The 8-K Trading Gap

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For a visualization tool describing specific cases from the data examined in this Article, please visit http://bj1.law.columbia.edu/8kgap

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ABSTRACT

When a significant event occurs at a publicly traded company, federal law requires the firm to disclose this information to investors in a securities filing known as a Form 8-K. But the firm need not disclose immediately; instead, SEC rules give companies four business days after the event occurs within which to file an 8-K. These rules thus create a period during which market-moving information is known by those inside the firm but not most public-company investors—a period we call the "8-K trading gap." In this Article, we study how corporate insiders trade their company's stock during the 8-K trading gap.

We develop a unique dataset of 15,419 Form 8-Ks with trades by insiders during this gap. We identify systematic abnormal returns of 42 basis points on average, per trade, from trades by insiders during the 8-K gap. When insiders engage in an unusual transaction during the gap—open-market purchases of their own company's stock—they earn even larger abnormal returns of 163 basis points. We also show that, when they engage in such purchases, insiders are correct about the directional impact of the 8-K filing more often than not—and that the probability that this finding is the product of random chance is virtually zero.

To examine whether it is the expertise of the insiders, or the value of the information, that drives insider returns, we then focus on a type of 8-K that reveals positive information: those that announce new agreements with the company's business partners. We show, without reference to any specific insider transaction, that a trading strategy of buying on the date such an agreement is struck and selling immediately before the agreement is disclosed yields, on average, abnormal returns of 35.4 basis points. We also demonstrate that insiders are more likely to engage in open-market purchases of their own company's stock when the firm is about to reveal new agreements with customers and suppliers. In light of the potential concerns raised by these findings, lawmakers should reconsider the effects of information-forcing rules such as those governing Form 8-K on the incidence and profitability of trading by insiders.

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1. INTRODUCTION

Trading by corporate insiders has long been the subject of heated debate among lawmakers and commentators. Although Manne (1965) forcefully questioned whether the law should allow such trading, for more than sixty years the Securities and Exchange Commission (SEC) has devoted significant resources toward enforcing the rules designed to reduce insiders' profits from trading in their company's stock. The precise contours of those rules can be difficult to discern.[1] What is clear, however, is that SEC Rule 10b-5, the principal source of liability for improper trading, prohibits an insider from trading with those to whom she owes a fiduciary duty on the basis of so-called material nonpublic information. Another group of SEC rules govern whether and when public companies must disclose this kind of information to the public. While a significant body of work has examined insider trading more generally, relatively little attention has been given to the interaction between these information-forcing rules and insider trading.

In this Article, we examine a unique type of trading by corporate insiders: trading during the period when SEC rules allow companies to delay the public disclosure of significant corporate events. When such an event occurs, SEC rules require that the firm disclose it in a securities filing known as Form 8-K. But those rules do not require the 8-K to be filed until the fourth business day after the event. Thus, SEC rules create a period when market-moving information is known by insiders but not by most investors—a period we call the "8-K trading gap." In this Article, we provide the first study of how insiders trade their company's stock during the 8-K trading gap.

[1] Among other issues clouding the scope of insider-trading liability, a recent Second Circuit decision raises substantial questions about the proof required to sustain a conviction for violations of Rule 10b-5 against outsiders who receive confidential corporate information from insiders. The United States recently petitioned the Supreme Court to review the Second Circuit's decision. (Stevenson & Goldstein, 2015.)

After identifying more than 15,000 8-Ks with trades by the company's insiders during the 8-K gap, we examine the profitability of those trades based on the direction of the insiders' transactions. We show that insiders enjoy systematic abnormal returns of 42.3 basis points on average per trade. We then review each 8-K by hand to identify the type of corporate event that will be disclosed by the firm shortly after these trades. We document abnormal returns from the insiders' transactions across a wide range of types of information—including forthcoming details of merger agreements, changes in the company's capital structure, key customer or supplier agreements, and notices of stock-listing compliance violations.

Having documented these profits, we then address a possible concern. The results described above show only that insiders do, in fact, trade profitably during the 8-K gap—a finding that some might regard as unsurprising given insiders' deep information about the firm and its value. Put another way, one might expect that insiders, when they trade their own company's stock, consistently turn a profit—regardless whether an 8-K filing is imminent. We thus examine whether an individual who knew *only* about the forthcoming 8-K filing, but had no other access to non-public information about the firm, could trade profitably during the 8-K gap. To answer that question, we focus on a particular type of 8-K that is on average likely to generate a positive response in share prices: the announcement of a significant agreement with the company's customers or suppliers.[2] Abstracting away from particular transactions by insiders, we show that a simple trading strategy—buying on the date when such an agreement is struck and selling on the date when that agreement is disclosed to the public—would yield abnormal returns of about 35.4 basis points. Thus, a person who knew only that the company had signed

[2] As explained in further detail below, because SEC rules governing Form 8-K require that companies disclose when the firm enters into significant new agreements with customers and suppliers. Because such agreements are, on balance, designed to increase rather than decrease firm value, those rules are likely, on average, to produce positive information about the value of the firm.

such an agreement could earn abnormal profits using this strategy. Finally, we consider whether insiders are more likely to engage in a relatively unusual[3] transaction—the open-market purchase of their own company's stock—between the time major agreements with customers or suppliers are struck and when those agreements are disclosed. We find that insiders are more than 20% more likely to engage in open-market purchases during this period than at other times.

Because these findings raise concerns about trading by corporate insiders, we wish to add four cautionary notes regarding the interpretation of our results. First, we emphasize that our evidence in no way establishes that the insiders in our sample have engaged in illegal or improper conduct. As noted above, the contours of the law governing liability under Rule 10b-5 are complex, and the elements of such liability require a showing of certain facts, such as the insider's state of mind, upon which our evidence does not bear. Second, we note that our evidence does not establish the causal direction of the relationship between the 8-K gap and trading by insiders. It may be that insiders delay 8-K disclosures to create trading opportunities (Niessner, 2015), or that insiders aware that an 8-K will not be filed for several days choose to trade before the filing occurs. Because the design of our study is not experimental, we are unable to distinguish between these hypotheses. Third, and relatedly, because our design is not experimental, our evidence does not show that profitable trading by insiders is *caused* by the 8-K gap. We simply document that insiders do, in fact, trade profitably during the gap—not that the gap causes greater levels of insider profits.

[3] It is relatively rare for insiders to engage in open-market purchases—as compared, for example, to the exercise of stock options or sale of company stock—because insiders already have, as a consequence of their employment by the company, undiversified exposure to the firm and its fortunes, making additional long exposure generally undesirable for insiders (Jensen & Meckling, 1976). Following the conclusion of previous work that "insiders are overinvested in their firms due to the level of personal wealth and human capital invested" (Rogers, 2008), and hence that insiders' open-market purchases are likely to be more predictive of future returns than insider sales (e.g., Seyhun, 1986) we examine open-market purchases especially closely in our analyses below.

Finally, we caution that corporate events are communicated to the public in many ways. Our focus is on trading that occurs after the event but before the information is disclosed on Form 8-K. We do not address the possibility that, in any particular case, the information disclosed in a Form 8-K was made public before the 8-K was filed—for example, through conversations between corporate management and the press. We note, however, that despite this possibility the consistent abnormal returns to insiders' transactions in the 8-K gap documented in this Article might still raise concerns for policymakers. The reason is that, on balance, we would not expect trading prior to the revelation of already-public information to generate consistently economically and statistically significant abnormal returns of the kind we observe in the data. The fact that such returns exist suggests that not all of the information disclosed in the 8-Ks we study was already public at the time of the insiders' transactions.

Our study provides several novel contributions to previous work in this area. First, although extensive previous work in the finance literature examines the returns to trading by insiders (e.g., Seyhun, 2000), little work in this area has emphasized the relationship between such trading and the information-forcing rules that form the bedrock of securities law. We document returns to insiders' transactions conditional on the current choices reflected in SEC rules about the timing of disclosure of corporate events to the public. Second, unlike much prior work in this area (for an important exception, see Meulbroek, 1992), we document how insiders' returns differ among the different types of information that the firm is about to reveal—and, hence, provide a framework for policymakers considering whether securities rules in this area should reflect the heterogeneous nature of the information they govern. Third, we demonstrate that profits from the 8-K trading gap do not require the unusually deep information that insiders

have about the firm; instead, even a relatively uninformed investor can earn systematic abnormal profits by knowing about particular types of corporate developments before the market does.

Finally, the evidence we present may raise concerns for policymakers. Our findings suggest that Congress and the SEC should consider whether allowing firms to delay the announcement of material nonpublic information for four days creates trading opportunities that strain the already significant public resources dedicated to enforcing the rules that prohibit improper trading by insiders. Second, firms hoping to address the potential for such trading often voluntarily adopt so-called "blackout" periods prohibiting insiders from transacting in the company's stock around the time of quarterly earnings announcements. But these prohibitions often do not apply to other significant events reportable on Form 8-K, and our results suggest that firms should consider extending blackout periods to those events. Finally, our evidence suggests that policymakers currently considering choices regarding the design of information-forcing rules—such as those that govern Form 8-K—should consider the effects of those choices on the opportunities for trading by insiders.

The remainder of the Article proceeds as follows. Part 2 provides background on previous study of trading by corporate insiders and the SEC rules that we use to identify the 8-K trading gap. Part 3 describes the development of our dataset and the results of our analysis of insider profits from trading in the 8-K gap. To address potential critiques of that analysis, in Part 4 we focus on trading in the gap when the 8-K will reveal a particular type of information: significant agreements between the company and its customers or suppliers. Part 5 concludes.

2. BACKGROUND

A. Mandatory Disclosure Rules and Trading by Insiders

The standard justification for the mandatory disclosure rules that characterize much modern securities law is that, in the absence of such rules, information about the value of securities would be underprovided from a social point of view. (Coffee, 1984.) Indeed, it has been said that the "essen[ce]" of these rules is to facilitate the work of informed traders so that stock prices accurately reflect the collective value of the firm's investment opportunities. (Goshen & Parchomovsky, 2006.) While Manne (1965) contended that profitable trading by insiders, too, could help improve the accuracy of public-company stock prices, the law has taken a different course: insider trading on the basis of material nonpublic information is, broadly speaking, illegal. Because enforcement of that prohibition is imperfect, however, previous work has documented profitable trading by corporate insiders rather extensively (e.g., Lorie and Niederhoffer, 1968; Jaffe, 1974).

