# Ebbs and Flows of Securities Fraud Litigation: Empirical Examination of Post-PSLRA Frequency & Severity Trends

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## Abstract

The separation of ownership and management that characterizes modern business corporations frequently gives rise to a conflict of interest known as agency dilemma. A manifestation of information asymmetry between organizational decision-makers – i.e., corporate directors and officers – and organizational owners/investors, that discord can spur formal allegations of incorrect, incomplete, misleading, or untimely management disclosures, ultimately leading to securities fraud litigation or simply shareholder litigation. For companies with distributed ownership spread across thousands of individual and institutional investors, securities lawsuits commonly encompass large pools or 'classes' of shareholders jointly pursuing their claims seeking financial compensation for management misinformation-caused losses; not surprisingly, those class actions stand out as one of the most economically and reputationally damaging manifestations of organizational risk. The research summarized here offers empirical assessment of the 25 years of securities class action filings and settlements that followed the passage of the seminal legislative act, the Private Securities Litigation Reform Act of 1995, yielding a number of unexpected shareholder litigation incidence and cost related conclusions.

## Introduction

Among the most visible characteristics of large public business enterprises is the separation of ownership and management, a situation which creates an almost inescapable informational dependence of the former on disclosures by the latter (Eisenhardt, 1989; Hindley, 1970). Framed variously as agency dilemma (Emanuel, 2005; Finegold, Benson & Hecht, 2007; Windsor, 2009), principal-agent problem (Fama and Jensen, 1983; Hindley, 1970) or agency theory (Eisenhardt, 1989; Pepper & Gore, 2013; Stroh et al., 1996), the investor-manager informational asymmetry can lead to conflict when objectives of the two parties are misaligned. More specifically, executive managers, who are typically corporate officers entrusted with day-to-day running of a company, and corporate directors, tasked with overseeing of executive managers' adherence to sound corporate governance practices, jointly act as shareholder agents (hereon referred to as 'managers' or 'management') and are thus expected to make decisions that maximize shareholder wealth. That goal, however, may at times run counter to managers' desire to maximize their own wealth, which may compel them to make choices that suboptimize or even impair shareholder value[1]. When shareholders have reasons to believe that management's disclosures were incomplete, inaccurate, untimely, or otherwise misleading, not just in regard to the 'what' of company performance-impacting decisions, but also of the 'why', or reasons behind those decisions, and they also suffered economic harm as a direct result of those decisions, they may take legal action aimed at recouping their investment losses. This general scenario is at the root of securities fraud litigation, a key manifestation of what is commonly known as 'executive risk', one of the most economically and reputationally damaging expressions of organizational risk.

Those fundamental, disclosure-related shareholder rights were established in the early 1930s with the passage of the U.S. Securities Act of 1933 and the U.S. Securities Exchange Act of 1934[2]. Jointly known as securities laws, those statutes require all companies traded on U.S. public exchanges to timely, accurately, and completely disclose all pertinent and material financial details (Kross & Suk, 2012; Morris, Grippo & Barsky, 2012); failure to meet those obligations allows economically harmed shareholders to seek legal relief, typically in the form of financial compensation (Palmiter, 2009; Pickering, 1968; Sametz, 1991). Broadly known as securities litigation, the resultant shareholder lawsuits can be pursued individually by single shareholders or as a group known as a 'class', the former known as securities class actions or SCAs (Barabanov et al, 2008; Francis, Philbrick & Schipper, 1994; Johnson & Clearfield, 2006). Given the economic efficiency of class actions[3], the vast majority of securities fraud lawsuits are SCAs.

When considered from an organizational perspective, shareholder class actions represent one of the most economically and reputationally damaging risks confronting directors and officers of public companies[4], and the companies themselves (Banasiewicz, 2015: Cornerstone Research, 2021). Though relatively infrequent – on average, around 4% of companies traded on U.S stock exchanges incur

[1] A fairly common example is offered by revenue recognition: At the year's end, a company may opt to recognize a large part of revenue for a project that has been booked but not yet completed because doing so may lead to larger end-of-year management bonuses; if the project ultimately does not materialize, the company will then likely need to restate its earlier reported revenue, which then may cause a downward slide in its stock price, ultimately resulting in economic harm to shareholders.

[2] The 1933 Act governs the registration of newly issued securities, while the 1934 Act controls trading of those securities; the former also created the U.S. Securities and Exchange Commission, SEC, an independent federal agency tasked with enforcing of those and ensuring laws against market manipulation.

[3] Securities fraud cases are lengthy (average duration is about 3 years from filing to disposition) and complex (require specialized legal knowledge and significant investments of time and effort) which renders the prosecution of those cases far more economically feasible for a large group rather than a single investor, unless, of course, that single investor is a large institutional holder or other, similarly resourced entity (hence it is a fairly common occurrence for such entities to opt-out of class actions and pursue their claims individually).

[4] Commonly referred to as Directors' and Officers', or D&O for short, liability, a subset of a larger domain of executive risk (for more in-depth discussion see Banasiewicz, 2015).

securities litigation annually – those suits can nonetheless result in substantial, i.e., multi-million, even multi-billion-dollar, losses, not to mention negative publicity (Chen, 2010; Gertsen et al., 2006). To make matters worse, the traditionally financial disclosures focused scope of what triggers SCA is expanding, as what investors consider to be 'pertinent' and 'material' information is now beginning to encompass not only financial performance related disclosures, but also those addressing the increasingly more important environmental, social, and governance (ESG) considerations (Banasiewicz, 2015; Scherer & Schmiel, 2021). In particular, organizational disclosures addressing policies and practices reflecting companies' sustainability related choices along with social fairness and equality related efforts are playing an increasingly important role (Saad & Strauss, 2020). Consequently, developing of well-founded expectations regarding the likely future impact of the threat of securities litigation on organizational management calls for an in-depth examination of historical trends and triggers of SCA claims, and an assessment of the changing nature of the broadly defined organizational citizenship.

