Timeliness of Share Price Discovery – Does Litigation Improve or Hinder It?

Wendy Hsu
The University of Western Australia

Supervised by Professor Philip Brown
The University of New South Wales
The University of Western Australia

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Abstract
Timeliness of share price discovery is the speed at which value-relevant, private information is released and reflected in a firm’s share price. As shareholder litigation is a common occurrence in the United States, it could affect the speed at which price discovery occurs. Managers can be personally named in securities class action litigation, and the choice to disclose information to the market will be affected by the fear or experience of shareholder litigation. Will the threat of litigation result in quicker or slower disclosure? Will there be more or less disclosure? If there is a significant effect on disclosure, there will be a direct impact on the timeliness of share price discovery. In addition, my research will look at the effect of certain legal events on timeliness. I hope to find that there is a market-wide effect as a result of significant changes in the legal environment.

Any comments are extremely welcome and appreciated.
Email address: hsuy02@student.uwa.edu.au
Statement of the Research Problem (Aims)

My research seeks to answer the question, does shareholder litigation improve or worsen the timeliness of share price discovery of U.S. firms? The timeliness of price discovery refers to how quickly value-relevant, private information is reflected in price. Ideally, price discovery should be rapid for all firms. In reality, the speed of price discovery differs depending on factors such as size, industry, analyst coverage and so on. For the purposes of this research, litigation risk is the characteristic that I will be focusing on. The litigation risk I refer to is the risk that shareholders will sue the company and its directors and officers. It is not the risk arising from fear of litigation from parties such as the government, Securities and Exchange Commission (SEC), consumers and others.

I expect to find that timeliness of price discovery for firms with low litigation risk is significantly different from that of firms with high litigation risk. In addition, a firm’s timeliness should change after being litigated against by shareholders. These outcomes are predicted as the result of firms’ disclosure policies being affected by the fear or experience of shareholder litigation. Firms can choose to quicken or slow the release of price-sensitive information, which has a direct impact on the timeliness of price discovery.

The predicted outcomes, along with other research findings, will assist in determining the relation between shareholder litigation and timeliness. This research is significant as, to the best of my knowledge, there are very few papers attempting to address this relation. The literature tends to examine timeliness or litigation risk in isolation. Given that shareholder litigation is common in the U.S. and is increasing in countries like Australia, it will be important to determine whether litigation benefits the market as well as any successful plaintiffs. Does the fear of litigation encourage firms to voluntarily disclose information in a timelier manner or does it discourage such disclosure because managers fear that it will be used as the basis of shareholder litigation?

The research will also add to the literature on market efficiency by testing whether timeliness of price discovery has improved over the sample period. Is there a trend or does timeliness stay the same, impacted only by the events such as those identified in the hypotheses?

Background – Literature Review

Timeliness itself is not a new concept. It is widely acknowledged that all information, whether it is financial statements, announcements or forecasts, takes time to be incorporated into a firm’s share price. Some papers explore the notion of timeliness in relation to accounting figures, while others examine the interaction of timeliness and disclosure. There is also literature that looks at the relationship between a firm’s amount of disclosure and its level of shareholder litigation risk, but few papers link litigation risk with the timeliness of price discovery.

Existing research in timeliness

The first category of papers reviewed begins with the classic Ball and Brown (1968) paper. The authors’ “initial objective was to assess the usefulness of existing accounting income numbers by examining their information content and timeliness.” (p. 176) Ball and Brown conclude that the annual income number captures fifty per cent or more of all information released about a firm in a particular year. In contrast, they find that “the annual income report does not rate highly as a timely medium, since most of its content (about 85 to 90 per cent) is captured by more prompt media…” (p. 176).

Alford, Jones, Leftwich and Zmiijewski (1993) extend Ball and Brown (1968) by looking at the timeliness and informativeness of the annual accounting earnings figure from eighteen different countries. Alford et al. (1993) find that the earnings figures in Australia, Canada, France, the Netherlands and the U.K. are more informative than those of the U.S. as the respective generally accepted accounting principles of each country “reflect information that is at least as timely and value-relevant as that reflect in U.S. GAAP.” (p. 210) More importantly, they find that “only in
Ireland and the United Kingdom does the value-relevant information reflected in earnings become more quickly impounded into price than in the matched U.S. sample.” (p. 204) Given the implementation of International Financial Reporting Standards and the continued convergence with U.S. GAAP, it would be interesting to see whether this result would still hold.

