

Exhibit 20

CORNERSTONE RESEARCH

Economic and Financial Consulting and Expert Testimony

Securities Class Action Settlements

2017 Review and Analysis

Table of Contents

Highlights	1
Author Commentary	2
Total Settlement Dollars	3
Mega Settlements	4
Settlement Size	5
Damages Estimates	6
Rule 10b-5 Claims: “Simplified Tiered Damages”	6
’33 Act Claims: “Simplified Statutory Damages”	9
Analysis of Settlement Characteristics	11
Accounting Allegations	11
Institutional Investors	12
Derivative Actions	13
Corresponding SEC Actions	14
Time to Settlement and Case Complexity	15
Cornerstone Research’s Settlement Prediction Analysis	16
Research Sample	17
Data Sources	17
Endnotes	18
Appendices	19
About the Authors	23

The views expressed in this report are solely those of the authors, who are responsible for the content, and do not necessarily represent the views of Cornerstone Research.

Table of Figures and Appendices

Figure 1: Settlement Statistics	1
Figure 2: Total Settlement Dollars	3
Figure 3: Mega Settlements	4
Figure 4: Distribution of Post–Reform Act Settlements	5
Figure 5: “Simplified Tiered Damages” and “Estimated Damages”	6
Figure 6: Median and Average “Simplified Tiered Damages”	7
Figure 7: Median Settlements as a Percentage of “Simplified Tiered Damages” by Damages Ranges	8
Figure 8: Settlements by Nature of Claims	9
Figure 9: Median Settlements as a Percentage of “Simplified Statutory Damages” by Damages Ranges	10
Figure 10: Median Settlements as a Percentage of “Simplified Tiered Damages” and Accounting Allegations	11
Figure 11: Median Settlement Amounts and Public Pension Plans	12
Figure 12: Frequency of Derivative Actions	13
Figure 13: Frequency of SEC Actions	14
Figure 14: Median Settlement by Duration from Filing Date to Settlement Hearing Date	15
Appendix 1: Settlement Percentiles	19
Appendix 2: Select Industry Sectors	19
Appendix 3: Settlements by Federal Circuit Court	20
Appendix 4: Median and Average Settlements as a Percentage of “Simplified Tiered Damages”	20
Appendix 5: Median and Average Maximum Dollar Loss (MDL)	21
Appendix 6: Median and Average Disclosure Dollar Loss (DDL)	21
Appendix 7: Median Docket Entries by “Simplified Tiered Damages” Range	22

Analyses in this report are based on 1,697 securities class actions filed after passage of the Private Securities Litigation Reform Act of 1995 (Reform Act) and settled from 1996 through year-end 2017. See page 17 for a detailed description of the research sample. For purposes of this report and related research, a settlement refers to a negotiated agreement between the parties to a securities class action that is publicly announced to potential class members by means of a settlement notice.

Highlights

While the number of settlements in 2017 remained at relatively high levels, total settlement dollars dipped dramatically to \$1.5 billion from \$6.1 billion in 2016. This decline can be attributed to a large percentage of settlements under \$5 million combined with the absence of any settlements over \$250 million.

- There were 81 securities class action settlements approved in 2017, a slight decrease from the number of cases settled in 2016 but the second-highest level since 2010. (page 3)
- The total value of settlements approved by courts in 2017 was \$1.5 billion, the second-lowest level in the past 10 years. (page 3)
- There were four mega settlements—settlements of \$100 million or more—in 2017 (compared to 10 in 2016), accounting for 43 percent of total settlement dollars (compared to 81 percent in 2016). (page 4)
- The median settlement amount in 2017 was \$5.0 million, over 40 percent lower than both the 2016 median (\$8.7 million) and the median for all prior post-Reform Act settlements (\$8.5 million). (page 5)
- The average settlement amount in 2017 also declined, to \$18.2 million. This was 75 percent lower than in 2016 and nearly 70 percent lower than the average for all prior post-Reform Act settlements. (page 5)
- For the first time in more than five years, there were no settlements exceeding \$250 million. (page 5)
- Settlements in 2017 involved smaller cases compared to previous years. In particular, median and average “simplified tiered damages” in 2017 were the lowest over the last 10 years. (page 7)
- For 2017 cases with Rule 10b-5 claims, the average settlement amount as a percentage of “simplified tiered damages” was the highest in the last five years, driven by a sharply higher percentage for smaller cases. (page 8)
- Cases with companion derivative actions typically settle for higher amounts. In 2017, however, the median settlement for cases with companion derivative actions was lower than for cases without accompanying derivative actions. (page 13)
- Higher percentages of cases settling within two years of the filing date continued in 2017, reaching over 23 percent of all settlements. (page 15)

Figure 1: Settlement Statistics

(Dollars in Millions)

	1996–2016	2016	2017
Number of Settlements	1,616	85	81
Total Amount	\$93,193.2	\$6,118.0	\$1,473.6
Minimum	\$0.1	\$0.9	\$0.5
Median	\$8.5	\$8.7	\$5.0
Average	\$57.7	\$72.0	\$18.2
Maximum	\$8,794.7	\$1,608.6	\$210.0

Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

Author Commentary

As projected in our 2016 report, the relatively high volume of settlements continued in 2017 but the number of very large settlements declined, contributing to the substantial drop in the size of settlements overall.

2017 Findings

The decline in settlement sizes can largely be attributed to the smaller size of these cases, reflected in the lower estimates of our proxy for plaintiff-style damages. A combination of low stock market volatility in the years in which the cases were filed, as well as substantially shorter class periods, contributed to the reduction in the damages proxy for cases settled in 2017. In addition, 2017 settlements were associated with considerably smaller issuer defendants.

The decline in case size leads to other trends. For example, consistent with what we would expect for smaller cases, the time from case filing to settlement was shorter in 2017.

However, not all developments in 2017 were driven by case size. For example, institutional investors appeared less frequently as lead plaintiffs, even in large cases. Recent literature has discussed the lack of economic incentives for institutions to serve as lead plaintiffs, other than the potential benefit to public pension plans from political contributions by plaintiff attorneys, and has called for reform to improve the lead plaintiff selection process.¹

In addition, the proportion of settled securities class actions accompanied by corresponding derivative actions was among the highest we have observed in more than 15 years. Nearly half of all cases—and more than half of all settlements for \$5 million or less—involved an accompanying derivative action.

These results are unexpected since, historically, accompanying derivative actions have been associated with larger class actions and larger settlement amounts. Moreover, they are interesting in light of arguments considering whether derivative litigation is an effective mechanism to monitor corporate governance and whether eliminating derivative litigation altogether may be a viable option.²

“Simplified Tiered Damages”

In this report we focus on a “simplified tiered damages” proxy for estimating plaintiff-style damages in cases with Rule 10b-5 claims (see page 6). This replaces the measure traditionally used in settlement research. We view this proxy as an enhancement to settlement research, as this estimate

of per-share inflation is conceptually more closely aligned with the typical plaintiff approach. This measure is more fully described in *Estimating Damages in Settlement Outcome Modeling*.

What stands out in 2017 is the drop in mid-range to large settlements, due largely to a reduction in the proxy for damages, as well as the size of the issuer defendant firms involved.

*Dr. Laura E. Simmons
Senior Advisor
Cornerstone Research*

Looking Ahead

Recent data on case filings can provide insights into potential settlement trends. See Cornerstone Research’s *Securities Class Action Filings—2017 Year in Review*.

The record numbers of cases filed in the previous two years might suggest that the high volume of settlements will continue. However, these data also show higher rates of dismissals, which could offset the increase in filings in terms of settlement activity.

The latest data also suggest that smaller firms have become more common targets of securities class actions, but there is no evidence that indicates the unusually low levels of “simplified tiered damages” observed in 2017 will necessarily continue in upcoming years.

On the other hand, recent filings data support the potential continuation of a reduced level of institutional investors serving as lead plaintiffs, whose presence is typically associated with higher settlement amounts. In addition, we expect the rate of settlements for issuers in healthcare and related industry sectors, such as biotech and pharmaceuticals, to persist given the prevalence of these industries among newly filed cases.

—Laarni T. Bulan, Ellen M. Ryan, and Laura E. Simmons

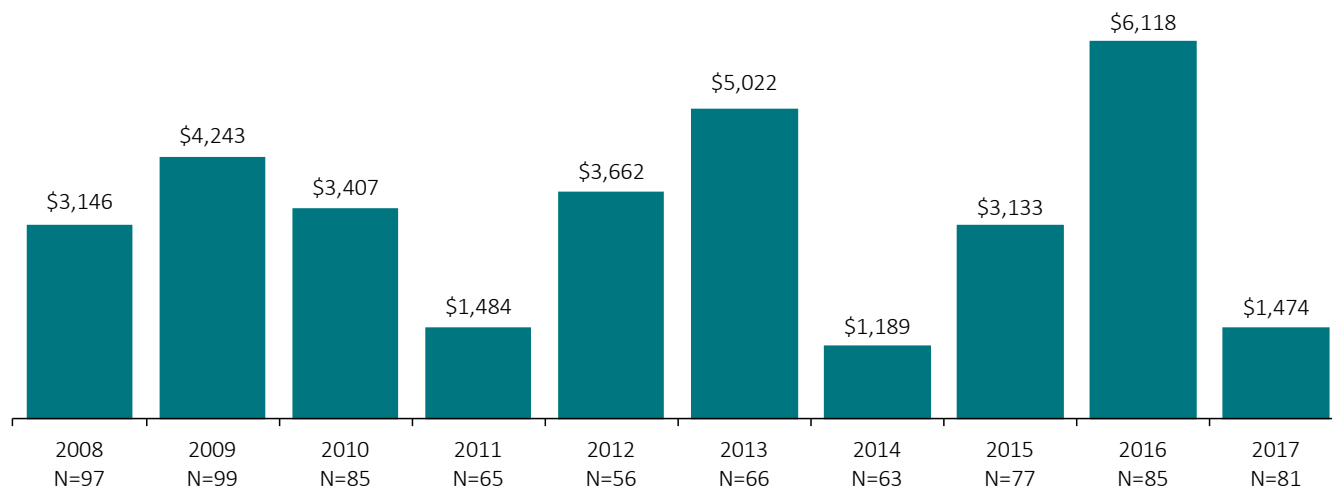
Total Settlement Dollars

- The total value of settlements approved by courts in 2017 declined substantially to \$1.5 billion, less than a quarter of the total amount approved in 2016.
- The median settlement in 2017 was \$5.0 million, over 40 percent lower than in 2016.
- While there were only four fewer cases settled in 2017 compared to 2016, the absence of very large settlements (exceeding \$250 million) and the decline in the median settlement amount contributed to the decline in 2017 total settlement dollars.
- The decline in the median settlement amount was primarily driven by a reduction in “simplified tiered damages” for cases settled in 2017. (See page 6 for a discussion of this measure.)