Less noticed is the relationship *between* the design of mandatory disclosure rules and the incidence and profitability of insider transactions in their own companies' stocks. Theoretically, however, we would expect that the design of information-forcing rules will profoundly influence insiders' behavior, both as traders and as managers of the firm itself. Suppose, for example, that a manager is presented with the opportunity to enter into a new agreement on behalf of the company that, in expectation, will significantly increase the firm's value. Suppose, too, that policymakers wish to choose the mandatory-disclosure rule that will most efficiently transmit the value implications of this development to securities markets. Lawmakers have a wide range of choices in designing this rule, but all can be expected to influence the manager's behavior. Consider, for example, a rule requiring the firm to disclose the agreement at the moment that the

manager signs the relevant contract. Managers inclined to profit from their information may seek to delay that moment to enable profitable trading, with correspondent implications for social welfare. By contrast, consider a rule that requires the firm to disclose the agreement one month after signing. This design is less likely to influence the manager's conduct regarding the agreement itself. But it is also likely to permit considerable trading by the insider on the basis of this information—again, with correspondent social costs.

To choose among these design alternatives, however, policymakers need evidence regarding the costs and benefits of the existing regulatory regime.[4] In this Article, we examine trading activity by corporate insiders that is associated with the current regulatory design of the SEC rules that require public companies to disclose significant corporate events to investors.[5]

B. The SEC's 8-K and Insider-Trading Disclosure Rules

In this Article, we take advantage of two types of securities-law rules to provide unique evidence on insider transactions in public-company stocks. First, we consider rules that require publicly traded companies to disclose important corporate events to investors on Form 8-K. Second, we draw upon rules that require insiders to disclose their trades to the public in a filing known as Form 4 to examine trading during the 8-K gap.

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[4] Indeed, a related recent debate in corporate and securities law—regarding the optimal disclosure rule for holders of large blocks of public-company stock—draws on similar questions of institutional design. Although current law permits blockholders of 5% or more to wait as long as ten days before disclosing their position, the SEC is currently considering a petition to shorten that period to one day. (Wachtell, Lipton, Rosen & Katz, 2011.) In previous work, one of us has argued that the design of that rule implicates certain benefits associated with such blockholders. (Bebchuk & Jackson, 2012.) Another one of us has argued that lawmakers should take advantage of the benefits of private ordering when developing such rules. (Mitts 2013.) That work, like this Article, examines the costs and benefits of the design choices reflected in current securities law.

[5] Although most work in this area has not emphasized the relationship between these design choices and trading by corporate insiders, one important body of prior scholarship *has* explored that interaction. In a series of recent papers, commentators have considered whether the design of SEC Rule 10b5-1—which provides that, if insiders adopt a "plan" under which they precommit to certain transactions, those trades will be presumed not to violate Rule 10b5—has actually led to *more*, rather than less, insider-trading profits (Henderson et al., 2014; Jagolinzer, 2009).

The SEC rules governing Form 8-K are nearly as old as the Commission itself. Form 8-K was created by the Commission in 1936 "as the form to be used by companies to file 'current' reports when specific extraordinary corporate events occur.'" (SEC, 2002.) The SEC's initial rules for Form 8-K allowed companies to file the Form up to ten days after the end of the month in which the extraordinary event occurred—that is, as many as forty days later in some cases. In 1977, however, the Commission amended these rules to require companies to file an 8-K within five business days of such an event. The Commission also amended its rules, over time, to require firms to file a Form 8-K for a broader group of corporate events; in securities-law parlance, the various events that are subject to 8-K disclosure are referred to as "Items".[6]

In 2002, however, in the wake of the Enron and WorldCom scandals, Congress passed the Sarbanes-Oxley Act. That law included a little-known provision, Section 409, indicating that publicly traded corporations should be "required to disclose to the public, on an urgent basis, information on material changes in their financial conditions or operations." The SEC proposed extensive changes to its 8-K rules in 2002. For present purposes, the most important proposed change was to "shorten the filing deadline for Form 8-K to two business days after an event triggering the Form's disclosure requirements." (SEC, 2002.) But the Commission received extensive comments from, among others, prominent law firms and investment banks urging the SEC to reconsider. Finally, in 2004, the SEC decided not to adopt its proposed two-day deadline; instead, "persuaded by . . . these commenters," the Commission chose to mandate "a four business day deadline for Form 8-K." (SEC, 2004.)[7] This SEC rule makes it possible, and indeed

[6] For example, as described in further detail below, Item 1.03 on Form 8-K requires disclosure of whether the company has entered into bankruptcy or receivership, Item 2.01 requires disclosure of the completion of the acquisition or sale of corporate assets, and Item 3.01 requires disclosure of the company's receipt of a notice that it has failed to satisfy the listing rules of a stock exchange on which the firm's securities are listed. (SEC, 2015 (1).)

[7] Because the SEC's rules governing Form 8-K changed significantly in the years preceding 2004, we consider only trading activity in 2004 and later in our empirical analysis below.

perfectly legal, for there to be a gap of as many as four trading days between the occurrence of a significant corporate event and the disclosure of that event to the company's investors.

SEC rules have also required disclosure of trading by corporate insiders since the Great Depression. These rules require a public company's directors and officers to disclose the dates, prices, and other details of their trades in the company's stock on Form 4.[8] Although the SEC's rules once required Form 4 to be filed within 10 days of the end of each month, Congress also altered these rules in the Sarbanes-Oxley Act. This time, Congress did not leave the SEC discretion with respect to the filing deadline: with few exceptions, Section 403(b) of Sarbanes-Oxley strictly requires that Form 4 be filed within two business days of the insider's transaction.

Although extensive previous work has used the rich data provided in Form 4 to study[9] trading by insiders,[10] relatively little attention has been given to the SEC's 8-K rules. One recent working paper (Niessner, 2015) considers whether managers use the flexibility provided by the 8-K gap to strategically time the release of negative news, finding that managers are more likely to disclose such news on Fridays and before national holidays. Although that paper considers the relationship between strategic timing of disclosures and insiders' sales of their company's stock,

[8] The SEC rules governing Form 4, promulgated under Section 16(a) of the Securities Exchange Act of 1934 also apply to beneficial owners of 10% of the company's stock. Although we do not examine the trading behavior of 10% holders during the 8-K gap in this Article, we intend to explore such trading in future work.

[9] For examples from the finance literature, see Lorie and Niederhoffer (1968), Jaffe (1974), Seyhun (1986), and Ivashina and Sun (2011). Form 4 data have also been used extensively in empirical work on insider trading in the legal literature; for examples, see Henderson et al. (2014) and Jagolinzer (2009). Following much of this previous work, as described below we obtain Form 4 data from the Thomson Reuters database.

[10] We agree, of course, with the well-known previous work concluding that studying trading by insiders through Form 4 data is of limited use because "corporate insiders . . . would most likely refrain from reporting [insider trading that violates Rule 10b-5] to the SEC" on Form 4 (Muelbroek, 1992). Nevertheless, for two reasons we follow prior literature (e.g., Seyhun, 1986) that studies trading that is disclosed by insiders on Form 4. First, insider transactions during the 8-K gap may be of particular interest because we can directly observe the content of the information disclosed immediately following the insider's trade. Second, our identification of thousands of Form 4 disclosures detailing trading by insiders during the 8-K gap—trades that, virtually by definition, immediately precede the revelation of material nonpublic information—may raise concerns for policymakers.

the study's focus is on the timing of disclosures rather than trading by insiders. In the next Part, we present the first evidence on trading by corporate insiders during the 8-K gap.

3. TRADING BY CORPORATE INSIDERS DURING THE 8-K GAP

A. Data

We begin by collecting 701,905 Form 8-Ks filed with the SEC from January 1, 2004 to December 31, 2014 by 9,303 companies with ticker symbols registered with the Center for Research on Security Prices ("CRSP"). In light of the seriousness of the potential implications associated with managers' trading during the 8-K trading gap, we took an unusually conservative approach to generating our dataset, excluding from this study a number of 8-K filings and trades by insiders that we intend to examine in future work.

First, we remove any filing disclosing an event reportable under Item 5.02 under the SEC's Form 8-K rules, as these events generally refer to stock or option awards granted to the company's management.[11] We then remove any 8-K disclosing an event under Item 5.07 under the SEC's 8-K rules, because these report the results of shareholder votes at annual meetings—which are both unlikely to be material and likely to have been disclosed, at least in part, at the meeting itself. We next remove any 8-K that contains the phrase "underwriting" or "unregistered," as these likely reflect private securities transactions beyond the scope of our study. We then remove any Form 8-K that refers to a so-called "trading plan" pursuant to SEC Rule 10b5-1, as these plans typically call for prescheduled insider transactions and under SEC

[11] Nevertheless, the timing of such grants, and the post-grant returns that managers enjoy, provide an interesting subject for further study, as shown in important recent work by Daines et al. (2015). That study provides evidence consistent with the notion that executives manipulate stock prices to increase the value of their option compensation. The 8-K gap provides one channel through which this manipulation may occur. We intend to examine the timing of stock-compensation grants, and the filing of Form 8-Ks announcing those grants, in future work.

rules their adoption generates a presumption against illegal trading.[12] Finally, we follow Niessner (2015) and also remove from our dataset any Form 8-K reporting events in Item 1.03 (bankruptcy or receivership), as these can be anticipated in advance; Item 2.02 (earnings announcements), as these are prescheduled and often subject to blackout periods voluntarily imposed by some firms; and Item 7.01 (Regulation FD), which has a 24-hour reporting period.[13] We further reduced the sample to those 8-K filings made on trading days by filers with available market capitalization data on CRSP. These filters yield a sample of 169,616 Form 8-K filings by 5,246 filers.

