 29 of the Trade Marks Act of 1999.
- V Guard's existing rights were fortified by its application for registration of the trademark "PEBBLE" (word *per se*) under No. 4,984,108 in Class 7.

V. Guard Industries Ltd.

Data

Analysis

We find significant irregularities in the plaintiff, V. Guard Industries's returns around the dates of filing and judgment. In particular, we observe a statistically significant AR of 4.73% just before the filing date in Table 9. This forecasts a significant CAR response of 4.57% during the anticipation window. As shown in Table 10, this is followed by an adjustment phase that results in a total CAR of 1.71%. The lack of statistical significance is attributed to the *t*-statistics surrounding the filing date not meeting the upper limit leading to the acceptance of the null hypothesis $H0_1$.

In Table 11, Days –1, –2, and 5 exhibits statistical significance. A noteworthy CAR of 2.85% is also observed from the anticipation phase, and a total CAR of 13.16% is observed during the adjustment phase, as shown in Table 12. The *t*-statistics for the adjustment phase and the total exceeded the critical value, indicating statistically significant ARs during these periods. Therefore, with respect to the judgment event, we reject the null hypothesis $H0_2$and accept the alternative hypothesis Ha_2.

These findings suggest that market participants react differently to filing and judgment dates for V. Guard

Table 9. ***Filing Date : Abnormal Returns for V. Guard Industries Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.49%	0.09%	0.09%	0.059081
–4	0.38%	–0.11%	–0.01%	–0.06863
–3	–0.81%	–0.34%	–0.36%	–0.22056
–2	–0.32%	0.20%	–0.16%	0.129242
–1	–1.05%	4.73%	4.57%	3.051723*
0	–0.04%	–2.05%	2.52%	–1.32231
1	0.38%	0.31%	2.84%	0.201446
2	0.21%	–0.10%	2.74%	–0.06368
3	–0.85%	–0.50%	2.24%	–0.32053
4	–1.72%	–1.97%	0.27%	–1.27334
5	1.31%	1.44%	1.71%	0.928881

Note. * Statistically significant.

Table 10. ***Filing Date : Cumulative Abnormal Returns***

CAR	Event	–2.05%
	Anticipation	4.57%
	Adjustment	–0.82%
	Total	1.71%
***t*-stat.**	Event	–1.32
	Anticipation	1.32
	Adjustment	–0.24
	Total	0.33
***p*-value**	Event	18.91%
	Anticipation	19.00%
	Adjustment	81.41%
	Total	74.06%

Table 11. ***Judgment Date : Abnormal Returns for V. Guard Industries Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	–0.09%	2.42%	2.42%	1.771789
–4	–1.18%	–0.97%	1.45%	–0.70911
–3	–0.55%	–0.56%	0.89%	–0.40981
–2	–0.36%	–1.57%	–0.68%	–1.14889
–1	–0.41%	3.53%	2.85%	2.583819*
0	–1.58%	–0.02%	2.83%	–0.01419
1	–0.22%	0.93%	3.76%	0.684557
2	0.14%	3.96%	7.72%	2.902922*
3	1.62%	–0.87%	6.86%	–0.63673
4	–0.19%	2.49%	9.35%	1.827378
5	–1.86%	3.82%	13.16%	2.796423*

Note. * Statistically significant.

Table 12. ***Judgment Date : Cumulative Abnormal Returns***

CAR	Event	–0.02%
	Anticipation	2.85%
	Adjustment	10.33%
	Total	13.16%
***t*-stat.**	Event	–0.01
	Anticipation	0.93
	Adjustment	3.39*
	Total	2.91*
***p*-value**	Event	98.87%
	Anticipation	35.28%
	Adjustment	0.10%*
	Total	0.45%*

Note. * Statistically significant.