The total value of settlements was the second lowest in the last 10 years.

**Figure 2: Total Settlement Dollars
2008–2017**

(Dollars in Millions)



Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

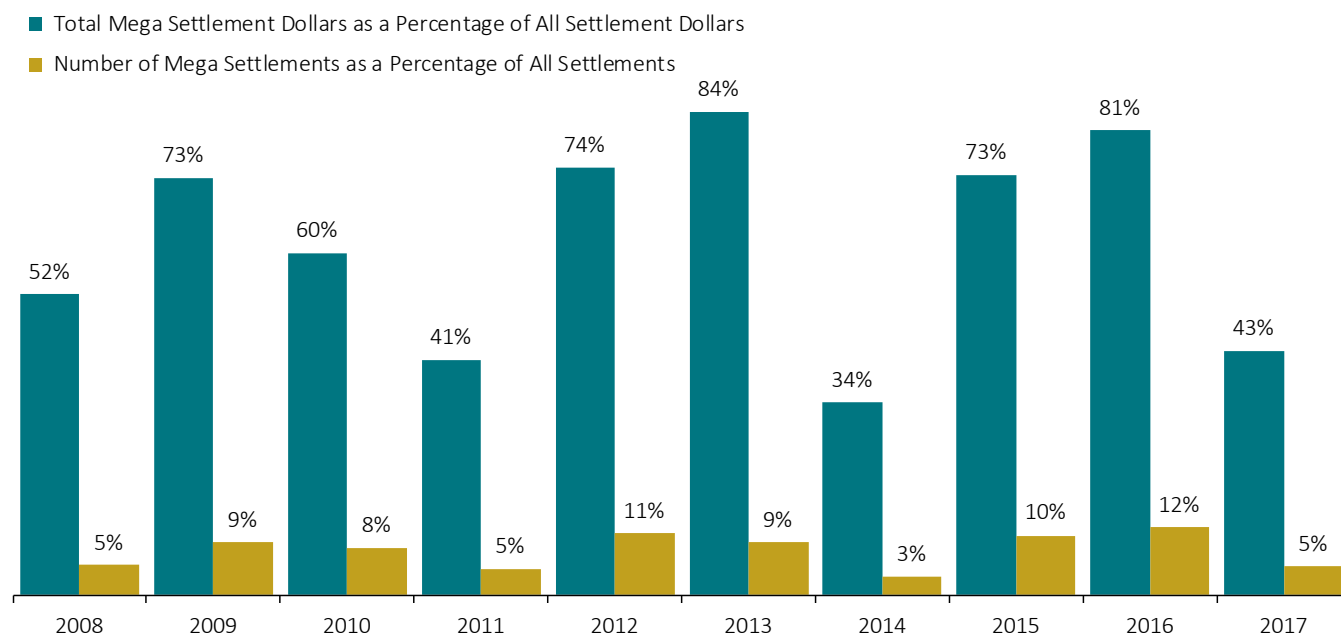
Mega Settlements

- There were four mega settlements (settlements equal to or greater than \$100 million) in 2017, with the largest settlement amounting to \$210 million.
- Total mega settlement dollars in 2017 were \$630 million compared to \$5 billion (adjusted for inflation) in 2016.
- Mega settlements have accounted for 70 percent of all settlement dollars from 2008 through 2016, but this percentage varies substantially from year to year.

The total value of mega settlements in 2017 was nearly 90 percent lower than in 2016.

- While mega settlements typically comprise the majority of the total value of settled cases, only 43 percent of 2017 settlement dollars came from mega settlements.

**Figure 3: Mega Settlements
2008–2017**



Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

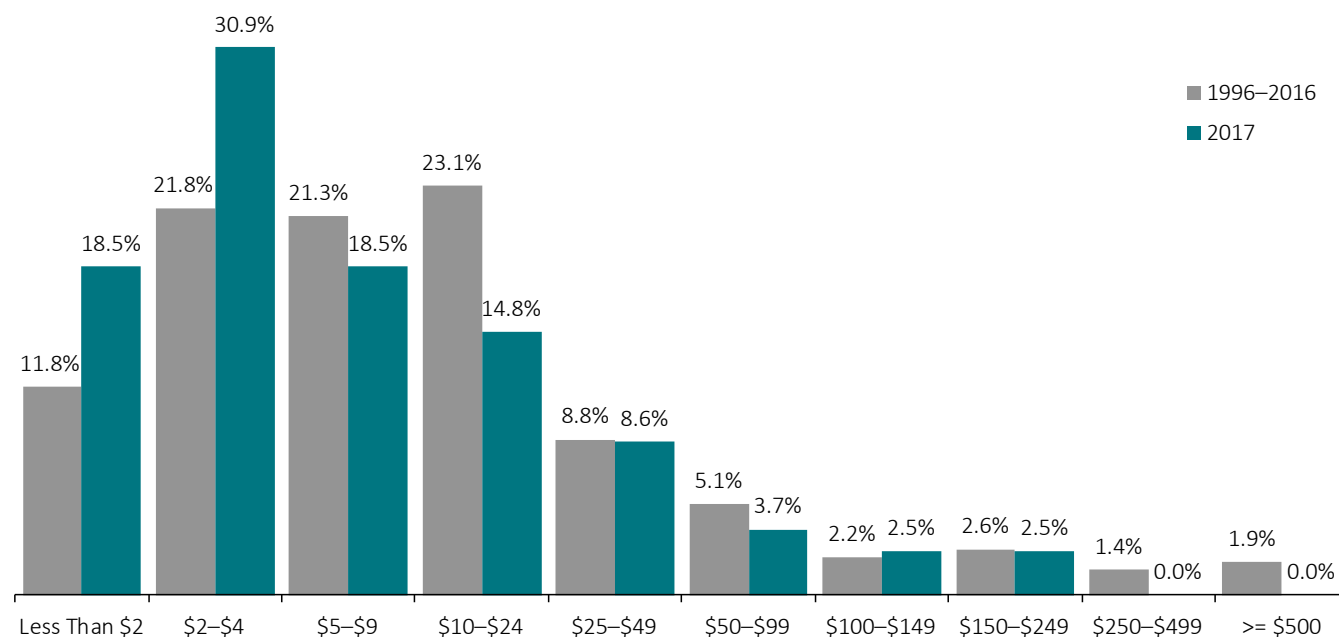
Settlement Size

- In 2017, both the number and proportion of settlements less than or equal to \$5 million were the highest in the last 10 years.
- Fifteen cases settled for \$2 million or less (historically referred to as “nuisance suits”) in 2017.
- As reported in Cornerstone Research’s *Securities Class Action Filings—2017 Year in Review*, three plaintiff law firms (The Rosen Law Firm, Pomerantz LLP, and Glancy Prongay & Murray) have increasingly been appointed as counsel in smaller-than-average cases.³ In 60 percent of cases settling for \$2 million or less, the lead or co-lead plaintiff counsel included at least one of these plaintiff law firms.
- The respective median and average settlement amounts in 2017 were approximately 40 percent and 70 percent lower than the median and average for all prior post–Reform Act settlements.
- Of the cases settled in 2017, 33 percent were between \$5 million and \$25 million, compared to 42 percent among all prior post–Reform Act settlements, indicating a decline in mid-range settlements.

In 2017, 51 percent of settlements were for \$5 million or less.

Figure 4: Distribution of Post–Reform Act Settlements 1996–2017

(Dollars in Millions)



Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

Damages Estimates

Rule 10b-5 Claims: “Simplified Tiered Damages”

A key factor in a meaningful analysis of settlement outcomes is a proxy for damages claimed by plaintiffs. *Estimating Damages in Settlement Outcome Modeling* introduced a new method for estimating that proxy that is conceptually more closely aligned with the approach typically followed by plaintiffs in current securities class action litigation matters.⁴ This report concentrates on analysis of “simplified tiered damages” instead of the simplified “estimated damages” proxy used in previous reports.

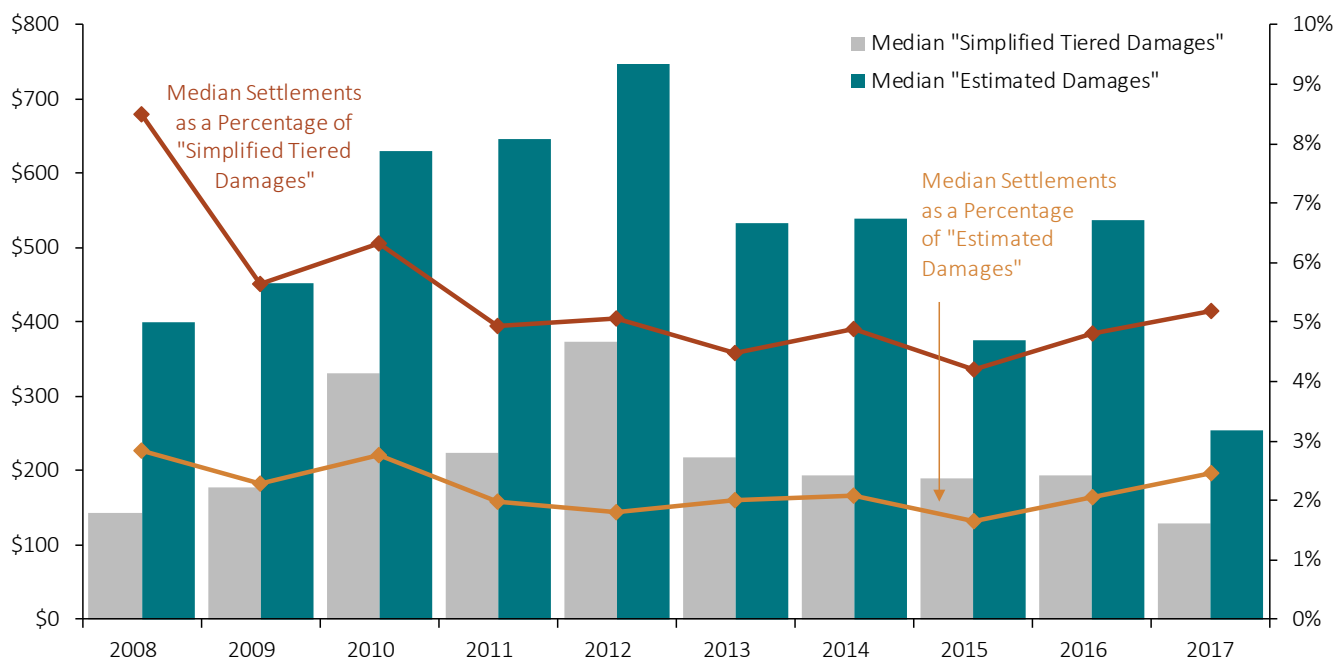
Like “estimated damages,” “simplified tiered damages” is highly correlated with settlement amounts and has comparable explanatory power in regression analyses of settlement amount determinants.