For each of these filings, we utilize the Form 8-K SEC-provided "Filing Date" as the date on which the information is disclosed to the public.[14] However, we recognize that in some cases the underlying information may become public prior to the filing of the Form 8-K, either through

[12] While this filter allows us to address the *announcement* of a 10b5-1 plan, we cannot exclude all *trades* that are claimed by the insider or the company to be pursuant to a 10b5-1 plan. The reason is that, although some firms assert in footnotes on Form 4 that a particular trade was executed pursuant to such a plan, such disclosures are voluntary and hence likely to be biased on the bases of firm or individual characteristics (Henderson et al., 2014; Niessner, 2015). For three reasons, however, the presence of transactions pursuant to 10b5-1 plans is unlikely to affect our results. First, as to our calculations of the profits insiders earn through trading, in expectation trades under predetermined trading plans should not be abnormally profitable, and hence should have no effect on our calculations. Second, the most profitable insider transaction that we study—open-market purchases—are unaffected by 10b5-1 plans, since those plans overwhelmingly call for prescheduled *sales*, rather than purchases, of company stock (Jagolinzer, 2009). Finally, previous work has cast doubt on the notion that trades pursuant to 10b5-1 plans are truly uninformed, noting that (1) many insider sales occur very shortly after the plan is established, (2) some plans consist of a single insider sale, and (3) companies appear to selectively terminate these plans early or cancel individual insider sales, Jagolinzer (2009); Robbins (2010); Shon and Veliotis (2013). To the extent that, as this work suggests, trades pursuant to 10b5-1 plans are *not* truly uninformed, their presence in our dataset is appropriate.

[13] All of the filters described in the text are applied by excluding any Form 8-K filing that contains the text "1.03", "2.02", "5.02", "5.07", "7.01", "underwriting", "unregistered", or "10b5-1". These filters are applied to the text of the Form 8-K filing itself, excluding attachments. The filtering does not prefix the search with "Item" or another phrase, as this can be unreliable due to the structure of text in Form 8-K filings. Very few Form 8-Ks should be erroneously discarded from our dataset using this method.

[14] For filings posted after 5:30pm, the SEC's EDGAR system automatically adjusts the filing date to the following date; for filings posted between 4:00pm and 5:30pm, the EDGAR system records the filing date as the actual date of filing (SEC, 2015 (2)). The closing prices used throughout this study are established when markets close at 4:00 pm. Thus, for filings posted between 4:00pm and 5:30pm, the filing date accurately corresponds to the trading day on which the market learns the disclosed information—that is, the trading day immediately following the filing date. In previous work, two of us showed that a significant number of filings is posted to EDGAR between 4:00pm and 5:30 pm (Jackson, Jiang, and Mitts, 2014), providing support for this choice.

a press release by the firm or news coverage. We therefore scan the text of each Form 8-K for the phrase "press release" and, if this phrase is present, we extract the nearest proximate date and utilize this date as the date of public disclosure instead of the Form 8-K filing date if the former precedes the latter.[15] While we are unable to perform a similar procedure for news coverage more generally—or to address the possibility that the firm has previously voluntarily disclosed the information, for example on its website—we emphasize that in the absence of systematic investor biases, information that has already been made public should not present profitable trading opportunities. Thus, to the extent that information becomes public before the 8-K is filed, the expected trading profit for trades in the 8-K gap should approach zero in expectation. Our finding that insiders enjoy systematic profits when trading in the 8-K gap is therefore inconsistent with the notion that the information contained in the 8-Ks we study has systematically already been made public.

We determine the date of the actual corporate event disclosed in the 8-K by electronically parsing the text in the Form 8-K, which contains this information.[16] We compute the gap between the actual event date and the date the 8-K is filed as the number of trading days between the former and the latter. In the case of an event date that is not a trading day, we utilize the immediately preceding trading day.[17] We drop gaps greater than five trading days, as these likely reflect exceptional circumstances in which the SEC's standard four-business-day rule may

[15] Due to variations in 8-K text, this method may not perfectly address all cases involving a press release. In unreported analysis, however, we estimate that this algorithm captures more than 99% of such cases.

[16] This information, known as the "Conformed Period of Report," is included in the EDGAR file header and is provided by the firm. (SEC 2015(3)). We manually reviewed several Form 8-K filings and confirmed that this header matches the date listed in the body of the 8-K itself.

[17] In the case of multiple Form 8-K filings on the same date, we utilize the greatest gap among the Form 8-K filings.

not apply, as well as any gaps less than zero, which could occur if a firm files the Form 8-K prior to the occurrence of the underlying event.

This process yields a final sample of 164,314 Form 8-K filings by 5,231 public companies over our 10-year sample. The following table shows the distribution of firms in each year of our dataset, along with the average number of Form 8-Ks filed by firms over that time:

[Insert Table 1 Here.]

As the table shows, the number of firms in our dataset is relatively stable per year; variation in the overall number is driven by the emergence and disappearance of firms over time. Concerns of survivorship bias do not pose a problem for our analysis because we are estimating outcomes over very short intervals of time. In addition, as Table 1 also shows, the average number of 8-Ks filed per firm in our sample fell from 2004 to 2007 and has remained relatively stable since.

We begin by considering the distribution of 8-K trading gaps in our sample. Figure 1 below describes the frequency of gap lengths among our sample of 8-K filings:

[Insert Figure 1 Here.]

As Figure 1 shows, a plurality of Form 8-K filings have no trading gap at all—that is, the firms disclose the event on the day it occurs. Among the 8-Ks that do have trading gaps, gaps of one day (that is, disclosure the day after the event) and four days (that is, the maximum gap permitted under SEC rules) are most common.

We next consider whether the distribution of the 8-K gap varies by the size of the firm as measured by market capitalization. Table 2 describes the number of 8-Ks with gaps of a particular length by each decile of market capitalization among the firms in our sample:

[Insert Table 2 Here.]

As Table 2 shows, longer 8-K gaps are far more common at smaller firms. The largest 10% of the firms in our sample file more than 50% of their 8-Ks on the same day the event occurs, and more than 70% of their 8-Ks within twenty-four hours of that event. Descriptively, these results are consistent with the intuition that larger firms enjoy the assistance of experienced attorneys. In conversations with experienced counsel with whom we shared our results, the attorneys indicated that they generally seek to minimize the gap between the occurrence of a reportable event and the disclosure of that event to the market.

We obtain information on trades disclosed by insiders on Form 4 from Thomson Reuters. Crucially, we include transactions only if they occurred in the 8-K gap: that is, we only include trades by insiders on or after the event date and before the 8-K filing date. Thus, we do not include transactions that might have occurred after the firm filed its 8-K, and we do not include trades that occur when there is no gap—that is, when the Form 8-K is filed on the same date as the underlying event.[18] We also omit trades by 10% beneficial owners, keeping only trades by corporate officers and directors in the underlying data,[19] as well as trades by firms whose stock price trades below $1.00 per share, as these stocks are likely to have artificially skewed returns.

This process yields a sample of 42,820 trades in the 8-K trading gap. The following table shows the total number of trades in the 8-K trading gap by year, as well as the average number of trades during each 8-K trading gap per year:

[Insert Table 3 Here.]

[18] This method excludes from our sample insider transactions that occur on the same day as a press release or 8-K releasing new information to the market. We exclude these transactions even though they may well have preceded the issuance of the press release or 8-K and even though recent work suggests that markets do not immediately incorporate the new information into the stock price (e.g., Niessner (2015)). For purposes of this study, we focus only on trades that unambiguously came after the disclosed corporate event and before the disclosure of that event to the market. In future work, however, we intend to consider these excluded trades more closely.

[19] To perform this filtering, we eliminate any transaction reported in the Thomson Reuters database that features a role code of "B", "BC", "BT", "OB", "H", or "DO". Although we exclude the trades of 10% beneficial owners for purposes of this study, we intend to examine outside shareholders' trades, too, more closely in future work.

As Table 3 shows, the number of insider transactions in the 8-K trading gap rose in 2006 and 2007 but has remained at relatively lower, and stable, levels since.[20] Nevertheless, insider transactions during the 8-K gap are common: in the median year in our sample, nearly 3,400 such transactions trades took place between the occurrence of a significant corporate event and its disclosure.[21]

We next consider whether trading by insiders is more common in shorter or longer 8-K gaps. Figure 2 below shows the distribution of the insider transactions in our sample according to the length of the 8-K gap in which the transaction occurred:

[Insert Figure 2 Here.]

As Figure 2 shows, a plurality of the trades in our sample occur in the longest possible gap permitted by SEC rules—that is, a gap of four trading days. Of course, given that longer gaps cover longer periods of time in which insider transactions can occur, this result is in some ways unsurprising. Nevertheless, Figure 2 documents a significantly higher incidence of trades in our sample in 8-K gaps of four days than in shorter gaps.

Having documented trading by insiders during the 8-K gap, we sought to better understand the content of the information revealed immediately after each insider's trade. We

[20] In calculating the number of trades by insiders in the 8-K gap, we accepted the data in Form 4 at face value. That is, where insiders reported more than one order on Form 4, we recorded more than one transaction—even where arguably the individual orders might have reflected a single transaction. We do so because we do not expect that cases like these—where insiders break a single transaction down into many stock orders for purposes of Form 4—are correlated with whether or not the insider transactions occur during the 8-K gap, and hence we do not expect that this phenomenon will affect our results. Of course, if it *is* the case that insiders tend to do this more often during 8-K gaps than during other periods—for example, to influence the market's interpretation of their trading behavior—that finding alone would be worth further study. We expect to consider these questions in future work.

[21] We do not intend to suggest that trading by insiders is *more* common during 8-K gap periods than during other periods. Study of that question would likely be confounded by the absence of a meaningful control period to which 8-K gap periods could be rigorously compared. Instead, we note only that we document thousands of trades by corporate insiders that occur between the date of significant corporate events and the disclosure of those events to the public. That finding will raise concerns for those who would expect that insiders generally abstain from trading immediately before the disclosure of material corporate information.

thus individually reviewed every 8-K in our sample with at least one reported trade by an insider during the 8-K trading gap. (Although recent work, such as Niessner (2015), uses 8-K "Item" numbers as a proxy for information content, we worried that this approach relies too heavily on ambiguous and inconsistent choices made by corporate counsel when determining which "Item" a particular event should be disclosed under.[22]) Thus, we classified the 15,419 Form 8-Ks with at least one reported insider transaction in the 8-K trading gap into one of fourteen substantive categories. The following table describes each of these categories:

[Insert Table 4 Here.]

The classification of the substantive content of each Form 8-K by hand allows us to consider the distribution of information in 8-Ks with trades in the gap. Table 5 below describes the number of 8-Ks in our sample in each of these fourteen information categories:

[Insert Table 5 Here.]