Butler, Kraft and Weiss (2006) examine “the relation between reporting frequency and how quickly earnings information is reflected in price during the current reporting period.” (p. 3) They call this “intraperiod timeliness”. Butler et al. (2006) also use a measure of long-horizon timeliness which looks at the relationship between earnings information and economic income. The first measure of intraperiod timeliness has greater relevance to this research. Butler et al. (2006) observe that firms which voluntarily increase their reporting frequency experience significant improvements in their intraperiod timeliness. Firms that increase their reporting frequency only after it has been mandated experience marginal improvements to their timeliness. In addition, they find that for firms which report on a quarterly basis, earnings are incorporated into share prices more rapidly than for firms which report on a semiannual or annual basis. However, this difference in timeliness is not statistically significant.

The above papers examine the relationship between accounting figures and timeliness. Brown, Taylor and Walter (1999) build on this by investigating the relationship between all priced information and timeliness. This relationship is observed in the context of a before and after scenario involving the passage of Australian legislation imposing civil and criminal sanctions. This legislation was aimed at promoting increased voluntary disclosure from ASX-listed firms, in particular, the smaller firms.

Brown et al. (1999) propose that “[i]f firms voluntarily disclose information in a more timely fashion, then stock prices will show relatively earlier anticipation of the information contained in periodic accounting reports.” (p. 146) They use two measures of voluntary disclosure, both of which are simple document counts. The first measure looks at the number of disclosures that are labelled as price sensitive by the ASX. The second measure involves disclosures that are categorised as item 14 (‘Other’) announcements. Brown et al. (1999) believe that item 14 announcements are the ones “most likely to capture irregular disclosure.” (p. 147)

Using the first measure, their results show that there was an increase in the total number of documents. The legislation appears to have worked, but closer inspection reveals that the large increase in the total number of documents disclosed is mostly driven by much greater volume of non-price-sensitive disclosures. Furthermore, the amount of item 14 disclosures actually declined in the post-sanctions period. Pre-sanctions, these disclosures comprised 34 percent of total documents disclosed. Post-sanctions, that percentage falls an alarming fourteen percent to only twenty percent. Firms may be disclosing more on average, but the concern is that firms are choosing a reduced level of disclosure of non-routine information, which would be the information most likely to have a substantial effect on share price.

To capture timeliness of price discovery, Brown et al. (1999) use the level of anticipation in a firm’s share price of the information contained in the periodic accounting reports. They find that, for the half yearly report, the difference in the level of anticipation is not statistically significant between the pre- and post-sanctions periods. However, it is a different story for the preliminary final statement. In the post-sanctions period, share prices have been timelier and “have anticipated earlier the value-relevant components of a company’s preliminary final statement” (p. 161). However, the increase in timeliness of the annual earnings report was mostly limited to smaller firms.

The timeliness research, in particular Brown et al. (1999), is well complemented by literature relating to the timeliness of financial reporting and disclosure. Chambers and Penman (1984) observe that firms with good news are the timelier early reporters whereas firms with bad news tend to be late reporters. Larger firms have shorter reporting lags (the number of days between the end of the fiscal period and the date of the report) and timelier disclosures. This may be explained in part by the ‘deep pockets’ theory, which posits that larger firms will be litigated against at a greater rate than smaller
firms. Shareholder plaintiffs believe there is a greater chance of recovery as large firms have more money and are unwilling to enter into a protracted and often costly legal battle. Consistent with Ball and Brown (1968) they also find that annual earnings announcements are generally less timely than interim earnings announcements.