“Simplified tiered damages” bases per-share inflation estimates on the dollar value of a defendant’s stock price movements on the specific dates detailed in the plan of allocation in the settlement notice. When there is a single alleged corrective disclosure date, the measure is calculated using a constant dollar value line that reflects the price change at the end of the class period. When there are multiple dates identified in the settlement notice, the measure is calculated using a tiered dollar value line that reflects the cumulative price changes associated with those dates.^{5,6}

Generally, “simplified tiered damages” is smaller than the corresponding “estimated damages” upon which our historical reports have concentrated, due to differences in the methods used to estimate per-share inflation.⁷ As a result, settlements as a percentage of “simplified tiered damages” is larger than settlements as a percentage of “estimated damages.”

Figure 5: “Simplified Tiered Damages” and “Estimated Damages” 2008–2017

(Dollars in Millions)



Note: Damages figures are adjusted for inflation based on class period end dates. Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

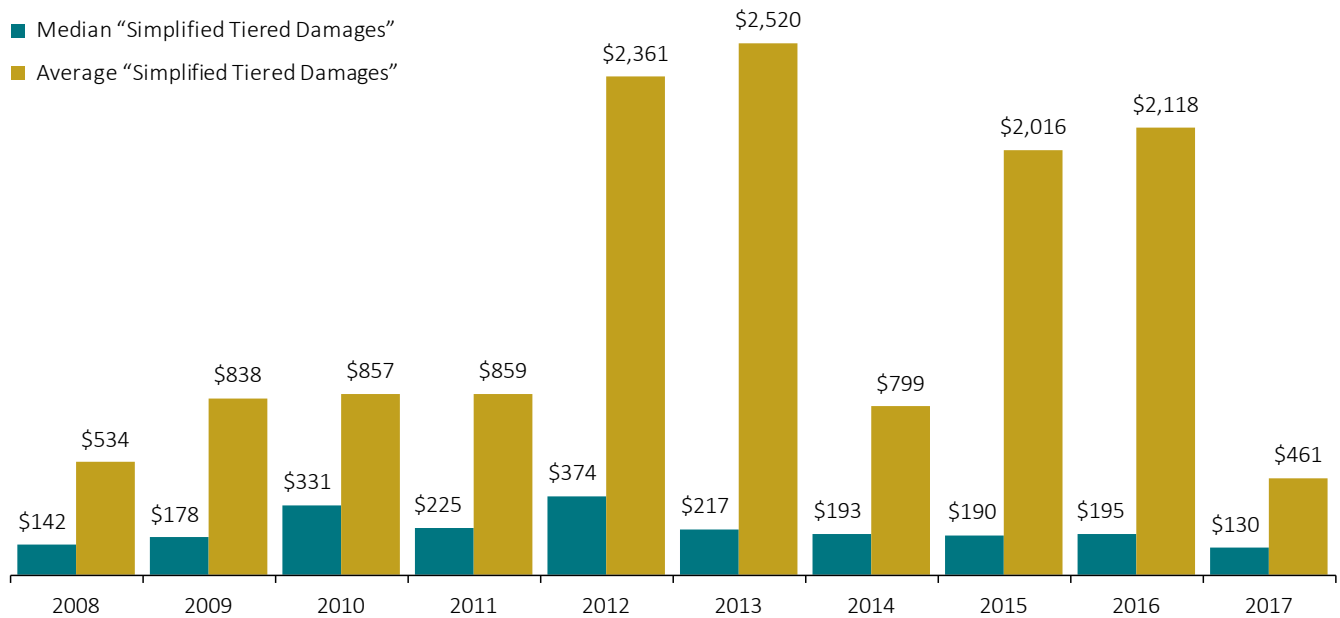
“Simplified tiered damages” uses simplifying assumptions to estimate per-share damages and trading behavior. It provides a measure of potential shareholder losses that allows for consistency across a large volume of cases, thus enabling the identification and analysis of potential trends. Our prediction models find this measure to be the most important factor in predicting settlement amounts. However, it is not intended to represent actual economic losses borne by shareholders. Determining any such losses for a given case requires more in-depth economic analysis.

Median and average “simplified tiered damages” were at a 10-year low.

- “Simplified tiered damages” is correlated with stock market volatility at the time of a case filing. The decline in median and average “simplified tiered damages” in 2017 is consistent with low stock market volatility in 2014 and 2015, when the majority of cases settled in 2017 were filed.
- Simplified tiered damages” is also correlated with the length of the class period. In 2017, the median class period for settled cases was 32 percent lower than the median in 2016.
- Higher “simplified tiered damages” are generally associated with larger issuer defendants (measured by total assets or market capitalization of the issuer). In 2017, the median issuer defendant total assets of \$547 million was 37 percent smaller than for cases settled over the prior nine years.

Figure 6: Median and Average “Simplified Tiered Damages” 2008–2017

(Dollars in Millions)



Note: “Simplified tiered damages” are adjusted for inflation based on class period end dates. Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

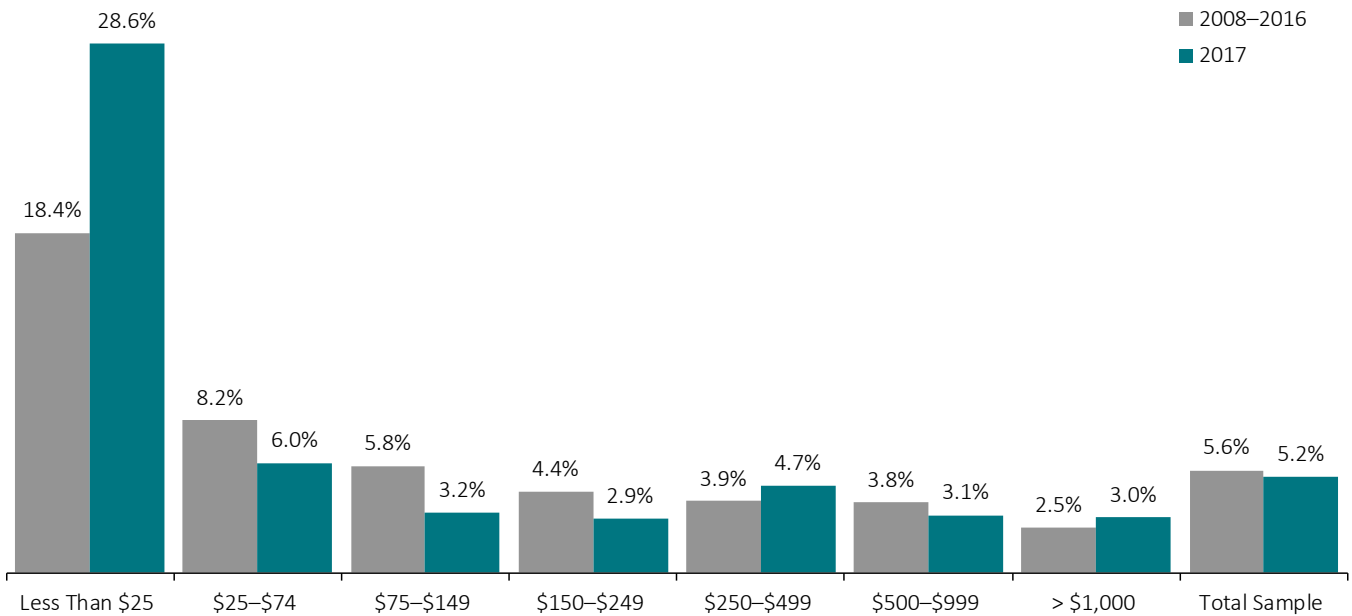
- Larger cases typically settle for a smaller percentage of “simplified tiered damages.”
- The median settlement as a percentage of “simplified tiered damages” increased for the second consecutive year, reaching 5.2 percent in 2017—a level in line with the 10-year median.
- For the smallest cases, the median settlement as a percentage of “simplified tiered damages” in 2017 increased by more than 120 percent compared to the prior year.

The average settlement as a percentage of “simplified tiered damages” was the highest in the last five years due, in part, to a spike in small cases.

- As observed over the last decade, smaller cases settle more quickly. Cases with less than \$25 million in “simplified tiered damages” settled within 2.4 years on average, compared to more than 3.8 years for cases with “simplified tiered damages” of greater than \$25 million.

Figure 7: Median Settlements as a Percentage of “Simplified Tiered Damages” by Damages Ranges 2008–2017

(Dollars in Millions)



Note: “Simplified tiered damages” are adjusted for inflation based on class period end dates. Damages are estimated for cases alleging a claim under Rule 10b-5 (whether alone or in addition to other claims).