Figure 5. ***V. Guard Industries Ltd. - Stock Price Reaction to Filing***

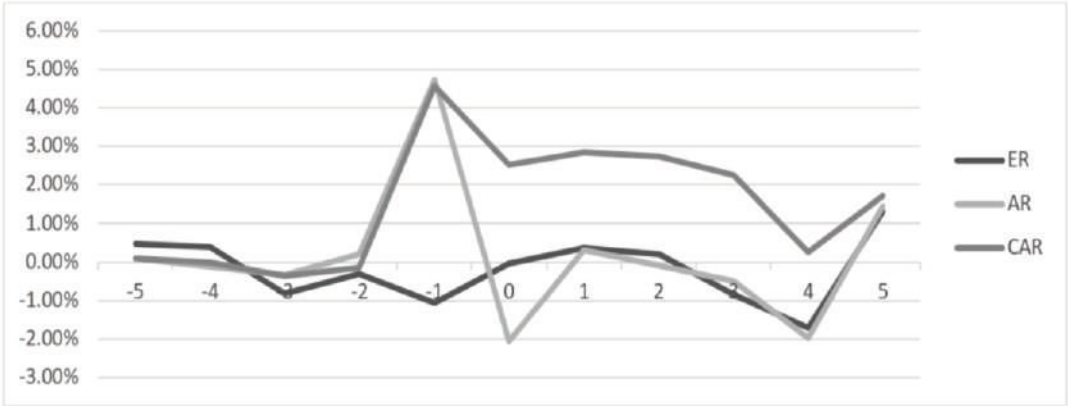
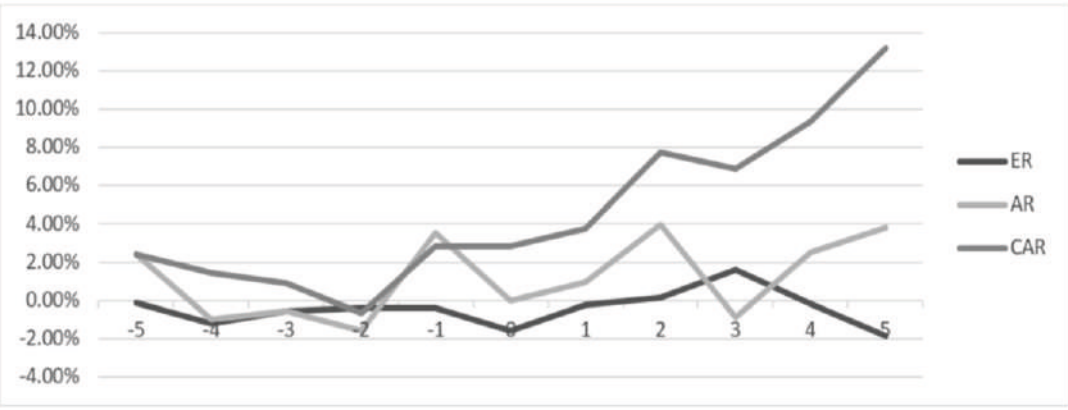


Figure 6. ***V. Guard Industries Ltd. - Stock Price Reaction to Judgment***



Industries Ltd. While anticipation seems to drive significant ARs just before both events, the adjustment phase appears to have a more pronounced effect during the judgment event, leading to statistically significant ARs and CARs as seen in Figures 5 and 6.

Crompton Greaves Consumer Electricals Ltd.

Data

Analysis

Based on the information provided by the defendant, Crompton Greaves Consumer Electricals Ltd., there is a significant expected gap between the filing and judgment dates. There is a significant decrease in the AR on Day –5 at –3.11% around the filing event with the total CAR reaction for the filing event falling just short of reaching statistical significance at –9.78% (see Tables 13 and 14). The filing generally shows a negative impact on stock value. Table 15 shows that judgment dates show varied reactions, but on Day –1, there is a substantial positive AR of 5.42%. Table 16 illustrates that the overall CAR response for the judgment event appears to be somewhat mild,

Table 13. ***Filing Date : Abnormal Returns for Crompton Greaves Consumer Electricals Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.83%	–3.11%	–3.11%	–2.03222*
–4	0.69%	–1.23%	–4.34%	–0.80465
–3	–0.96%	0.74%	–3.59%	0.486007
–2	–0.28%	0.61%	–2.98%	0.398574
–1	–1.30%	0.50%	–2.48%	0.327803
0	0.10%	–0.96%	–3.44%	–0.62674
1	0.68%	–0.52%	–3.96%	–0.33856
2	0.45%	–2.61%	–6.57%	–1.71037
3	–1.01%	–2.21%	–8.79%	–1.44863
4	–2.22%	–1.78%	–10.57%	–1.16354
5	1.98%	0.78%	–9.78%	0.511323

Note. * Statistically significant.