For the reasons described above, 8-K filings disclosing information relating to executive pay arrangements, executive stock sales, or the results of shareholder votes at annual meetings do not typically include the type of material nonpublic information we study here. For that reason, we exclude from our analysis below any Form 8-K that, in our individualized review of each of the 8-Ks in our sample, discloses information in those categories.[23]

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[22] As noted above, we do rely upon 8-K "Item" numbers to exclude observations from our sample. But we were uncomfortable using those designations in our analysis of the content of the information that the 8-K will reveal. The reason is that, in conversations with experienced counsel, they expressed concern that the definitions of each 8-K "Item" under SEC rules are too malleable to reflect a reliable proxy for the information contained in the 8-K. For purposes of our research design, our worry was that choices of item designations might be correlated with omitted variables for which we cannot control, such as the company's counsel. Thus, we took a more conservative approach, reviewing each 8-K by hand for its information content. As indicated below, in the case of 8-Ks addressing matters relating to executive pay arrangements and the results of shareholder votes at annual meetings, this hand-coding work gives us additional comfort that our sample does not include 8-Ks related to those matters.

[23] Consistent with our concern, described above, that counsel use Form 8-K "Item" numbers inconsistently to describe the substance of the information that the firm will disclose, notwithstanding our exclusion of any 8-K including disclosure on Items 5.02 (executive compensation) and 5.07 (results of shareholder votes), as Table 5 shows our individualized review of the 8-Ks that survived that exclusion still included many disclosures related to

B. Profitability of Trading by Insiders During the 8-K Trading Gap

We begin by estimating the abnormal returns that insiders earn when trading during the 8-K gap. Before turning to those estimates, two caveats are in order. First, we emphasize that our analysis reflects only approximations of such profits; for many reasons, the insiders in our study may not have actually taken the dollar profits that we describe. One reason is that Section 16(b) of the Securities Exchange Act of 1934 prohibits insiders from retaining profits from so-called "short-swing" trading—that is, trades in opposite directions within six months of each other. Under Section 16(b), if insiders conduct a purchase following a sale, or a sale following a purchase, during a six-month period, any profits from those transactions must be disgorged to the firm.[24] Thus, the insiders we study could not immediately realize the profits we calculate here under Section 16(b). In this analysis, like prior work, we do not consider whether and how insiders might exit from the positions we describe. Instead, we simply estimate how much better, on the margin, the insiders in our dataset do by buying or selling their own company's stock rather than the broader stock market.

Second—and, perhaps, somewhat surprisingly—we do not utilize the transaction price as it is reported on Form 4. There are several reasons why. First, because Form 4 disclosures do not include the precise time of day when the insider's transaction was executed, it is not possible to calculate a comparable market return for these trades when using the reported transaction price. Second, it is unclear how reliable self-reported transaction-price data are; they are occasionally missing from the Thomson Reuters dataset and may feature self-reporting bias. Thus, for each

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those matters. Despite the disadvantages of such an individualized review in many research settings (e.g., Macey & Mitts (2014)), then, we think it is the appropriate methodology here.

[24] Of course, as previous work has noted (Schizer, 2000), this prohibition can be circumvented through hedging transactions with respect to shares of company stock purchased by the executive with her own funds.

transaction we study, we calculate the insider's abnormal return[25] from the closing price of the day of the insider's transaction to the closing price of the day following the day on which the Form 8-K filing is made, as follows:[26]

$$ar_{trade} = r_{trade} - m_{trade}$$

where r_{trade} is the return from the closing price of the day of the trade to the closing price of the day following the Form 8-K filing[27] and m_{trade} is the return on the CRSP value-weighted market index [28]over that same period.[29]

To evaluate the profitability of trading by insiders during the 8-K trading gap, we must classify trades by their direction: that is, whether the insider is effectively buying or selling her company's stock. We use the Thomson Reuters Form 4 transaction codes to determine the nature

[25] Throughout our analysis, and consistent with prior work and finance intuition, we emphasize insiders' abnormal returns—that is, the difference between the returns they earn on their company's stock and those they could earn in the market. We acknowledge, however, that some concerned about our findings may be interested in insiders' raw returns—that is, the simple returns they earn by trading in the 8-K gap. In unreported analysis, we find that insiders' raw returns are statistically and economically consistent with the abnormal returns we report throughout this Article.

[26] We present our results in this fashion because we share the view of those in the finance literature who prefer to see a straightforward regression presenting results based solely on net-of-market returns rather than the selected risk factors that have been the subject of extensive critique in finance work. That choice, we think, is especially appropriate here, where the private information returns we study are likely to be uncorrelated with risk factors. Nevertheless, as a robustness check we replicated the results described below using standard three- and four-factor risk models. The results were unchanged. In addition, in response to helpful comments from our colleagues, we also re-ran our results using an equal-weighted, rather than value-weighted, index for our market proxy. Once again, the results were unchanged.

[27] More precisely, we calculate the cumulative abnormal return by taking the sum of the daily returns for each of the days over this period. Cumulative abnormal returns (CARs) are a standard measure often used in the finance literature; as previous work has established, this approach has advantages over other methods—such as buy-and-hold returns or continuously compounded returns—also used in this area. (Mitchell & Stafford, 2000.) We use a mean-adjusted market model consistent with previous work showing that this approach performs just as well as more complex methods using risk factors. (Brown & Warner, 1980.)

[28] We use the CRSP Market Index for the combined stock-trading exchanges rather than a large-firm index, such as the S&P 500, because the firms of interest in our study are generally mid- to small-size firms.

[29] We utilize the closing price on the day of the trade to account for the possibility that prices may have updated to reflect asymmetric information as a result of the insider's informed trading on that day (e.g., Seyhun, 1986). We thus avoid imputing to the insider profits from prior days that he or she may be unable to realize. We utilize the closing price of the day following the Form 8-K filing because many form 8-Ks are filed after the market closes at 4:00pm (Jackson, Jiang, and Mitts, 2014), making the day after the Form 8-K filing the relevant day for measuring the impounding of new public information into the firm's stock price.

of the insider's transaction.[30] We then sign ar_{trade} by the directionality of the trade, utilizing $+ar_{trade}$ for positive (long) exposure and $-ar_{trade}$ for negative (short) exposure. Thus, if the insider trades in a positive (long) direction and the abnormal return is positive, the insider is "credited" with the entirety of the abnormal return for that trade. If the insider trades in a positive (long) direction and the abnormal return is negative, the insider is "penalized" with the entirety of the abnormal return for that trade. A similar analysis holds for trades by insiders in a negative (short) direction.

We begin with three preliminary statistical tests that measure how insiders perform when they trade during the 8-K gap. First, we examine whether, on average, insiders' signed ar_{trade} is significantly different from zero. Second, we consider the relationship between the length of the 8-K gap and insiders' returns from trading during the gap. Finally, we create a dummy variable for whether the insider's transaction was in an 8-K gap of longer than two days and examine the relationship between that dummy variable and signed ar_{trade}. Table 6 below reports the results of each of these three tests[31]:

[Insert Table 6 Here.]

[30] We include as "positive" exposure—that is, long exposure to the company's stock—transactions coded by Thomson Reuters as "P" (open-market purchases), "A" (grants or awards of stock or options), "F" (payment of option exercise price through withholding of shares), "M" (exercise of stock options), "C" (conversion of options), "O" (exercise of out-of-the-money options), "X" (exercise of in-the-money options), and "L" (small acquisitions of shares pursuant to option exercises). We include as "negative" exposure—that is, short exposure to the stock—transactions coded as "S" (open-market sales), "D" (forfeiture of shares pursuant to contractual provisions), "E" (expiration of a short derivative position), "H" (expiration of a long derivative position), "G" (a bona fide gift), "U" (a tender of company stock by the insider), "6" (disposition of company shares) and "7" (disposition of exercised options). We are skeptical whether transactions marked as "D" should be included as sales, although we note that insiders may be able to influence whether they forfeit stock pursuant to contractual provisions. Nevertheless, in unreported analysis we re-run the regressions below excluding "D" transactions. The results are consistent with those described throughout the Article.

[31] We estimate each model using ordinary least squares regressions with standard errors robust to heteroskedasticity.

As the results in model (1) show, trading by insiders during the 8-K trading gap yields average profits of 42.3 basis points per trade.[32] Moreover, these profits increase with the length of the gap. In a linear specification, each additional day in a gap increases insiders' average abnormal returns by 13.3 basis points. Trades in 8-K gaps longer than two trading days are 33.9 basis points more profitable than trades in gaps of two trading days or less, which average a profit of 20.2 basis points. In other words, trades during gaps of three trading days or more are associated with more than two times the average profits of trades made in gaps that are two days or less.

We next consider whether the profitability of trading by insiders during the 8-K gap is concentrated in particular types of transactions. As noted above, previous work has demonstrated that insiders' open-market purchases warrant special attention. As a theoretical matter, because insiders already have undiversified exposure to their firms, from the insider's perspective acquiring additional long exposure by using her own funds to purchase her company's stock is usually unappealing (Jensen & Meckling 1976). And, as an empirical matter, insider purchases are more predictive of future stock returns than other types of insider transactions, such as stock sales or the exercise of stock options (e.g., Seyhun, 1986). Thus, we estimate insiders' signed ar_{trade} conditional on each of the Thomson Reuters transaction codes in our dataset, i.e., $E[\text{signed } ar_{trade} \mid \text{trancode } j] = 0$, where j represents each of the transaction codes in our dataset.[33] Table 7 below describes the results:

[Insert Table 7 Here.]

[32] Some may consider these returns relatively small in light of the potential legal concerns raised by trading in the 8-K gap. We note, however, that our sample includes only *reported* trades by insiders. We also note that insiders, anticipating that they have a reporting obligation in circumstances like these, likely elect not to trade on many of the most profitable trading opportunities.

[33] We exclude from Table 7 those transaction codes consisting of fewer than 200 transactions over the eleven years in our dataset.

As Table 7 shows, and consistent with prior work, open-market purchases are by far the most profitable type of insider transaction in the 8-K trading gap, with an average abnormal return of 1.63%. In our view, these transactions are among the trades in the 8-K gap that are most likely to raise concerns. It is difficult to justify an insider increasing his exposure to the firm through open-market purchases by alternative explanations such as diversification, liquidity or compensation. The notion that insiders engage in open-market purchases in light of their information advantage seems to be a more plausible explanation for these findings.