'33 Act Claims: "Simplified Statutory Damages"

- For cases involving Section 11 and/or Section 12(a)(2) claims ('33 Act claims) only, shareholder losses are estimated using a model where alleged inflation per share is the difference between the statutory purchase price and the statutory sales price, referred to here as "simplified statutory damages."⁸ Only the offered shares are assumed to be eligible for damages.
- "Simplified statutory damages" is typically smaller than "simplified tiered damages," reflecting differences in the methodology used to estimate alleged inflation per share, as well as differences in the shares eligible to be damaged (i.e., only offered shares are included).
- In the last decade, cases involving combined claims (Rule 10b-5 and Section 11 and/or Section 12(a)(2) claims) had, on average, nearly 50 percent more docket entries than cases involving only Rule 10b-5 claims—indicating the more complex nature of these matters.
- Among cases settled in 2017, 75 percent of those involving only Section 11 and/or Section 12(a)(2) claims settled within three years from the filing date, while only 53 percent of cases involving Rule 10b-5 claims settled as quickly.

Median settlement amounts are substantially higher for cases involving '33 Act claims and Rule 10b-5 allegations than for those with only Rule 10b-5 claims.

Figure 8: Settlements by Nature of Claims 2008–2017

(Dollars in Millions)

	Number of Settlements	Median Settlement	Median "Simplified Statutory Damages"	Median Settlement as a Percentage of "Simplified Statutory Damages"
Section 11 and/or Section 12(a)(2) Only	70	\$4.5	\$83.3	7.5%

	Number of Settlements	Median Settlement	Median "Simplified Tiered Damages"	Median Settlement as a Percentage of "Simplified Tiered Damages"
Both Rule 10b-5 and Section 11 and/or Section 12(a)(2)	135	\$12.8	\$315.5	5.8%
Rule 10b-5 Only	552	\$7.8	\$188.3	5.0%

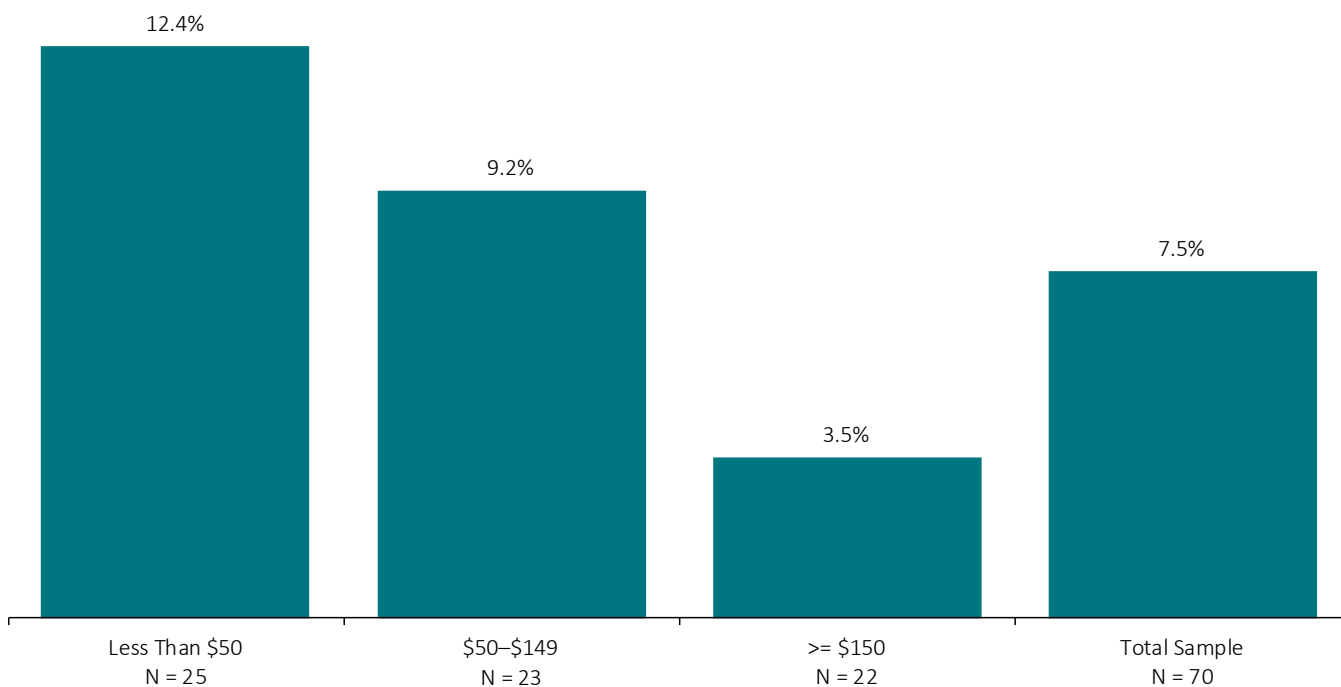
Note: Settlement dollars and damages are adjusted for inflation; 2017 dollar equivalent figures are used. Damages are adjusted for inflation based on class period end dates.

- Similar to cases with Rule 10b-5 claims, settlements as a percentage of “simplified statutory damages” for cases with only ‘33 Act claims are smaller for cases that have larger damages.
- Over the period 2008–2017, the average settlement as a percentage of “simplified statutory damages” with a named underwriter defendant was 12.8 percent, compared to 7.4 percent without a named underwriter defendant.

Since 2008, 84 percent of settled cases with only ‘33 Act claims had a named underwriter defendant.

Figure 9: Median Settlements as a Percentage of “Simplified Statutory Damages” by Damages Ranges 2008-2017

(Dollars in Millions)



Note: “Simplified statutory damages” are adjusted for inflation based on class period end dates; 2017 dollar equivalent figures are used.

Analysis of Settlement Characteristics

Accounting Allegations

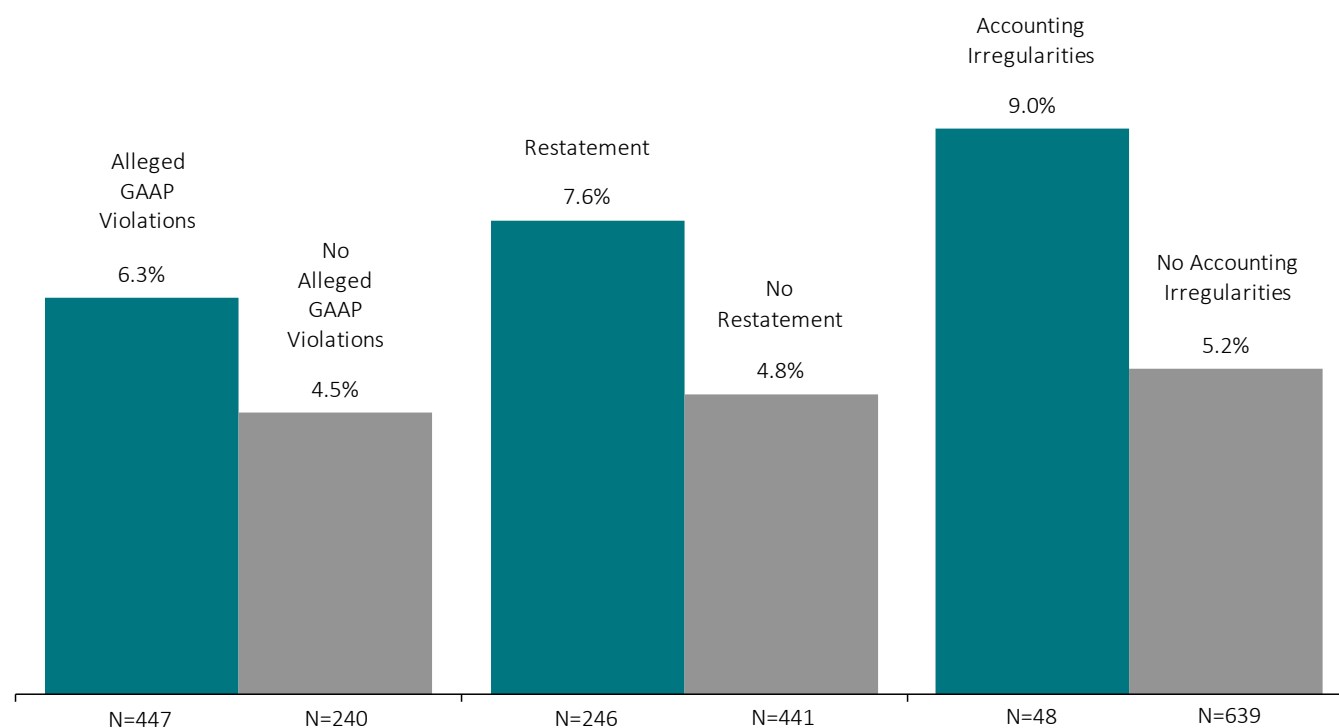
This analysis examines three types of accounting issues among settled cases involving Rule 10b-5 claims: (1) alleged GAAP violations, (2) restatements, and (3) reported accounting irregularities.⁹ For further details regarding settlements of accounting cases, see Cornerstone Research’s annual report on *Accounting Class Action Filings and Settlements*.

- The proportion of settled cases alleging GAAP violations in 2017 was 53 percent, continuing a three-year decline from a high of 67 percent in 2014.
- Settled cases with restatements are generally associated with higher settlements as a percentage of “simplified tiered damages” compared to cases without restatements.

- Of cases settled in the prior nine years with accounting-related allegations, 23 percent involved a named auditor codefendant. In 2017, this dropped to 13 percent.

The infrequency of reported accounting irregularities among settled cases continued for the third straight year.