Table 14. ***Filing Date : Cumulative Abnormal Returns***

CAR	Event	–0.96%
	Anticipation	–2.48%
	Adjustment	–6.34%
	Total	–9.78%
***t*-stat.**	Event	–0.63
	Anticipation	–0.73
	Adjustment	–1.86
	Total	–1.93
***p*-value**	Event	53.23%
	Anticipation	46.93%
	Adjustment	6.65%
	Total	5.65%

Table 15. ***Judgment Date : Abnormal Returns for Crompton Greaves Consumer Electricals Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	–0.09%	–0.56%	–0.56%	–0.3187
–4	–1.18%	0.59%	0.03%	0.336215
–3	–0.55%	–1.39%	–1.35%	–0.78471
–2	–0.36%	–3.11%	–4.46%	–1.76025
–1	–0.40%	5.42%	0.96%	3.072333*
0	–1.57%	–3.13%	–2.17%	–1.77148
1	–0.21%	2.28%	0.12%	1.292596
2	0.14%	–0.47%	–0.35%	–0.26636
3	1.63%	–2.25%	–2.61%	–1.27653
4	–0.18%	–0.03%	–2.64%	–0.01739
5	–1.86%	–1.78%	–4.42%	–1.0107

Note. * Statistically significant.

Table 16. ***Judgment Date : Cumulative Abnormal Returns***

CAR	Event	–3.13%
	Anticipation	0.96%
	Adjustment	–2.26%
	Total	–4.42%
***t*-stat.**	Event	–1.77
	Anticipation	0.24
	Adjustment	–0.57
	Total	–0.76
***p*-value**	Event	7.96%
	Anticipation	80.80%
	Adjustment	56.88%
	Total	45.19%

Figure 7. ***Crompton Greaves Consumer Electricals Ltd. : Stock Price Reaction to Filing***

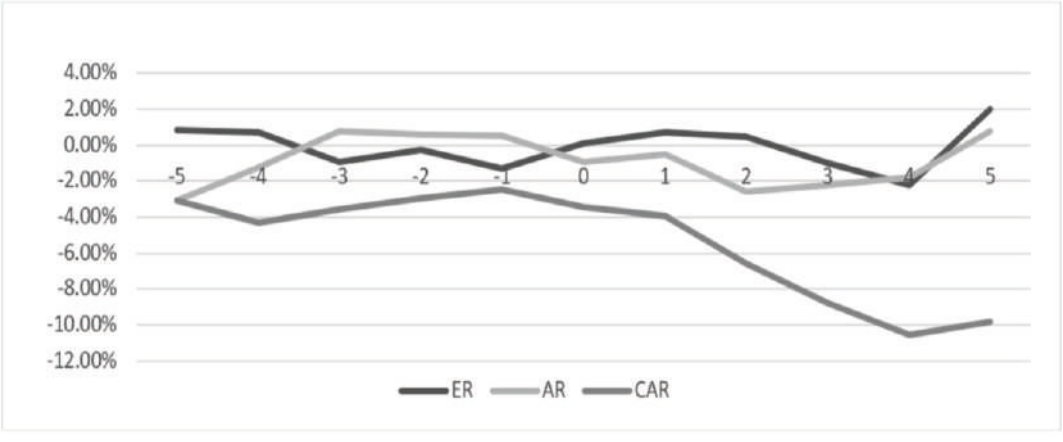
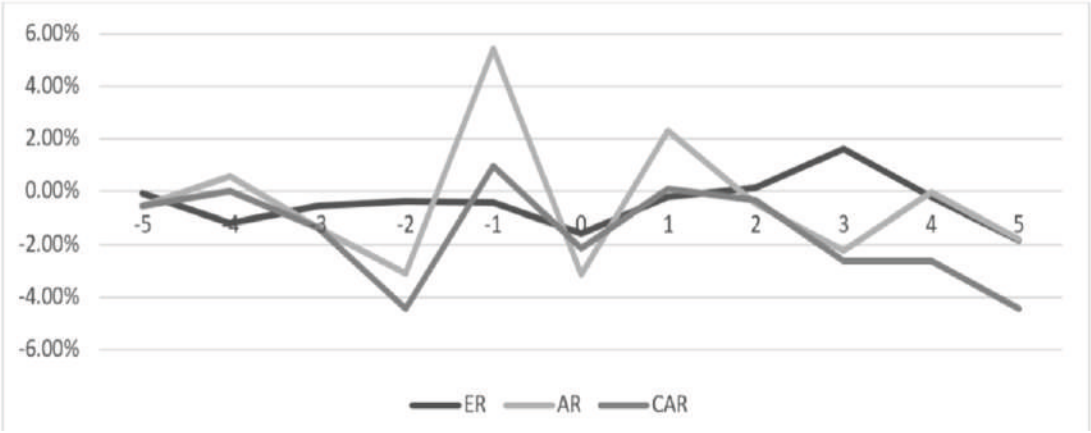


