An Analysis of Class Action Suits with a Special Emphasis on the Size Effect and the Filing Date

by

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Abstract

Our study examines the behavior of stock prices around key dates in the Class Action legal process. Our sample of 621 events includes all Class Action Suits initiated by shareholders against a public corporation that were filed after 1996 and settled before 2004. We center our analysis on the Filing date and to a lesser degree on the Class End date. We studied the relationship between the Class End and Filing date. To do this we divide the entire sample in three sub-samples depending on whether (1) the Filing event occurs at least three days after the Class End date (2) the Filing event occurs within two days of the Class End date and (3) the Class End date occurs after the Filing date. We found that this classification generates groups with different financial characteristics (in terms of size and market/book ratio). The result is significant because most research has focused solely on the first group creating a potentially bias in the literature.

The second part of our analysis focuses on the importance of size in the behavior of stocks after the Class End and Filing event. We provide evidence showing that there does exist a size effect that (1) is stronger for the Filing than for the Class End event and (2) that is more marked in the period following the event rather than during the event itself. We also show that size is a significant variable in explaining the eventual size of settlement as a proportion of market capitalization. We offer this result as a possible explanation for why the behavior of stocks after the filing event depends on size.

Introduction

Class action litigation against publicly traded securities is a common, controversial and complex event. In the past decade class action suits have become more prevalent and settlements have grown in size. The importance of class action suits is clearly on the rise. Most academic papers have focused on the Class End Date. We agree with these studies that the date when corrective disclosure is announced is of great importance, but we disagree in the lack of attention that has been giving to the filing date. There is a lot of uncertainty that surrounds legal action. When an announcement that could indicate potential wrong doing is made the market does not know if it will eventually lead to legal action, when legal action will occur and for what amount of damages it will be. The Class Filing Date removes a lot of uncertainty from the market and as such is of great importance. However the Class End date is also of great importance, and we will not ignore it in our analysis. The purpose of this introduction is to make the paper accessible to the non specialist. The background necessary to achieve that is presented in three parts. In the first section the legal aspects of class action suits are explained, including a brief description of their anatomy and the most important security reform acts that have been recently implemented. The second section provides a briefing of the most common trends on class action suits today. The third and last section is a brief overview of the academic literature on the subject.

<u>1. Anatomy of Class Action Suits and Legal Reform</u>

A class action suit is characterized by a series of interrelated and compound events. These events are triggered by alleged misrepresentation of a company’s operations, financial performance or future prospects that affect the price of its publicly traded equity. The quintessential example is that of the CEO of a company that through a press release communicates to the market that he expects profits to rise two hundred percent in the coming quarter. As a result of the CEO's comments investors rush to buy the stock of the company pushing its price up. When earnings are released the expected increase in profits fails to materialize and the price of the stock takes a big hit. The investors that bought the stock after the CEO's initial comments claim that they have been misled and decide to sue the company to recoup some of their losses. To reduce legal costs and increase the chance of success it is common for the investors that feel defrauded to pool their lawsuits together into a class action suit. In practice the way this occurs is through a law firm that announces a class action suit against the company and invites the investors that paid too much for their shares as a result of the CEO's misstatements to pledge their shares to the class action suit. The law firm then sues the company for alleged "fraud on the market" under Rule 10b-5 of the Securities Exchange Act (17 C.F.R. § 240.10b-5.).

As can be seen from the above example there are three key events that define a class action suit:

1. Initial misleading statement: CEO's forecast that earnings will grow 200%.
2. Corrective statement: when earnings are released the market learns that earnings did not grow 200%.
3. Filing: the date when a class action suit is filed.

When a law firm files a class action suit against a publicly traded company it uses the first two events to decide which investors have suffered losses as a result of the misleading statement. The date when the misleading statement occurs is referred to as the Class Begin Date. The date when the initial misleading statement is corrected is referred as the Class End Date. The period between the Class Begin Date and the Class End Date is called the Class Period. Investors that bought their shares after the Class Begin Date were damaged by the misleading statement and are eligible to take part in the class action suit. The date at which the class action suit is announced is known as the Filing Date. After the lawsuit has been filed and before it goes into judgment, it can be dismissed, which happens in 19% of cases. If the lawsuit is not dismissed in most cases a settlement is reached between the parties without a judge's verdict, this occurs in 80% of the cases. Only in 1% of the cases does the lawsuit end in a judgment (Buckberg 2005).

Given the volume of trading in the secondary market, the amount of losses that investors can seek to recoup can easily reach a significant percentage of the company's market capitalization. In the celebrated case of Enron, investors are seeking to recoup $40 billion dollars in damages, which is 57% of $70 billion, the highest market capitalization the company ever reached. Securities fraud class action suits can substantially harm a company's stock price. This harm is justifiable when the company has actually engaged in fraud but when a company is innocent it causes unnecessary harm to its shareholders. In the mid 1990's congress thought that law firms were abusing securities fraud law. In congress' words "within hours or days" of a substantial drop in the company's stock price lawyers were filling suits "citing a laundry list of cookie-cutter complaints" with the incentive to “file frivolous lawsuits in order to conduct discovery in the hopes of finding a sustainable claim not alleged in the complaint” (S. Rep. No. 104-98, at 14 (1995)). This was a viable strategy for law firms since it is often difficult to tell whether a drop in a company’s stock price is the result of bad luck (i.e., a risky business strategy that did not work out) or an actual misstatement of the company prospects (i.e., fraud). Filing a lawsuit and conducting discovery allowed law firms to find potential wrongdoing of which they were not aware when the lawsuit was initially filed. In an attempt to rein ibn the rising tide of lawsuits Congress enacted the Private Securities Litigation Reform Act of 1995 (from here on Securities Reform Act of 1995) with the aim of discouraging weak cases.

The Securities Reform Act of 1995 makes it easier for defendant firms to have cases dismissed at the early stage of the proceedings without having to incur the expense of discovery. It requires plaintiffs to specify in their complaint each statement alleged to have been misleading, the reasons why the statement was misleading, and a “strong inference” that the defendant acted with the intention of misleading the market (915 U.S.C. §78u-4(b)(1) - §78u-4(b)(2).) The plaintiffs must plead the facts supporting their case before discovery takes place. Since it is often difficult to demonstrate that the defendant was aware of misrepresentation without having access to privileged company information, the Reform Act of 1995 increases the probability of success of the defendant’s motion to dismiss.

There is mixed evidence supporting the success of the Securities Reform Act of 1995. There is evidence that the decrease in the number of cases after the passage of the Securities Reform Act of 1995 only lasted for a year (i.e., 1996) and after returned to the annual level of filing seen before the act was passed (Buckberg et al. 2003). However, there is also evidence that in 1995 firms with high litigation risk responded positively to the passage of the act (Johnson et al. 2000), suggesting that the market saw a decreased chance of firms being sued, presumably because law firms would have a harder time meeting the new requirements of the Securities Reform Act of 1995. There is additional evidence that after 1995 there is a larger negative effect on the stock price on the filing date which suggests that after the Securities Reform Act of 1995 was passed the market believes that if a Class Action Suit is filed there is an increased likelihood of actual fraud (Griffin et al. 2004).

Griffin also finds that the amount of time that a case takes to be dismissed and the percentage of cases that are dismissed stayed roughly the same. But Buckberg (Buckberg et al. 2005b) notes that of cases that are disposed, 39.3% were dismissed from 1996-2002 compared to only 20.3% from 1991-1995. Buckberg shows that one of the main effects of the passage of the Securities Reform Act of 1995 was to slow the time to disposition. Prior to this legislation, 61% of cases were disposed in three years and 77% in five years, but after the reform act only 44% have been disposed in three years and 62% in five years (Buckberg et al. 2003). The postponement of disposal is the direct result of settlement taking longer. Before the Securities Reform Act of 1995, 48% of cases were settled within 3 years and 63% within 5 years but after only 31% of cases were settled within 3 years and 48% within 5 years. More importantly the likelihood of a public firm being sued in a given year has increased from 1.6% in 1995 to 2.0% in 2004, an increase in 24.8%. Over a five-year period a public firm has a 1 in 10 chance of being sued.

Changes in Class Action Suits From 1995 to 2004

	1995	2004	Change
No. of Publicly Traded Companies	11,688	11,875	1.6%
Annual Filings	190	241	26.8%
Probability of Securities Class Action (SCA)	1.6%	2.0%	24.8%
Probability of Dismissal	20.3%	39.3%	93.6%
Probability of SCA that Survives Motion to Dismiss	1.3%	1.2%	-4.9%

Chart taken from Buckberg et al. 2005b

On July 2002 Congress passed one of the most ambitious reforms of corporate responsibility, the Sarbanes-Oxley Act. Although this legislation is focused on improving corporate governance it also increases the personal responsibility of the company's directors to shareholders and by doing so creates additional venues for shareholders to claim damages. For litigation purposes, the most import modification that Sarbanes-Oxley introduces is an extension of the statue of limitation to two years after the fraud was found or five years after the fraud occurred, whichever one comes first. As such it might give lawyers more time to wait on the sidelines for information they can use to file a complaint, making it easier to meet the requirements set by the Securities Reform Act of 1995. It might be too early to tell the impact of Sarbanes-Oxley, however unlike the Securities Reform Act of 1995 which targeted litigation specifically, Sarbanes-Oxley which targets the actual behavior of corporations, might prove to be the more effective of the two in reducing litigation.

2. Recent Trends in Shareholders Class Action Litigation

The number of standard class action suit cases brought each year has remained in a tight range from 1991-2004. The most marked trend is an increase in the average number of standard cases brought from 1998-2004 compared to the period 1991-1997. The effects of the Securities Reform Act of 1995 in the number of filings only lasted for a year and since then there has been a statistically significant upward trend in the number of filings. A significant proportion of the increase in cases has been centered in the 2nd and 9th federal circuit districts because the most marked increase in securities fraud has occurred in the technology industry (i.e., California's Silicon Valley) and financial services (New York's Wall Street).

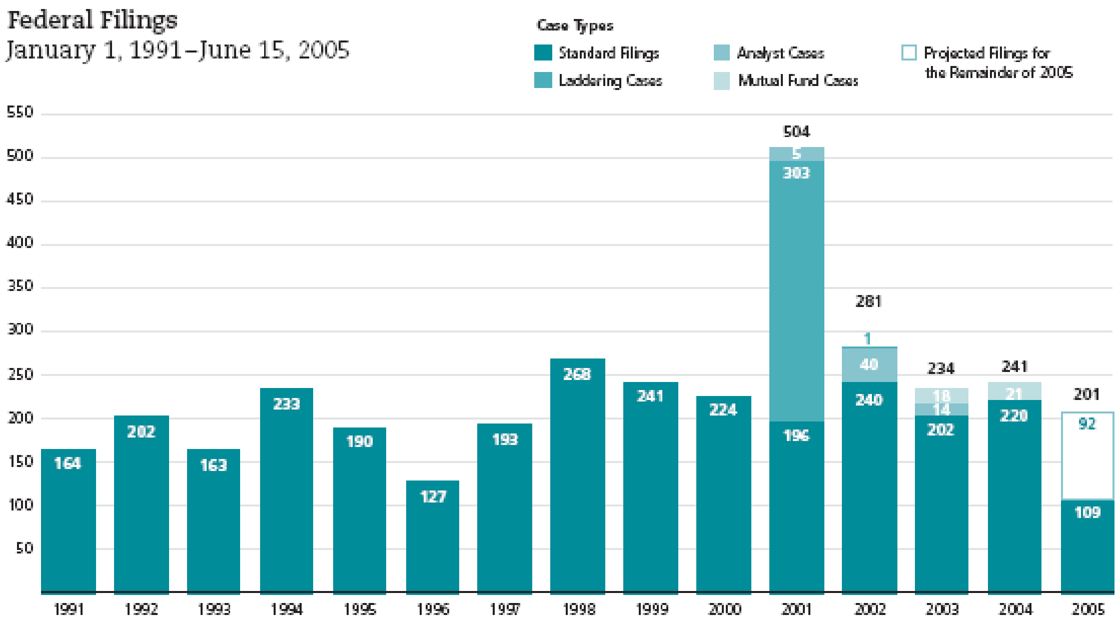

Chart taken from Buckberg et al. 2005b

Following the internet bubble there have been a number of non standard securities fraud cases that have raised the total number of filings. These filings are considered non standard because they seek to recoup damages not from the corporation whose shares investors bought but from other firms (i.e., investment banks, mutual funds, etc.) who committed fraud or misled investors regarding the shares they bought. These filings can be classified in three distinct groups:

1. Laddering Cases: most common in 2001, these cases were brought against the underwriters of IPO's. These suits claimed that investment banks violated federal security law by failing to disclose that they solicited and received excessive and undisclosed commissions from clients in exchange for allocating to them a number of shares of the IPO. Specifically, to receive allocation the underwriters' customers agreed to purchase additional shares in the aftermarket at progressively higher prices. This practice is known as laddering, and it allowed the underwriters and their customers to make enormous profits and then sell at a profit at the inflated aftermarket prices.
2. Analyst Cases: most common in 2002, these cases claim that investment banks coerced their research analyst into knowingly publishing misleading information to investors about publicly trading stocks to help sell investment banking products to those companies.
3. Mutual Fund Cases: common in 2003-2004, these cases claim that mutual fund managers in exchange for personal commissions facilitated market timing and illegal after-the-close purchases of mutual fund shares by privileged investors (often hedge funds) to the detriment of all the other investors in the mutual fund.

The rising trend in the number of class action suits filed has been characterized by a number of high profile cases. All the top ten class action settlements have taken place in the last 5 years. The top two settlements, the high profile cases of World Com and Enron, have now topped $6.1 billion and $7.2 billion respectively, and are likely to grow even further as defendants that haven't settled their Enron lawsuits join in and opt-outs for World Com continue to grow. Opt-outs are large investors, often institutions, that after a class action settlement has been reached decide to separate themselves from the class action suit and pursue their own separate settlement, in the hope of getting a better deal (Business Week, Feb 27 2006). Even without taking into account Enron and WorldCom, the average and median size of settlements have been rising. In 2005 both the median and average size of settlements, at $6.8 million and $26 million respectively, reached new records. These records are part of a broader trend: from 1996 to 2001 median settlement value was $4.7 million but from 2002 to 2005 it was $6 million.