Figure 10: Median Settlements as a Percentage of “Simplified Tiered Damages” and Accounting Allegations 2008–2017



Institutional Investors

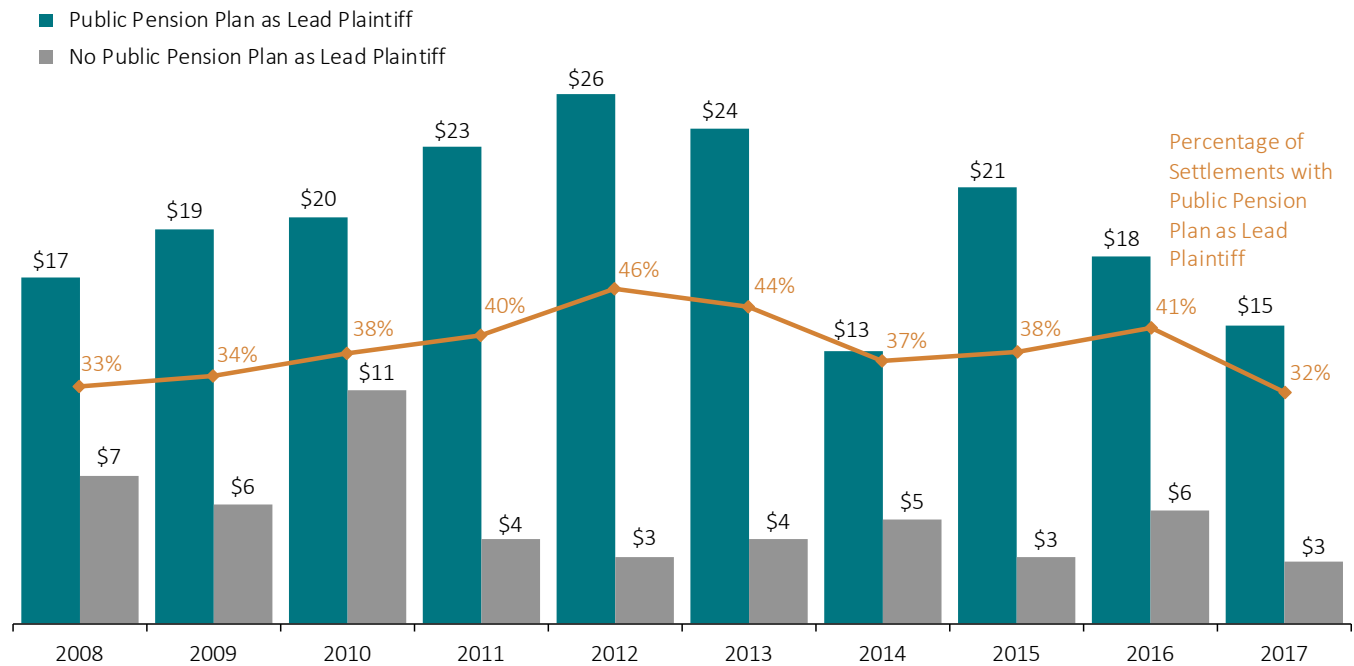
- Institutions, including public pension plans (a subset of institutional investors) tend to be involved in cases with higher “simplified tiered damages.”
- The decline in public pension plan involvement in 2017 settlements in part reflects the smaller cases involved. However, even within larger cases (e.g., cases with “simplified tiered damages” greater than \$50 million), public pension plans were less frequently involved in 2017 than in prior years.
- In 2017, 39 percent of settlements with “simplified tiered damages” greater than \$50 million involved a public pension plan as lead plaintiff, compared to 48.6 percent for 2008–2016.

The proportion of settlements with a public pension plan as lead plaintiff declined to the lowest level over the past 10 years.

- Cases in which public pension plans serve as lead or co-lead plaintiff are typically associated with larger issuer defendants, longer class periods, securities in addition to common stock, accounting allegations, and other indicators of more serious cases, such as criminal charges. These cases are also associated with longer intervals from filing to settlement. (See page 15 for additional details regarding length of time from filing to settlement.)

Figure 11: Median Settlement Amounts and Public Pension Plans 2008–2017

(Dollars in Millions)



Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

Derivative Actions

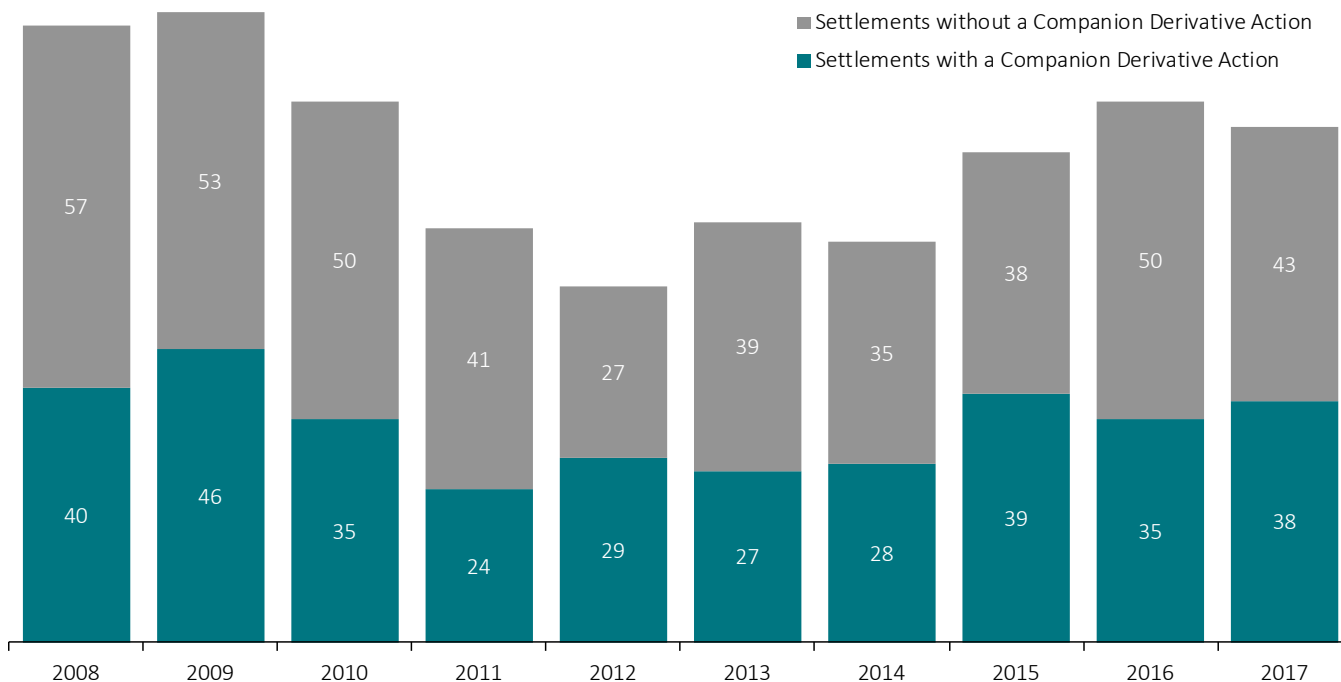
Derivative cases accompanying securities class actions, as described in previous annual reports, are more frequently filed when corresponding securities class actions involve a financial statement restatement or public pension plan lead plaintiff.

As discussed in *Piling On? An Empirical Study of Parallel Derivative Suits*,¹⁰ there is substantial overlap between plaintiff attorneys that tend to file accompanying derivative actions and attorneys that are frequent players in securities class actions. Since most derivative actions are filed as “piggyback suits” to class actions, the latter finding is consistent with plaintiff counsel who are not selected for lead counsel representation in certain securities class actions choosing to follow up with derivative actions.

- The increase in the proportion of settled cases involving an accompanying derivative action was driven by a surge in derivative cases corresponding to relatively small settlements. Of cases settling for \$5 million or less in 2017, 51 percent were accompanied by derivative actions, compared to 37 percent for the prior nine years.
- Historically, cases involving accompanying derivative actions have tended to settle for higher amounts. In 2017, however, the median settlement for cases with companion derivative actions was \$4.3 million, compared to \$6.2 million for cases without accompanying derivative actions.

The percentage of settled cases involving an accompanying derivative action was one of the highest in the last 10 years.

Figure 12: Frequency of Derivative Actions 2008–2017



Corresponding SEC Actions

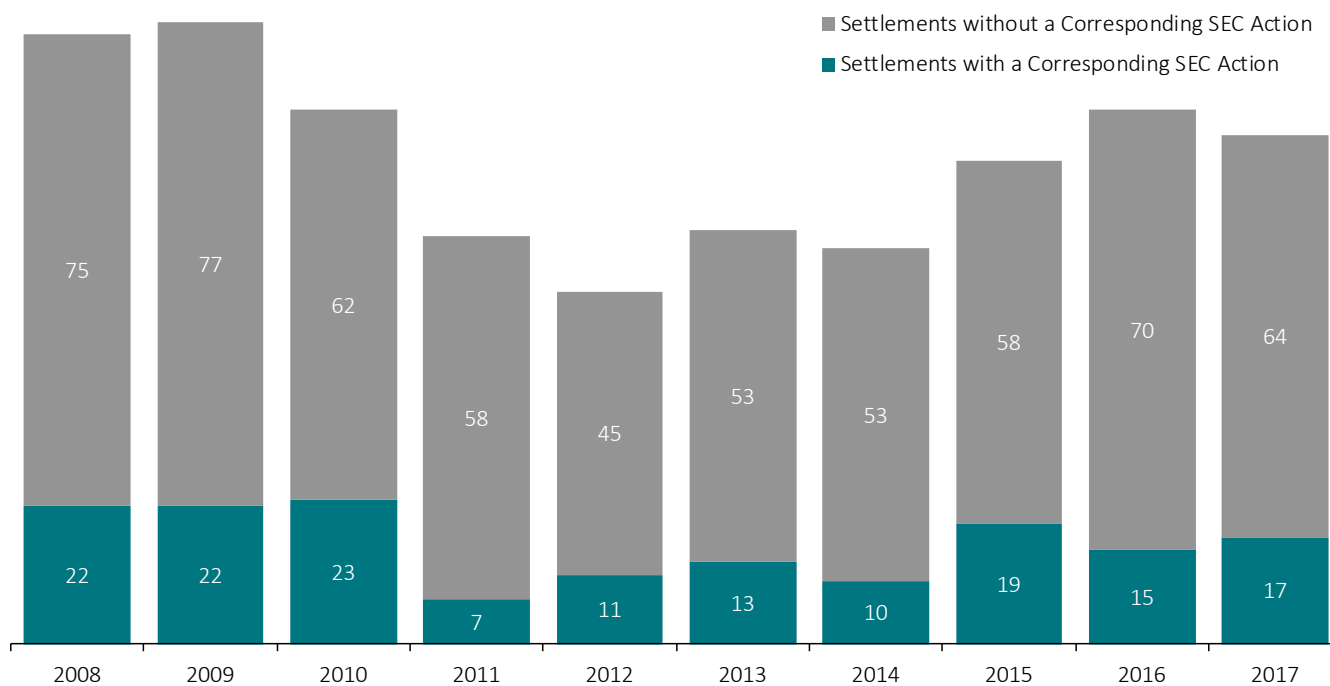
Cases with a corresponding SEC action related to the allegations are typically associated with significantly higher settlement amounts and higher settlements as a percentage of “simplified tiered damages.”¹¹

- Compared to 2011–2014, the relatively high level of class actions settled over the last three years with corresponding SEC actions is consistent with the SEC’s stated focus on financial reporting and disclosure matters during this period.¹²
- Cases with corresponding SEC actions tend to involve larger issuer defendants. For cases settled during 2008–2017, average assets for issuer defendant firms were \$135 billion for cases with corresponding SEC actions, compared to only \$31 billion for cases without a corresponding SEC action.