We therefore next examine how often insiders' open-market purchases of their own company's stock are directionally correct—that is, whether these purchases precede increases in the company's stock price upon the filing of the 8-K. We find that such purchases precede stock-price increases in approximately 57% of the transactions we examine, and that the stock price is unchanged or decreases upon the filing of the 8-K in approximately 43%. While at first blush this difference may not seem substantial, in unreported analysis we run a chi-square test to measure the probability that this outcome was produced by random chance (that is, that random directional selection would produce the insider success rate that we observe). That probability (0.00000000016%) essentially approaches zero.

Finally, we investigate how insiders' profits from trading during the 8-K gap vary among eleven different types of information in our Form 8-K filings (as identified by the individualized review of the filings described above). Specifically, we test $E[\text{signed } ar_{trade} \mid \text{category } i] = 0$, where category i represents each of the eleven categories of Form 8-K filings that include material nonpublic information.[34] Results of a t-test for each category, including robust standard errors, are shown in Table 8 below:

[34] Although our individualized review of each Form 8-K resulted in dividing the filings into fourteen categories of disclosed information, as noted above three of these categories—disclosures related to executive pay, insiders' stock

[Insert Table 8 Here.]

Table 8 describes substantial heterogeneity of profits from trading during the 8-K gap among the different categories of information disclosed in our sample. Insiders earn economically and statistically meaningful profits when trading in the gap if the subsequent 8-K reveals information about changes in corporate documents, changes in the firm's capital structure, mergers and acquisitions, corporate restructurings, key customer or supplier agreements, stock listing compliance violations, and changes in the firm's accountant. But insiders don't always win: trades by insiders during the 8-K gap when the disclosure is related to legal issues are economically and statistically significantly unprofitable.[35] And trading profits in some categories—such as disclosures related to corporate restructurings, product or production updates, and changes in management—are not meaningfully different from zero. Nevertheless, Table 8

sales, and the results of shareholder votes—are unlikely to reflect material nonpublic information. Thus, out of an abundance of caution, we exclude any 8-K disclosing information in these categories from our sample.

[35] It may seem surprising that there is *any* category of information in which insiders who trade in the 8-K gap do not make systematic profits—and, indeed, systematically lose. We note, however, two considerations that may make this finding more consistent with intuition. First, as noted above, work in this area studying insider trades reported on Form 4 has sometimes found such trading to produce limited profits (Seyhun, 1986) or no statistically meaningful profits at all (Givoly and Palmon, 1985; Elliot et al., 1984), perhaps because insiders do not wish to report consistently profitable trading to the SEC (Meulbrook, 1992). Of course, other prior empirical work has come to the opposite conclusion (e.g. Jagolinzer, 2009; Roulstone, 2008), suggesting that results of these analyses depend significantly on the context in which the reported insider transactions occur. Nevertheless, our finding that whether insiders are able to trade profitably in the 8-K gap depends on the type of information the 8-K will reveal is consistent with prior work concluding that insiders profit inconsistently from their reported trades.

Second, we note that, to earn consistent profits between the time a corporate event occurs and the time the public learns about that event, an insider must know not only nonpublic information but the likely reaction of the market to that information when it is revealed. For two reasons, it is plausible to us that insiders could consistently err regarding the market's reaction to the resolution of outstanding legal matters involving their firms. First, most insiders in our sample lack the legal expertise necessary in order consistently to interpret market reactions to complex legal developments. Second, while these insiders *do* have the benefit of advice from legal experts, these experts have private incentives to alter their assessment of legal developments, which may lead insiders to be systematically mistaken about how markets will react to those developments.

shows that, in some informational contexts, insiders profit by trading between the time a corporate event occurs and the moment the firm reveals that event to the public.[36]

Having documented these profits, we address a possible concern. The results we have described thus far show only that insiders do, in fact, trade profitably during the 8-K gap, a finding that many might regard as unremarkable given insiders' extensive knowledge about the firm.[37] In other words, one might expect that insiders, when they trade in their own firm's stock, consistently turn a profit, regardless whether an 8-K filing is imminent. We thus wondered whether an individual who know *only* of the imminent 8-K filing—but had no other access to non-public information about the firm—could trade profitably during the 8-K gap.

To answer this question, in the next Part we test whether a particular type of 8-K filing—those announcing new agreements with customers or suppliers—predicts positive, abnormal returns in a company's stock, regardless whether insiders traded during the associated 8-K gap. We show that, in this category of information, the *gap window alone* yields directionally consistent—that is, positive—nonzero abnormal returns. Thus, a person who knew that the company had signed such an agreement, but had no other non-public information about the firm, could earn abnormal returns by buying the company's stock before the 8-K filing. We also find that, during a gap before an 8-K reveals the existence of new agreements of this type, managers are more likely to engage in open-market purchases than at other times. These results lend credence to the view that the 8-K trading gap does not merely yield spurious profits for corporate

[36] To enable readers of this Article to consider particular cases involving trading by insiders during the 8-K gap, we have released, concurrently with the Article, an online visualization that displays randomly selected cases involving open-market purchases from our dataset. The visualization may be accessed here: http://bj1.law.columbia.edu/8kgap.

[37] We emphasize that the evidence provided in Part 3 does not demonstrate that insiders profit from trades in the 8-K gap more than they profit from other trades. We did not conduct such an analysis because, in our view, there is no meaningful control period to which trades during the 8-K gap can be compared. Because previous work on the profitability of reported trading by insiders is mixed (e.g., Seyhun, 1986; Jagolinzer, 2009), we cannot say whether trading by insiders during the 8-K gap is more or less profitable than trading by corporate insiders more generally.

managers—but rather a credible trading opportunity for any trader who has access to the information before the rest of the market.

4. TRADING IN THE 8-K GAP: THE CASE OF KEY BUSINESS AGREEMENTS

In this Part, we carefully examine one type of Form 8-K: those that disclose key agreements with the firm's customers and suppliers. We focus on this category because, unlike other types of information disclosed on Form 8-K, it is possible for investors to form a clear prior about the directional effect of the disclosure of this information. For the reasons given below, on balance an 8-K revealing a new customer or supplier agreement can be expected to increase the firm's stock price. Thus, in theory traders should be able to profit by buying the company's stock after the firm enters into such an agreement and selling before the agreement is disclosed.

There are four reasons why we think that the firm's entry into agreements with its key commercial partners can be expected to be systematically associated with positive abnormal returns. First, as one of us explores more fully in contemporaneous theoretical work (Mitts, 2015), SEC rules governing the disclosure of commercial agreements give managers incentives to shift contractual activity with a positive effect on firm value into contracts that are subject to disclosure under the SEC's Form 8-K filing rules. Second, the entry into significant new agreements with commercial partners is, in expectation—even if not *ex post*—an act designed to increase the net present value of the firm's project and, hence, its stock price. Third, the SEC's 8-K rules make clear that the firm's *entry* into significant new commercial relationships is usually required to be disclosed under Form 8-K's Item 1.01. By contrast, the *termination* of such relationships—which could more plausibly reflect value-decreasing circumstances—is required to be disclosed under Form 8-K's Item 1.02 in relatively limited circumstances.[38] This

[38] For example, the SEC's 8-K rules specify in the instructions to Item 1.01 that even some agreements struck in the ordinary course of the company's business must be disclosed in Form 8-K. By contrast, these rules make clear that

asymmetry in the SEC's rules suggests that, on balance, disclosure of contracts with the firm's customers and suppliers is likely to reflect positive news.[39] Finally, the legal standard governing disclosure of these agreements—known in securities-law parlance as "materiality"—is notoriously malleable, giving managers the legal freedom to strategically disclose positive news more frequently than negative news.[40]

By contrast, we think that the disclosure of other events in the Form 8-Ks in our sample—such as changes in the terms of the company's financings, the arrival or departure of particular managers, or the announcement of a merger or acquisition—has a far more ambiguous implication for firm value.[41] New financing agreements may feature terms less favorable to the firm. The departure of a manager may be perceived by markets as being beneficial or detrimental to the firm's future. But the announcement of new real economic activity in the form of an agreement with a company's customers or suppliers is likely, on average, to increase the firm's future cash flows and, hence, its stock price.[42]

In this Part, we use this insight to examine the behavior of stock prices when customer or supplier agreements are announced on Form 8-K. In this Section, we do so largely independently

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the termination of such agreements must be disclosed only if the agreement is material at the time of its termination *and* the termination event itself is deemed material. (SEC, 2015 (1).)

[39] We explore this intuition empirically by searching the text of the 8-K filings in our dataset to determine whether, in fact, firms report *entering* into a new agreement significantly more frequently than they report *terminating* an existing agreement. Summary statistics confirm the theoretical priors described in the text: of the 164,314 total 8-K filings in our dataset, 50,639 (30.82%) report events under Item 1.01 (*entering* into a new material agreement), while just 4,962 (3.02%) report events under Item 1.02 (*terminating* an existing material agreement).

[40] Former SEC Chairman Arthur Levitt famously rejected some calls for bright-line rules in this area, insisting that judgments regarding materiality must be made by corporate management and counsel after "consideration of all relevant factors that could impact an investor's decision." (Macdonald 1998.)

[41] Niessner (2015) draws a similar inference, noting that many "Items" that are disclosed in Form 8-K have ambiguous implications for the subsequent direction of the stock's price.

[42] An example of a Form 8-K announcing a new customer or supplier agreement that is included in our dataset is provided in Figure 3.

of specific trades by specific insiders. Instead, we ask only whether a trader who knows that the firm is about to announce an agreement of this type can systematically profit by buying the stock after the agreement is consummated and selling the stock before the agreement is disclosed.

We use statistical machine learning with textual data—an emerging method recently used by one of us to analyze judicial opinions (Macey & Mitts, 2014)—to identify the disclosure of customer or supplier agreements in the broad universe of 8-Ks we study. We begin by filtering our entire sample of 164,314 Form 8-K filings to 52,667 that contain Item 1.01 or 1.02. We then randomly selected 2,542 8-Ks and individually reviewed them, classifying them based solely upon whether the 8-K did or did not disclose a customer or supplier agreement. We then use the text of these documents to "train" a machine-learning model to determine the probability that any 8-K filing discloses such an agreement. This model then classified 5,462 of the remaining filings as disclosing a customer or supplier agreement.[43] Finally, we identify 8-Ks announcing a new agreement of this kind by limiting our sample only to 8-Ks disclosing events under Item 1.01, yielding a final sample of 4,692 8-Ks announcing new customer or supplier agreements.[44]

Having obtained a sample of disclosures with, on average, an unambiguous positive expected effect on the company's stock price, we analyze the behavior of stock prices and insiders when such disclosures occur. First, we consider whether a simple strategy of buying the

[43] A brief summary of the technical steps we took in this process follows. First, we preprocessed the documents by removing punctuation, numbers and other non-alphanumeric characters and retaining only words greater than 4 characters and less than 15 characters. We then applied what is known as the "Porter stemmer" to remove suffixes and other grammatical characteristics that do not affect the meaning of the text. Next, we extracted one, two- and three-word phrases from the document and utilized their frequency as features in a lasso logistic predictive model. We used the well-known glmnet package by Trevor Hastie and his co-authors in this step. For a more detailed discussion of the application of machine learning methods to legal scholarship, see Macey & Mitts (2014).