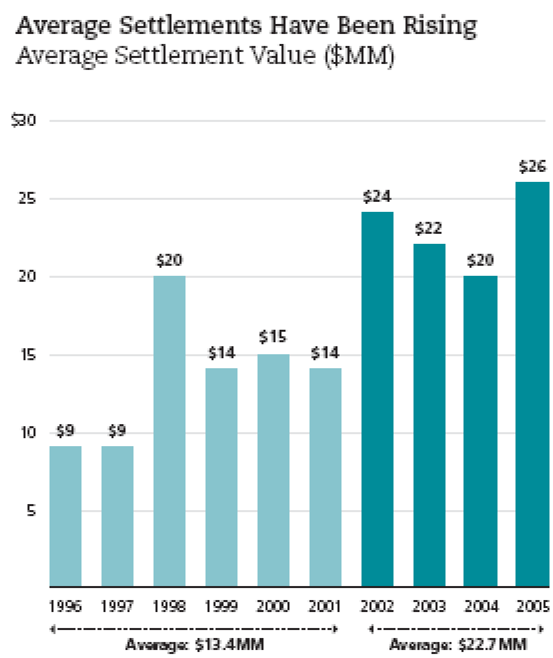

Chart taken from Buckberg et al. 2005b

The rise in average and median settlement value from 2000-2005 is the direct result of the rise in estimated investor losses. The losses that investors suffered as a result of misleading statements during the market bubble period are higher than average. This is because the increased volatility experienced during the period multiplied the impact that misleading statements had in the market and increased investors' losses accordingly. Average investors' losses multiplied from $140 million in the average suit settling in 1996, to $1 billion in 2002, $2.5 billion in 2003, $1.7 billion in 2004 and $3.5 billion for cases settling in early 2005. Similarly, median investor losses have risen steadily from $66 million in 1996, to $215 million in 2003, $337 million in 2004, and $416 million for cases settling in early 2005 (Buckberg et al. 2005b). This trend is expected to continue at least until 2007, when most cases with class end dates in the 2000-2002 period will have been settled.

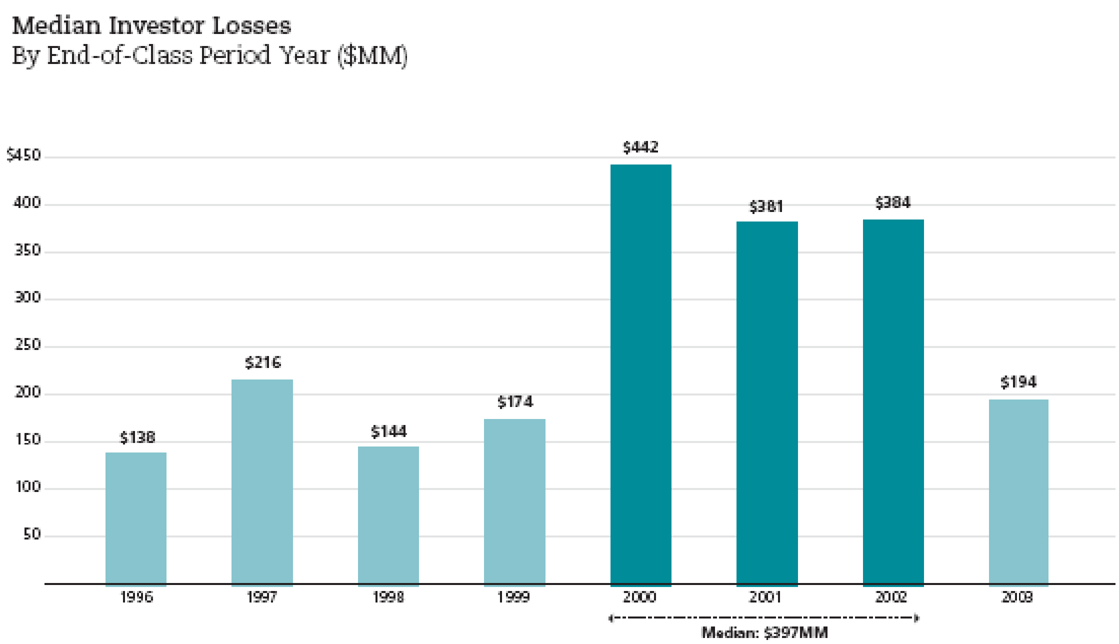

Chart taken from Buckberg et al. 2005b

3. Academic Literature Review on Class Action Suits

Research in security litigation can be divided in three groups: (1) studies that attempt to identify the factors that correlate with the incidence of securities class actions suits; (2) studies that attempt to identify factors that correlate with the incidence of fraud, using suits brought by the SEC as the proxy for fraud; and (3) studies that focus on the market impact of key lawsuit filings dates. For the purposes of this paper, the third category is the most important. However, to provide the reader with an overview of the academic research about fraud and class action suits, we will briefly summarize the main results of the two first areas of research.

3.A. Incidence of Securities Class Action Suits

A number of studies have tried to link the incidence of class actions suits to financial conditions. Jones finds that larger firms are more likely to be sued by shareholders (Jones 1980). There have been studies linking an increase in the likelihood of class action suits with greater assets and higher dividend payouts (Frances 1994) and large price drops and higher betas (Beck and Bhagat 1997). A number of papers identify changes in financial numbers that occur in the year prior to a company's being sued, among them: drops in earnings per share and return on equity on the year prior to the lawsuit (Griffin 1996) and declines in trading volume and market capitalization (Jones and Weingram 1996a). Studies that have focused on corporate governance variables have found no evidence of influence in the incidence of a lawsuit. Jones finds that the proportion of outside directors is negatively correlated with occurrence of lawsuits and that small and large boards have a larger incidence of lawsuits compared to medium-sized boards (Jones 1986). Strahan finds that insider holdings, board composition and large block holdings or institutional investors do not increase the likelihood of lawsuits but financial ratios like lower market-to-book ratios, higher levels of intangible assets and larger beta do increase the likelihood of a lawsuit (Strahan 1998).

3.B*. Incidence of Fraud*

A set of studies use SEC enforcement action as an indication of fraud and then attempts to identify variables that correlate with those companies. Firms accused by the SEC of manipulating earnings are less likely to have audit committees or outside block holders and more likely to have insider-dominated boards, CEOs that founded the company and/or who also serve as chairman of the board (Dechow et al. 1996). Firms that have been accused by the SEC of committing financial statement fraud have a lower percentage of outside directors on their boards, but the presence of an audit committee did not correlate with fraud (Beasley 1996). Summers and Sweeney similarly find that financial statement fraud dates as reported by the Wall Street Journal are preceded in the previous year by high inventory levels, high growth rates and high return on assets, which suggests that in those companies management might commit fraud to maintain the appearance of success during a financial downturn (Summers and Sweeney 1998).

3C. Market Impact of Key Filling Dates

A significant part of the research in this area has been focused on the corrective disclosure and price movements associated with the Class End Date. For example, Kellogg finds a significant price decline when the initial misstatement is uncovered and in the months prior to disclosure (Kellogg 1984). Francis et al. find an average -17% abnormal return for a sample of sued firms when the earnings are reported and fall below previously announced expectations (Francis et al. 1994). Niehaus and Roth find an abnormal return of -21.5% when the market learns of negative information leading to a lawsuit (Neihaus and Roth 1999).

The underlying theme of these articles is that after the curative disclosure litigation-prone firms are identifiable (see Johnson et al. 2000) and that using prior information investors anticipate the cost and probability of litigation. However, the market cannot know when a lawsuit will be filed, the magnitude of alleged fraud and what additional information will be revealed at the time of the filing or the result of the lawsuit. As a result there have been a certain number of papers that study the effect of other key class action events, like the Class Filing Date, Class Being Date, Class Dismissal Date and Class Settlement Date. Romano found a statistically significant negative price reaction to the filings of class action suits against a corporation, but no significant reaction to the report of the filing in the Wall Street Journal (which on averages happens two weeks after) and no significant abnormal returns for the dismissal or settlement dates (Romano 1991). Bhagat et al. finds a small but statistically significant average decline of -0.58% over two days for a variety of lawsuit fillings (Bhagat et al. 1994). Bohn and Choi report that the filing of lawsuits claiming disclosure violations of IPOs produces a statistically significant -3.33% abnormal return for defendant firms (Bohn and Choi 1996). Feroz et al. finds a much stronger reaction to news of the filling of a SEC enforcement action: he reports a mean excess return on days [-1, 0] of -12.90% when the market learns of a corrective disclosure and a mean excess return of -7.5% when the market learns of a SEC enforcement action in response to the earlier disclosure; even tough the corrective statement giving rise to the investigation had been previously announced (Feroz at al. 1991). Cross et al. finds that financial statement lawsuits filed by the SEC have a larger negative impact on the price of the stock than private lawsuits; this is because the SEC enforcement division has large resource constraints and is likely to focus its attention only on cases with the strongest evidence of fraud (Cross et al. 1989).

A number of recent studies have tried to compare the behavior of stock prices around key filling dates. Ferris and Pritchard use a small sample of class action suit events after the Securities Reform Act of 1995. They find statistically significant abnormal negative excess returns on a three day period of -24.99% on days [-1, +1] around the Class End Date and a smaller but still statistically significant -3.47% around the Class Filing Date. However, they find no effect on the day when investors learn the outcome of a motion to dismiss and no relation between the market response on the Class End Date and the Class Filing Date (Ferris and Pritchard 2001). Griffin et al. uses a large and extensive sample of class action suits since 1990 to study in detail the market behavior around the Class Begin Date, Class End Date and Class Filing Date. They find mean three day excess returns over days [-1, +1] of -16.6% around the Class End Date, -4.1% around the Class Filing Date and +3.6% around the Begin Class Date (Griffin et al. 2004). Unlike Ferris and Pritchard, Griffin et al. find a strong correlation between the Class Filing Date and the End Class Date. They also find that the magnitude of the move around the Class End Date appears to reflect the event of a filing and the settlement amount.

Hypotheses

In this section we develop testable hypotheses about the behavior of stock prices around the Filing and Class End Date, the relationship between the Filing and Class End Date and variables that might affect the behavior of stock prices in those dates.

Hypothesis 1: The behavior of stocks on the Class Filing Date depends on when the filing occurs in relation to the Class End Date. In particular companies that are sued right after the Class End event will exhibit more negative returns. Class action litigation is a compound series of events. The Class Filing event is not an event that occurs in isolation but is linked to other events. Of particular interest is the Class End Date. We believe that when a company discloses corrective information in the form of bad news and immediately gets sued the markets interprets this as a signal that the likelihood of fraud is higher and panics. The stronger the case for fraud the more quickly law firms will file a suit.

Hypothesis 2: There is a relationship between the characteristics of a company and the behavior of its stock as a result of a law suit. In particular we believe that Market Capitalization is important. Size has been found by other authors to be a significant determinant of the success of motions to dismiss and the incidence of fraud. Because of this the size of a company should be a determinant of the behavior of stock prices on the Class End and Filing Date.

Hypothesis 3: A size effect should exist for both the Filing Event and the Class End event. If hypothesis 2 is true, size should affect stock prices around the Class End event because investors calculate the probability of the company getting sued eventually and include size in their calculations. Moreover since the eventuality of a lawsuit is uncertain until the Filing, market capitalization should also be a determinant of stock price behavior around the filing date.

Hypothesis 4: There is a relationship between the behavior of a stock around Class End Date and Filing Date. If part of the stock response at Class End Date is the result of the calculation by investors of the probability of a lawsuit against the company then the behavior of the stock as a result of the Filing event should be tied to that of the Class End event.

Methodology

In our study of the Class End and Filing Date two methodologies will be of particular interest to us: Event Studies and Cross-Sectional Regressions. The first is useful in the analysis of individual variables; the second allows us to understand the simultaneous effect of multiple variables. The methodology that is explained below in relation to the Class Filing Date will also be used to study the Class End Date.

Stock Price Event Studies

Event studies are used to determine if the price of a stock behaves in a particular way as a result of well-defined event. We will study abnormal behavior on the 30 days prior and

30 days after the filing event. Before we study abnormal behavior, we need to define what we mean by normal. In the event study literature there are competing definitions on how to define normal behavior. We have decided to adopt the definition that is the most congruent with the Capital Asset Pricing Model (CAPM). The CAPM states that the expected return of an asset depends on two variables:

1. R_f : The Risk Free Rate in the economy – the rate at which an agent without default risk can borrow.
2. R_m: The Return of the Market Portfolio – the rate of return one would obtain if one invested in each asset a proportion of one's total portfolio that equals the weight of that asset in the overall market.

The expected return of the asset i (R_i) will then equal

$$(1)\ E[R_i] = R_f + B_{im}(E[R_m] - R_f)$$

where

$$(2)\ B_{im} = Cov[R_i, R_m] / Var(R_m)$$

Therefore:

$$(3)\ R_{it} = a_i + B_i * R_{mt} + e_{it}$$

Where R_{it} is the return of asset i on day t, R_{mt} the return of the market on day t, a_i and B_i constants obtained from regressing the returns of the asset on the returns of the market. The abnormal excess return is simply $e_{it.}$

The next step is to define event windows. We consider four windows. A 3-day filing window, which we define as 1 day prior to 1 day after the event; the pre-filing window which we define from 30 days until 2 days before the filing; and the post-filing window which we define from 2 days after the filing until 30 days after the filing. We also calculate an extended event window from 5 days before to 5 days after the event. Equation (3) is calculated using returns of the stock prior to the start of the pre-filing window. In the estimation of abnormal returns we use prices starting 255 trading days before the event and ending 46 days before the event. We consider that prices that occur less than 46 before the event could be the result of the event itself and not of "normal behavior". 46 trading days correspond, roughly, to 2 calendar months. We also require that as a minimum the stock has been trading for 30 days before the 46th day. We require this to guarantee a certain level of robustness in the estimation of the parameters in (3). The time period used to estimate equation (3) is known as the estimation window. Once we have obtained abnormal returns for each day, it is relatively easy to test if the return for a particular day for a particular stock differs from its normal behavior. As Campbell et al. (1997) show under certain conditions excess returns are normally distributed with a mean of 0 and variance matrix

$$(4)\ \mathbf{V}_i = \mathbf{I}\sigma_{\varepsilon i}^2 + \mathbf{X}^*_i\ (\mathbf{X}_i'\ \mathbf{X}_i)^{-1}\ \mathbf{X}^*_i\ \sigma_{\varepsilon i}^2$$

Where $\mathbf{X}^*_i$ is a matrix with one column of 1's and one column with the vector R_m used in the estimation window; $\mathbf{X}_i$ is a matrix with one column of 1's and one column with the vector R_m of the event window under consideration; σ_{ei}^2 is the variance of the errors obtained from (3) and **I** is a square matrix of 1's with dimension equal to the number of days in the event window. Since the excess returns are normally distributed, once we have obtained $\mathbf{V}_i$ we can use it to estimate the standard Z-statistic to test the null hypothesis of no excess returns. If we however want to test for statistically significant excess returns for an event window longer than one day or for a number of securities, it is necessary to aggregate the returns. This aggregation takes place along two dimensions: time and securities. To aggregate return across time for a single security we introduce the Cumulative Abnormal Return or CAR which is defined as

(5) $CAR_i (\tau 1, \tau 2) = \boldsymbol{\gamma}'\boldsymbol{\varepsilon_i}$

(6) $Var [CAR_i (\tau 1, \tau 2)] = \boldsymbol{\gamma}' \mathbf{V}_i \boldsymbol{\gamma}$

Where $(\tau_{1,} \tau_2)$ is the window period, $\boldsymbol{\gamma}$ is a column of 1's of length equal to the number of days in the event window, $\boldsymbol{\varepsilon_i}$ is a vector of the errors in equation (3) and $\mathbf{V}_i$ is as in equation (4). Campbell et al. (1997) show that under certain assumptions CAR is distributed as normal with mean 0 and variance (6). We can construct a test of no excess mean returns using the standardized cumulative abnormal return

(7) $SCAR_i (\tau 1, \tau 2) = CAR_i (\tau 1, \tau 2) / Var [CAR_i (\tau 1, \tau 2)]$

Under the null hypothesis SCAR is distributed as a Student T with degrees of freedom equal to the length of the estimation period minus 2. For a large enough estimation window (over 30), the distribution of the null hypothesis of SCAR will approximate the normal distribution.