Figure 8. ***Crompton Greaves Consumer Electricals Ltd. : Stock Price Reaction to Judgment***



with only slight variations from the expected returns. The results are graphically illustrated in Figures 7 and 8. Since the cumulative impact for both the filing event and the judgment event is not significant, the null hypotheses $H0_1$ and $H0_2$ are accepted.

This implies that Crompton Greaves Consumer Electricals Ltd. investors are more concerned with the possible liability of an IP lawsuit against the company and the harm to the company's reputation than with the case's actual outcome. It would seem that the investors might have already anticipated the possibility of a loss and reacted by selling off shares, causing the initial drop in price. When the unfavorable judgment was finally passed, it did not come as a surprise to the market, so there was little additional impact on the share price.

Insecticides India Ltd.

Background

- In the case of FMC Corporation & Ors. versus Insecticides India Limited, 2022: DHC: 004770, The plaintiffs, FMC Corporation & Ors., filed a suit seeking a decree of permanent injunction against the defendant, Insecticides India Limited.
- The plaintiffs alleged that the defendant was infringing their patent rights under Indian Patent No. 298,645 (IN'645).
- The patent covered a specific process related to insecticides.

Judgment

- The court granted a temporary injunction restraining the defendant from using any process covered by the patented invention (Singh, 2022a).
- The plaintiffs' patent rights were established under Indian law, and the court protected those rights.

Data

Analysis

We find significant AR on Day 1 and Day 0 when analyzing the data from Insecticides India Ltd. in Table 17. It is

Table 17. ***Filing Date : Abnormal Returns for Insecticides India Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.58%	–0.77%	–0.77%	–0.3717
–4	2.67%	1.44%	0.68%	0.7003
–3	0.12%	–0.62%	0.06%	–0.30154
–2	–2.24%	–1.46%	–1.41%	–0.71045
–1	2.91%	5.97%	4.57%	2.90135*
0	–0.07%	–5.90%	–1.33%	–2.86574*
1	–0.29%	1.19%	–0.15%	0.577194
2	–0.35%	–0.88%	–1.02%	–0.42734
3	1.06%	–0.19%	–1.21%	–0.09025
4	1.27%	2.34%	1.13%	1.137756
5	1.98%	–1.39%	–0.26%	–0.67471

Note. * Statistically significant.

Table 18. ***Filing Date : Cumulative Abnormal Returns***

CAR	Event	–5.90%
	Anticipation	4.57%
	Adjustment	1.08%
	Total	–0.26%
***t*-stat.**	Event	–2.87*
	Anticipation	0.99
	Adjustment	0.23
	Total	–0.04
***p*-value**	Event	0.51%*
	Anticipation	32.37%
	Adjustment	81.57%
	Total	97.00%

Note. * Statistically significant.

Table 19. ***Judgment Date : Abnormal Returns for Insecticides India Ltd.***

Day	ER	AR	CAR	*t*-stat.
–5	0.15%	–0.41%	–0.41%	–0.19895
–4	0.54%	–0.75%	–1.16%	–0.36303
–3	0.62%	–0.06%	–1.22%	–0.03105
–2	0.09%	–1.17%	–2.39%	–0.56956
–1	–0.25%	–0.29%	–2.69%	–0.14286
0	1.58%	–1.03%	–3.71%	–0.499
1	0.19%	2.23%	–1.48%	1.085982
2	0.57%	–0.75%	–2.22%	–0.36227
3	0.30%	–0.03%	–2.26%	–0.01556
4	0.01%	–0.07%	–2.33%	–0.03517
5	0.13%	–0.20%	–2.52%	–0.09535