[44] We acknowledge, of course, that our statistical machine-learning model is imperfect in separating 8-Ks that disclose customer or supplier agreement from those that do not. To the extent that the model errs, however, we expect such errors to be randomly distributed. Thus, the error would likely bias our analyses away from finding statistically significant results.

company's stock on the day the event occurs and selling the stock on the day before the event is disclosed—that is, trading in the 8-K gap—is profitable. We then ask whether insiders engage in more open-market purchases of their own company's stock during the 8-K gap—that is, when the existence of a new agreement with the company's customers or suppliers is about to be revealed to the market.

A. Abnormal Returns to Gap Trading

We begin by calculating the abnormal returns to trading in the 8-K trading gap for customer or supplier agreements. Unlike in the previous Part, we do not sign the abnormal return—that is, we do not identify the direction of a trade and attempt to measure the return on that particular trade. Instead, here we seek to evaluate the ex ante tradability of the 8-K trading gap. Thus, we calculate the abnormal return of a trading strategy consisting simply of holding a long position over the private window portion of the 8-K trading gap as follows:

$$ar_{gap} = r_{gap} - m_{gap}$$

where r_{gap} is the return from the closing price of the event date to the closing price of the day immediately before the Form 8-K is filed[45] and m_{gap} is the return to the CRSP value-weighted market index over the same period. Just as in Part 3, we estimate abnormal returns in three separate models. First, we consider whether ar_{gap} is significantly different from zero. Second, we consider the relationship between the length of the 8-K gap and ar_{gap}. Finally, we create a

[45] Unlike in the trading results reported in Part 3 above, we exclude profits from the 8-K filing day itself in these results. The reason is that in this Part, we are not interested in *ex post* insider profits, which naturally include the price reaction on the day the 8-K is filed. Instead, we emphasize profits that can be earned by any investor who simply reacts to the information in the 8-K in the absence of any of the other informational advantages an insider might have. As explained in the text, the analysis shows that an investor could simply purchase the stock on the date a new customer or supplier agreement is struck and sell the stock on the date before that agreement is disclosed and earn consistent abnormal profits. For robustness, however, we estimate a variety of alternative specifications for ar_{gap}, including (1) attributing the 8-K filing date itself to ar_{gap}, (2) attributing the date following the 8-K filing date to ar_{gap}, and (3) beginning ar_{gap} with the closing price of the date prior to the execution date of the customer or supplier agreement. All of the results of these specifications are consistent with the findings described in Table 9. For the reasons given above, however, we believe that the specifications in Table 9 are appropriate for this test.

dummy variable for whether the insider's trade was in an 8-K gap of longer than two days and examine the relationship between that dummy variable and signed ar_{trade}. The results are described in Table 9 below:

[Insert Table 9 Here.]

As Table 9 shows, a trading strategy of simply purchasing the firm's stock on the day that the company enters into a new customer or supplier agreement earns statistically significant abnormal returns of 35.4 basis points, on average, during the private portion of the gap alone. Unlike the returns described in the prior Part, these returns are directionally consistent and are independent of any individual's idiosyncratic information set—that is, these returns could be achieved by any investor aware of the new agreement before it is disclosed. Table 9 also shows that these returns increase with the length of the 8-K trading gap—that is, the longer the gap, the larger the profits an investor can earn by following this strategy.

B. Insiders' Open-Market Purchases in the 8-K Trading Gap

Thus far in this Part, we have considered only indirect evidence of the potential for trading by insiders during the 8-K gap in advance of disclosures of customer or supplier agreements. But we have not examined insiders' behavior during 8-K trading gaps before these key agreements are disclosed.

In this final section, we consider that behavior through a narrow inquiry: whether insiders are more likely to engage in open-market purchases during 8-K gaps that precede the disclosure of customer or supplier agreements than during other periods. In particular, we ask whether insiders are more likely to execute open-market purchases in an 8-K gap that precedes the disclosure of such agreements than randomly chosen periods of time of equal duration.

We note at the outset that this comparison is imperfect. Specifically, we would expect that randomly chosen time periods are definitionally less likely to contain information, and thus cannot serve as meaningful counterfactuals to 8-K trading gaps—periods when, we know, material information is about to be disclosed to the market. Nevertheless, because of the unusual nature of insiders' open-market purchases—that is, already-undiversified insiders voluntarily opting to increase their exposure to their firm—we believe that they are, on the whole, especially likely to reflect trading on the basis of private information (an intuition consistent with, e.g., Seyhun, 1986) . We therefore suggest that a higher frequency of open market purchases during the 8-K trading gap is indicative of trading related to private knowledge of the information that will be disclosed in the subsequent 8-K.

To perform this test, we generate a new sample in which, for each Form 8-K filing date, we randomly sample trading dates from the prior quarter for the same firm that are not Form 8-K filing dates. Thus, we sample a number of trading dates equal to the number of Form 8-K filings; for example, if a firm has filed Form 8-K on fifty dates, we sample fifty other dates from the quarter prior to each filing.[46] For each date on which an 8-K was *not* filed, we impute a gap duration that is equal to its corresponding Form 8-K filing.[47] This imputed gap is utilized to collect all of the trades that occurred during those filing dates.

We then consider individual trades reported on Form 4 for each trading date in both the "8-K" and "control" subsamples. Since we only see insider trades that are reported on any given date, we "fill out" the panel by adding observations with zero trades for each individual who is

[46] Thus, the unconditional probability of a trading date being included in the 8-K and control subsamples in this test is equal to 50% for each.

[47] Suppose, for example, the first trading date in this sample with an 8-K filing featured an 8-K gap of three days. In that case, the matching date *without* an 8-K filing would be imputed a gap of three days, so that each trading period would last three days.

affiliated with the firm but did not report trades on a particular trading date. We then generate a binary variable to reflect whether an open-market purchase has occurred on each trading date.

We estimate the following model using a linear probability model, i.e., ordinary least squares with a binary dependent variable:

$$y_{ijk} = \alpha + \beta d_{ijk} + \eta i \quad + \theta_j + \psi_k + \epsilon_{ijk}$$

where y_{ijk} is a binary variable equal to 1 if individual i traded in firm j's stock in the kth 8-k trading gap or matched control period, d_{ijk} is an indicator variable equal to 1 if the observation is in an 8-K trading gap and 0 if in a matched control period, η_i is a fixed effect for individual i, θ_j is a fixed effect for firm j, ψ_k is a fixed effect for the kth 8-k trading gap and matched control period, and ϵ_{ijk} is a random error term. We then consider the relationship between the probability of a particular individual making an open-market purchase and whether that probability is associated with whether that purchase occurs in an 8-K gap. The results are described in Table 10 below, which reports the results as well how they vary when various combinations of these fixed effects are included in the model:

[Insert Table 10 Here.]

As Table 10 shows, insiders are more likely to conduct open-market purchases during 8-K gaps that precede the disclosure of customer or supplier agreements than during other periods. For example, Model (4) in Table 10—which uses individual-specific fixed effects to address heterogeneity related to unobservable differences among individual insiders—estimates that insiders are about 20% more likely to engage in open-market purchases during 8-K gaps that precede the disclosure of customer or supplier agreements than during other periods.[48] These

[48] Because the constant term in the models presented in Table 10 reflects the unconditional probability that an open-market purchase will occur on any particular trading date, the marginal effect of the 8-K variable can be calculated by dividing the coefficient on that variable by the constant term. Thus, for example, Model (4) reports a coefficient

results are robust to all five specifications presented in Table 10, each of which shows that insiders are statistically significantly more likely to execute an open-market purchase in 8-K gaps than during other periods. A natural question, of course, is whether these open-market purchases in advance of the disclosure of customer or supplier agreements are, on average, profitable trades. In unreported analysis, using the same methodology described in Part 3, we find that these trades yield an average abnormal return of 104 basis points.

This finding suggests that executives are more likely to pursue unusual open-market purchases in their own company's stock when the firm is about to disclose significant new business agreements than during other periods. Taken together, the results presented in this Part provide evidence that insiders can—and do—earn significant abnormal profits by trading during 8-K gaps that precede the disclosure of new customer or supplier agreements.

5. POLICY CONSIDERATIONS AND CONCLUSION

Our evidence shows that public-company insiders trade during the 8-K gap—and earn economically and statistically meaningful profits when doing so. Before concluding, we briefly consider three implications of these findings for policymakers concerned about trading by corporate insiders.[49]

First, as noted in Part 2, any regulatory design choice regarding the SEC's rules can be expected to influence insiders' behavior. We have shown that, in light of the choice that the SEC has made—to permit firms to wait four trading days before disclosing material events to

on the 8-K variable of .00579 (at greater than 99% statistical significance). That Model also reports a constant term of .0280. Therefore, Model 4 estimates that insiders are 20.6% (.00579 divided by .0280) more likely to engage in open-market purchases in an 8-K gap preceding the disclosure of a new customer or supplier agreement than during the "control" periods described in the text. As noted in the text preceding Table 10, the other models we present differ only in terms of the fixed effects used to address unobserved heterogeneity. For example, Model (3) uses daily fixed effects to address heterogeneity over time—for instance, the possibility that our results are driven by trading during a particular time period. As noted in Table 10, our results are consistent across those specifications.