To aggregate across securities and time we assume that there is no correlation across abnormal returns of different securities. For this to be true the different events need to be distributed evenly across time and not clustered around a single date. Assuming the abnormal returns are independent across the N securities in the sample we can average the return and variance of individual securities by summing them up

(8) $\bar{\varepsilon} = 1/N \sum_{i=1}^{N} \varepsilon_i$

$$\text{(9) Var}(\bar{\varepsilon}) = \mathbf{V} = 1/N^2 \sum_{i=1}^{N} V_i$$

We can then aggregate these average excess returns across time as we did for an individual security

$$\text{(10) } \overline{CAR}_i(\tau_1, \tau_2) = \boldsymbol{\gamma}' \bar{\varepsilon}$$

$$\text{(11) Var } [\overline{CAR}_i(\tau_1, \tau_2)] = \boldsymbol{\gamma}' \mathbf{V} \boldsymbol{\gamma}$$

Under certain assumptions $\overline{CAR}_i(\tau_1, \tau_2)$ is distributed normally with mean 0 and variance as in (11). We can test the null hypothesis of no abnormal excess returns using the fact that

$$\text{(12) } \frac{y'\bar{\varepsilon}}{\sqrt{\gamma' V y'}} \sim \text{N}(0,1)$$

The test statistics discussed so far in relation to CAR assume a specific distribution of returns for stocks. As a robustness check we will also use the sign test, a nonparametric test that makes no assumptions about the distributions of returns. The sign test is based on CAR and assumes that (1) abnormal returns are independent across securities and (2) that the expected proportion of positive abnormal returns under the null hypothesis is 0.5. The basis for this test is that under the null hypothesis it is equally probable that the CAR will be negative or positive. Under certain assumptions the sign test is distributed as a standard normal and is given by:

$$\text{(13) } \left[\frac{N^+}{N} - .5\right] \frac{N^{1/2}}{.5} \sim \text{N}(0,1)$$

A weakness of the test is that if returns are skewed the expected proportion of positive returns can differ from one half. As a result, we will not use the sign test in isolation but in conjunction with the parametric tests described in this section. The sign test allows us to check for robustness in our parametric statistics.

Cross Sectional Variation of Excess Returns

Event studies are useful to generate a list of excess returns for stocks around particular dates. But to gain a deeper understanding of what drives stock returns one might want to find if the magnitude of the excess return is linked to other characteristics, like size, plaintiff firm or type of fraud involved. To do this cross-sectional regressions are an appropriate tool. To conduct a cross regression we define a vector **y** that includes one column with the cumulative abnormal excess returns and a matrix X that includes a column of 1's and columns with the explanatory variables. It is then fairly simply to estimate the correlation between the explanatory variables and the excess return by running a simple Ordinary Least Squares Regression:

$$(13)\quad \mathbf{y} = \boldsymbol{\theta}\, \mathbf{X} + \boldsymbol{\eta}$$

Where $\boldsymbol{\theta}$ and $\boldsymbol{\eta}$ are the vectors of coefficients and errors estimated by simple OLS. We can then use standard OLS tests statistics, like T-statistics, to test for statistical significance.

Sample Selection and Data Characteristics

Our initial sample includes all security related class action suits against public companies that were filed between 1996 and 2004 and settled before the end of 2004. The total sample is 621 class action suits cases. Class action suits against the same company with the same filing date but with different settlement dates (i.e., opt-outs) are considered two separate class action suits. A number of Class Action Suit Dates occur on days when there is no trading, in those cases we consider the first trading day after the event as the event date. To aid our analysis we have collected a number of variables that allows us to quickly summarize the characteristics of the sample and to explain CARs using regressions. Table 1 provides a complete list of the variables, their notation and meaning.

As outlined in the hypotheses, we believe that the stock behavior on the Class Filing Date depends on when it occurs in relation to the Class End Date. We divide the entire sample in three groups:

1. **The Class Filing Date occurs at least three days after the Class End Date**. This is the typical sequence of events in a Class Action and the most adequate sample to study the effects of the filing date. If the distance between the Class End Date and the Class Filing Date is large enough the abnormal excess returns that we observe for the Filing Date will not include the spill over effects of the Class End Date. The three day cut off is the minimum number of days that keep the Filing and Class End event windows [-1, 1] from overlapping.
2. **The Class Filing Date occurs on the day of or up to two days after the Class End Date.** When this occurs we can not tell which part of the stock behavior is due to the Filing and which to the Class End event. If we want to understand the filing event this is not the most adequate sample, and as a result we only analyze it lightly. However, to test our first hypothesis we will still analyze the results.
3. **The Class Filing Date occurs prior to the Class End Date.** In the typical Class Action the filing occurs after the Class End. However when there are multiple

corrective statements the Class End Date is set as the day of the last corrective statement. If the filing happens after the first corrective statement and there are more corrective statements after the Class Filing Date, the official Class End Date would be after the Class Filing Date. This creates two problems: (1) since the Class End Date reported is the date of the last corrective statement we don't know whether the filing event occurred within the [-1, 1] window of the corrective statement and (2) the fact that a large percentage of this sample has Class End Dates in the [2, 30] filing window biases the excess returns for that window downward. Given these two problems this sample set is not adequate for our analysis and we will limit ourselves to reporting the excess returns.

Of the 621 Class Actions there are an important number of stocks that are not trading by the time the filing occurs. This can happen for a number of reasons; for example the company can go bankrupt, be acquired by another company or fail to meet its listing requirements. In a few cases, the company might not be trading by the Class End Date. When either of these scenarios occurs we have no alternative but to drop that stock from the sample. These events can occur in isolation: there are times when a stock will be trading on Class End Date but not on Filing Date, and vice versa. This means that in our analysis the event universe for the Class Filing Date and Class End Date might differ. There are two ways to proceed: (1) we can create separate samples for the Class Filing and Class End dates or (2) we can only consider those stocks that are trading on both the Class End Date and Class Filing Date. The drawback of the first alternative is that it makes comparisons between Class Filing Date and Class End Date more difficult; the drawback of the second alternative is that the sub-sample of stocks that are trading on both dates is most likely not representative of the entire sample. We believe that the later consideration outweighs the first one. To reflect this we proceed in a double fashion: (1) in most cases the analysis centers on each event separately and we will use the full sample of stocks trading on the date of the event; but (2) when we need to study the relationship between the Class End Date and Class Filing Date we will only consider stocks that are trading on both dates. After subjecting the initial sample to the selection process outlined above there are 7 separate samples:

1. Class Filing 1: events on which the Class Filing Date occurs at least three days after the Class End Date.
2. Class Filing 2: events on which the Class Filing Date occurs on the day of or up to two days after the Class End Date.
3. Class Filing 3: events on which the Class Filing Date occurs prior to the Class End Date.
4. Class End 1: events on which the Class End Date occurs at least three days before the Class Filing Date.
5. Class End 2: events on which the Class End Date occurs on the day of or up to two days before the Class Filing Date.
6. Class End 3: events on which the Class End Date occurs after the Class Filing Date.
7. Overlapping Class End/Filing: the overlapping events in samples Class End 1 and Class Filing 1.

Once the seven samples have been created and before any analysis has been conducted we apply a number of filters on each sample separately to exclude the following events:

1. **Stocks that have a market capitalization below 10 million dollars.** We believe that whatever insights we can learn from companies that small are buried in a heap of noise large enough to distort the cumulative results for the entire sample. Ten million dollars is a lenient cutoff, even stocks with low double digit market capitalizations can present very noisy behavior. However only 4% of events have a market capitalization below 10 million but there are more than 20% of events in the 7 samples that have a market capitalization below 50 million – an exclusion that large would be hard to justify.
2. **Stocks for which we can not estimate "normal" behavior.** For the purpose of estimating excess abnormal returns we require the company's stock to be trading publicly for at least 76 before the event occurs. We consider this to be the minimum amount of days necessary to estimate "normal" behavior with a sufficient degree of consistency.
3. **Extreme outliers.** We exclude Avtell Communication, a small cap internet stock that on the 4^{th} day prior to the Class Filing Date and one day after the Class End Date had an excess return greater than 1000%. This abnormally large return is large enough to bias the results for the whole sample.
4. **Data issues.** To perform our analysis we use CRSP data. For a number of stocks there is no CRSP data or there is CRSP data missing for key dates. When this occurs we have no alternative but to drop the event from the sample.

Empirical Results and Analysis

Our results and analysis are presented in six parts. In the first part we analyze the characteristics and differences between samples 1, 2 and 3. In the second part we present and analyze the CAR for all the samples. In the third part we study in depth the importance of size. In the fourth part we introduce some other variables that will be used in our cross-sectional regressions of CAR in the fifth part. The last and sixth part is a brief explanation for the results.

1. Sub-Sample Biases and Analysis

The first step in our analysis is to study the characteristics of the 7 sub-samples. As can be seen in Table 2, our sample selection methodology produces sub-samples with distinct characteristics. In particular, Average Market Capitalization is significantly different. Since one of our hypotheses is that the behavior of the stock price varies with size, there is a built in bias towards smaller capitalization stocks in our aim below to focus the analysis on Sample 1. We believe this bias is a fair price to pay since including Sample 2 and 3 in our in depth analysis of the Class Filing event would make it impossible to tell behavior that is caused by news released around the Class End date from that caused by the Class Filing event.

The events in Sample 3 have a high market/book ratio, low leverage, a high MC_C and MC_F, and a below average B_C and B_F. These characteristics paint a clear picture of the companies in Sample 3: they are large, successful and stable and have low volatility. This makes sense. For there to be multiple Class End dates a company needs to outlive the initial Class End Date: companies with the characteristics outlined above are more likely to do that. Furthermore, a large company because of its size and complexity is more likely to discover multiple instances of fraud after the initial instance is discovered. Finally, we believe that after a company announces news that are likely to lead to a Class Filing volume is more likely to decrease for small companies than for big companies. As a result lawyers have less of an incentive to extend the Class End Date for small companies.

For both Class End and Filing the companies in Sample 2 vis-à-vis Sample 1 are more highly leveraged, have a higher market/book ratio and a much smaller size. Our hypothesis is that when lawyers feel they have a very strong case they would file the lawsuit immediately after the Class End news release. The evidence supports this. The average number of years between Filing and Settlement is 2.59 for Sample 2 versus 2.92 for Sample 1. Furthermore the average fraction of market cap that settlement represents for Sample 2 is 10% both at the Class End and Filing date, which is significantly higher than for Sample 1 (6% for the Class End and 7% for the Filing date). Both of these facts provide evidence to our claim that the reason why some lawsuits are filed right after the Class End Date is because lawyers have a stronger case.

It is important to note that most academic studies to date have completely ignored Sample 2 and 3. As a result we believe that many of the results that have been published have a sample selection bias. This might sound like hypocrisy since in the latter part of our analysis we will focus our analysis on Sample 1 and succumb to the bias. We believe that to study the impact of the Class Filing and Class End event there is no better alternative. However it is important to be aware that a bias does exist: the 3 samples are not completely random.

2. Cumulative Abnormal Returns

In Table 3 we have calculated the Cumulative Abnormal Returns for samples Class Filing 1, 2, 3 and Class End 1, 2, 3. In Charts 1 and 2 we have plotted the portfolio price path for the 6 samples. The CARs calculated for each sample are value-weighted portfolios that assign weights to each stock according to its market capitalization. Value-Weighting is congruent with the CAPM and makes more economic sense than equally weighting the stocks in the portfolio. However it does mean that the CARs calculated will be most affected by the largest stocks within each group.

The results for both the Class End and Filing sample confirm our hypothesis that the behavior of the stock price around the event dates depends on when the filing occurred in relation the Class End date. As can be seen from Chart 1, the behavior of the Class End Samples 1, 2 and 3 are very much the same before the Class End Date. The main difference occurs as a result of the Class End Date event. Of particular interest is CAR_C [-1, 1] which provides evidence for our hypothesis. Of the three samples Sample 3 has the highest CAR with -19.11%. We believe this it is due to the fact that the Class End Date for this sample is set as the date of the last disclosure after a series of corrective disclosures and as a result its effect is diluted. For CAR_C [-1, 1] Sample 2 has a CAR of

-38.27% which is significantly lower than the -29.87% of Sample 1. This large difference provides further evidence to our hypothesis that companies that are sued right after the Class End Date have larger negative returns. It however provides us little evidence to answer a key question: are these companies getting sued right after the Class End because their stocks went down a lot or are the stocks going down a lot because lawsuits filed right after Class End date indicate to investors that lawyers have a stronger case which is more likely to end in a larger settlement? It is hard to tell since there is evidence supporting both hypothesis: CAR_C [-30, -2] is lower for Sample 2 than for any other sample but as observed in part 1 of our analysis the proportion of market cap at Class End Date that settlement represents is also higher for Sample 2 than for any other sample (the fact that the S/MC_F for Sample 3 is higher than that for Sample 2 is due mostly to the fact that the CAR_F [-30, -2] for Sample 3 is much lower than that for Sample 2). The CAR_C [-30, -2] window confirms our previous insight that for Sample 3 by the time the final corrective statement occurs the carnage is over.

The Filing sample is equally interesting. At first sight Chart 1 and Chart 2 look similar, but the small differences between them are insightful. For Sample 2 the small amount of days between Class End and Filing cause the lines for Sample 2 in the charts to be the most similar of the three pairs. The lines look the same except that the big drop now occurs 1.5 days later, which is roughly the average time that it takes for companies in Sample 2 to get sued after the Class End date. The most marked difference between the two charts is that the lines for Sample 1 and Sample 3 have switched positions. This is because Sample 1 experiences no sharp drop in Chart 2 due to the fact that filing event for it occurs on average more than 3 months after the Class End event, enough for the effect of the Class End to have disappeared. This is a crucial fact that we will use to justify our methodology because it means that the CARs we observe for Sample 1 are mostly the result of the Filing event and not of the Class End.