- Corresponding SEC actions are also frequently associated with delisted firms. Out of the total 159 settlements during 2008–2017 involving cases with corresponding SEC actions, 63 cases (40 percent) involved issuer defendants that had been delisted.

Over 20 percent of settled cases involved a corresponding SEC action.

Figure 13: Frequency of SEC Actions 2008–2017



Time to Settlement and Case Complexity

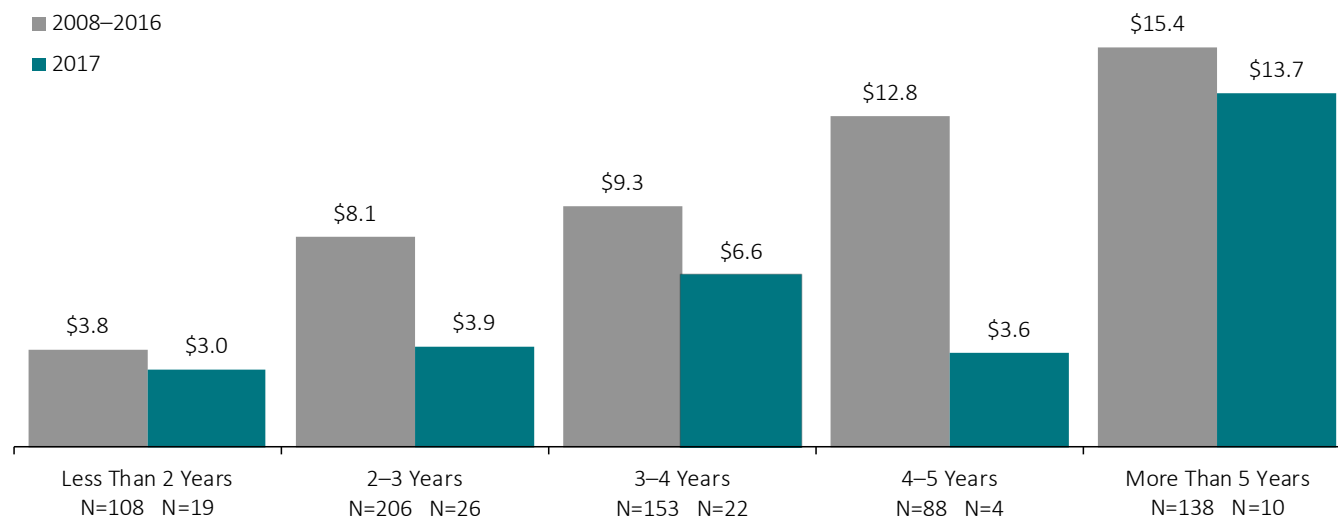
- In 2017, more than 23 percent of cases settled within two years of the filing date, compared to less than 16 percent during 2008–2016.
- Rule 10b-5 cases settling in less than two years in 2017 had median “simplified tiered damages” of only \$85 million, compared to a median of \$130 million for all settlements in 2017.
- Historically, cases that have taken longer to settle have been associated with higher settlements.
- The median settlement amount for cases taking more than two years to settle was two times the median settlement amount for cases that settled within two years.
- Consistent with the decline in settlement size in 2017, a smaller proportion (17 percent) of cases settled at least four years after filing, compared to 33 percent during 2008–2016.

The average time from filing to settlement was the lowest in the past decade.

- The number of docket entries associated with a case at the time of settlement (see Appendix 7) is highly correlated with the time to settlement, as well as factors that add to case complexity, such as third-party defendants. Accordingly, this variable has been used in prior research as a proxy for the effort incurred by plaintiff counsel in litigating the securities class actions.¹³ The number of docket entries at the time of settlement is a statistically significant explanatory variable in regression analyses of settlement outcome determinants (see page 16).

Figure 14: Median Settlement by Duration from Filing Date to Settlement Hearing Date 2008–2017

(Dollars in Millions)



Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

Cornerstone Research's Settlement Prediction Analysis

This research applies regression analysis to examine the relationships between settlement outcomes and certain security case characteristics. Regression analysis is employed to better understand and predict the total settlement amount, given the characteristics of a particular securities case. Regression analysis can also be applied to estimate the probabilities associated with reaching alternative settlement levels. It is also helpful in exploring hypothetical scenarios, including how the presence or absence of particular factors affect predicted settlement amounts.

Determinants of Settlement Outcomes

Based on the research sample of post-Reform Act cases that settled through December 2017, the factors that were important determinants of settlement amounts included the following:

- “Simplified tiered damages”
- Maximum Dollar Loss (MDL)
- Most recently reported total assets of the issuer defendant firm
- Number of entries on the lead case docket
- The year in which the settlement occurred
- Whether a restatement of financials related to the alleged class period was announced
- Whether there was a corresponding SEC action against the issuer, other defendants, or related parties
- Whether Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims
- Whether the issuer defendant was distressed
- Whether a public pension was a lead plaintiff
- Whether the plaintiffs alleged that securities other than common stock were damaged

Regression analyses shows that settlements were higher when “simplified tiered damages,” MDL, issuer defendant asset size, or the number of docket entries were larger, or when Section 11 and/or Section 12(a) claims were alleged in addition to Rule 10b-5 claims.

Settlements were also higher in cases involving financial restatements, a corresponding SEC action, a public pension involved as lead plaintiff, or securities other than common stock alleged to be damaged.

Settlements were lower if the settlement occurred in 2010 or later, or if the issuer was distressed.

Almost 75 percent of the variation in settlement amounts can be explained by the factors discussed above.

Research Sample

- The database used in this report focuses on cases alleging fraudulent inflation in the price of a corporation's common stock (i.e., excluding cases with alleged classes of only bondholders, preferred stockholders, etc., and excluding cases alleging fraudulent depression in price and M&A cases).
- The sample is limited to cases alleging Rule 10b-5, Section 11, and/or Section 12(a)(2) claims brought by purchasers of a corporation's common stock. These criteria are imposed to ensure data availability and to provide a relatively homogeneous set of cases in terms of the nature of the allegations.
- The current sample includes 1,697 securities class actions filed after passage of the Reform Act (1995) and settled from 1996 through 2017. These settlements are identified based on a review of case activity collected by Securities Class Action Services LLC (SCAS).¹⁴
- The designated settlement year, for purposes of this report, corresponds to the year in which the hearing to approve the settlement was held.¹⁵ Cases involving multiple settlements are reflected in the year of the most recent partial settlement, provided certain conditions are met.¹⁶

Data Sources

In addition to SCAS, data sources include Dow Jones Factiva, Bloomberg, the Center for Research in Security Prices (CRSP) at University of Chicago Booth School of Business, Standard & Poor's Compustat, court filings and dockets, SEC registrant filings, SEC litigation releases and administrative proceedings, LexisNexis, and public press.

Endnotes

- ¹ See Adam C. Pritchard and Stephen J. Choi, “Lead Plaintiffs and Their Lawyers: Mission Accomplished, or More to Be Done?,” Harvard Law School Forum on Corporate Governance and Financial Regulation, May 25, 2017. See also Charles Silver and Sam Dinkin, “Incentivizing Institutional Investors to Serve as Lead Plaintiffs in Securities Fraud Class Actions,” *DePaul Law Review* 57, no. 2 (2008).
- ² See Kevin LaCroix, “Should Shareholder Derivative Litigation Be Eliminated?,” *The D&O Diary*, October 4, 2017; and Stephen Bainbridge, “Is There a Case for Abolishing Derivative Litigation?,” *ProfessorBainbridge.com*, October 3, 2017.
- ³ See *Securities Class Action Filings—2017 Year in Review*, Cornerstone Research (2018), page 35. Among 2017 settlements, The Rosen Law Firm and Pomerantz LLP have identifiable lead or co-lead roles.
- ⁴ See *Estimating Damages in Settlement Outcome Modeling*, Cornerstone Research (2017). Note that “simplified tiered damages” referenced in the current report is identical to the measure referred to as “tiered damages” in *Estimating Damages in Settlement Outcome Modeling*.
- ⁵ “Simplified tiered damages” is calculated for cases that settled after 2005. Importantly, the “simplified tiered damages” approach used for purposes of settlement research does not examine the mix of information associated with the specific dates listed in the plan of allocation, but simply applies the stock price movements on those dates to an estimate of the “true value” of the stock during the alleged class period (or “value line”). The dates used to identify the applicable value line may be supplemented with information from the operative complaint at the time of settlement.
- ⁶ Damages calculations have two components, an estimate of the inflation per share and an estimate of the number of shares damaged. Both “simplified tiered damages” and “estimated damages,” as well as the proxy discussed in this report for plaintiff-style damages in ‘33 Act cases, use a similar methodology to estimate the number of shares damaged. In particular, these damages proxies utilize an estimate of the number of shares damaged based on reported trading volume and the number of shares outstanding. Specifically, reported trading volume is adjusted using volume reduction assumptions based on the exchange on which the issuer defendant’s common stock is listed. No adjustments are made to the underlying float for institutions, insiders, or short-selling activity. Because of these and other simplifying assumptions, the damages measures used in settlement outcome modeling are overstated relative to damages estimates developed in conjunction with case-specific economic analysis.
- ⁷ As described in prior reports, per-share inflation for “estimated damages” for cases involving Rule 10b-5 claims is calculated using a market-adjusted, backward-pegged value line.
- ⁸ The statutory purchase price is the lesser of the security offering price or the security purchase price. Prior to the first complaint filing date, the statutory sales price is the price at which the security was sold. After the first complaint filing date, the statutory sales price is the greater of the security sales price or the security price on the first complaint filing date. Similar to “simplified tiered damages,” the estimation of “simplified statutory damages” makes no adjustments to the underlying float for institutions, insiders, or short-selling activity.
- ⁹ The three categories of accounting issues analyzed in this report are: (1) GAAP violations—cases with allegations involving Generally Accepted Accounting Principles (GAAP); (2) restatements—cases involving a restatement (or announcement of a restatement) of financial statements; and (3) accounting irregularities—cases in which the defendant has reported the occurrence of accounting irregularities (intentional misstatements or omissions) in its financial statements.
- ¹⁰ Stephen J. Choi, Jessica Erickson, and Adam C. Pritchard, “Piling On? An Empirical Study of Parallel Derivative Suits,” *Journal of Empirical Legal Studies* 14, no. 4 (2007): 653–682.
- ¹¹ It could be that the merits in such cases are stronger, or simply that the presence of an accompanying SEC action provides plaintiffs with increased leverage when negotiating a settlement. For purposes of this research, an SEC action is evidenced by the presence of a litigation release or an administrative proceeding posted on www.sec.gov.
- ¹² For example, see Andrew Ceresney, Director, Division of Enforcement, U.S. Securities and Exchange Commission, “Directors Forum 2016 Keynote Address” (San Diego, CA, January 25, 2016).
- ¹³ See Laura Simmons, “The Importance of Merit-Based Factors in the Resolution of 10b-5 Litigation,” University of North Carolina at Chapel Hill Doctoral Dissertation (1996); and Michael A. Perino, “Institutional Activism through Litigation: An Empirical Analysis of Public Pension Fund Participation in Securities Class Actions,” St. John’s Legal Studies Research Paper No. 06-0055 (2006).
- ¹⁴ Available on a subscription basis.
- ¹⁵ Movements of partial settlements between years can cause differences in amounts reported for prior years from those presented in earlier reports.
- ¹⁶ This categorization is based on the timing of the settlement approval. If a new partial settlement equals or exceeds 50 percent of the then-current settlement fund amount, the entirety of the settlement amount is re-categorized to reflect the settlement hearing date of the most recent partial settlement. If a subsequent partial settlement is less than 50 percent of the then-current total, the partial settlement is added to the total settlement amount and the settlement hearing date is left unchanged.