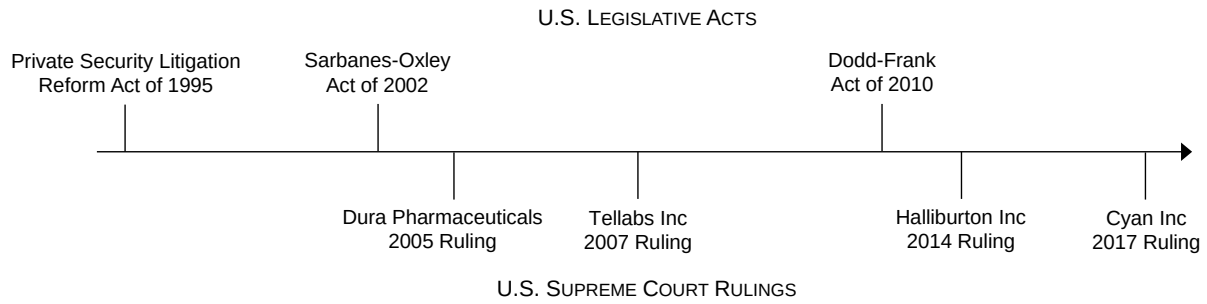
**Private Securities Litigation Reform Act**

At the tail end of 1995, the U.S. Congress once again delved into securities market manipulation considerations by enacting the Private Securities Litigation Reform Act (PSLRA). Aimed at stemming frivolous or unwarranted securities fraud lawsuits alleging management misrepresentations, the key provisions of the Reform Act were centered on increasing the amount of required evidence (Banasiewicz, 2015; Finegold et al., 2007). More specifically, investors alleging management misrepresentations were now required to bring forth particular fraudulent statements, to allege that the fraudulent statements were reckless or intentional, and also had to prove that they suffered a financial loss as a result of the alleged fraud. Effectively, the enactment of PSLRA gave rise to what can be considered the 'modern era' of securities litigation (Hazen, 2009; Morris et al., 2012).

## Shareholder Litigation in the Post-PSLRA Era

The enactment of the Private Securities Litigation Reform Act (PSLRA) at the tail end of 1995 effectively redefined the key aspects of how, and under what circumstances shareholders can hold directors and officers of business companies accountable for the content and timing of pertinent and material disclosures (Cho et al., 2003; Hazen, 2009; Morris et al., 2012). In fact, those changes were so fundamental that securities litigation trends are now commonly looked at as pre- vs. post-PLSRA (for tracking purposes, January 1, 1996, is the commonly used line of demarcation). However, while the passage of the Reform Act had trend-resetting impact, the post-PSLRA era has also been shaped by additional legal developments that further refined filing and prosecution of securities fraud cases – some of those developments were in the form of U.S. legislative acts, and others in the form of applicable U.S. Supreme Court rulings, both graphically summarized in Figure 1.

Figure 1
Key Securities Litigation Related Legal Developments: 1995 - 2021



Though an in-depth discussion of the federal acts and court rulings delineated in Figure 1 falls outside of the scope of this research, it is instructive to note some key takeaways. First, the two post-PSLRA legislative acts mandated a number of reforms aimed at enhancing corporate responsibility and the clarity of financial disclosures as means of combatting corporate and accounting fraud (Sarbanes-Oxley Act), in addition to also reshaping the U.S. regulatory system in a number of areas including strengthening of investor protection through more effective oversight of corporate governance and disclosure practices, and further enhancing management transparency (Dodd-Frank Act). Second, the core outcomes of the U.S. Supreme Court rulings summarized in Figure 1 was further clarification of loss causation (causal connection between alleged management misrepresentations and shareholder losses) and scienter (wrongful state of mind) principles, both of which are at the heart of securities fraud allegations. Building on the foundational provisions of the Securities Act of 1933 and the Securities Exchange Act of 1934, the legislative and judicial developments summarized in Figure 1 now shape the general outline of public disclosure related responsibilities of managers of publicly traded companies, as seen from the perspective of shareholder rights (Pickering, 1968; Rogers et al., 2011; Sametz, 1991). It is important to note that the definition of 'disclosure' includes both written statements, such as the annual financial statements communicated via the SEC Form 10-K, and verbal communications, such as comments made during analyst calls (Kross & Suk, 2012; Lees, 1981). Moreover, the rights of shareholders in that regard are absolute, which means that no distinction is made between intentional and unintended errors, omissions, or misstatements – in other words, any written or verbal, formal or informal disclosure related error or omission can be seen as a violation of securities laws, even if no discernible intent to deceive is evident (Chen, 2010; Emanuel, 2005).

However, even though any incomplete, misleading, or inaccurate managerial disclosure automatically creates potential legal liability, in order for shareholders to have grounds for initiating a securities fraud case there also has to be manifest economic loss, typically in the form of precipitous stock price drop that can be causally attributed to alleged management misrepresentations (Acito et al., 2009; Banasiewicz, 2015; Cheng et al, 2010; Morris, Grippo & Barsky, 2012). In other words, shareholder litigation arises as a consequence of (alleged) managerial misrepresentations and a corresponding – i.e., having occurred within the same timeframe and being causally attributable to the said misrepresentations – shareholder loss; if shareholders did not suffer economic harm in the form of management information-precipitated share price drop they have no grounds for seeking compensation, even if management misstatements are clearly manifest (Banasiewicz, 2015). (The loss provision only applies to shareholder litigation; management can also be held legally accountable by regulators, most notably the Securities and Exchange Commission). The reason for that stems from the fact that ultimate goal of securities laws is to contribute to efficient functioning of capital markets by providing assurance of legal recourse to investors who, as company outsiders, have to depend on completeness, accuracy, and timeliness of investment-pertinent information provided by organizational managers (Hazen, 2009).

**Organizational Duality and Shareholder Actions**

In the legal sense, a corporate entity is endowed with a person-like status, thus it is separate and distinct from individuals that comprise it (Pickering, 1968); at the same time, from the organizational theory point of view, a business organization is a group of individuals joined together in pursuit of commercial goals (Banasiewicz, 2021; Rogers, 1975). One of the numerous aspects of that duality is that shareholder litigation can be directed either at an organization as a separate legal entity, or at individual organizational decision makers, typically the key corporate officers and directors (or at both, as is often the case in securities fraud litigation). Moreover, as noted earlier, while shareholder lawsuits tend to be focused on compensation for incurred economic damages (Banasiewicz, 2015; Barabanov et al., 2008), they can also seek changes in policy or personnel, stemming from shareholders' belief that managers' actions are causing harm to the organization itself (Francis, Philbrick & Schipper, 1994; Hazen, 2009). The result is a multiplicity of shareholder disputes and securities litigation actions, which includes the above discussed class action securities fraud suits, as well as derivative litigation or regulatory

enforcement actions, typically by the Securities and Exchange Commission. While all of those different manifestations of what is broadly known as executive risk can have significant economic and reputational impact (Banasiewicz, 2015; Gertsen et al., 2006), of interest to this research are just the economic damages focused securities class action lawsuits.