Later papers begin to explore how disclosure timeliness is affected by litigation risk. Skinner (1997) explores whether timeliness of earnings disclosures differs in quarters when a firm is sued compared to quarters when a firm is not sued. He predicts that more timely disclosure reduces the likelihood of litigation. That is, the timeliness of earnings disclosures should be faster in quarters when a firm is not sued. Remarkably, he finds that disclosure is timelier in quarters when a firm is sued. “[T]here are substantially more preemptive earnings disclosures in quarters that result in stockholder litigation than in quarters that do not result in litigation.” (p. 250) Although this is inconsistent with his prediction, managers may be choosing to disclose adverse news quicker for fear of litigation and to minimise the costs of any ensuing litigation. Unsurprisingly, this is consistent with Skinner (1994) which finds that managers with adverse news will voluntarily disclose that news for fear of litigation. These firms have higher litigation costs and are more likely to release their earnings news quicker (Sengupta, 2004), leading to timelier share price discovery. Sengupta (2004) examines quarterly earnings information and I will be extending this using annual earnings information.

Tucker and Zarowin (2006) examine whether there is a difference in the timeliness of good and bad news. Do managers voluntarily disclose good or bad news in a timelier manner? For the 1996-2005 period, they conclude that for large firms, bad news is timelier relative to good news. The authors contrast this to an earlier period of 1976-1982, where “good and bad news about large firms have similar timeliness.” (p. 3) It is important to note that the earlier period preceded Basic. Therefore the risk of shareholder litigation was not as prominent. Managers did not find it necessary to release certain types of news faster or slower than normal.

By 1996, the Basic decision (discussed below) had changed the legal environment. Consequently, the disclosure behaviour of a manager has become subject to the firm’s level of litigation risk. According to Skinner (1994), managers can lower their litigation risk by pre-emptively disclosing bad news. As managers of large firms face higher exposure to litigation risk, it follows that these managers will do so by disclosing bad news faster. The results for large firms support this expectation that “the timeliness of bad news relative to good news for large firms is more evident in the second subperiod than in the first subperiod.” (pp. 4-5) For example, in the second subperiod of 2001-2005, a manager of a large firm will consistently choose to disclose bad news faster than good news.

For small firms, Tucker and Zarowin (2006) find that good news is timelier when compared to bad news. This finding applies to both the early and recent time periods. Similar to large firms, the timeliness of good news relative to bad news is mostly driven by the second subperiod. The difference could be explained by litigation risk. Plaintiffs are more likely to litigate against a large firm instead of a small firm because they seek to maximise the settlement amount or damages awarded.

U.S. statutory law regarding disclosure

As a starting point, the Securities Exchange Act of 1934 established the SEC, which began requiring the filing of annual reports from listed firms (Form 10-K). Traditionally, firms had to file their annual reports within 90 days of the end of the firm’s fiscal year. Quarterly reports (Form 10-Q) are required to be filed for each of the first three quarters of a firm’s fiscal year. Since September 2002, the SEC has changed the filing deadlines for these reports, but given that the deadlines are being phased in gradually, I do not expect this to have an effect on my study. In addition to these mandated disclosures, firms are obligated to disclose any material information (Securities Act of 1933 Rule
408\textsuperscript{1}) and have the option to make voluntary disclosures such as statements about future prospects and direction (forward-looking statements).

The Private Securities Litigation Reform Act of 1995 (PSLRA) was enacted with the purpose of reducing securities class action litigation through many measures, one of which was to provide ‘safe harbour’ for firms making forward-looking statements. The ‘safe harbour’ provides firms with legal protection if statements including projections and forecasts turn out to be incorrect. The statement must be “identified as a forward-looking statement, and is accompanied by meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the forward-looking statement.” [15 U.S.C. § 78u-5(c)(1)(A)] Legal protection does not extend to statements made by a person or entity with actual knowledge that the statement was false. [15 U.S.C. § 78u-5(c)(1)(B)] The ‘safe harbour’ provision acknowledges the increasing importance of such statements to all market participants. Therefore, it is predicted that the PSLRA resulted in a significant change to timeliness by encouraging more forward-looking statements. Following this milestone legislation, the Securities Litigation Uniform Standards Act of 1998 (SLUSA) was enacted to stop plaintiffs’ lawyers from circumventing the PSLRA by filing suits in state court where “essentially none of the [PSLRA]’s procedural or substantive protections against abusive suits are available.” (Hamilton and Trautmann 1998, p. 9)

U.S. case law regarding shareholder litigation

The landmark Supreme Court decision of Basic Inc. v. Levinson, 485 U.S. 224 (1988) endorsed the fraud on the market theory, making it substantially easier for shareholder plaintiffs to succeed in litigation. This theory was first introduced in Blackie v. Barrack, 524 F.2d 891, 907 (9th Cir. 1975):

“A purchaser on the stock exchanges … relied generally on the supposition that the market price is validly set and that no unsuspected manipulation has artificially inflated the price, and thus indirectly on the truth of the representations underlying the stock price – whether he is aware of it or not, the price he pays reflects material misrepresentations.”