Appendices

Appendix 1: Settlement Percentiles

(Dollars in Millions)

	Average	10th	25th	Median	75th	90th
2017	\$18.2	\$1.5	\$2.5	\$5.0	\$15.0	\$34.5
2016	\$72.0	\$1.9	\$4.3	\$8.7	\$33.7	\$149.1
2015	\$40.7	\$1.4	\$2.2	\$6.7	\$16.8	\$97.2
2014	\$18.9	\$1.7	\$3.0	\$6.2	\$13.6	\$51.8
2013	\$76.1	\$2.0	\$3.2	\$6.8	\$23.3	\$86.8
2012	\$65.4	\$1.3	\$2.9	\$10.1	\$37.9	\$122.8
2011	\$22.8	\$2.0	\$2.7	\$6.3	\$19.6	\$45.5
2010	\$40.1	\$2.2	\$4.8	\$12.6	\$28.1	\$89.5
2009	\$42.9	\$2.7	\$4.4	\$9.1	\$22.9	\$75.9
2008	\$32.4	\$2.3	\$4.3	\$9.1	\$21.6	\$57.4
1996–2017	\$43.5	\$1.7	\$3.5	\$8.3	\$21.3	\$74.1

Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used.

Appendix 2: Select Industry Sectors

2008–2017

(Dollars in Millions)

Industry	Number of Settlements	Median Settlement	Median “Simplified Tiered Damages”	Median Settlement as a Percentage of “Simplified Tiered Damages”
Technology	109	\$9.8	\$199.8	2.2%
Financial	113	\$21.2	\$459.1	2.0%
Telecommunications	49	\$8.0	\$160.1	2.1%
Retail	44	\$6.6	\$140.8	2.3%
Pharmaceuticals	88	\$8.6	\$339.6	2.5%
Healthcare	19	\$8.0	\$127.3	3.0%

Note: Settlement dollars and “simplified tiered damages” are adjusted for inflation; 2017 dollar equivalent figures are used. “Simplified tiered damages” are calculated only for cases involving Rule 10b-5 claims.

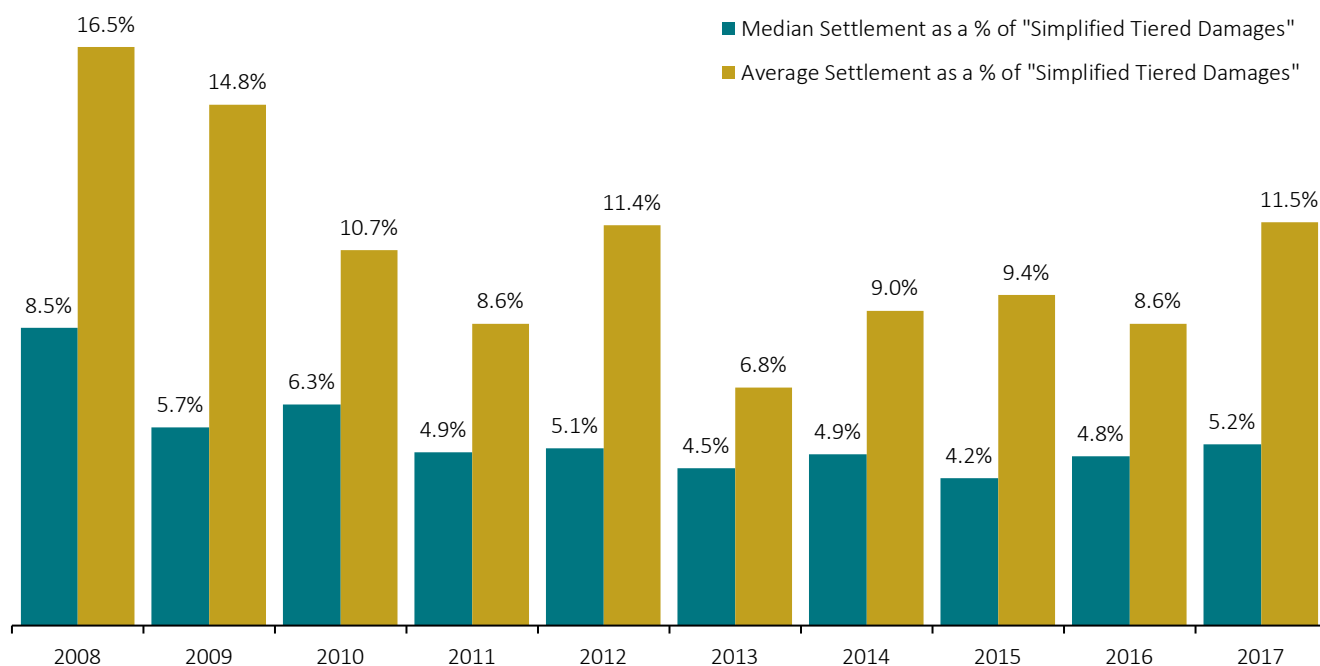
**Appendix 3: Settlements by Federal Circuit Court
2008–2017**

(Dollars in Millions)

Circuit	Number of Settlements	Median Settlement	Median Settlement as a Percentage of “Simplified Tiered Damages”
First	24	\$7.3	2.0%
Second	185	\$12.0	2.0%
Third	63	\$8.7	2.4%
Fourth	27	\$8.4	1.8%
Fifth	40	\$7.6	2.4%
Sixth	33	\$12.9	3.3%
Seventh	38	\$9.7	1.7%
Eighth	19	\$8.5	3.2%
Ninth	191	\$8.0	2.3%
Tenth	19	\$8.6	2.3%
Eleventh	47	\$6.0	2.3%
DC	4	\$38.7	3.7%

Note: Settlement dollars are adjusted for inflation; 2017 dollar equivalent figures are used. Settlements as a percentage of “simplified tiered damages” calculated only for cases alleging Rule 10b-5 claims.

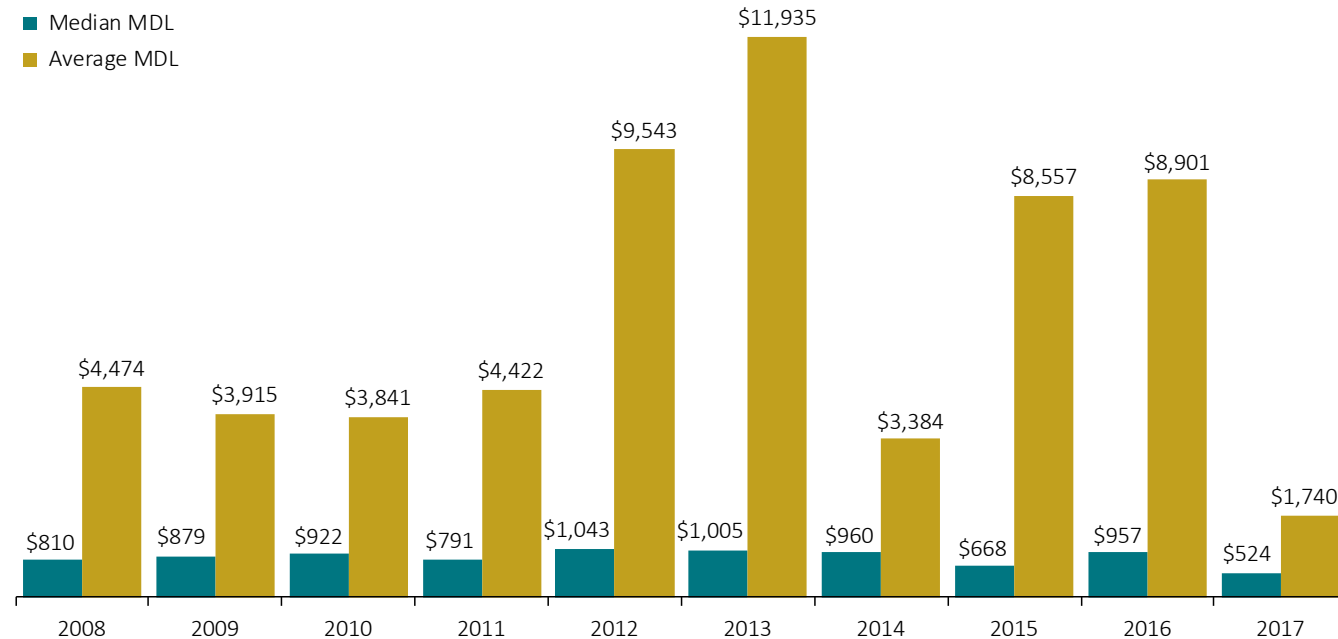
**Appendix 4: Median and Average Settlements as a Percentage of “Simplified Tiered Damages”
2008–2017**



Note: “Simplified tiered damages” are calculated only for cases alleging Rule 10b-5 claims.