It is interesting to note that if we add CAR_F [-1, 1] and CAR_F [2, 30] the CAR for the window [-1, 30] for Sample 1 is roughly 0. Based on Table 2 we could assume that on average getting sued is not bad news. Presumably, as previous authors have written, because initially when the bad news that lead to the filing are released investors calculate the probability and cost of class action litigation for the stock and discount its stock price accordingly. However we will argue that getting sued could be bad or good news depending on the characteristics of the company. If the market believes the likelihood of the company getting sued is low, getting sued is very bad news. If the market believes that the probability of the company getting sued is near certainty, getting sued might be good news. It is beyond the reach of this paper to either study how the market arrives at the probability of getting sued that each firm faces or how we can infer such probability from stock prices. Instead we will rely on some of the variables that previous papers have provided evidence for. Section 3.A of the Introduction provides a good summary of what our sources are. Our main focus will be Market Capitalization, which was identified over 25 years ago by Jones as influencing the likelihood of fraud. Additionally, we will study a number of control variables that we have included in our regressions. For Fama-French's sake we will use book-to-market. To honor the CAPM, we will use Beta.

Finally as a sign of respect to Modigliani-Miller we will use the liabilities/equity and liability/assets ratios.

3. Univariate Analysis of the Size Variable

We have found that size has an enormous capacity to generate variation within each sample. This means that regardless of when the Class Filing Event occurs in relation to the Class End Date, the market capitalization of the company is an important determinant of the behavior of the stock. We divided Sample 1, 2 and 3 into groups based on their market capitalization. For the Class End sub-samples we used $MC_{C;}$ for the Filing sub-samples we used MC_F. The results are summarized in Table 4 and Charts 3, 4, 5 and 6. Charts 3 and 5 are regular price charts for the value-weighted sub-samples of Sample 1. Charts 4 and 6 are less intuitive. They lock the initial price of each sub-sample at 0 and its end price at 1. This shows a relative picture of the price decline of each sub-sample. A major difficulty in dividing the sub-samples into groups according to size is that, as shown in Table 1, the average size of a company in each of the samples is different. As a result we must tread with caution. We will assume that the "true behavior" of stock prices is that of Sample 1 and explain why the behavior of Sample 2 and Sample 3 might diverge. This is a big assumption, but we believe it is justified. When the Class End occurs before or very close to the Filing event the behavior of the stock reflects both events and it becomes impossible to tell what part of the behavior of the stock corresponds to what event.

The results in Table 4 complicate the picture we constructed in part 2. It is still true that regardless of size CAR_F [-30, -2] and CAR_F [-1, 1] are significantly more negative for Sample 2 than for Sample 1. We believe there is a compound effect at work. A filing that occurs immediately after the Class End news magnifies the impact of the news and the filing. However it is difficult to prove this hypothesis since CAR_F for Sample 2 incorporates the effects of the Class End news as well as the Filing event. A crude alternative would be to add CAR_F [-1, 1] to CAR_C [-1, 1] for Sample 1, this gives us -32.96% which is very close but slightly below the -34.39%, the CAR_F [-1, 1] for Sample 2. If we repeat the exercise for CAR_F [-5, 5] we obtain a similar result.

This crude method seems to provide slight support to our hypothesis but breaks down when we look at the samples by size. The result is still roughly the same for the Big and Medium samples but is the reverse for the Small Sample. There is a possible simple explanation for the behavior. As shown in Table 2 small companies tend to get sued more quickly after the Class End news. The companies in Small Sample 1 are not sued in the two days after the Class End news but they are sued in average before the Big and Medium companies in Sample 1. As a result some of the Class End news effects might also be included in CAR_F [-1, 1] and in CAR_F [-5, 5]. This would be an easy explanation but it does not hold up. The behavior of CAR_F [2, 30] is the first sign that there is something else at work. For Sample 2 it is -8.47% but for sample 1 it is 6.65%. We believe that when small companies get sued the market overreacts. As Charts 5 and 6 show the price of small stocks goes down for 8 days after the Filing event and in the next 22 trading days it goes up 11%. In a sample of 91 events these returns are not random.

However the results for Small Sample 2 are most likely noise since the sample only has 9 observations. We are reluctant to contradict our previous hypothesis based on size samples of sub-sample 2 since they have less than 9 observations. If we look at the entire sample our previous results still hold: there is slight evidence that companies that get sued right after the Class End date go down more before the Class End Date and after the Filing event.

The results for the entire Sample 1 seem to support the position by previous papers that getting sued is on average not bad news. But the CAR_F for the size sub samples tells a different story. Getting sued could be good news if you are a big company since their average CAR_F [-1, 1] is 0.41% and CAR_F [2, 30] is 5.21%. Slightly positive news if you are a small company since their average CAR_F [-1, 1] is -4.41% but is compensated by a CAR_F [2, 30] of 6.65%. And if you are a medium company getting sued is simply bad news since CAR_F [-1, 1] is -5.32% and CAR_F [2, 30] -2.61%. What is going on in here? As Charts 3, 4, 5 and 6 show there is something unique about the Filing event that causes companies to behave differently according to their size. For the Class End event, as can be seen in Charts 3 and 4, the behavior of the size samples is exactly the same and only the magnitude of the negative behavior slightly varies. However for the filing event the shape of the line for each sample size is very different. There is not only a difference in magnitude, which is easy to quantify and include in a regression, but more importantly a difference in the form of the behavior – a qualitative aspect which is much harder to capture in a regression, and can best be seen in Charts 4 and 6.

The big capitalization stocks seem to behave in a perfectly rational way before the filing event: there is no sudden drop in the price when the filing event occurs, implying that before the Filing event is announced the market had already incorporated the likelihood of the event into the stock price. However on the 30 days after the filing event the stock goes up 5.31%, which generates a large amount of predictability, suggesting that big stocks also over react before the filing event but correct themselves more quickly after the filing is announced. Of all three sub-samples, only larger corporations stop going down right after the filing event. This is congruent with previous research that has shown that large stocks incorporate information quicker. If we look at Table 5 a couple of characteristics set apart the big capitalization companies from the average company in the entire sample: they have higher leverage, lower market/book and liability/asset ratios, higher beta, higher standard deviation of daily CAR, higher percentage of cases with an institution as lead plaintiff (27.4%) and a lower fraction of market capitalization paid out at settlement.

As seen in Chart 5 from days -30 to 8 the behavior of medium and small cap stocks is the same both in terms of magnitude and form. However nine trading days after the filing event the lines start to diverge: small cap stocks start going up and medium cap stocks keep going down. By the end of the period, small cap stocks end 11% higher than medium cap stocks. What causes small cap stocks to start going up almost 2 weeks after the filing event? One possible explanation is that small cap stocks tend to over react to news more than medium stocks do. A reason for this is that small stocks tend to be more momentum driven. This could explain why there is a period of one week when the prices do not move before the small cap stocks start going up. As long as the stock price keeps going down momentum investors would keep selling but once the trend reverse and the price stops going down they would quickly jump the trend and help push prices even higher. This could explain why, as seen in Table 5, small cap stocks which have lower volatility and lower beta than big cap companies have a much more pronounced upward climb. It could also explain why big capitalization stocks that are bought by more value-driven investors do not have a one week “cooling period” before the downward trend is reversed

A last question that we want to ask about size is why getting sued is unambiguously bad for a medium sized company but nor for a small or large one. As shown in Table 5 the class action length period is shorter for medium cap stocks but this is compensated by a high S/MC_F. Their beta, volatility of CAR, market/book and liability/assets fall in the middle of the sample range, and leverage is the lowest of the three samples. We have no good answers.

4. Other Variables

There are a certain number of variables that we want to use as controls in our regressions but that we also want to study individually. An interesting one is Milberg & Weiss (MW). MW is the most renowned law firm in the Class Action industry; they are involved in almost 1 of every 4 cases in our sample. Because of its experience in Class Action suits it could be that being sued by MW is an economically different event from getting sued by any other law company. As we show in Chart 7 getting sued by MW has no different effect on returns than getting sued by any other firm. As a result we will not include this variable in our multivariate studies.

The involvement of an institutional investor (be it a Corporation or a Financial Institution) as lead plaintiff has also been mentioned as an event with distinct significance. As can be seen in Chart 8 this theory at first glance seems to have certain validity. A market cap weighted portfolio of events where the main plaintiff is a Financial Institution has a return of -27.17%, much lower than the -14.47% for events where there is no institutional involvement. When the institutional plaintiff is a corporation the return is -17.23%, still significantly lower than that for events where there are no institutional investors. Could there be something else at work? The average market cap of the three sub samples is vastly different: events that have a financial institution as lead plaintiff have an average market cap of $3.71 billion; events with a corporation as lead plaintiff have a market cap of $0.26 billion and events with no institution as lead plaintiff an average market cap of $1.371 billion. We believe that size is the real cause behind the different returns for the three samples. The sure way to prove this is by including both size and a dummy variable for institutional involvement in our regressions. We will do this below.

A number of financial variables have been identified as causes for abnormal returns in the long run. Size and Book/Market are the most often cited of these variables. Leverage ratios (liability/assets and liability/equities) are also used. We feel that is necessary to include these variables in our regressions mainly to prove that the size effect that we have observed is not the standard size effect in returns that Fama-French and others have talked about. We ran CAR_C [-1, 1], CAR_C [2, 30], CAR_F [-1, 1], and CAR_F [2, 30] on these variables. None of the variables turned out to be particularly promising. The regression CAR_F [-1, 1] on Liability/Assets is the only one with a T ratio above 1. This is initial confirmation that the size effect we have identified is of a different sort than that of Fama-French. We will still include these variables in our multiple regressions.

A last interesting variable to include in our multiple regressions is Beta. We regressed individually CAR_C [-1, 1] and CAR_C [2, 30] on β_C and CAR_F [-1, 1] and CAR_F [2, 30] on $\beta_{F.}$. The results are summarized on Table 6. β has different effects on Class End and Filing. In average its effect is not large; however, it still is statistically significant in some instances, especially for the Filing event. During CAR_C [-1, 1] stocks with high betas go down more but during CAR_C [2, 30] stocks with a higher betas go down less. During CAR_F [-1, 1] stocks with a high beta go down less but during CAR_F [2, 30] stocks with a high beta go up less too. There is no obvious explanation for these results other than the possibility that β is proxting for other variables.

5. Multivariate Analysis of Size: Class End and Filing Cross Sectional Regressions

We have performed cross sectional regressions on Sample 1 of CAR on the individual stocks on a variety of explanatory variables. Cross sectional regressions allow us to study how a number of variables work at the same time to explain the behavior of the stock around the event dates. In our cross sectional regressions it is important to keep in mind the methodology that we have used for individual variables. So far we have constructed value-weighted portfolios for size and other variables. In our cross sectional regressions we use ordinary least squares which when calculating coefficients for the variables assigns the same weight to all events – without taking into consideration the market capitalization of the stock. An alternative would be to use Weighted Least Squares to assign more importance to stocks with a larger market capitalization. However in our cross sectional regressions our main aim is to understand the behavior of the "average stock" around an event date and for this purpose we believe that OLS is preferable to Weighted Least Squares.

The results for the Class End event are summarized in Table 7. Chart 9 uses the coefficients of size in the regressions to plot returns as a cubic function of size. When reading this chart is important to keep in mind that because there is a constant in the regression the sign of returns in the function can not be taken literally but only as a relative statement of the returns of stocks as a function of size. Contrary to our hypothesis the T-ratios in the regressions show that size does not play any role explaining the behavior of CAR_C [-1, 1]. As can be seen from Chart 9 the difference between the largest and the smallest companies is less than a quarter of a basis point. Of our control variables only CAR_C [-30, -2] and Institutional Plaintiff have a statistically significant effect. The results for CAR_C [2, 30] are similar. Size does not seem to play a significant role, as can be seen from the T-ratios in Table 7 and Chart 10. Of the control variables CAR_C [-30, -2] and CAR_C [-1, 1] are both very statistically significant. This makes the results more difficult to interpret. If CAR_C [-30, -2] depends on MC_C (as Table 4 shows) then the Size effect could be showing up in the regressions through CAR_C [-30, -2]. It is also important that there is a U effect in Charts 9 and 10 which agrees with our previous results in Table 4.

The cross-sectional regressions for the Filing event regressions in Table 8 have lower F-ratios and R^2 than those for the Class End event but have Size variables with larger coefficients and T-ratios. The regression for CAR_F [-1, 1] does not provide strong support for our hypothesis, as can be seen from Chart 11 were the difference between small firms and large firms is less than a tenth of a basis point. Moreover, there is no U effect on returns: the smaller the stock, the more negative its return. However the regression for CAR_F [2, 30] provides very strong support to our hypothesis. As can be seen from Chart 12, the range of returns is over 1000 basis points and the T-ratios for the size variables are all significant. The only control variable that is statistically significant is Class Period Length. Our interpretation of these results is that there exists a very strong relationship between Market Capitalization and returns on the days following a filing. Furthermore, this relationship appears to be unique to the period after the filing event, and does not appear during CAR_F [-1, 1] or around the Class End news. However the function does not show a U pattern of returns – a result that disagrees with our univariate analysis.

Our last regression is an attempt to use the Class End event to explain the Filing CARs. Intuitively this is appealing: Class End CAR is a response to the same news event for which the Filing CAR occurs. In the Regressions of CAR_F on both CAR_F and CAR_C there is a danger of multicolinearity in the variables. In particular for Sample 1 the Filing event occurs after the Class End event, as a result of this CAR_F [-30,-2] is likely to include the same daily returns as CAR_C [-30, -2] and CAR_C [-1, 1]. To avoid this we did not include CAR_F [-30,-2] in our regressions. Similarly CAR_C [2, 30] is likely to include the returns of CAR_F [-1, 1]. To avoid this we did not include CAR_F [-1, 1] in our regressions. In these regressions we use the overlapping sample. The results of the regression are summarized in Table 9 and Charts 13 and 14. We must note that the predictability of CAR_F [2, 30] is much greater than that of CAR_F [-1, 1] – a result that we have seen before in Table 8 but that is the reverse for CAR_C.

The size variables are still by far the most significant ones in explaining CAR_F especially for CAR_F [2, 30] for which the size variables have much larger coefficients and T-ratios. Size seems to have little impact on CAR_F [-1, 1] as can be seen from the T-ratios and Chart 13. As a matter of fact no variable in the regression of CAR_F [-1, 1] is statistically significant. The regression of CAR_F [2, 30] is more interesting. All three size variables are highly statistically significant. Moreover, as can be seen in Chart 14, there is a U effect in returns. The problem here is that size produces less than a quarter of a basis point variation. Does this contradict our result from Table 8? At first sight it does. However since CAR_C [-30, -2] has a statistically significant T-ratio and CAR_C [-1, 1] and CAR_F [-1, 1] have T-ratios close to 1.96 it could be something else. It could be that these three CARs are affected by size and enter the regressions as proxies for Market Capitalization. Also interesting is that the Class Period Length and Institutional Plaintiff variables have greater coefficients and better T-ratios in explaining CAR_F [2, 30]. There is something not random at work. We have seen a similar result in Table 8. These two variables are similar in that they give us information about the investors that are able to join the Class Action. Class Period Length is a proxy for what percentage of the float has been affected by the misleading statements; Institutional Plaintiff is a proxy for how many institutional investors were shareholders during the Class Period. The amount of investors that qualify for damages and the type of investors that they are have a direct result in the behavior of the stock price after the filing event on CAR_F [2, 30].