Another important decision is Central Bank of Denver, N.A. v. First Interstate Bank of Denver, N.A., 114 S. Ct. 1439 (1994) which “reversed twenty-five years of litigation practice by determining that there is no private right of action … for aiding and abetting a violation of the securities laws.” (Avery, 1996) This decision was unexpected and could affect timeliness by leading outside professionals to make more statements on a firm’s behalf.

Existing research into the relation between disclosure and litigation risk

The more disclosures a firm makes over the course of the financial year, the timelier its price discovery should be. The faster the information is released to the market, the faster it will be incorporated into a firm’s share price. However, there may be a situation where a manager initially wishes to release certain information, but chooses to withhold it or to release it at a later date for fear of litigation. It is this scenario that the literature focuses on.

There is conflicting literature regarding whether the threat of shareholder litigation results in more or less voluntary disclosure by firms. Skinner (1994) argues that managers choose to voluntarily disclosure negative earnings surprises for fear of two factors. First, managers may face reputational costs through their failure to disclose bad news in a timely manner to the market. Second, if managers do not voluntarily disclose bad news, the shareholders may sue, alleging a failure to disclose adverse news promptly. He finds that managers voluntarily disclose earnings news before the mandated announcement date in order to decrease the probability of litigation. This is particularly true for managers with adverse earnings news.

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\textsuperscript{1} Rule 408 states: In addition to the information expressly required to be included in a registration statement, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made, not misleading.
Francis, Philbrick and Schipper (1994) investigate corporate disclosures in the context of shareholder litigation brought under Rule 10b-5, which prohibits the disclosure of misleading material information and the omission of material information. They split their sample into firms “at risk” of litigation and those that have been litigated against (litigation firms). “At risk” firms are defined as those experiencing declines of 20 percent or greater in earnings and sales. Of the 51 “at risk” firms, only one was sued in relation to adverse earnings news. Skinner (1994) would explain this low level of litigation by predicting that the “at risk” firms pre-empted the mandatory announcements by voluntarily disclosed the adverse earnings news. However, the results show that over 60 percent of the litigation brought was based on an earnings forecast or other preemptive disclosure, but for 87 percent of the “at risk” sample, there was no preemptive disclosure. The difference in results may be partly attributable to the difference in sample firms examined in each paper. Skinner (1994) uses a random sample of 93 NASDAQ firms from 1981-1990 whereas Francis et al. (1994) restrict their sample to firms in the biotechnology, computer, electronic and retailing industries over the period January 1988 to September 1992.

Field, Lowry and Shu (2005) attempt to reconcile the conflicting results. Consistent with Francis et al. (1994), they find that 84 percent of sued firms make preemptive voluntary disclosures about bad earnings news compared to only 44 percent of non-sued firms. However, they find no evidence that voluntary disclosure, in the form of earnings warnings, actually triggers litigation. In support of Skinner (1994), they find that voluntary disclosure can lower a firm’s expected litigation risk. This is also consistent with Brown, Hillegeist and Lo (2005) who find that voluntary disclosure in the form of a management forecast reduces a firm’s probability of being sued. Field et al. (2005) call this the deterrence effect.

Field et al. (2005) also examine whether firms with higher litigation risk will be more likely to make voluntary disclosures prior to mandated announcements in order to decrease the effect of impending earnings disappointments (pre-emption effect). The results provide evidence of this effect, confirming the Johnson, Kasznik and Nelson (2001) finding that firms with higher litigation risk are more likely to issue early earnings warnings. When examining management earnings forecasts, Narayananmooorthy and Cao (2005) come to the same conclusion, that managers of high litigation risk firms will tend to issue forecasts earlier than their low litigation risk counterparts.