[49] We note that Congress is now considering several potentially important changes to insider-trading law. (Ackerman, 2015.)

investors—insiders trade extensively between the time these events occur and when they are disclosed. It may be that the Commission, in balancing the relationship between the design of its disclosure rules and insider-trading activity, has concluded that the benefits of the four-day rule outweigh the costs related to the trading activity documented here. For three reasons, however, we are not confident that current law reflects such an analysis. First, as we have pointed out, following the Enron and WorldCom scandals—which, many asserted, included significant trading by insiders in advance of the collapse of both firms—Congress directed the Commission to require disclosure of significant corporate events "urgent[ly]." Second, the SEC invests considerable public resources in the enforcement of the insider-trading laws; it is counterintuitive (though possible) to suppose that it does so while designing its disclosure rules in a fashion that invites trading by insiders. Finally, the SEC rulemaking in 2004 that created the four-day 8-K gap—rather than the shorter two-day gap the agency had initially proposed—did not examine, or even acknowledge, the trading activity identified here.

Second, many large public companies voluntarily adopt what are known as "blackout periods" during the pendency of critical corporate announcements, most commonly the quarterly announcement of the company's earnings. Although blackout-period policies vary considerably across firms, most emphasize earnings announcements, permitting insiders to trade when other corporate events—such as those studied here—are known to insiders but not the public. (Bettis et. al, 1999.) Our study provides evidence that insiders do, in fact, trade during this period. The results suggest that firms concerned about the litigation and other costs associated with trading by insiders prior to the announcement of key corporate events should consider expanding these policies to apply to a broader group of events, including those that the firm will disclose in a subsequent Form 8-K.

Finally, our findings provide a framework for lawmakers considering changes to the mandatory-disclosure rules that have long dominated the securities-law landscape. Policymakers might draw two preliminary lessons from our evidence. First, our evidence that insiders trade profitably during the 8-K gap suggests that lawmakers should be mindful of the insider-trading implications of design choices associated with mandatory disclosure rules. Second, our findings—and particularly those documenting significant heterogeneity in trading by insiders based upon the content of the information that will be disclosed to the public—suggest that a single disclosure rule governing all information types may be inadvisable. Instead, policymakers should consider whether the nature of the underlying information itself should shape the disclosure rule that governs whether and when that information will be revealed to the market.

Table 1. Summary Statistics: Distribution of Firms and 8-K Filings by Year. This table describes the number of firms in our sample in each of the eleven years of the period we study. The table also describes the average number of Form 8-K filings on a per-firm basis in each year.

Year	# of Firms	# of 8-Ks per Firm
2004	3,304	6.1429
2005	3,277	5.249
2006	3,350	5.1388
2007	3,452	4.2975
2008	3,372	4.1011
2009	3,294	4.0592
2010	3,255	3.9226
2011	3,372	3.9585
2012	3,479	3.975
2013	3,574	3.9253
2014	3,702	3.6718

Table 2. Summary Statistics: Number of 8-Ks by Gap Length and Market Capitalization Decile. This table presents the number of Form 8-K filings by market capitalization decile and gap length.

Market Cap Decile	Gap Length in Trading Days					
	0	1	2	3	4	5
10%	5951	2774	1851	1860	3059	335
20%	7087	2525	1702	1769	2566	215
30%	7375	2676	1550	1571	2475	161
40%	7668	2718	1563	1516	2238	123
50%	7343	2898	1641	1647	2225	126
60%	7452	2906	1643	1541	2128	120
70%	7541	2843	1540	1557	2209	118
80%	7399	2983	1504	1557	2342	105
90%	7707	2906	1499	1424	2143	111
100%	8794	2657	1531	1219	1503	99
Total	74,317	27,886	16,024	15,661	22,888	1,513

Table 3. Summary Statistics: Trading Activity in the 8-K Gap over Time. This table presents the total number of trades in the 8-K trading gap in our dataset by year, as well as the average number of trades per 8-K trading gap in each year—that is, the total number of trades in the gap divided by the number of 8-Ks with gaps in each year.

Year	Trades in 8-K Trading Gap	Average Trades per 8-K Trading Gap
2004	1,960	5.63
2005	4,221	6.63
2006	5,298	7.91
2007	7,457	10.51
2008	4,768	7.12
2009	3,069	5.47
2010	2,788	6.17
2011	3,193	5.39
2012	3,246	4.64
2013	3,436	5.66
2014	3,384	4.67

Table 4. Form 8-K Categories. The following table lists the fourteen categories into which we classified each of the Form 8-K filings in our sample.

Category Name	Definition
Changes in Corporate Documents	Bylaws, charters, and code of ethics documents.
Capital Structure	Share repurchase authorization or actual share repurchases; issuance of equity, preferred equity, and/or debt; dividend or special dividends for both equity and preferred equities; new loans or revolving credit agreements, or refinancing loans or credit revolvers; payment of interest expense on debt; buying back debt.
Mergers and Acquisitions	Acquisitions of other companies or assets; spin-offs, asset sales, etc.
Corporate Restructuring	Downsizing of certain groups, change of business segments, re-alignment of segment and/or corporate cost structure.
Key Customer and Supplier Agreements	Occurs when material customer or supplier agreements are announced, or changes/amendments made to these types of agreements.
Product or Production Updates	Occurs when material information is revealed on a product or production.
Stock Listing Compliance Violations	NASDAQ or NYSE may inform a company that it is out of compliance with certain rules or regulations, which threaten company's listing status.
Changes in Management and/or Board of Directors	Includes promotions, resignations, new hires, and deaths of management and directors.
Executive and Director Pay	Includes salary increases, bonus awards, shares vested, director pay adjustments, establishing performance targets for bonuses and awarding bonuses, approval of incentive pay, and indemnification agreements for managers and directors.
Stock sales or purchases by insiders	Sales of company equity by managers and directors.
Voting Results from Annual Meetings	Standard voting results for annual meetings: will normally include election of directors, ratification of auditor, approving compensation of management team.
Change in Accountant	Will usually include simultaneous dismissal of former accountant and hiring of new accountant.
Announcement and Resolution of Legal Issues	Includes subpoenas, jury trials, class action lawsuits, and significant legal settlements.
Other	If 8-K event does not fit in one of above categories.

Table 5. Distribution of Form 8-K Filings with Trades in the 8-K Trading Gap by Category. This table presents the frequency of the 15,419 Form 8-K filings with trades in the 8-K Trading Gap by the manually coded category for that Form 8-K filing.

Changes in Corporate Documents	Changes in Capital Structure	Mergers and Acquisitions	Corporate Restructuring	Key Customer and Supplier Agreements	Product or Production Updates	Stock Listing Compliance Violations
1,225	3,739	1,324	188	730	196	215
Changes in Management or Board of Directors	Executive and Director Pay	Stock Sales or Purchases by Insiders	Voting Results from Annual Meetings	Change in Accountant	Announcement and Resolution of Legal Issues	Other
704	3,477	87	3,477	270	435	876

Table 6. Profitability of Trading by Insiders During the 8-K Trading Gap. In this Table, we provide the results of three ordinary least squares models in which the dependent variable is signed ar_{trade} for the trades by insiders in our sample—that is, insiders' abnormal returns from transactions in the 8-K trading gap. Model (1) considers whether, on average, signed trading profits from trades in the 8-K gap are significantly different from zero. Model (2) examines the relationship between the length of the 8-K gap, in days. Model (3) considers the relationship between a dummy variable for cases wherhe the 8-K gap is longer than two trading days. The latter two models are described by the following linear specifications:

$$\text{signed } ar_{trade} = \alpha + \beta x_{gap} + \epsilon$$

$$\text{signed } ar_{trade} = \alpha + \beta d_{gap>2\ days} + \epsilon$$

Where α is a constant term that estimates the average signed ar_{trade} in the absence of a gap in the first model and the average signed ar_{trade} for gap lengths of one or two days in the second model; β is the marginal increase in signed ar_{trade} per day of the 8-K trading gap in the first model and the average signed ar_{trade} for gaps over two trading days, and ϵ is a random error term. T-statistics are provided below correlation coefficients in parentheses. We use the following indicators of statistical significance: **** indicates $p < 0.001$, ** indicates $p < 0.01$, and * indicates $p < 0.05$.

	(1)	(2)	(3)
	signed ar_{trade}	signed ar_{trade}	signed ar_{trade}
Gap (Per Day)		0.00133***	
		(6.34)	
Gap Over 2 Days			0.00339***
			(6.67)
Constant	0.00423***	0.000346	0.00202***
	(16.88)	(0.55)	(5.12)
N	41,192	41,192	41,192

Table 7. Profitability of Trading by Insiders During the 8-K Gap by Transaction Type. This table presents the average signed ar_{trade} by each transaction code in the Form 4 data. The Table also presents a statistical test of whether the average signed ar_{trade} for each transaction code is significantly different from zero. T-statistics are provided below correlation coefficients in parentheses. We use the following indicators of statistical significance: **** indicates $p < 0.001$, ** indicates $p < 0.01$, and * indicates $p < 0.05$.

	Grants of Stock or Options	**Stock Option Conver-sions**	**Share Forfeiture Under Contract**	**Exercise Price Paid in Shares**	**Bona Fide Gifts**	**Option Exercises**	**Open-Market Purchases**	**Open-Market Sales**
Constant	0.00185***	0.00529	0.00692***	0.0024**	-0.00454**	0.0032***	0.0163***	0.00463***
	(3.49)	(1.69)	(4.83)	(2.78)	(-3.06)	(4.74)	(9.99)	(14.49)
N	9,488	525	508	3,646	768	5,394	2,730	17,888

Table 8. Profitability of Trades in the Gap by 8-K Information Type. This Table presents the average returns for insiders trading in the 8-K gap on the basis of the sign of each insider's transaction (signed ar_{trade}). That is: For purposes of this Table, insiders are treated as having obtained a long position or short position on the date of their trade based on the transaction code listed on Form 4. The Table also includes a statistical test of whether the average ar_{trade} for each category of information is significantly different from zero. T-statistics are provided in parentheses for each category. We use the following indicators of statistical significance: **** indicates $p < 0.001$, ** indicates $p < 0.01$, and * indicates $p < 0.05$.

As the Table shows, insiders enjoy economically and statistically significant trading gains when their trades precede 8-Ks disclosing information in seven of the eleven categories we study, including information about: changes in corporate documents, changes in capital structure, mergers and acquisitions, key customer and supplier agreements, stock listing compliance violations, and changes in the firm's accountant. We document that insiders experience economically and statistically significant *losses* when the 8-K provides information on the announcement or resolution of legal issues.