6. Explaining the Importance of the Size Variable

After concluding our empirical analysis we feel the need to ask why market capitalization and other variables have the power to explain the behavior of stock prices around Class End and Filing dates. We have found a very simple answer: the variables that we have found statistically significant in our regressions are good forecasters of settlement size. Using the same variables we have used in our regression we have been able to explain 43.60% of S/MC_C and 42.7% of S/MC_F. The results summarized in Tables 10 and 11 are very significant results. For both the Class End and Filing event the size variables have the most significant coefficients. This is good confirmation for our hypothesis about size. All three financial variables (market/book, liabilities/equity, liabilities/assets) lack explanatory power on S/MC_C and S/ MC_F, a result we observed in the regressions. The Class Period Length has explanatory power, as it did in some regressions, but the Institutional Plaintiff variable does not – not everything is the same. However, there are enough similarities between the regressions of CAR and S/MC to provide a partial explanation to why the size variable is an important determinant of CAR_C and CAR_F.

Conclusion

This study examined the behavior of stock prices as a result of legal action using a complete sample of class action suits that were started after 1996 and settled before the end of 2004. Unlike other studies we focused our analysis on the Filing Date and also included an in depth study of the Size variable.

Our first hypothesis was that we would find different behavior depending on when then Filing event occurs in relationship to the Class End Date. We divided our initial sample into three distinct groups: stocks for which the Filing event occurred more than 3 days after the Class End Date (Sample 1), stocks for which the Filing event occurred less than 3 days after the Class End Date (Sample 2) and stocks for which the Class End Date occurred after the Filing Date (Sample 3). We find that the construction of these samples is not random. In particular the companies in Sample 3, which tend to have multiple corrective disclosures, have a high market/book ratio, low leverage, and high market capitalization. Companies in Sample 2, which are sued right after the corrective disclosure occurs, are more highly leveraged, have a higher market/book ratio and a much smaller size. We expected that when lawyers have a very strong case they file the lawsuit immediately after the Class End news release. Sample 2 supports this: it has an average Class Action length of 2.59 years, much shorter than 2.92 for Sample 1, and 2.99 for Sample 3. We also find that the average fraction of market cap that settlement represents is the lowest for Sample 1. We believe that this number is higher for Sample 3 because companies with multiple disclosures are more likely to have engaged in more significant fraud and is higher for Sample 2 because when lawyers have a very strong case they file a Class Action Suit immediately after the Class End news.

Most academic research to date has focused solely on Sample 1. Our analysis has uncovered an important bias in this approach. The three samples have different average market capitalization, leverage ratios and market/book ratios. However, since it would be difficult to study the separate impact of the Filing and Class End event by looking at Sample 2 and Sample 3, we believe this approach is a necessary and acceptable evil as long as one remains aware of the biases involved.

We calculated the Cumulative Abnormal Returns for the Class End and Filing event for each sample. Our results agree with Hypothesis 1 and show that the behavior of stock prices depends on when the Filing event occurs in relationship to the Class End event. We have shown that for the Class End date Sample 3 has the highest CAR_C [-1, 1] with -19.11%. We think this occurs because the Class End Date for Sample 3 is set as the date of the last disclosure after a series of corrective disclosures and as a result its effect is diluted. We have also shown that Sample 2 has a CAR_C [-1, 1] of -38.27% which is significantly lower than the -29.87% of Sample 1. This large difference supports our hypothesis that companies that are sued right after the Class End Date have larger negative returns. However we were not able to determine causation: do companies in Sample 2 get sued right after the Class End because their stocks went down a lot or are the stocks in the sample going down a lot because lawsuits filed right after Class End

Date indicate to investors that lawyers have a stronger case which is more likely to end in a larger settlement?

We have also found evidence that for Sample 1 if we calculate CAR_F [-1, 30] the impact of filing is 0. Moreover CAR_F [-1, 1] is -3.09% but CAR_F [2, 30] is 3.10% - indicating some sort of market over-reaction to the filing event. We have also shown that this price-reversal does not occur for Sample 2, which has a CAR_F [2, 30] of -3.48%. We believe that this occurs because the market thinks that companies that get sued immediately after the Class End date are more likely to have committed fraud.

Two of our hypothesis speculated on a possible relationship between size and CAR. Hypothesis 2 postulated that the returns around the filing date depend, in part, on the market capitalization of the company. Hypothesis 3 explained that there should also be a size effect on the Class End Date because when the class end news are released the markets prices in the probability and impact of a class action suit, which according to Hypothesis 2 depends on size. To study these hypotheses we divided Sample 1 into three value-weighted portfolios according to size. We found good evidence supporting Hypothesis 2. Getting sued could be good news if you are a big company since their average CAR_F [-1, 1] is 0.41% and CAR_F [2, 30] is 5.21%. Slightly positive news if you are a small company since their average CAR_F [-1, 1] is -4.41% but is compensated by a CAR_F [2, 30] of 6.65%. And if you are a medium company getting sued is simply bad news since CAR_F [-1, 1] is -5.32% and CAR_F [2, 30] -2.61%. However we found little or no evidence to support Hypothesis 3. The U pattern of size and returns that was present for the Filing event does not exist for the Class End event.

In the construction of value-weighted portfolios according to size we discovered that grouping by size produces non-random sub-samples. In particular smaller companies had a significantly higher Market/Book ratio, lower betas and a lower percentage of institutional involvement. The largest companies had higher betas and a much longer settlement period. To control for these other variables we calculated cross regressions of CAR_C [-1, 1], CAR_C [2, 30], CAR_F [-1, 1] and CAR_C [2, 30] on Market Capitalization and a number of control variables.

Our cross regressions of CAR_C [-1, 1] and CAR_C [2, 30] were extremely unpromising. Contrary to our hypothesis the T-ratios in these regressions show that size does not play any role in explaining the behavior of the stock price. There was a U effect of returns on size, similar as the one uncovered previously for the filing event; however this effect generated less than .15 basis points of variation for CAR_C [-1, 1] and 0.05 for CAR_C [2, 30], hardly significant results.

The cross regressions for CAR_F [-1, 1] and CAR_F [2, 30] were more promising. The regression of CAR_F [-1, 1] has small T-ratios for the size variables, no U effect of returns, and size is only able to generate less than a tenth of a basis point of variation in returns. However the regression of CAR_F [2, 30] had very positive results. All the size variables had significant T-ratios and were able to generate more than a 1000 basis points of variation in the returns. Our interpretation of these results is that there exists a very strong relationship between Market Capitalization and returns on the days following a filing. Furthermore, this relationship appears to be unique to the period after the filing event, and does not appear during CAR_F [-1, 1] or around the Class End news. However the function does not show the U pattern of returns observed in our univariate analysis.

Hypothesis 4 proposed a relationship between the behavior of stocks around Class End Date and the Filing Date. To study this possibility we regressed CAR_F [-1, 1] and CAR_F [2, 30] on CAR_C [-30, -2] and CAR_C [-1, 1]. The variables were significant only for CAR_F [2, 30]. The size variables were also only significant for CAR_F [2, 30]. Based on these regressions the results are mixed. Our hypotheses seem to be true for CAR_F [2, 30] but not during the filing event itself.

Our revised hypothesis is that behavior that occurs immediately after a news event tends to be independent of the characteristics of the stock: when the market panics, little matters. However once the initial over reaction is over and the market starts correcting itself, individual characteristics do make a difference.

In a last pair of regressions we show that the size variables are also significant in explaining the size of settlement as a proportion of market capitalization. The eventual size of settlement has implications for the current value of equity. This result could be a partial explanation to why size matters. However, more research will be necessary to provide a coherent explanation for the empirical results we have obtained.

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Tables and Charts

Table 1
Variable Chart

Type	Notation	Variable.	Units
Financial	M/B	Market to Book Ratio on the first day of the quarter of the Filing Date.	Ratio
	L/E	Liabilities to Equity Ratio on the first day of the quarter of the Filing Date.	Ratio
	L/A	Liabilities to Assets Ratio on the first day of the quarter of the Filing Date.	Ratio
Size	MC_C	Market Cap on the last trading day of the month prior to the Class End Date.	1000 of $
	$LNMC_C$	Natural Logarithm of MC_C.	1000 of $
	$LNMC_C2$	Squared Natural Logarithm of MC_C.	1000 of $
	$LNMC_C3$	Cubed Natural Logarithm of MC_C.	1000 of $
	MC_F	Market Cap on the last trading day of the month prior to the Class Filing Date. (Thousands)	1000 of $
	$LNMC_F$	Natural Logarithm of MC_F.	1000 of S
	$LNMC_F2$	Squared Natural Logarithm of MC_F.	1000 of $
	$LNMC_F3$	Cubed Natural Logarithm of MC_F.	1000 of $
Beta	B_C	Beta of the stock on the Class End Date (calculated using the previous 255 trading days)	Number
	B_F	Beta of the stock on the Class Filing Date (calculated using the previous 255 trading days)	Number
Special Events	Accountant	The Accountant of the corporation is named in the Filing.	Binary
	Underwriter	The Underwriter of the corporation is named in the Filing.	Binary
	Insider	The corporation was accused of insider trading.	Binary
	Restatement	The corporation restated earnings.	Binary
	GAAP	The defendant uses GAAP.	Binary
	Institution	The leading plaintiff is an institution.	Binary
Legal	Class Period	Length of the period between Class Begin Date and Class End Date	Years
	Settlement Period	Length of the period between Class Filing Date and the Settlement Date.	Years
	S	Total Settlement Amount	Dollars
	S/ MC_C	Settlement Amount as a fraction of Market Cap on the Class End Date	Ratio
	S/ MC_f	Settlement Amount as a fraction of Market Cap on the Filing Date	Ratio
Returns	CAR_C [-30, -2]	CAR for the Class End Date Window [-30, -2]	Percentage
	CAR_C [-1, 1]	CAR for the Class End Date Window [-1, 1]	Percentage
	CAR_C [2, 30]	CAR for the Class End Date Window [2, 30]	Percentage
	CAR_F [-30, -2]	CAR for the Filing Date Window [-30, -2]	Percentage
	CAR_F [-1, 1]	CAR for the Filing Date Window [-1, 1]	Percentage
	CAR_F [2, 30]	CAR for the Filing Date Window [2, 30]	Percentage
Sample	N	Sample Size	Number

Table 2
Summary Statistics for Samples 1, 2 and 3 and Overlapping.

		N	M/B	L/E	L/A	B_C	B_F	MC_C	MC_F	Settlement Length	Class Length	S	S/ MC_C	S/ MC_f
Filing	1	281	4.09	1.35	0.73	1.27	1.2	1.4	1.39	2.92	0.94	10.63	0.07	0.06
	2	26	7.47	3.29	0.6	1.23	1.22	0.89	0.86	2.59	1.45	31.57	0.1	0.1
	3	150	27.71	0.84	0.73	1.16	1.17	2.72	3.78	2.99	1.78	60.1	0.09	0.12
Class	1	291	4.64	2.88	0.73	1.26	1.22	1.34	1.39	2.93	0.95	10.63	0.08	0.06
	2	26	7.47	3.29	0.6	1.23	1.22	0.89	0.86	2.59	1.45	31.57	0.1	0.1
	3	132	31.22	0.53	0.74	1.15	1.17	2.78	4.2	2.88	1.68	64.64	0.08	0.11
Overl.	1	256	4.44	1.3	0.72	1.27	1.23	1.46	1.47	2.96	0.94	10.86	0.06	0.05

*****Market Cap in billions.

Table 3
CARs and Test Statistics for Samples 1, 2 and 3.

	Class End			Filing		
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3
CAR [-30, -2]	-18.05%	-19.47%	-15.93%	-19.59%	-27.30%	-22.27%
Patel Z	-14.325***	-5.868***	-9.633***	-15.884***	-7.992***	-16.411***
% Negative	76.98%	80.77%	72.59%	69.72%	80.77%	75.00%
Sign Z	*-8.186****	*-2.780***	-4.848***	-5.984***	-2.792**	-6.257***
CAR [-1, 1]	-29.87%	-38.27%	-19.11%	w	-34.39%	-15.25%
Patel Z	-78.180***	-34.174***	-31.301***	-5.386***	-28.544***	-28.973***
% Negative	95.88%	96.15%	80.00%	60.92%	96.00%	71.33%
Sign Z	-13.589***	-4.353***	-6.570***	-3.015**	-4.264***	-4.565***
CAR [2, 30]	-2.70%	-4.57%	2.57%	3.10%	-3.48%	-11.27%
Patel Z	-1.461$	-0.002	0.298	2.372**	-0.366	-7.127***
% Negative	57.39%	57.69%	44.12%	50.35%	53.85%	65.56%
Sign Z	-1.490$	-0.42	1.780*	0.548	-0.039	-3.160***
CAR [-5, 5]	-33.91%	-45.18%	-24.25%	-9.56%	-44.44%	-21.87%
Patel Z	-46.196***	-20.429***	-22.332***	-10.855***	-19.599***	-24.269***
% Negative	89.35%	92.31%	80.14%	63.38%	96.15%	78.67%
Sign Z	-12.414***	-3.959***	-6.629***	-3.846***	-4.364***	-6.364***

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively.

Table 4
CARs for Size Sub-Samples

		Class End			Filing		
		Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3
Entire	CAR [-30, -2]	-18.05%	-19.47%	-15.93%	-19.59%	-27.30%	-22.27%
	CAR [-1, 1]	-29.87%	-38.27%	-19.11%	-3.09%	-34.39%	-15.25%
	CAR[2, 30]	-2.70%	-4.57%	2.57%	3.10%	-3.48%	-11.27%
	CAR [-5, 5]	-33.91%	-45.18%	-24.25%	-9.56%	-44.44%	-21.87%
Big	CAR [-30, -2]	-14.38%	-21.87%	-15.00%	-16.82%	-28.26%	-25.85%
	CAR [-1, 1]	-26.91%	-35.68%	-18.99%	0.41%	-29.50%	-14.59%
	CAR[2, 30]	-0.69%	4.63%	-2.61%	5.21%	2.97%	-5.34%
	CAR [-5, 5]	-32.08%	-36.58%	-23.22%	-2.50%	-34.28%	-22.02%
Medium	CAR [-30, -2]	-16.56%	-17.03%	-14.55%	-21.00%	-25.63%	-17.78%
	CAR [-1, 1]	-31.62%	-43.76%	-19.34%	-5.32%	-42.54%	-13.46%
	CAR[2, 30]	-3.72%	-10.88%	2.23%	-2.61%	-5.10%	-14.06%
	CAR [-5, 5]	-33.29%	-47.01%	-25.86%	-11.95%	-50.92%	-23.25%
Small	CAR [-30, -2]	-23.20%	-19.23%	-14.89%	-20.98%	-27.82%	-23.06%
	CAR [-1, 1]	-31.08%	-35.99%	-20.90%	-4.40%	-31.75%	-17.82%
	CAR[2, 30]	-3.68%	-8.15%	3.82%	6.65%	-8.49%	-14.73%
	CAR [-5, 5]	-36.38%	-52.17%	-25.15%	-14.25%	-48.85%	-20.25%

Table 5
Summary Statistics According to Size.