Table 20. ***Judgment Date : Cumulative Abnormal Returns***

CAR	Event	–1.03%
	Anticipation	–2.69%
	Adjustment	1.19%
	Total	–2.52%
***t*-stat.**	Event	–0.50
	Anticipation	–0.58
	Adjustment	0.26
	Total	–0.37
***p*-value**	Event	61.89%
	Anticipation	56.07%
	Adjustment	79.67%
	Total	71.23%

Figure 9. ***Insecticides India Ltd. - Stock Price Reaction to Filing***

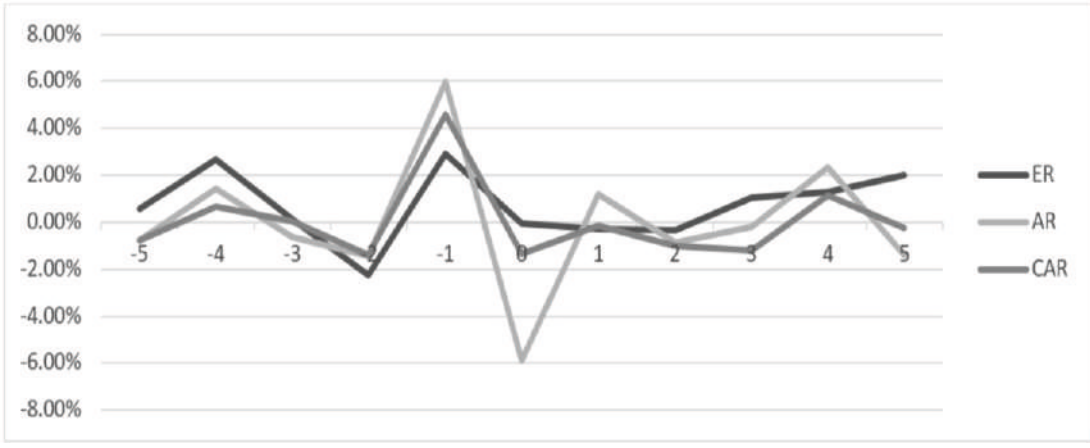
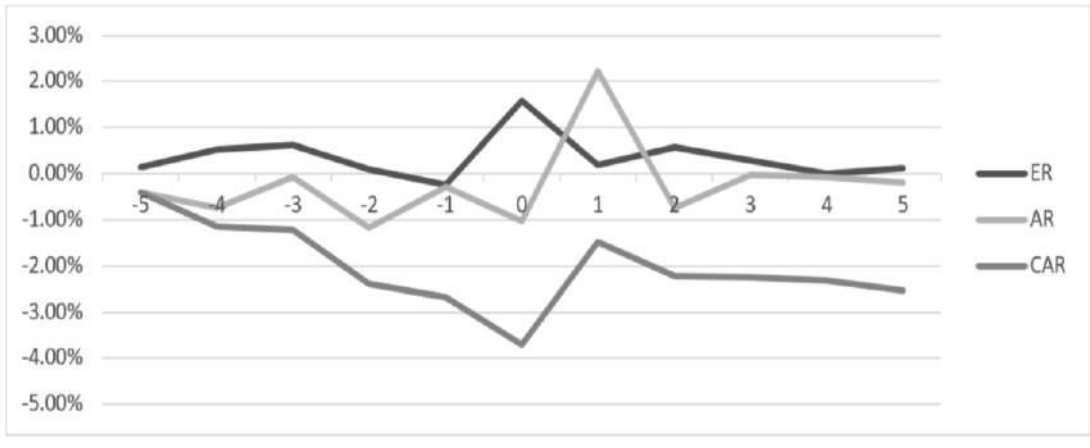