**Reliance and Materiality**

As noted earlier, the two key securities fraud allegation triggers are the ideas that 1. shareholders relied on the allegedly incorrect, misleading, or untimely disclosures, and 2. that those disclosures were material to their decision-making. Recognizing the difficulty – in reality, practical near-impossibility – of convincingly establishing investor-level reliance on incorrect, misleading, or incomplete management disclosures, while at the same time also discerning the degree of materiality of any such misinformation, adjudicators[5] of securities fraud allegations have been relying on a broad legal doctrine known as fraud-on-the-market (Hazen, 2009; Sametz, 1991). It holds that price of a security traded on an efficient market reflects all public material information, thus any material misrepresentations can be expected to translate into substantive change in investors' evaluations of the company's past performance and/or its future prospects (Kross & Suk, 2012; Rogers, Van Buskirk & Zechman, 2011). In short, once made public, management disclosures are assimilated by the marketplace and all market participants are then assumed to rely on that information. Implied in the idea of efficient capital markets' rapid incorporation of pertinent information is that revisions of substantive financial measures can be expected to have considerably more pronounced impact on investors' evaluation of a stock's investment-worthiness than 'cosmetic' corrections, such as those addressing non-material typographical and other stylistic errors (Cho et al., 2003; Gertsen, van Riel & Berens, 2006; Marcy, 2007). Moreover, within the realm of substantive revisions, direction and magnitude of initial misrepresentations further moderate their impact – as can be expected, magnitudinally large negative corrections, as exemplified by steep downward revisions of earlier reported profitability measures, will have far more profound impact on investor evaluations than comparatively modest revisions of the same outcomes (Acito, Burks & Johnson, 2009; Burks, 2011; Keune & Johnstone, 2012).

**Outcome Scenarios**

The brief schematic of securities fraud litigation would not be complete without briefly outlining the key case disposition outcomes. In principle, securities fraud cases that are not initially dismissed[6] (typically due to insufficient evidence) are either tried in court (which can lead to a jury or bench verdict) or are settled out of court (Beck & Bhagat, 1997; Hazen, 2009). Interestingly, of the more than 6,100 individual SCAs that have been filed in the post-PSLRA era (Securities Class Action Clearinghouse, 2022), a grand total of just 21 cases went to trial – of those, only 14 have been tried to a verdict, while the remaining 7 were settled out of court prior to reaching a verdict. Hence even taking into account that roughly 40% of initial securities fraud allegations are dismissed, a conservative estimate of a securities fraud case being tried to a verdict is trivially small, roughly 1-in-250 cases, or 0.4% (14/(6,100*.6)). In view of that, quantifying the threat of shareholder litigation is ultimately focused on tracking of SCA filings, which reflects the frequency and SCAs, and settlements, which captures the severity dimension of that facet of executive risk.

[5] In the post-PSLRA era just federal courts, until the 2018 U.S. Supreme Court Cyan v. Beaver County Employees Retirement Fund ruling which expanded it to also include state courts (as in the pre-PSLRA era).
[6] According to a widely used industry benchmark, about 40% of initial SCA filings are dismissed during the initial discovery, though at least some of those initially dismissed cases are subsequently amended and re-filed.

## Key SCA Trends

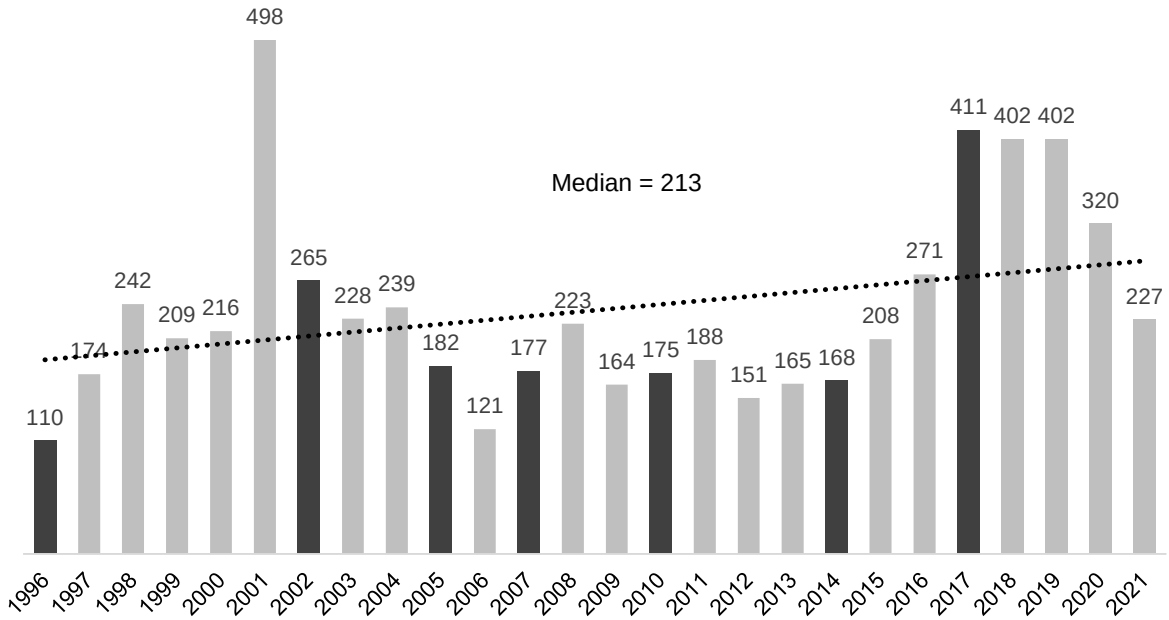
Securities class actions are often characterized as low frequency, high impact events (Banasiewicz, 2015; Beck & Bhagat, 1997). On average, a company traded on a public U.S. exchange (to be subject to the U.S. securities laws, a company does not need to be domiciled in the United States, it just needs to have securities traded on a U.S. stock exchange) faces a roughly 4% chance of incurring securities litigation, and the median settlement cost is about $8,750,000; factoring-in defense costs (given the nuanced and complex nature of SCA cases, even companies with sizable in-house legal staffs tend to use specialized outside law firms), estimated to average about 40% of settlement costs, the total median SCA cost is about $12,250,000 (Erudite Analytics, 2022). Those are just the economic costs – securities litigation also carries substantial though hard to quantify reputational costs, as being accused financial fraud often brings with it waves of adverse publicity (Chen, 2010; Gertsen et al., 2006).

In more tangible terms, according to the Securities Class Action Clearinghouse (2022), in the 25-year, post-PSLRA span from 1996 to 2021 there have been a total of 6,118 SCAs filed in federal courts; to-date (some of the more recent cases are still ongoing), 2,352 settlements arouse out of those lawsuits, adding up to a grand total of more than $127.5 billion (Erudite Analytics, 2022). Those 25-year aggregates hide considerable cross-time and cross-industries variability, which is explored in more detail below, as a step toward uncovering potential future shareholder litigation trajectories.