		N	M/B	L/E	L/A	B_C	B_F	StDev of CAR	MC_C	MC_F	Institutional %	Settlement Length	Class Length	S	S/ MC_C	S/ MC_f
Filing	Small	94	9.96	1.05	0.862	1.017	0.92	0.006364	58.2	42.6	0.179	2.834	1.044	4.8	0.143	0.119
	Medium	93	1.93	0.81	0.733	1.377	1.34	0.008959	216.6	180.4	0.295	2.826	0.846	7.69	0.047	0.042
	Large	94	0.16	2.14	0.589	1.409	1.33	0.01048	3,831.70	3,904.00	0.274	3.047	0.925	19.87	0.015	0.016
Class	Small	97	11.4	6.04	0.872	1.039	0.98	0.025362	69	65.2	0.216	2.911	1.082	4.92	0.168	0.128
	Medium	97	2.66	0.74	0.709	1.29	1.26	0.025692	197.5	197.8	0.258	2.860	0.849	7.53	0.051	0.04
	Large	97	0.16	1.87	0.597	1.426	1.37	0.026275	3,777.10	3,796.50	0.268	3.029	0.912	19.25	0.017	0.04

Table 6
Regressions for B.

	Coefficient	T-Ratio	P	F	R^2	AVG CAR	AVG B	AVG B Coefficient
CAR_C [-1, 1]	-0.00908	-0.49	0.626	0.24	0.10%	-0.299	1.2519	-0.0114
CAR_C [2, 30]	0.03604	1.64	0.102	2.69	0.90%	-0.025	1.2519	0.0451
CAR_F [-1, 1]	0.017084	1.73	0.084	3.00	1.10%	-0.031	1.197	0.0204
CAR_F [2, 30]	-0.05975	-2.57	0.011	6.63	2.30%	0.030	1.197	-0.0715

Table 7
Regression Summaries for Class CAR.

	CAR_C [-1, 1]	T	CAR_C [2, 30]	T
Constant	1.78300	0.58	4.57800	1.10
$LN(MC_C)$	-0.43920	-0.61	-1.14450	-1.17
$LN(MC_C)^2$	0.02814	0.51	0.08857	1.18
$LN(MC_C)^3$	-0.00052	-0.37	-0.00222	-1.17
Institution	-0.07313	-2.47	0.03077	0.76
Class Length	0.03011	1.57	0.06210	-2.40
B_C	-0.00371	-0.21	0.03578	1.47
M/B	0.00029	0.98	0.00007	0.18
L/E	-0.00017	-0.37	-0.00010	-0.16
L/A	-0.01480	-1.08	0.00934	0.50
CAR_C [-30, -2]	-0.06473	-1.95	-0.11582	-2.56
CAR_C [-1, 1]			-0.17741	-2.15
F	2.46		1.86	
R2	8.40%		7.10%	

Table 8
Regression Summaries for Filing CAR.

	CAR_F [-1, 1]	T	CAR_F [2, 30]	T
Constant	1.85700	1.12	8.83000	2.27
$LN(MC_F)$	-0.46590	-1.19	-2.01150	-2.19
$LN(MC_F)^2$	0.03698	1.22	0.15012	2.11
$LN(MC_F)^3$	-0.00094	-1.23	-0.00366	-2.02
Institution	-0.01228	-0.72	0.02910	0.72
Class Length	-0.00651	-0.61	0.04822	1.91
B_F	0.01075	1.02	-0.04273	-1.73
M/B	0.00024	1.11	-0.00021	-0.41
L/E	-0.00023	-0.33	-0.00035	-0.21
L/A	-0.00657	-0.86	0.00948	0.53
CAR_F [-30, -2]	0.00594	0.37	0.03734	0.99
CAR_F [-1, 1]			-0.01920	-0.13
F	1.2		1.81	
R2	4.30%		6.90%	

Table 9
Regression Summaries for Filing on both Class End and Filing variables.

	CAR_F [-1, 1]	T	CAR_F [2, 30]	T
Constant	2.07100	1.28	10.86900	2.80
$LN(MC_F)$	-0.52890	-1.38	-2.51490	-2.72
$LN(MC_F)^2$	0.04201	1.40	0.18811	2.61
$LN(MC_F)^3$	-0.00107	-1.40	-0.00459	-2.49
Institution	-0.01432	-0.82	0.07572	1.80
Class Length	-0.00002	-0.00	0.06946	2.57
B_F	0.01791	1.62	-0.03190	-1.20
M/B	0.00026	1.18	-0.00025	-0.47
L/E	-0.00018	-0.25	0.00017	0.10
L/A	0.00382	0.57	0.01909	1.18
CAR_C [-30, -2]	-0.02856	-1.40	-0.10127	-2.06
CAR_C [-1, 1]	-0.01497	-0.43	-0.13728	-1.66
CAR_F [-1, 1]			0.22760	1.56
F	1.2		1.81	
R2	4.30%		6.90%	

Table 10
Regression Summaries for Settlement using Class End CAR and variables.

	S/MC_F	T	S/MC_C	T
Constant	2.49800	1.83	4.02780	4.37
CAR_C [-30, -2]	-0.01890	-1.24	-0.01027	-1.00
CAR_C [-1, 1]	-0.01922	-0.72	-0.02727	-1.51
CAR_C [2, 30]	0.01195	0.61	0.01311	1.00
LN(MCc)	-0.44370	-1.39	-0.81130	-3.77
$LN(MCc)^2$	0.02563	1.05	0.05405	3.28
$LN(MCc)^3$	-0.00049	-0.79	-0.00120	-2.89
M/B	0.00001	0.06	-0.00003	-0.25
L/E	-0.00025	-0.48	0.00001	0.04
L/A	-0.00404	-0.71	-0.00289	-0.75
B_C	0.01349	1.73	0.01146	2.18
Institution	0.00099	0.08	0.01101	1.27
Class Length	0.00003	1.27	0.00004	2.38
F	8.11		15.52	
R2	25.20%		43.60%	

Table 11
Regression Summaries for Settlement using Filing CAR and variables.

	S/MC_F	T	S/MC_C	T
Constant	4.66600	4.05	2.43280	2.69
CAR_F [-30, -2]	-0.01052	-0.95	-0.01341	-1.54
CAR_F [-1, 1]	0.06533	1.55	0.02783	0.84
CAR_F [2, 30]	0.00678	0.37	0.03469	2.40
LN(MCf)	-0.93050	-3.44	-0.46290	-2.17
$LN(MCf)^2$	0.06130	2.94	0.02921	1.78
$LN(MCf)^3$	-0.00134	-2.54	-0.00062	-1.48
M/B	-0.00002	-0.17	-0.00004	-0.4
L/E	-0.00013	-0.28	0.00009	0.24
L/A	-0.00006	-0.01	0.00023	0.06
B_F	0.02111	2.82	0.00733	1.25
Institution	0.00651	0.57	0.00948	1.05
Class Length	0.00003	1.66	0.00004	2.22
F	14.94		12.43	
R2	42.70%		38.20%	

Chart 1
Portfolio Behavior for Class End for samples 1, 2 and 3. Day -30 is set at 100.

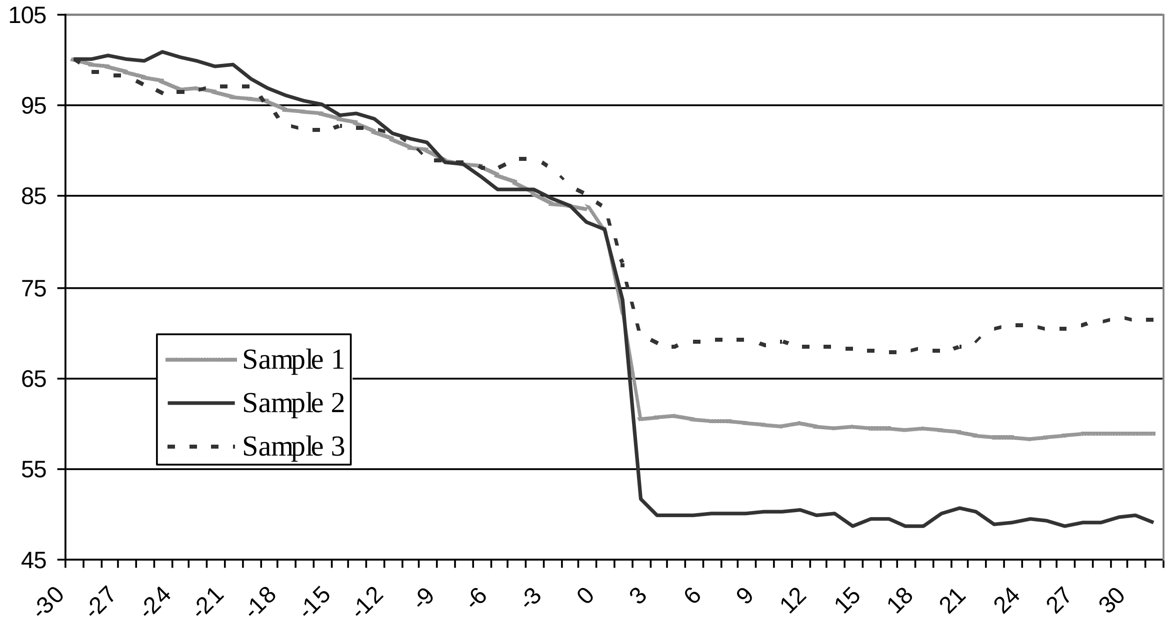


Chart 2
Portfolio Behavior for Filing for samples 1, 2 and 3. Day -30 is set at 100.

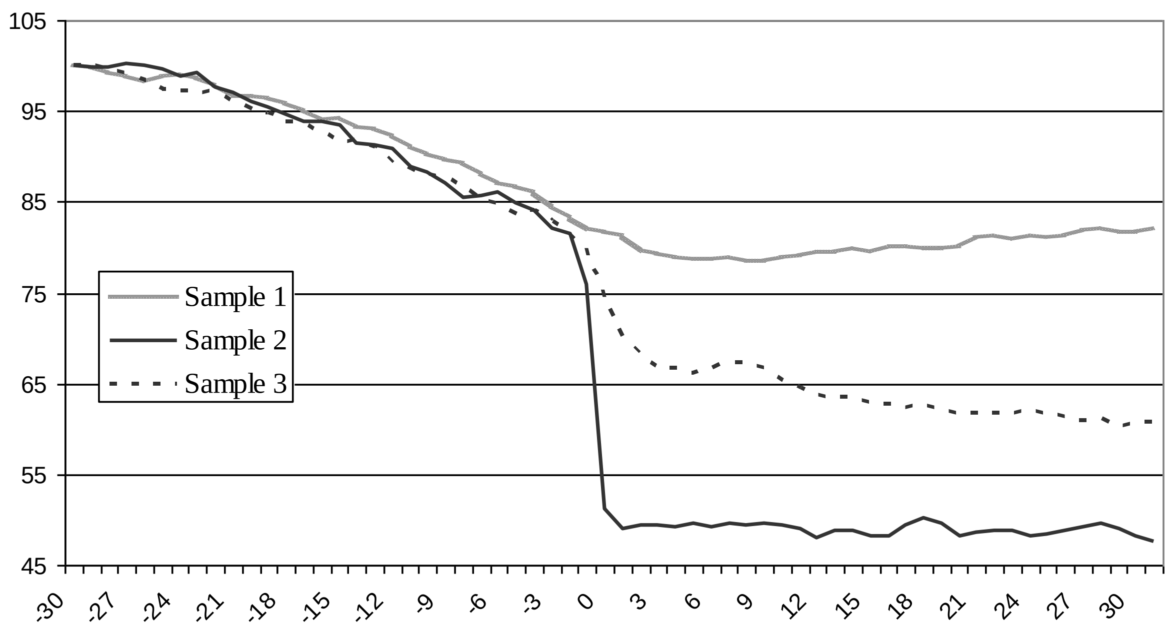


Chart 3
Portfolio Behavior for Class End according to Size. Day -30 is set at 100.

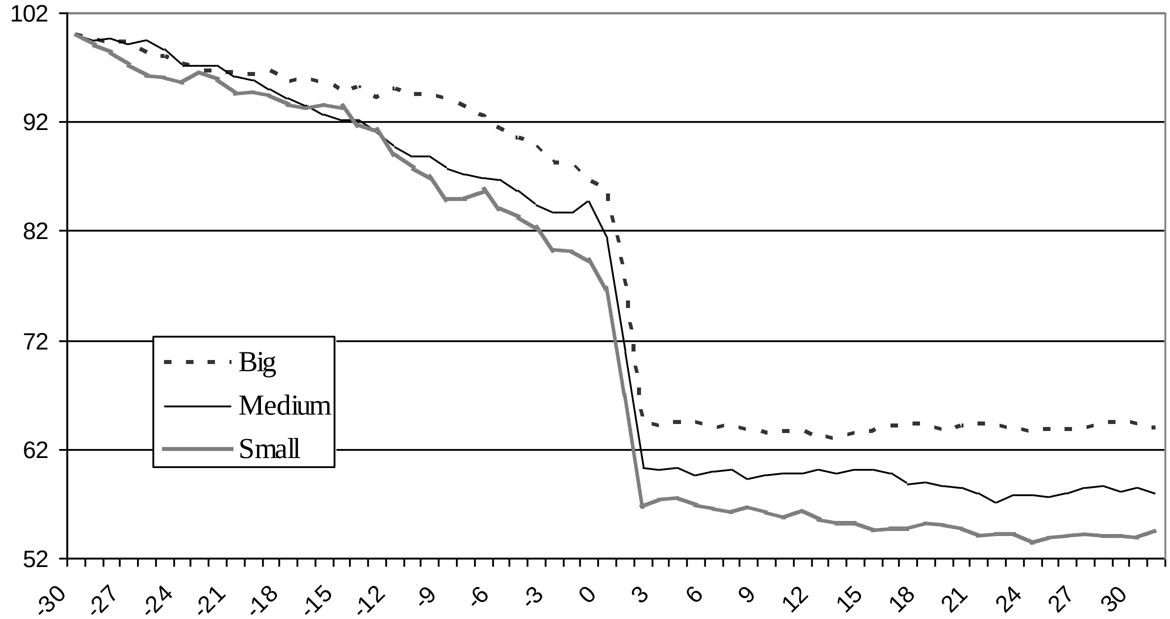


Chart 4
Portfolio Behavior for Class End according to Size. Day -30 is set at 0 and day 30 at 1.