Johnson et al. (2001) examine how the PSLRA has affected the voluntary disclosures of 523 firms operating in the high technology sector. They define this sector as firms involved in computer hardware, computer software and pharmaceuticals. In the first year after the PSLRA was enacted, there was a significant increase in the frequency of forecasts and the mean number of forecasts issued by firms. This increase in disclosure is more prominent for firms facing a higher level of litigation risk. Furthermore, these firms also issue significantly more forecasts. This paper clearly demonstrates that there is a link between the level of forward-looking disclosure and litigation risk. What this paper does not do, and what I will do, is to determine whether the timeliness of price discovery improved for firms following the passage of the PSLRA. Similar to Johnson et al. (2001), if the greatest effect is for high technology firms, then it is expected that the timeliness of share prices of those firms will have improved relative to firms in other industries.

Most recently, Rogers and Van Buskirk (2007) examine the change in behaviour of firms that have been involved in disclosure-related shareholder lawsuits. They find that firms reduce the amount of information they provide to the market after being sued. This is consistent with managers of sued firms reducing the level of voluntary disclosure as, rightly or wrongly, they believe that voluntary disclosures made in good faith will be used against them in litigation. In theory, shareholder litigation is motivated by making firms more accountable and transparent to their shareholders and the market. However, this finding implies that litigation is counter-productive if it leads managers to withhold information after being sued. Consequently, litigation could hinder rather than help the timeliness of price discovery.
Baginski, Hassell and Kimbrough (2002) could be used to support the above proposition. These authors compare Canadian and U.S. managers and find that there is greater disclosure in Canada where the business environment is similar to the U.S., but the legal environment is much less litigious in comparison. Not only is there more disclosure, but Canadian managers issue forecasts that are more precise and have longer horizons. Presumably, price discovery in the U.S. is suffering in contrast to Canada as the U.S. market does not have the same amount and quality of information.

Research Design and Approach

Statement of Hypotheses
The hypotheses to be tested all posit that the timeliness of price discovery is different conditional on different criteria. Over time, the SEC and market forces have required firms to increase financial disclosure, whether voluntary or mandated. There could also be a secular time trend in timeliness due to the advances in technology and an increase in the sophistication of financial analysts. As a result, I predict that

\( H_1 \): Timeliness of price discovery has improved over the entire period.

Disclosure-related shareholder litigation should have a significant effect on a firm’s subsequent disclosure policy. Litigation may also be linked to the lack of disclosure by a firm. Firms that have been the target of litigation may also attract larger analyst coverage. Thus, I expect that

\( H_2 \): Firms previously litigated against have faster timeliness of price discovery than firms that have yet to be litigated against.

\( H_3 \): Prior to being sued, sued firms had less timely price discovery than their matched non-sued peers.

The ‘deep pockets’ theory implies that the likelihood of litigation increases with firm size. In addition, Field et al. (2005) find that sued firms have significantly higher market capitalisations. This may be due to larger firms releasing more information to the market and have greater analyst coverage. However, I will attempt to show that the relationship between timeliness and size is affected by changes in litigation risk. Accordingly, I predict that

\( H_4 \): Timeliness of price discovery is faster for large firms compared to small firms.

Firms that are members of high technology industries are accepted as being more susceptible to litigation. High technology firms are likely to be younger and have more volatile earnings, leading to greater share return volatility. Therefore, I hypothesise that

\( H_5 \): Firms in high technology industries provide timelier disclosures than firms in other industries.

The Supreme Court decisions in Basic and Central Bank are widely acknowledged as significantly altering the legal landscape. The former is said to have increased litigation risk while the latter had the opposite effect. Both could increase timeliness. Basic encourages disclosure to make sure the share price is ‘correct’ whereas Central Bank allows outside professionals to issue statements on behalf of a firm without fear of liability, so I posit that

\( H_6 \): Timeliness of price discovery is faster after Basic Inc. v. Levinson, 485 U.S. 224 (1988) than before the decision.