### Aggregate Frequency & Severity

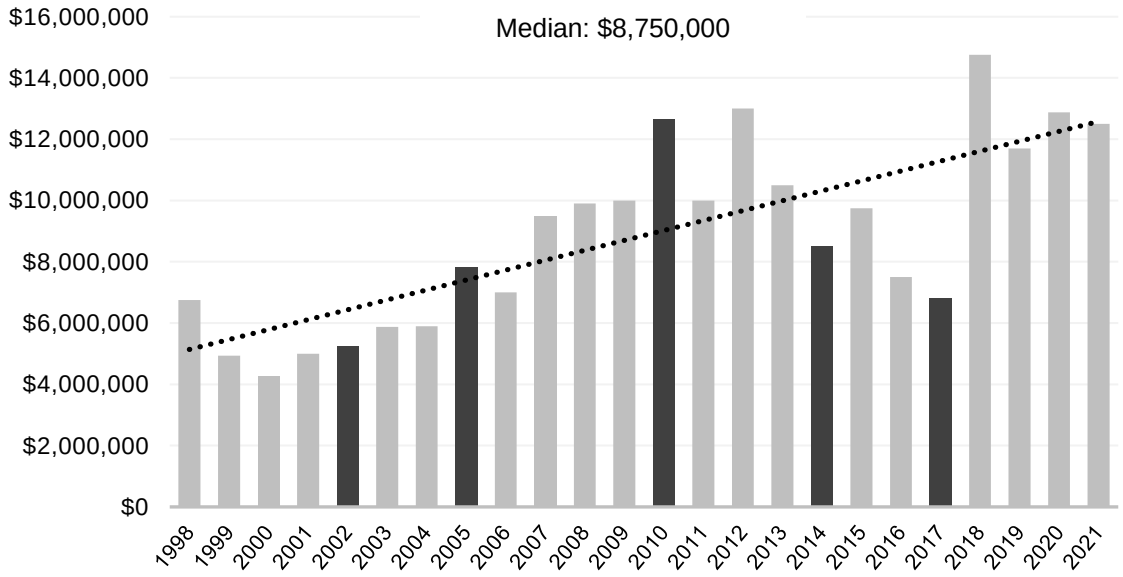
The preceding overview suggests that the two core SCA tracking metrics are frequency, or 'how often,' and severity, or 'how much' (Banasiewicz, 2014; Barabanov et al., 2008). Starting with the former, Figure 2 shows the year-by-year (using the lawsuit filing date as the assignment basis) distribution of the 6,118 SCAs that have been recorded in the twenty-five-year span between 1996 and 2021; the dark-shaded bars highlighting years 1996, 2002, 2005, 2007, 2010, 2014, and 2017 relate the key post-PSLRA U.S. legislative acts and the U.S. Supreme Court rulings, summarized earlier in Figure 1, to the annual SCA counts, as a mean of visually exploring potential associations.

Figure 2
Annual SCA Frequency: 1996-2021



One of the most striking informational elements of the summary of annual SCA frequencies is the exceptionally high 2001 count (498 cases). Buoyed by a sudden influx of the so-called 'IPO laddering[7]' cases which followed on the heels of bursting of the dot-com bubble of the early Internet era (between 1995 and 2000) characterized by excessive speculation of Internet-related companies, year 2001 set the all-time record for the number of securities fraud cases. Setting that single anomalous year aside, the second key takeaway is a distinct upward-sloping ebb and flow pattern, suggesting steady cross-time growth in average annual SCA frequency. However, there appears to be no visually obvious association between the incidence of securities fraud litigation and the distinct SCA-related legislative and legal developments (timing of which is highlighted by the dark-shaded bars in Figure 2). A potential alternative explanation of the gradual uptick in the annual incidence of shareholder litigation might be the gradual broadening of the scope of disclosure materiality. More specifically, traditionally rooted almost exclusively in financial performance measures, the definition of what constitutes 'material disclosure' is now beginning to encompass non-financial environmental, social justice, and governance, jointly known as ESG, considerations (Banasiewicz, 2015; Morris et al., 2012; Scherer & Schmiel, 2021), resulting in public companies having to content with a broader array of potential securities litigation triggers, ultimately manifesting itself in higher average frequency of SCA litigation.

Figure 3
Annual Median SCA Settlements



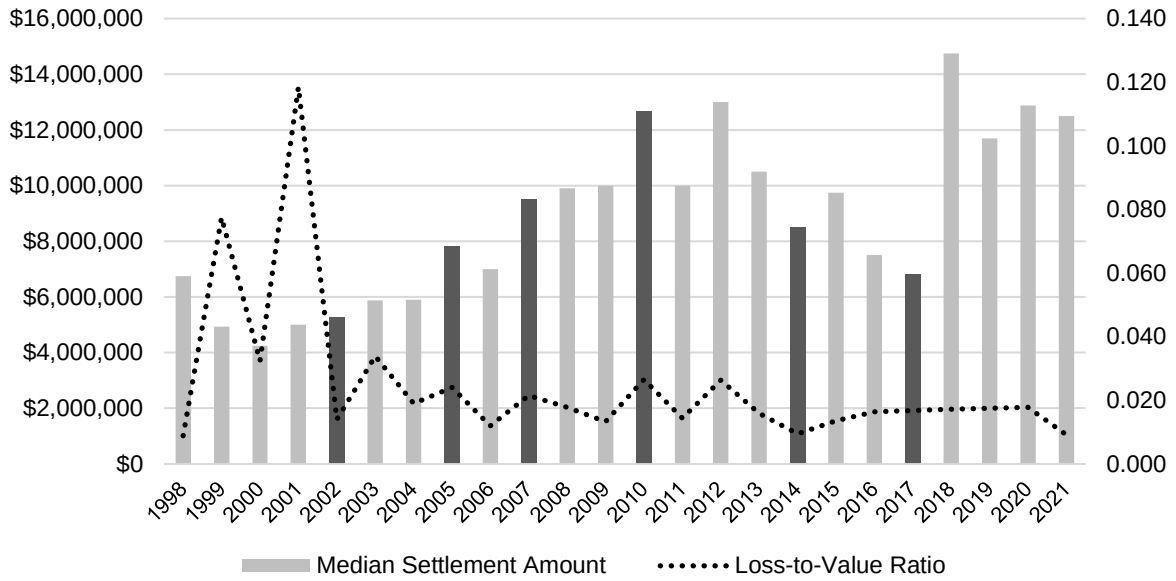

A similar, ebb and flow upward trending pattern characterizes the second key facet of shareholder litigation – severity, graphically summarized in Figure 3[8]. There are two key takeaways here: First, there again appears to be no obvious impact of the individual legal developments summarized in Figure 1 on the median settlement value. Second, there is a pronounced upward drift in annual median settlement amounts; however, that conclusion warrants closer examination in view of the potentially moderating impact of company size, which is rooted in the positive correlation between the magnitude of SCA

[7] Initial Public Offering, opening shares of a private corporation to the public in a new stock issuance. 'Laddering' is an illegal practice of offering a below-market price to investors prior to the IPO if those same investors agree to buy shares at a higher price after the IPO is completed.