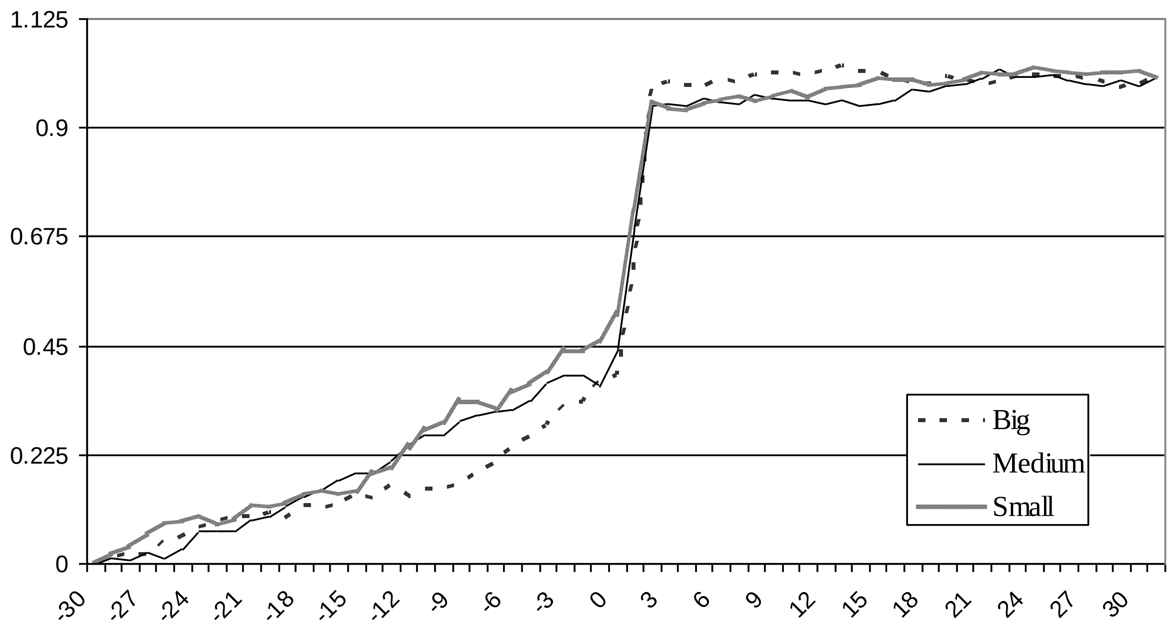


Chart 5
Portfolio Behavior for Filing according to Size . Day -30 is set at 100.

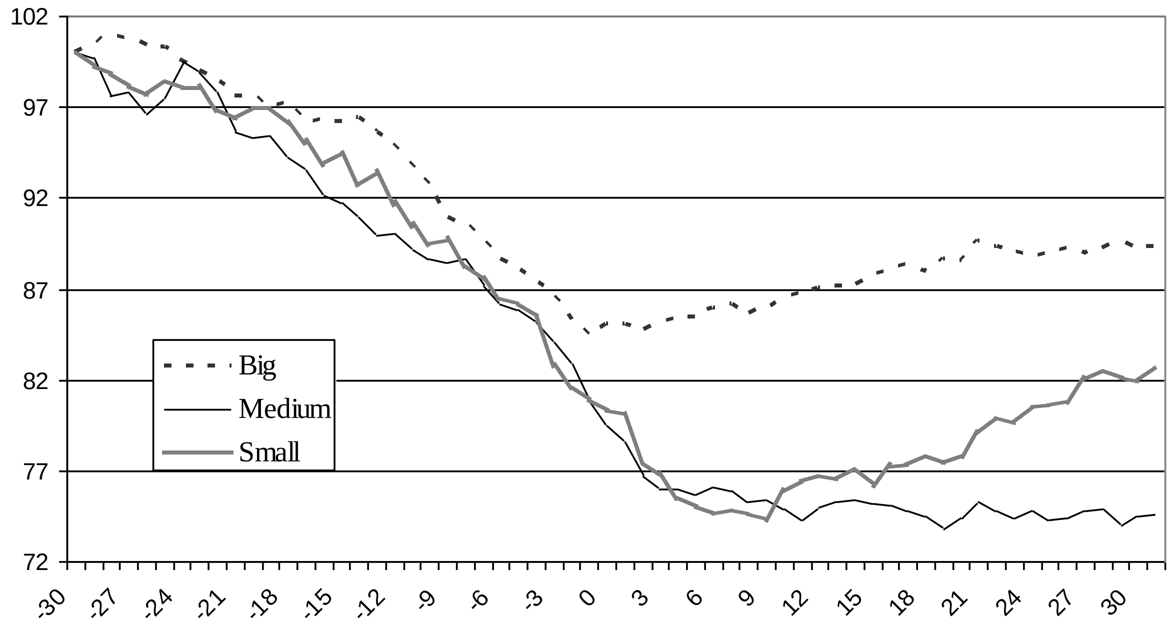


Chart 6
Portfolio Behavior for Filing according to Size. Day -30 is set at 0 and day 30 at 1.

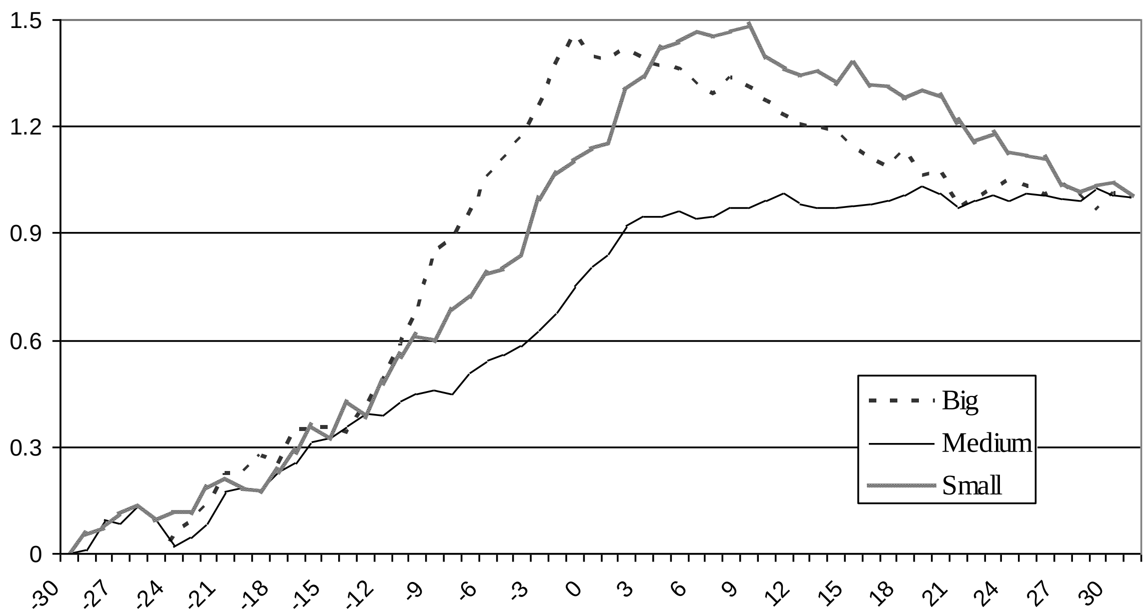


Chart 7
Portfolio Behavior for Filing for Milberg & Weiss. Day -30 is set at 100.

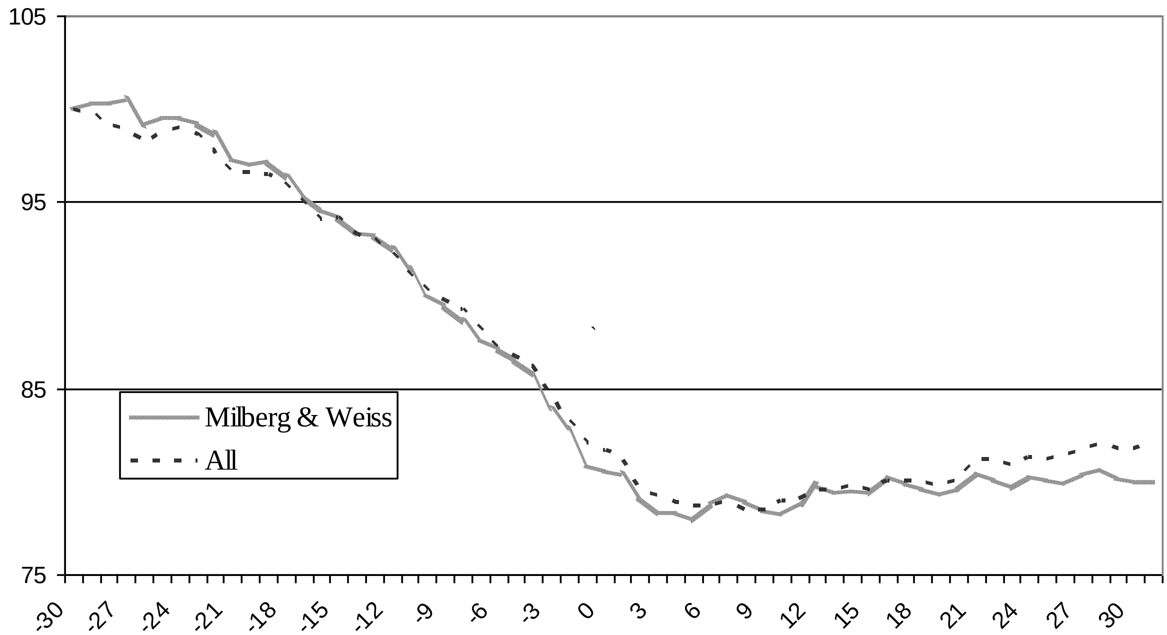
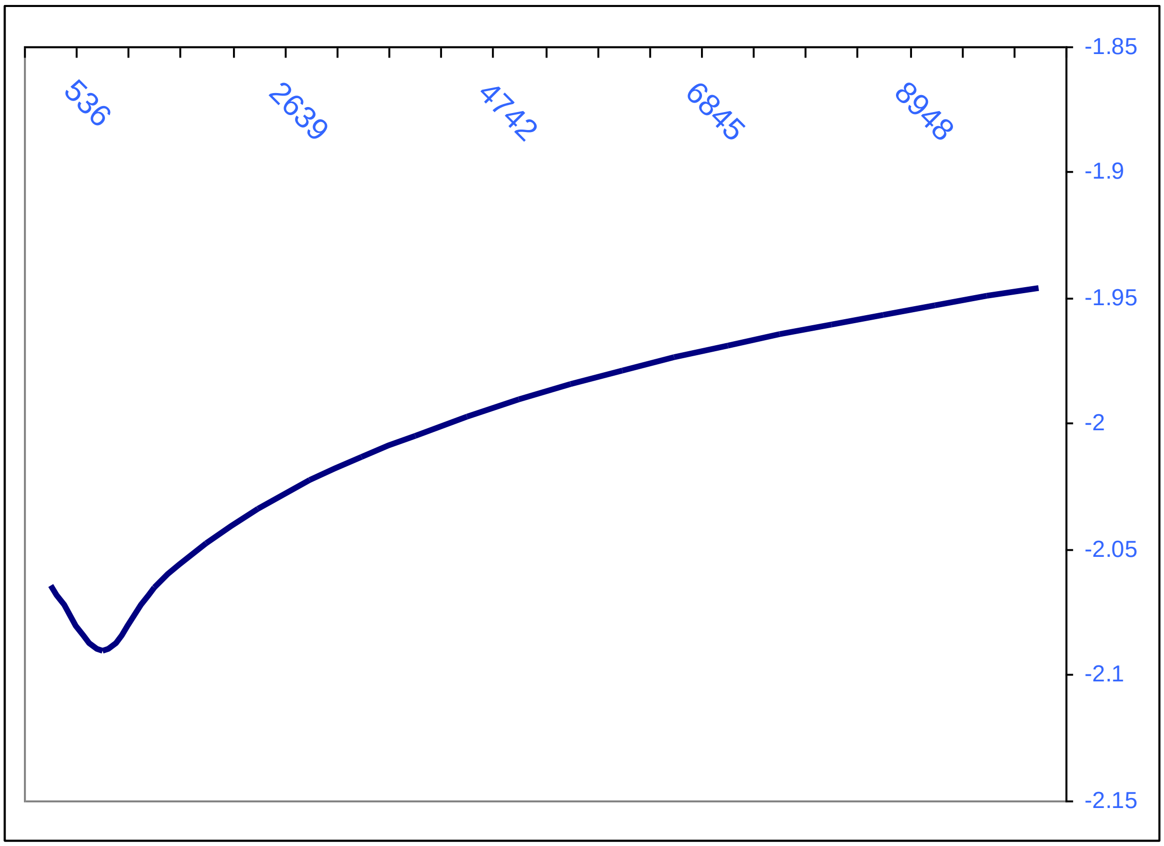


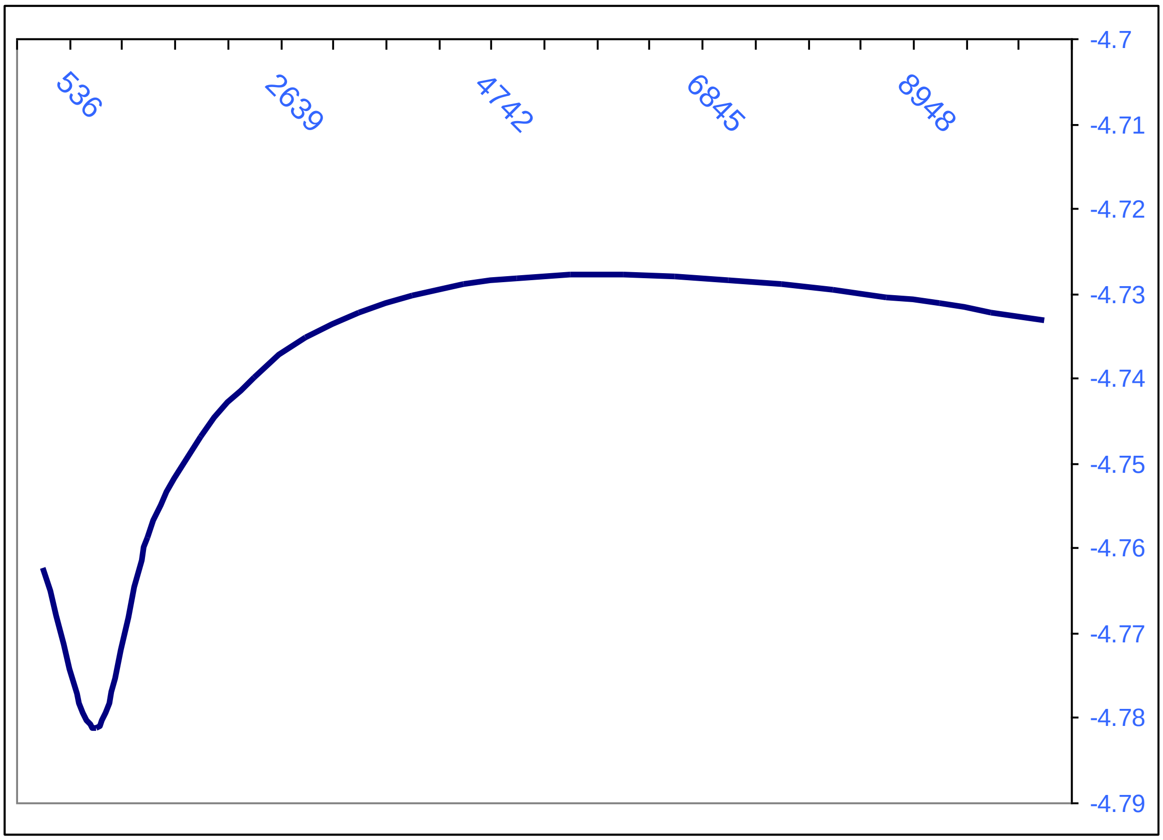
Chart 8
Portfolio Behavior for Filing for Institutions. Day -30 is set at 100.