In the 1990s, two important pieces of legislation were passed. The PSLRA was considered radical and its enactment required Congress to override President Clinton’s veto. Amongst other things, this Act provides “safe harbour” for forward-looking statements. Johnson, Nelson and Pritchard (2006) find that Congress’ safe harbour goal was partly achieved as the PSLRA reduced the litigation risk associated with forward-looking statements such as earnings warnings. However, it is debatable
whether all firms believe that the safe harbour provisions provide sufficient protection. Therefore, I do not predict whether there is an improvement or worsening in timeliness, but rather that

\( H_8: \text{Timeliness of price discovery before the passage of the PSLRA is different to timeliness after the passage of the PSLRA.} \)

As the PSLRA applied only in federal court, plaintiffs’ lawyers began to file the more frivolous suits in state courts, hoping to avoid the provisions of the PSLRA. These provisions include heightened pleading standards that increase the chance of litigation being dismissed. In 1998, the enactment of the SLUSA was supposed to close this legal loophole available to plaintiffs’ lawyers. This could result in a perception of lower litigation risk among firm managers and they may alter their disclosure behaviour appropriately. Similar to \( H_8 \), I hypothesise that

\( H_9: \text{Timeliness of price discovery before the passage of the SLUSA is different to timeliness after the passage of the SLUSA.} \)

Sample and Data

The initial sample will be drawn from all U.S. companies, active and inactive, on the COMPUSTAT and CRSP databases. CRSP data begins from 1925, while COMPUSTAT data begins from 1962. The sample will be further limited to firms where data for measuring the required variables is available.

The remaining firms will be matched in two steps. First, firms will be matched with the litigation database that I am attempting to build. This database will be drawn from various searches in the LEXIS and Westlaw case databases, cross-referenced with the Stanford Securities Class Action Alert website (this is only for cases filed after the PSLRA was enacted). Second, sued firms will be matched with their non-sued peers using a variety of characteristics such as size, industry and magnitude of share price drop. As an empirical matter, litigation is restricted to share price drops.

Variables required include market capitalisation, total assets, industry SIC code, share price, share return, turnover, EPS and the fourth-quarter release date. Each of these is available from either the COMPUSTAT or CRSP databases. Market capitalisation and total assets operate as proxies for firm size, with the latter being used for robustness purposes. SIC codes will be used to classify firms into their relevant industries. Following Field et al. (2005) and Sengupta (2006), firms in the SIC codes of 2833-2836, 3570-3577, 3600-3674, 7371-7379 and 8731-8734 will be classified as high technology firms, which are commonly accepted as being subject to higher litigation risk. A firm is classified as active or inactive within COMPUSTAT and if it is inactive, I will be cross-referencing with CRSP Names and Events to determine the reason.

Ideally, other variables that I would like to be able to measure include variables such as the number of shareholders of a firm and corporate governance scores for each firm. The number of shareholders that a firm has at any point in time may influence their disclosure decision. Sengupta (2006) finds that as ownership becomes more concentrated, managers are less susceptible to outside pressures to release earnings news quicker. If this is the case, the expectation would be that timeliness is better for firms with more shareholders. Corporate governance measures such as those used in Brown and Caylor (2004) and Gompers et al. (2003) exist only for the period from 1990 onwards. This could be because corporate governance is a relatively new phenomenon or concern to the business world. Beekes and Brown (2006) find that better governed firms report more frequently and provide more informative disclosures. These firms may be less likely to be subjects of litigation. If management continues their disclosure behaviour, it should lead to higher timeliness relative to firms with poorer corporate governance.

Legal variables such as the record of a filing, whether there was a judgment, dismissal or settlement and any applicable damages or settlement amount will be sourced from the litigation database that I am currently working on.

Proposed Methodology
Timeliness of price discovery depends on a firm’s willingness to disclose information as quickly as possible, without compromising its competitive edge. With firm managers being increasingly wary of potential shareholder litigation, the decision to disclose and the resulting timeliness are intricately linked, with this situation being modelled as:

\[
\text{Timeliness} = \gamma_1 \text{Litigation Risk} + \beta_1 X_1 + \epsilon_1 \\
\text{Litigation Risk} = \gamma_2 \text{Timeliness} + \beta_2 X_2 + \epsilon_2
\]  

Timeliness is the speed of price discovery for firm \( i \) and Litigation Risk is the litigation risk for firm \( i \). \( X_1 \) and \( X_2 \) are vectors of exogenous determinants of timeliness and litigation risk respectively. This model follows the simultaneous equations approach in Field et al. (2005). The measure of timeliness used in this research was first introduced in Beekes and Brown (2006) where the timeliness metric was:

\[
M^c \equiv \left( \sum_{t=-249}^{0} \left| \ln(P_t) - \ln(P_0) \right| \right) / 250
\]