[8] The settlement part of the analysis encompasses reaches back to 1998 not 1996 because that was the first year for which analytically meaningful number of settlements for post-PSLRA shareholder class actions was available (see footnote #3).

settlements and the size of settling companies, as measured by market capitalization (Banasiewicz, 2015; Beck & Bhagat, 1997; Krishnan, 2012). More specifically, for all 1996-2021 SCA settlements (n = 2,352) for which market capitalization value was available around the time of settlement announcement (n = 1,373), the value of the Pearson correlation between Settlement Amount and Market Capitalization was .21 (p <.01). This empirically validated but also intuitively obvious association (i.e., larger company means potentially larger aggregate shareholder loss) suggests that the year-by-year variability in size-based mix of companies may have a material impact on average annual settlement values. Figure 4 offers a graphical assessment of that assertion.

Figure 4
Median SCA Settlement Amount vs. Loss-to-Value Ratio




The trendline in Figure 4 depicts the relationship between loss-to-value ratio, which captures the relationship between the magnitude of SCA restatements and the magnitude of the corresponding market capitalization values, and the annual median SCA settlement values. The early, i.e., 1998 thru about 2003, volatility can be largely attributed to a cluster of some of the most egregious, in terms of the underlying offenses as well as the resultant SCA settlements, examples of securities fraud: Enron, WorldCom, and Tyco International, all three of which came to light in 2001 and 2002 and resulted in the three largest-ever SCA settlements[9]. That early volatility aside, the overall conclusion that emerges from the long-term trend, and particular the most recent several years, is that there is a surprisingly stable relationship between the size of SCA settlements and the magnitude of the corresponding market capitalization, suggesting that the upward median settlement value trend in Figure 3 is really a manifestation of steadily increasing median market capitalizations.

**Digging Deeper**

Examination of aggregate frequency and severity, 25-year long trends can be a source of informative topline insights, but may also obscure more nuanced effects, such as cross-industry differences. Moreover, conclusions drawn from long-term trends also implicitly discount the importance

[9] The $7.2 billion Enron Corp. settlement is the largest-ever SCA loss; the WorldCom Inc. ($6.12 billion) and Tyco International ($3.2 billion) settlements are the second and third costliest; both Enron and WoldCom collapsed under the weight of their accounting scandals.

of recency, or the closeness of past outcomes, which can reduce the predictive power of those conclusions by blending the relatively recent patterns with comparatively older ones. Motivated by those considerations, the ensuing analyses aim to disaggregate the frequency and severity trends summarized in figures 2, 3, and 4 by delving into cross-industry differences in the context of a shorter timeframe.

**Industry Definition and Data Recency**

The notion of 'industry' is so widely used and familiar that most rarely stop to consider the basis for how industries are defined – those who look into that question invariably encounter an unexpected level of ambiguity. The reason for that is that there are numerous industry classification standards that have been developed over the past several decades by entities that span national governments, transnational bodies, and private organizations. National government-drafted industry classification schemas include the Standard Industrial Classification (the oldest industry classification taxonomy and the source of the ubiqutuous SIC codes) created by the United States government, the North American Industry Classification System developed by the United States, Canadian and Mexican governments (intended to replace the SIC system of codes), the United Kingdom Standard Industrial Classification of Economic Activities drafted by the United Kingdom government, the Swedish Standard Industrial Classification developed by the government of Sweden, Australian and New Zealand Standard Industrial Classification created by governments of Australia and New Zealand, and the European Union-developed Statistical Classification of Economic Activities in the European community. Transnational bodies-conceived taxonomies include International Standard Industrial Classification of All Economic Activities, and United Nations Standard Products and Services Code, both created by the United Nations. And lastly, there are numerous private interests-developed taxonomies, a group which is perhaps best exemplified by Standard & Poor's and MSCI co-developed Global Industry Classification Standard, and FTSE-developed Industry Classification Benchmark. Table 1 offers a summary of the ten best-known industry classification taxonomies, as seen from the perspective of applied, U.S.-based users.

Table 1
Best-Known Industry Classification Taxonomies

| Industry Classification Scheme | Year Introduced | Orientation | Geographic Scope | Classification Units | Hierarchy Levels | Update |
|---|---|---|---|---|---|---|
| Standard Industrial Classification (SIC) | 1938-1940 | Production and Market | United States | Establishments | 4 | Last updated* in 1987 |
| International Standard Industrial Classification (ISIC) | 1948 | Production | Global | Establishments | 4 | Last updated in 2006 |
| North American Industry Classification System (NAICS) | 1997 | Production | North America | Establishments | 5 | Every 5 years |
| Global Industry Classification Standard (GICS) | 1999 | Market | Global (120 countries) | Companies; Securities | 4 | Annual reviews |
| Morningstar Category Global Equity Classification Structure | 2000 | Market | Global | Companies; Securities | 4 | Ad hoc |
| Industry Classification Benchmark (ICB) | 2001 | Market | Global (75 countries) | Companies; Securities | 4 | Biannual reviews |
| FactSet Revere Business and Industry Classification System (RBICS) | 2002 | Market | Global (78 countries) | Companies; Securities; Business lines | 6 | Annual reviews |
| Thomson Reuters Business Classification (TRBC) | 2004 | Market | Global (130 countries) | Companies; Securities | 5 | Ad hoc |
| Bloomberg Industry Classification System (BICS) | 2011 | Market | Global | Companies; Securities; Business lines | 7 | Annual reviews |
| Sustainable Industry Classification System (SICS) | 2012 | Sustainability | United States | Companies | 2 | Ad hoc |

**By the US Department of Labor, which maintained the official SIC Code system comprised of 1,514 codes (across the 2, 3, and 4-digit levels); the more granular (6,7, and 8-digit) Extended SIC Codes have since been developed by private companies – those are updated on continuous basis.*