Figure 10. ***Insecticides India Ltd. - Stock Price Reaction to Judgment***



important to acknowledge that the changes are in two different directions: 5.97% and –5.9%, respectively. This suggests that the market did not anticipate the IP litigation being filed against Insecticides India Limited, which

resulted in increased selling pressure on the date of filing, driving the stock price down. The CAR of –0.26% during the observation period does not exhibit any significance, primarily due to the opposing ARs canceling out each other (see Table 18). While there is a general downward trend in the case of ARs around the judgment date, none of them are statistically significant, as evident in Table 19. Similarly, in Table 20, the CARs around the date of judgment do not exhibit any statistically significant fluctuations despite the unfavorable outcome, indicating that consumers had already anticipated the potential loss and the unfavorable decision did not come as a surprise, leading to no significant adjustment on the date of judgment. As the total CARs obtained during the observation period for both filing and judgment events are not significant, the null hypotheses $H0_1$ and $H0_2$ are accepted. The movement in the ARs and CARs is graphically presented in Figures 9 and 10.

Conclusion

This study attempts to analyze the movements in stock prices due to IP litigations during the years 2021 to 2022. Event study and hypothesis testing are used to test the volatility in closing prices during different litigation events. The analysis of plaintiff companies indicates a mixed reaction in ARs and CARs for different companies. A notable observation is that in the case of companies where the IP litigation has garnered media coverage through news, articles, and other channels, namely, ITC Ltd. and V. Guard Industries Ltd., significant ARs can be observed during both filing and judgment eventsSona BLW Precisions Forgings Limited, on the other hand, have a higher market capitalization than V. Guard Industries Ltd.; nevertheless, no notable fluctuations are seen during the filing or judgment events in this case, which received little to no media coverage. In the case of defendants, the findings are much more straightforward forward, with notable if not significant negative ARs arising immediately following the date of filing, with little to no adjustments occurring after the judgment day, implying that in cases where IP litigation is filed against a company, the investors already anticipate the loss arising from an unfavorable judgment, which reflected in the stock price well before the actual judgment is passed. Overall, the null hypotheses $H0_1$ and $H0_2$ are accepted, with no instances of significant CARs being observed during the filing events and just two instances of significant CARs being observed during the judgment events. The companies we have chosen for this study have not changed much during the assessment period, with the exception of one. It follows that there is minimal chance for investors to make more money than market returns because the market does not overreact to IP litigation events.

Practical/Managerial Implications

The study of the relationship between judicial events and the stock market has important consequences for investors. Investors can make better decisions about their investment portfolios by having a better understanding of how legal events impact company valuations. Investors may be able to detect and manage risks more effectively if they have a better understanding of how the market responds to IP litigations. To preserve transparency and control market expectations, managers should place a high priority on having good communication with investors during litigation events. Managers who provide accurate information about the case's circumstances and the company's legal strategy can help to reduce investor concern and unfavorable stock price movements. According to their nature and characteristics, different industries may be affected by IP lawsuits to differing degrees. Future research may provide sector-specific insights, helping companies in sectors such as technology, pharmaceuticals, and consumer goods understand how litigation might uniquely affect them. By analyzing industry trends, companies can benchmark their performance against peers and identify best practices for managing IP disputes.

Theoretical Implications

The relationship between legal studies and financial theories, as well as the impact of legal events on financial results, are the areas of knowledge that our study occupies. Using data from the financial markets and legal systems, it shows how litigation events and market activity are related. This transdisciplinary strategy broadens the focus of upcoming research and reinforces current theoretical frameworks.

Limitations of the Study and Scope for Further Research

The limitations of this study include the accuracy of the historical data of the closing prices derived from Yahoo Finance and the Official NSE website. The market model used in this study assumes that the risk-free interest rate included in the α factor is constant, which conflicts with the presumption that market returns vary over time. The study's sample size is extremely tiny, which increases the possibility of sampling error. Some companies listed in the Delhi High Court's annual report 2022–2023 have been excluded from the study's purview because they are either not listed on the Indian Stock Exchange or lack publicly available data. A larger sample size may be taken in future studies to identify potential trends and patterns. Sector-specific studies may also be considered to identify the effects of IP lawsuits in specific industries and sectors.

Authors' Contribution

Dr. Kushal Dey devised and organized the research concept. Mr. Jeffery Huang created the research framework, conducted the literature assessment, and performed the statistical computations with the assistance of Dr. Kushal Dey, who oversaw the findings of his work. Mr. Jeffery Huang performed the numerical calculations in Microsoft Excel 2019. Both authors talked about the findings and contributed to the final text.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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