\( P_t \) is the market-adjusted share price as observed at trading day intervals from day -249 until day 0. Using this metric, the lower the \( M^c \), the timelier the price discovery. The timeliness metric used in this paper is from Brown and Beekes (2006): 

\[
T_2 \equiv \left( \sum_{t=-364}^{0} \left| \ln(P_t) - \ln(P_0) \right| \right) / 365
\]

\( P_t \) is the share price at the end of each calendar day \( t \) and day 0 is 14 days after the market announcement of a firm’s profit for the year. The decision to wait 14 days after the announcement is “to allow the price to settle.” (Brown and Beekes 2006, p. 2) As with the previous metric, the lower the \( T_2 \), the timelier the price discovery.

The simultaneous equation approach is necessary to account for the interdependence between Timeliness and Litigation Risk. Litigation Risk is not independent of Timeliness. The concerns of Field et al. (2005) also apply here. If a firm chooses to delay information, Timeliness will be slower and \( T_2 \) and \( \epsilon_1 \) will be higher. By choosing to delay information, the firm’s Litigation Risk will be higher, implying that \( \epsilon_2 \) could also be high. This leads to possible correlation between the independent variable Litigation Risk and \( \epsilon_1 \) in equation (1), resulting in a violation of the regression assumption that the explanatory variables and the error term are independent of each other.

To identify equations (1) and (2), \( X_1 \) must contain a variable that is not in \( X_2 \) and vice versa. Following Field et al. (2005) to identify equation (1), the variable must be directly related to litigation risk but not directly related to timeliness. Previous litigation experience is a dummy variable that satisfies both criteria. The dummy is equal to 1 if the firm has been sued before and 0 otherwise. There is an indirect effect on timeliness if disclosure behaviour is altered. To identify equation (2), an early dummy will be used which equals 1 if the earnings news was announced earlier than the expected date and 0 otherwise. The expected date will be calculated as the average of the previous years’ reporting lags. If news is announced earlier than expected, timeliness of share price discovery should be substantially better. Litigation risk is only indirectly affected as the price will be ‘incorrect’ for a shorter period of time, thus decreasing the class period and litigants and cutting potential damages to the point where litigation is futile.

Variables common to both equations include size, a technology dummy, the market adjusted share return for the current year, share price volatility, share turnover, a bad news dummy and dummy variables for pre- and post- Basic and Central Bank decisions as well as for the PSLRA and SLUSA.

I will be using an approach similar to Field et al. (2005) when estimating the simultaneous equations. In the first stage, they estimated the probability of litigation and the disclosure tendency by regressing
them on $X_1$ and $X_2$ using probit. The predicted values were then substituted in as explanatory variables in the second stage regressions also estimated by probit.

I have yet to decide on exactly how my structural model will be specified and how it will be estimated. To some extent it will depend on the nature of my data set and the properties of the variables I will use.

**Expectations of Findings**

At the conclusion of my research, I hope to find that litigation risk does have a significant effect on the timeliness of share price discovery. There are conflicting views as to whether the risk of shareholder litigation will motivate managers to disclose more and less information. If my hypotheses hold, it would provide evidence that shareholder litigation is indeed beneficial to the market as a whole instead of the benefits being limited to successful plaintiffs. Litigation within boundaries should be valuable to markets that are seeking better transparency from firms. My research could give some insight into how the timeliness of share price discovery of Australian firms could be affected when shareholder litigation becomes more commonplace.

**Potential Limitations**

Although the structural model will be specified and estimated with due care, this research could be sensitive to other variables. The hypotheses identify very specific events such as the dates of cases and enacting of Acts. This could be problematic if there are other significant events around the same time as those identified in the hypotheses or if companies adapt over time to the changed legal environment. If this is the case, it would be difficult to separate out the effects of each different event, or to attribute changes in timeliness to the changed legal environment rather than to other environmental changes. Another issue is whether some included variables are correlated with omitted variables such as shareholder number and corporate governance scores. The timeliness metric could also be too noisy a measure to capture when timeliness is affected by managers changing disclosure activity due to the effect of litigation risk. A large sample size should help my study in this regard.

**References**