The competing taxonomies summarized in Table 1 differ, most notably, in terms of their orientation, which tends to be either production- (process similarities) or market- (demand characteristics) centric, geographic scope (national vs. global), classification units (companies, establishments, business lines, securities), and the number of hierarchy levels. As suggested by the substantial cross-taxonomy differences summarized in Table 1, the choice of industry classification schema can lead to conflicting descriptions of product market competition and firm characteristics across product market competition levels (Li et al., 2020). In fact, different classification systems are seldom consistent for a given firm – for instance, a study by Krishnan & Press (2003) found that mapping four-digit SIC codes to five- or six-digit NAICS (which was introduced in 1997 expressly to replace the SIC structure dating back to the 1930s) produced only 41.9% agreement; in a similar study, Bhojraj et al. (2003) found only 56% agreement between GICS and SIC classifications. The absence of singular, universal framing of 'industry' is troubling, particularly considering the potential for substantive differences in the common practice of industry benchmarking. In fact, a recent study (Banasiewicz, 2022) concluded that using different industry classification schema can produce material differences in benchmarking conclusions.

In view of the difficulty of choosing among so many comparably taxonomically robust schemas producing materially different industry groupings, the approach taken in this research is to instead follow the approach used by the U.S. Securities and Exchange Commission (SEC), the key U.S. securities laws enforcement agency. The SEC requires all registrants to identify a single primary SIC code, following which it divides all public filings, and thus the entities submitting those filings, into seven distinct segments: Energy & Transportation, Financial Services, Life Sciences, Manufacturing, Real Estate & Construction, Technology, and Trade & Services. The resultant SIC-based groupings are analogous to *sectors*, which are the most aggregate company clusters (each encompasses multiple industries) used by NAICS, GICS and other taxonomies; the use of sectors is also analytically appropriate in view of the relatively small average annual SCA filing counts (median = 213), and even smaller settlement counts.

The second key trend disaggregation consideration is *recency* of data, or the closeness of SCA filings and settlements. The broad 25-year perspective captured in figures 2, 3, and 4 confounds numerous legal developments (summarized in Figure 1) with broad economic events, such as the 2007-2008 global financial crisis, and more general societal trends, such as the relatively recent intensification of interest in the impact of ESG considerations. Moreover, it also dilutes micro trend changes – for instance, while it is well-established that median based estimates are unaffected by outliers (Banasiewicz, 2022; Kampke, 2010), it might be less obvious that data time horizon choices can also have a pronounced impact on statistical estimates. For example, the median number of SCA filings for the full 1996-2021 25-year period is 213 (see Figure 2), whereas the median number of SCAs for just the most recent 10 years (2012 thru 2021) is 249. In short, given that recent outcomes are generally more indicative of the future (Abbasimehr & Bahrini, 2022; Kumar & Reinartz, 2018), the data recency question needs to be carefully considered. But what, exactly, should be the line of demarcation between data that are recent and those that are not? While it is not always easy to arrive at a truly objective answer to that important question, analyses of legal trends are commonly tied to statutes of limitations of applicable laws (Flynn, 2019; Montana, 1997), which offers a convenient basis for objectively delimiting between 'recent' and 'old' data. For securities laws, the statute of limitations applicable to civil monetary penalties (manifesting themselves in the form of the earlier discussed SCA settlements) was set by the U.S. Supreme Court in its 2013 ruling[10] to be 5 years from the date of the underlying violation. Using that as the basis for data recency, the ensuing analysis will focus on 2017-2021 SCA filings and settlement trends.

**Recent Cross-Industry SCA Trends**

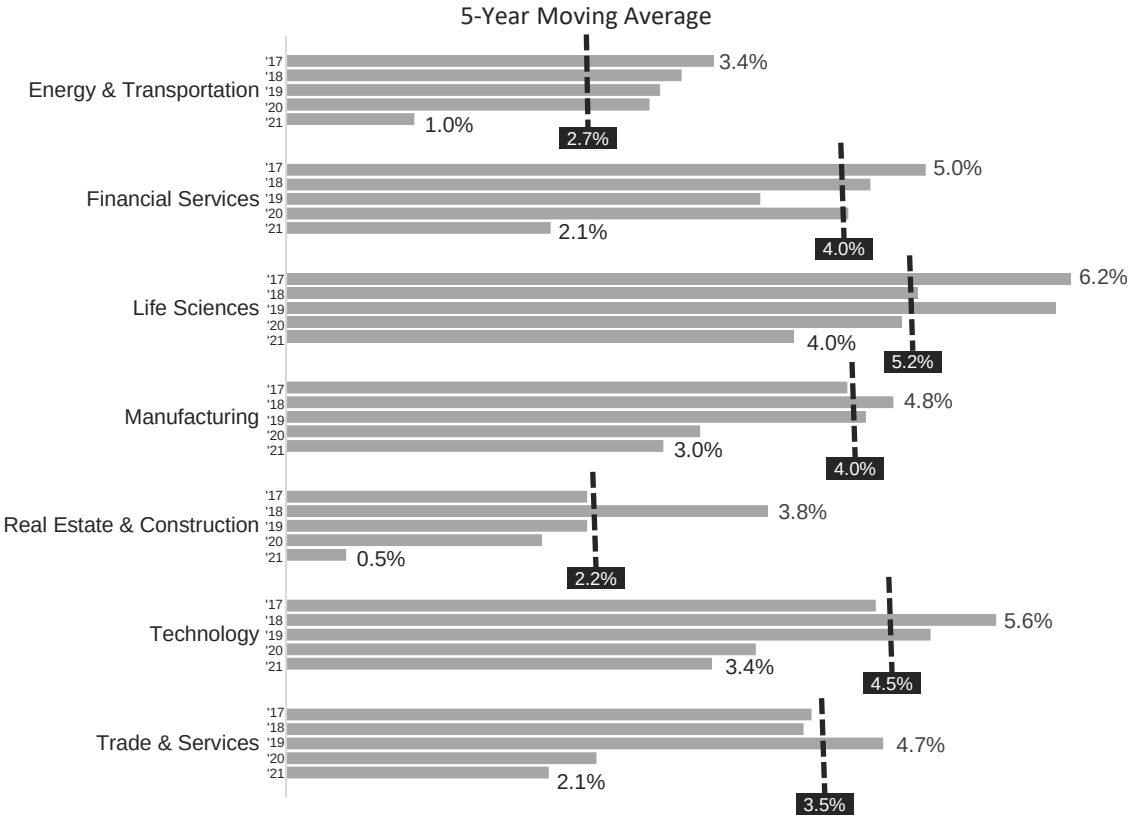
Zeroing-in on the most recent five years of securities class actions filings and settlements (each selected separately, i.e., all SCA 2017-2021 filings and, separately, all SCA 2017-2021 settlements), in

[10] Gabelli v. Securities and Exchange Commission.

conjunction with also breaking down the all-companies aggregate trend into seven SEC-defined industry sectors paints a picture of considerable cross-segment variability, as graphically summarized in Figure 5.