Chart 9
Size Function for CAR_C [-1, 1]



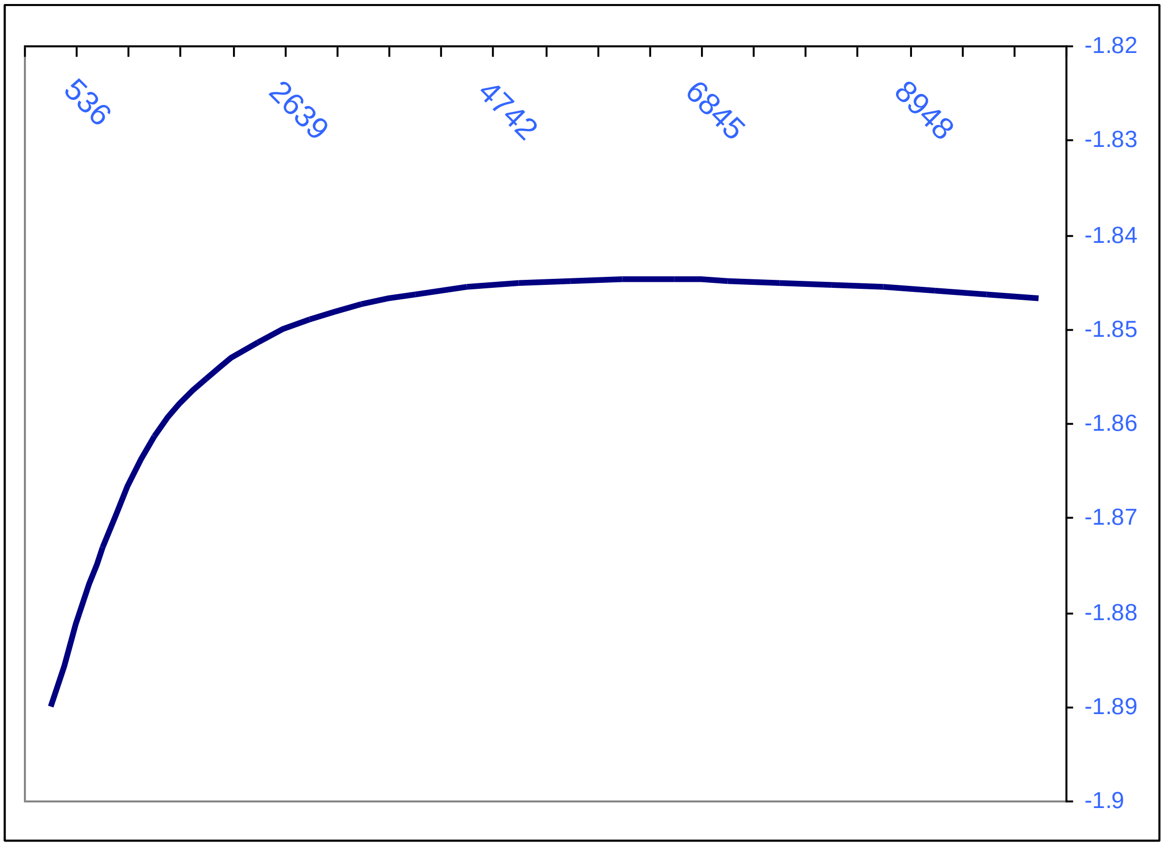
*Y axis in basis point and X axis in millions of market cap.

Chart 10
Size Function for CAR_C [2, 30]



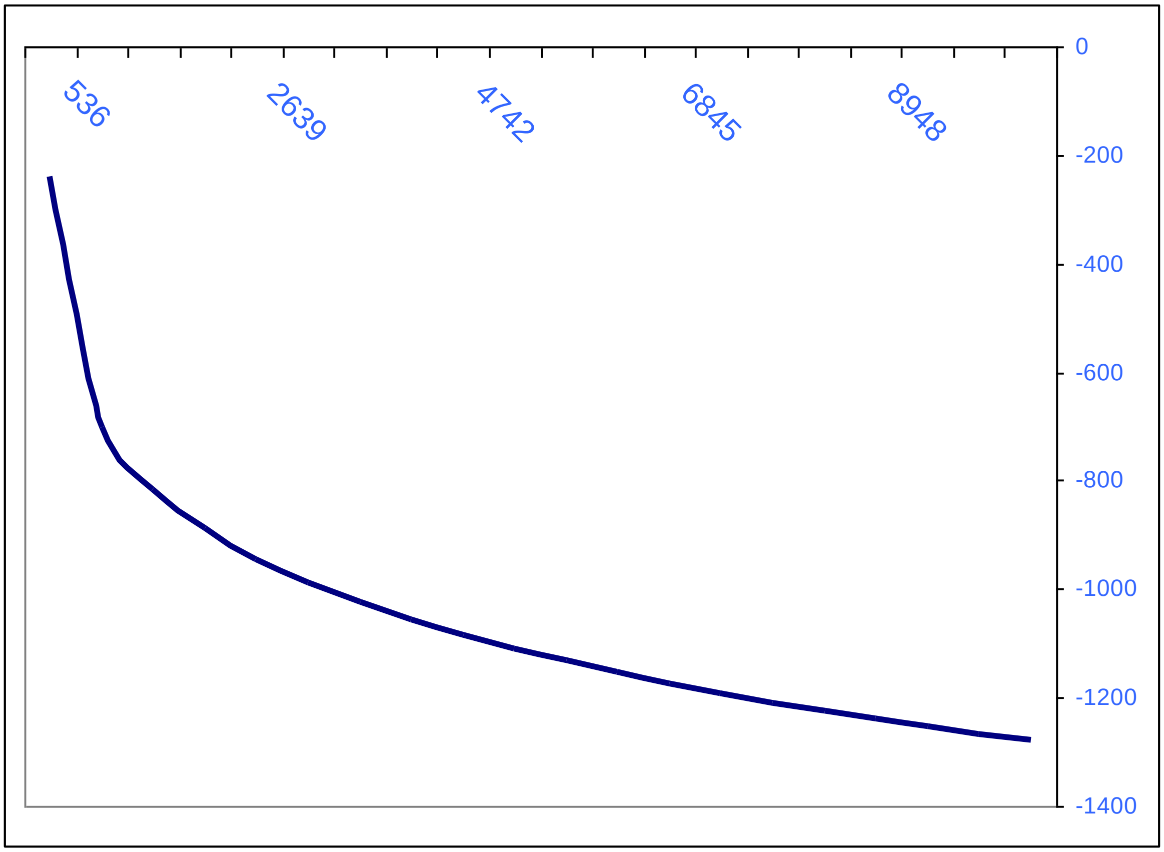
*****Y axis in basis point and X axis in millions of market cap.

Chart 11
Size Function for CAR_F [-1, 1]



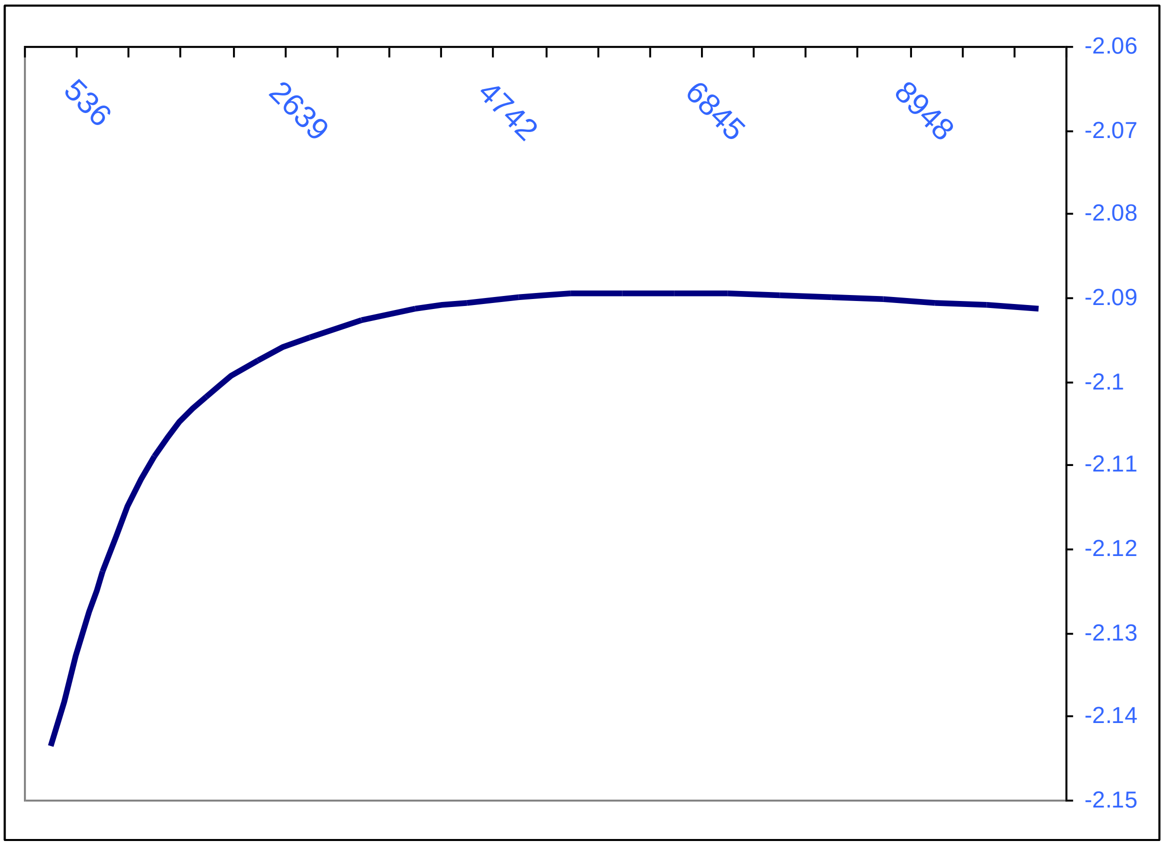
*****Y axis in basis point and X axis in millions of market cap.

Chart 12
Size Function for CAR_F [2, 30]



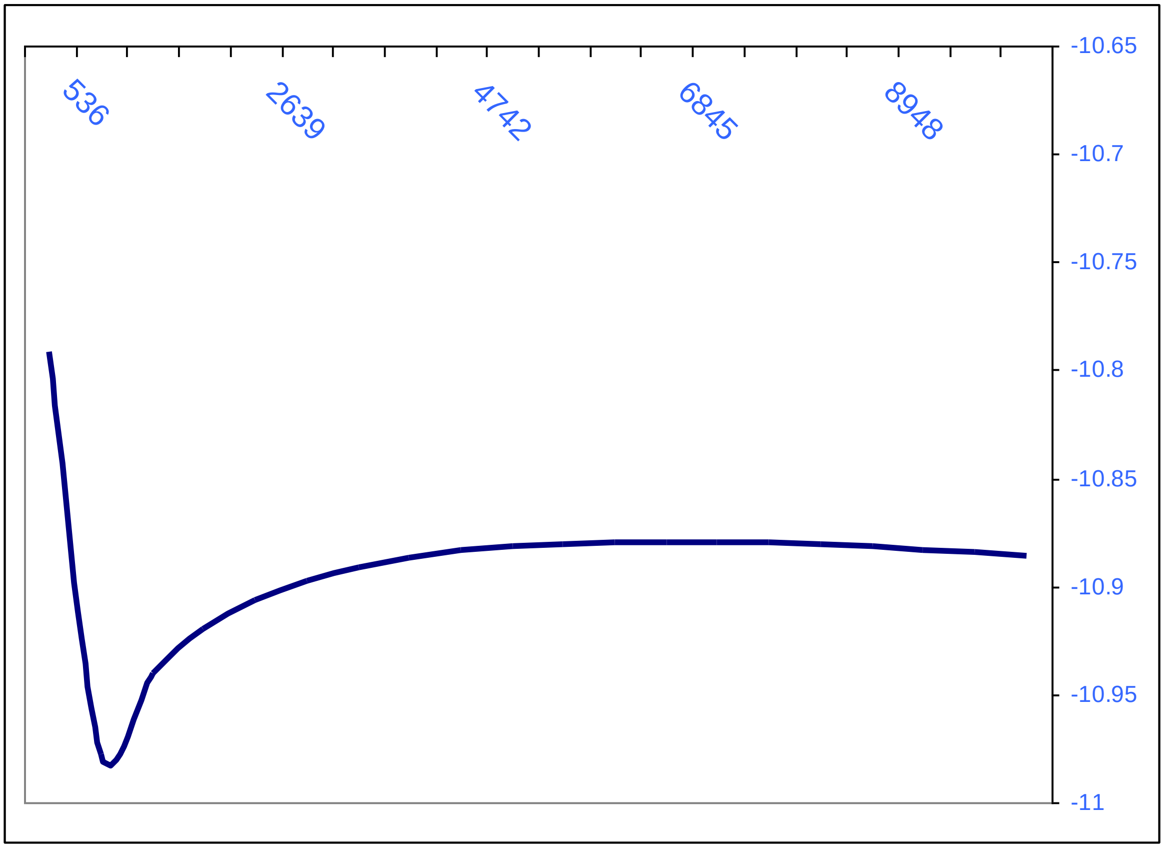
***Y axis in basis point and X axis in millions of market cap.

Chart 13
Size Function for CAR_F [-1, 1] on Filing and Class End



*****Y axis in basis point and X axis in millions of market cap.

Chart 14
Size Function for CAR_F [2, 30] on Filing and Class End



*****Y axis in basis point and X axis in millions of market cap.