**Appendix 5: Median and Average Maximum Dollar Loss (MDL)
2008–2017**

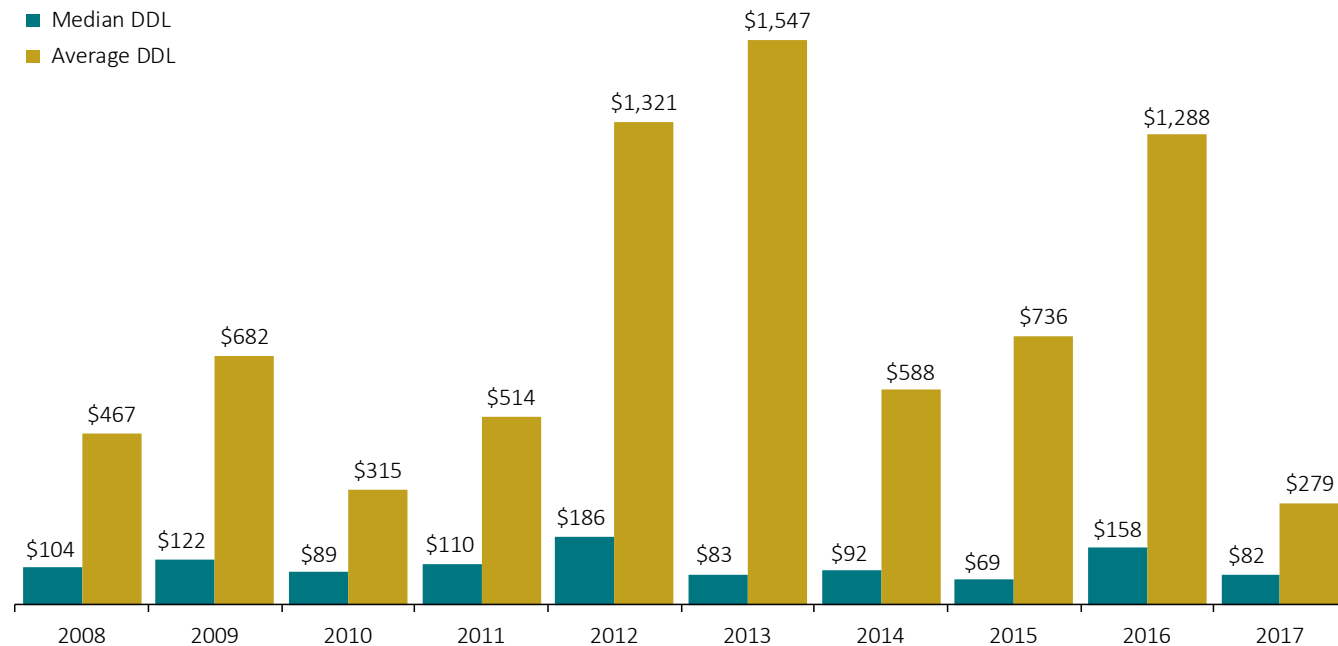
(Dollars in Millions)



Note: MDL is adjusted for inflation based on class period end dates. MDL is the dollar value change in the defendant firm’s market capitalization from the trading day with the highest market capitalization during the class period to the trading day immediately following the end of the class period.

**Appendix 6: Median and Average Disclosure Dollar Loss (DDL)
2008–2017**

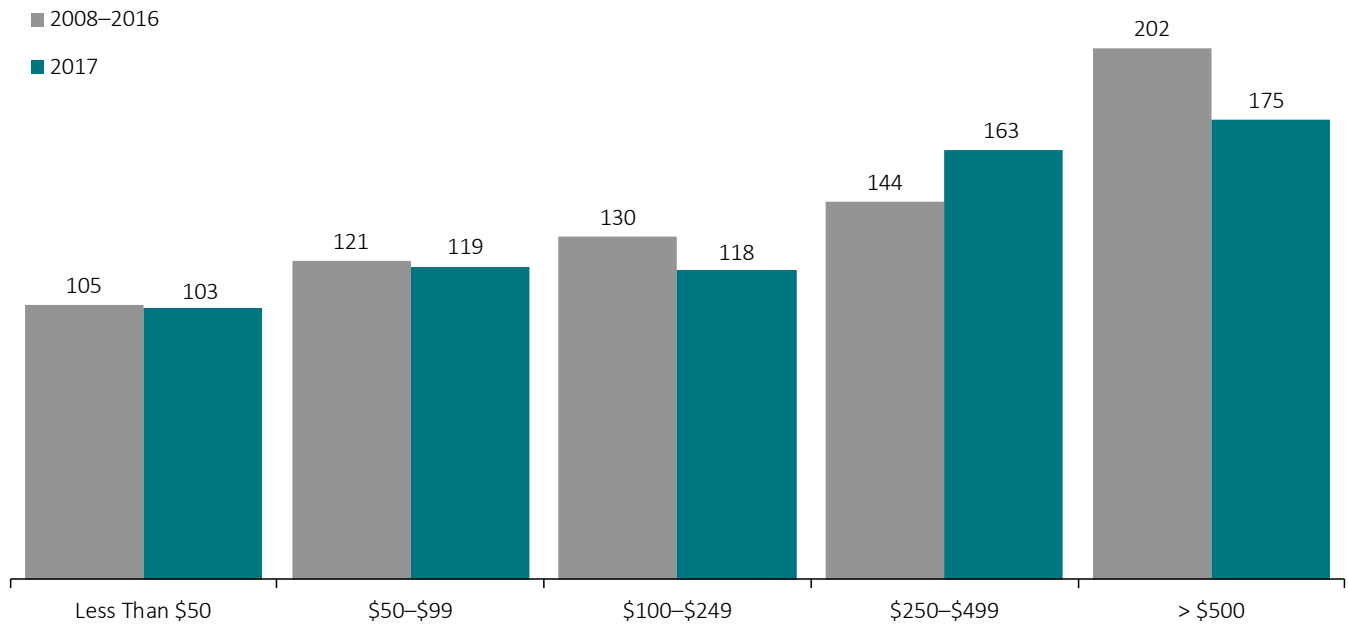
(Dollars in Millions)



Note: DDL is adjusted for inflation based on class period end dates. DDL is the dollar value change in the defendant firm’s market capitalization between the trading day immediately preceding the end of the class period and the trading day immediately following the end of the class period.

**Appendix 7: Median Docket Entries by “Simplified Tiered Damages” Range
2008–2017**

(Dollars in Millions)



Note: “Simplified tiered damages” are adjusted for inflation; 2017 dollar equivalent figures are used. “Simplified tiered damages” are calculated only for cases alleging Rule 10b-5 claims.

About the Authors

Laarni T. Bulan

Ph.D., Columbia University; M.Phil., Columbia University; B.S., University of the Philippines

Laarni Bulan is a principal in Cornerstone Research's Boston office, where she specializes in finance. Her work has focused on securities damages and class certification issues, insider trading, merger valuation, risk management, market manipulation and trading behavior, and real estate markets. She has also consulted on cases related to financial institutions and the credit crisis, municipal bond mutual funds, asset-backed commercial paper conduits, credit default swaps, foreign exchange, and securities clearing and settlement. Dr. Bulan has published several academic articles in peer-reviewed journals. Her research covers topics in dividend policy, capital structure, executive compensation, corporate governance, and real options. Prior to joining Cornerstone Research, Dr. Bulan had a joint appointment at Brandeis University as an assistant professor of finance in its International Business School and in the economics department.

Ellen M. Ryan

M.B.A., American Graduate School of International Management; B.A., Saint Mary's College

Ellen Ryan is a director in Cornerstone Research's Boston office, where she works in the securities practice. Ms. Ryan has consulted on economic and financial issues in a variety of cases, including securities class actions, financial institution breach of contract matters, and antitrust litigation. She also has worked with testifying witnesses in corporate governance and breach of fiduciary duty matters. Prior to joining Cornerstone Research, Ms. Ryan worked for Salomon Brothers in New York and Tokyo. Currently she focuses on post-Reform Act settlement research as well as general practice area business and research.

Laura E. Simmons

Ph.D., University of North Carolina at Chapel Hill; M.B.A., University of Houston; B.B.A., University of Texas at Austin

Laura Simmons is a senior advisor with Cornerstone Research. She is a certified public accountant and has more than 25 years of experience in accounting practice and economic and financial consulting. Dr. Simmons has focused on damages and liability issues in securities litigation, as well as on accounting issues arising in a variety of complex commercial litigation matters. She has served as a testifying expert in cases involving accounting analyses, securities case damages, research on securities lawsuits, and other issues involving empirical analyses.

Dr. Simmons's research on pre- and post-Reform Act securities litigation settlements has been published in a number of reports and is frequently cited in the public press and legal journals. She has spoken at various conferences and appeared as a guest on CNBC addressing the topic of securities case settlements. She has also published in academic journals, with recent research focusing on the intersection of accounting and litigation. Dr. Simmons was previously an accounting faculty member at the Mason School of Business at the College of William & Mary. From 1986 to 1991, she was an accountant with Price Waterhouse.

The authors acknowledge the research efforts and significant contributions of their colleagues at Cornerstone Research. Please direct any questions and requests for additional information to the settlement database administrator at settlement.database@cornerstone.com.

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Boston

617.927.3000

Chicago

312.345.7300

London

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Washington

202.912.8900

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