Erudite Analytics', a consultancy, proprietary database of 8,965 public (i.e., traded on U.S. stock exchanges) companies, each labeled with self-designated primary SIC code, coupled with SEC-reported total annual SEC Form 10-k filings, were utilized to develop the base annual company counts, onto which the Securities Class Action Clearinghouse-sourced listing of securities fraud litigation filings was overlayed, ultimately giving rise to SCA incidence rates summarized in Figure 5.

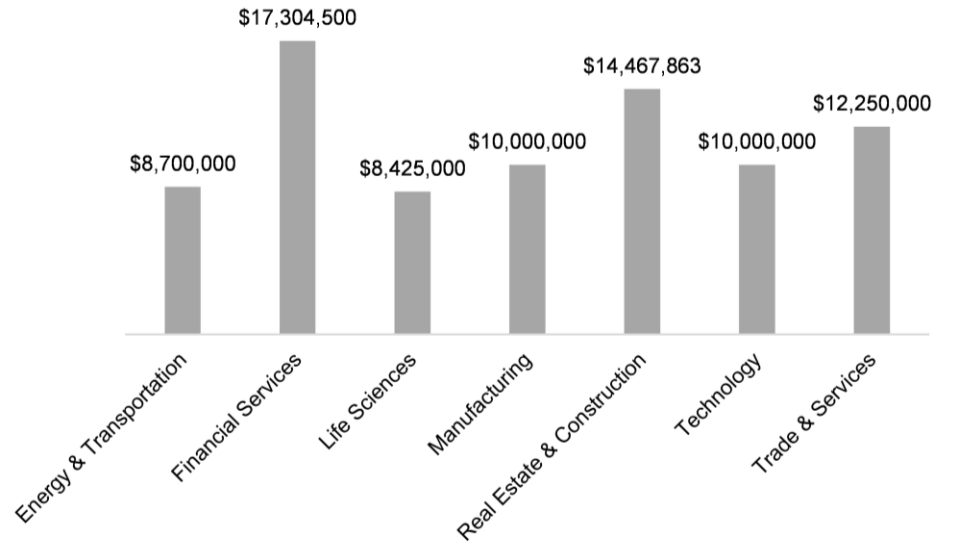
Figure 5
Sector-Specific 2017-2021 SCA Filing Frequency




As shown by the 5-Year Moving Average along with the low and high 5-year frequency values, the incidence of securities fraud litigation varies considerably across the seven industry sectors, with Life Sciences exhibiting the highest overall incidence rate, and Real Estate & Construction the lowest. It is also worth noting that the within-segment annual incidence rates fluctuate noticeably, which underscores the importance of framing the reported 5-Year Moving Average as an approximation rather than an exact value. Still, the empirical evidence presented in Figure 5 suggests that based on the most recent trends, as a group, Life Sciences firms face the greatest probability of incurring shareholder litigation.

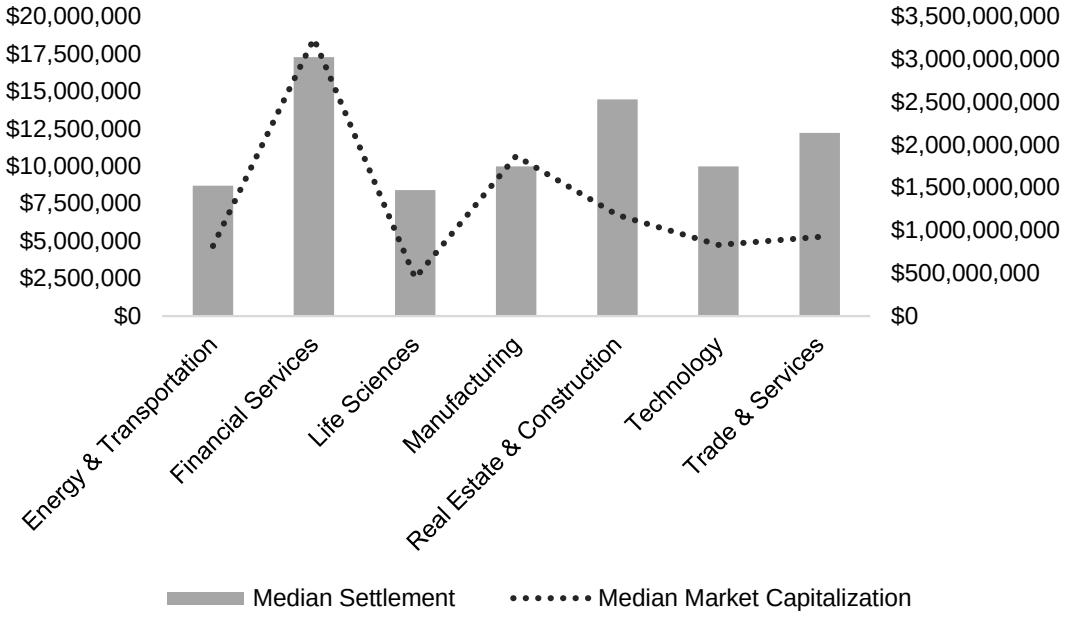
Given that approximately 40% of securities fraud cases are dismissed during the initial discovery (resulting in no settlement) and the remaining cases may take up to several years to be settled, annual settlement counts are considerably lower, rendering parallel-to-Figure 5 settlement analysis statistically unsound (i.e., cross-time and cross-sector breakdowns would result in prohibitively small sample sizes). More specifically, at a sector level, average annual number of settlements ranges from only about 4 for Real Estate & Construction (it is by far the smallest, number of companies-wise, of all seven SEC groupings) to a high of 32 for Life Sciences. With that in mind, Figure 6 offers a comparison of 2017-2021 median settlement values for all sectors combined.

Figure 6
2017-2021 Median SCA Settlement Values




Once again, considerable cross-sector variability is evident, with median settlement values ranging from a low of $8.425 million for Life Sciences companies to a high of $17.305 million for Financial Services firms. However, as noted earlier, the magnitude of SCA settlements is positively correlated with market capitalization, thus at least some of the variability depicted in Figure 6 could be due to cross-sector company size differentials. Examining company-specific market capitalization values recorded about the time individual settlements were announced yields supporting evidence: Financial Services firms boasted by far the largest median market capitalization of $3.241 billion, while Life Sciences companies recorded the lowest median market capitalization value of $446 million. Figure 7 below offers an overall SCA settlement vs. corresponding market capitalization value comparison.

Figure 7
SCA Settlement vs. Market Capitalization



While clearly evident, the settlement amount-market capitalization association appears to be strong for Financial Services and Life Sciences organizations, which fall on the high and the low end, respectively, of the settlement amount-market capitalization spectrum – that association, however, is less clear for the remaining five sectors. For instance, Manufacturing companies boast the second highest market capitalization ($1.872 billion), but their median settlement value of $10 million is noticeably lower than Real Estate & Construction ($14.468 million) and Trade & Services ($12.25), both of which exhibit significantly lower market capitalization values ($1.182 billion and $923.6 million, respectively), which suggest the need for more in-depth analysis. Consider Table 2.

Table 2
Fair Share Index

| Sector | Share of: | | | Fair Share Index | |
|---|---|---|---|---|---|
| | Companies | Filings (#) | Settlements ($) | Frequency | Severity |
| Energy & Transportation | 13% | 9% | 18% | 0.69 | 1.80 |
| Financial Services | 13% | 14% | 24% | 1.07 | 0.57 |
| **Life Sciences** | 18% | 25% | 23% | **1.35** | **2.70** |
| Manufacturing | 15% | 16% | 9% | 1.04 | 0.29 |
| Real Estate & Construction | 9% | 5% | 6% | 0.58 | 0.52 |
| Technology | 13% | 15% | 10% | 1.13 | 0.88 |
| Trade & Services | 18% | 16% | 11% | 0.91 | 0.65 |

The goal of the Fair Share Index (FSI) summarized in Table 1 is to amalgamate and systematize the frequency and severity cross-sector comparisons discussed earlier, while also factoring-in important mediating considerations, such as the impact of company size on the size of settlements. FSI is rooted in the idea that, everything else being equal, a large group of similar companies, as exemplified by industry sectors, that accounts for a certain proportion of all companies, can be expected to also account for a proportional share of all SCA lawsuits (frequency) and a proportional share of total market capitalization-weighted SCA settlements (severity). For instance, given that the Life Sciences sector represents approximately 18% of companies in Erudite Analytics' SCA Tracker database (which encompasses primarily companies traded on NYSE and NASDAQ, but also a sizable cross-section of OTC traded firms), that sector can then be expected to account for about 18% of SCA filings, and also about 18% slice of the aggregate, size-weighted SCA settlement amount. If that was the case, the Life Sciences sector would be deemed to exhibit average exposure to the threat of shareholder litigation (in the context of either or both SCA dimensions). If, on the other hand, Life Sciences accounted for larger than expected share of filings or settlements, it would then be deemed to have heightened SCA incidence or severity exposure; conversely, if it accounted for a smaller than expected share of filings or settlements, it would be deemed to exhibit sub-average SCA exposure (numerically, the FSI is centered on 1.0, thus values greater than 1.0 indicate heightened and values smaller than 1.0 indicated sub-average SCA exposure). Also, given that due to random fluctuations alone the chances of any sector's frequency or severity FSI equaling exactly 1.0 are low, the FSI estimation logic should be framed as deviation-adjusted range, computed here using the established concept of average absolute deviation, as follows:

$$\text{AAD} = \frac{1}{n}\sum_{i=1}^{n}|x_i - m(X)|$$

*where*

m(X) is average frequency or severity FSI value
n is frequency or severity record count
$x_i$ is individual frequency or severity FSI values

Using the above AAD calculation and the 'Share of' values shown in Table 1, the average frequency deviation was estimated to be 0.21, and the average severity deviation was estimated to be 0.68. With those estimates as additional inputs, sector specific 'Fair Share Index: Frequency' values smaller than 0.79 or greater than 1.21 point toward sub-average or heightened, respectively, SCA frequency exposure, and 'Fair Share Index: Severity' values smaller that 0.32 or greater than 1.68 point toward sub-average and heightened, respectively, SCA severity exposure. The examination of sector values in Table 1 points to the Life Sciences sector as the one that exhibits clearly heightened SCA incidence and severity exposure, suggesting that, overall, Life Sciences firms are more likely than others to be sued by their shareholders, and those suits are also likely to lead to disproportionately large (vis-à-vis the company size) settlements. Also worth noting is the heightened Energy & Transportation sector's value of the Severity FSI; when interpreted jointly with the sector's lower than expected Frequency FSI value, the evidence in Table 1 suggests that Energy & Transportation firms are comparatively less likely to be sued by their shareholders, but when sued, those firms face considerably higher than suggested by their size settlement costs.

## Conclusions

The research summarized here had two core objectives: Firstly, it was to offer a conclusive summary of the key securities fraud litigation trends that emerged since the passage of the Private Securities Litigation Reform Act (PSLRA), an important piece of legislature which reframed the core aspects of how allegations of misconduct levied against corporate directors and officers are prosecuted. Secondly, it was to offer a more forward-looking and more granular examination of more recent trends, with an eye toward highlighting differences among distinct industry sectors.

Examination of the ebbs and flows of the aggregate, 25-year post-PSLRA trend of securities fraud litigation filings did not reveal clear association between the number of SCA filings and key post-PSLRA legislative and judicial enactments, suggesting that, overall, the incidence of securities litigation is driven largely by market forces and events, such as the 2007-2008 global financial crisis or the stock option backdating scandal (which reached its high point between 2005 and 2007). Severity-wise, the aggregate trend analysis revealed a surprisingly stable – particularly over the most recent several years – relationship between the magnitude of SCA settlements and the associated market capitalizations, suggesting that the observed cross-time variability in the median settlement amount is driven largely by fluctuations in median company size. In other words, after adjusting for annual differences in market capitalization-expressed company size, the median SCA settlement amount was remarkably flat over the past several years.

The 'deeper dive' part of the analysis focused on the most recent five years, and a more granular examination of sector-level SCA frequency and severity trends, revealing a number of interesting findings. First, there are persistent and considerable differences in SCA incidence across industry sectors, even after within-sector, cross-time variability is taken into account. Second, the association between SCA settlement amount and market capitalization that emerged in the earlier, aggregate analysis is even more pronounced when compared across industry segments, with very large cross-sector settlement magnitude differences closely paralleling differences in market capitalization. Third, after correcting for the confounding effects of sector size (i.e., the number of companies) and company size (i.e., median market capitalization), a single sector, Life Sciences, emerged as clearly exhibiting abnormally high exposure to the threat of shareholder securities litigation.

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