	Changes in Corporate Documents	Changes in Capital Structure	Mergers and Acquisitions	Corporate Restructuring	Key Customer and Supplier Agreements	Product or Production Updates
signed ar_{trade}	0.00320***	0.00616***	0.00467***	-0.00419	0.00505***	-0.00173
	(5.02)	(14.65)	(9.24)	(-1.67)	(6.05)	(-0.80)
N	6,791	15,678	6,211	539	4,018	780

	Stock Listing Compliance Violations	Changes in Management or Board of Directors	Change in Accountant	Announcement and Resolution of Legal Issues	Other
signed ar_{trade}	0.0111***	-0.000541	0.0118***	-0.00464***	0.00108
	(3.97)	(-0.40)	(4.59)	(-4.21)	(1.64)
N	546	1,266	1,009	1,704	4,015

Table 9. Abnormal Returns in the 8-K Trading Gap for Customer and Supplier Agreements. In this Table, we provide the results of three ordinary least squares models in which the dependent variable is ar_{gap}. Model (1) considers whether ar_{gap} is significantly different from zero among those filings with non-zero 8-K trading gaps. Then, in Models (2) and (3), we regress signed ar_{gap} on the length of the gap, or when a gap of over two trading days is present, in the following models:

$$ar_{gap} = \alpha + \beta x_{gap} + \epsilon$$
$$ar_{gap} = \alpha + \beta d_{gap>2\ days} + \epsilon$$

Where α is a constant term that estimates the average ar_{gap} ; β is the marginal increase in ar_{gap} per day of the 8-K trading gap in Model (2) and the average ar_{gap} for gaps over two trading days in Model (3); and ϵ is a random error term. Note that our sample size of 3,652 is slightly smaller than the sample of 4,692 8-Ks disclosing agreements of this type because we exclude 8-Ks with no trading gap from this analysis. of T-statistics are provided below correlation coefficients in parentheses. We use the following indicators of statistical significance: **** indicates $p < 0.001$, ** indicates $p < 0.01$, and * indicates $p < 0.05$.

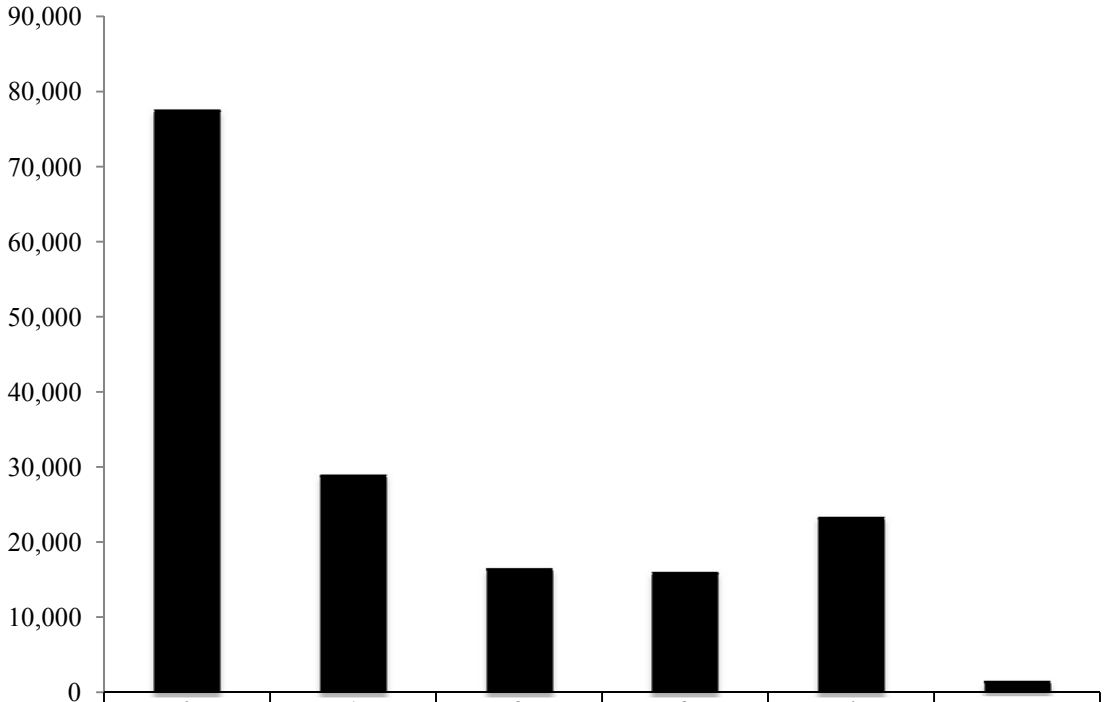
	(1)	(2)	(3)
	ar_{gap}	ar_{gap}	ar_{gap}
Gap (Per Day)		0.00199**	
		(2.93)	
Gap Over 2 Days			0.00455**
			(2.98)
Constant	0.00354***	-0.00184	0.000905
	(4.26)	(-1.36)	(1.19)
N	3,652	3,652	3,652

Table 10. Probability of Open Market Purchases During the 8-K Trading Gaps Immediately Prior to Disclosure of Customer or Supplier Agreements. This table presents the results of an ordinary least squares regression in which the dependent variable is a dummy for whether an insider executed an open-market purchase on a particular trading date. The variable of interest is a dummy for whether that trading date falls in an 8-K gap. The details of the selection of trading dates, as well as the specifications of the models below, are described in the text.

The models below differ only regarding the fixed effects used to absorb time-invariant heterogeneity. Model (1) includes no fixed effects; Model (2) includes firm fixed effects; Model (3) includes daily fixed effects; Model (4) includes individual fixed effects; and Model (5) includes fixed effects for each individual pair of 8-K trading gaps and matched trading dates (to address, among other things, the possibility that other results are driven by outlier pairs). T-statistics are provided below correlation coefficients in parentheses. We use the following indicators of statistical significance: **** indicates $p < 0.001$, ** indicates $p < 0.01$, and * indicates $p < 0.05$.

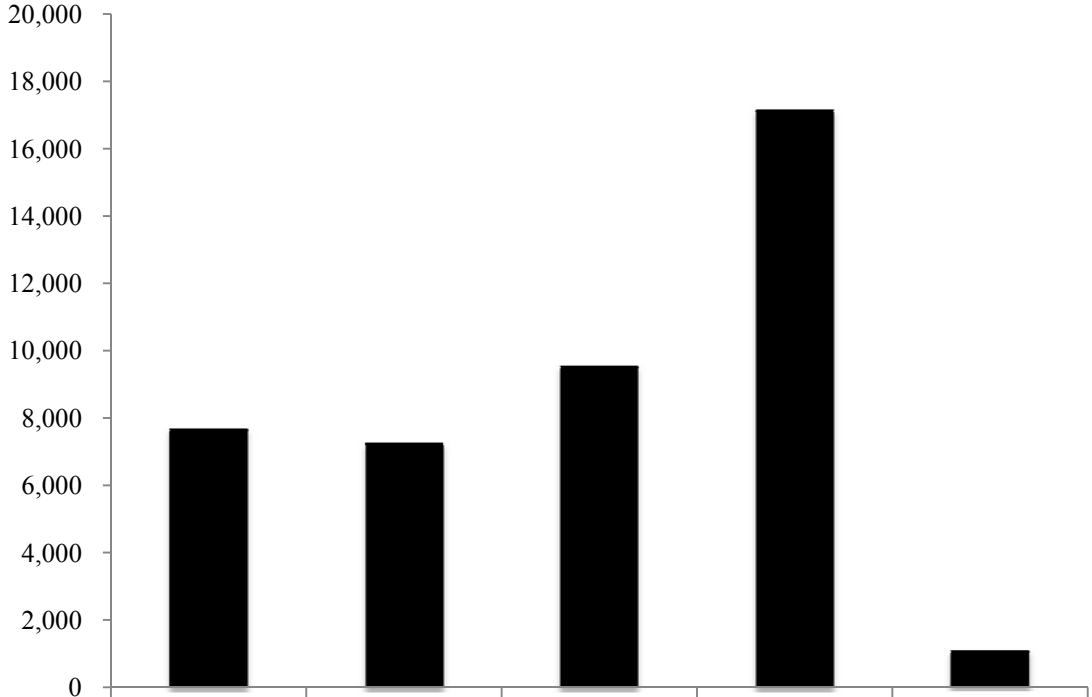
	(1)	(2)	(3)	(4)	(5)
	$p(\text{purchase})$	$p(\text{purchase})$	$p(\text{purchase})$	$p(\text{purchase})$	$p(\text{purchase})$
8-K Filing	0.0106***	0.00847***	0.00896**	0.00579*	0.00452*
	(3.92)	(3.73)	(2.62)	(2.54)	(2.15)
Constant	0.0256***	0.0267***	0.0264***	0.0280***	0.0287***
	(14.68)	(16.42)	(13.63)	(17.23)	(19.49)
N	16,368	16,368	16,368	16,368	16,368
Fixed Effects	None	Firm	Daily	Individual	8-K/ Control Pair

Figure 1. Summary Statistics: The Length of the 8-K Trading Gap. The figure below presents a histogram of the 8-K trading gap, defined as the number of days between the date the significant corporate event occurs and the date that the event is disclosed on Form 8-K. The Figure below excludes "negative" gaps (which occur when the disclosure occurs prior to the event) and gaps that exceed five days (which may reflect the kinds of exceptional circumstances that lead the firm to miss the SEC's filing deadline).



	0	1	2	3	4	5
8-Ks	77,645	29,048	16,521	16,106	23,443	1552

Figure 2. Summary Statistics: Distribution of Trading by Insiders by 8-K Gap Length. The figure below presents the frequency of trades in our dataset based on the length of the 8-K trading gap in which the trades occurred. Each bar describes the number of trades that occurred in 8-K gaps of a particular length. That is: just less than 7,000 trades occur during one-day gaps, i.e., cases in which there is one day between the occurrence of the event and the filing of an 8-K disclosing that event. By contrast, over 16,000 trades occur during four-day gaps, i.e., cases in which there are four days between the occurrence of the event and the filing of an 8-K disclosing that event.



	1	2	3	4	5
Trades	7699	7275	9565	17164	1117

Figure 3. Announcement of New Customer or Supplier Agreements: Example. The Form 8-K below provides a typical example of an 8-K announcing a new customer or supplier agreement of the type included in the sample used in Part 4. Note that the company entered into the agreement on July 13, 2010, but did not file this 8-K until July 19, 2010; excluding the intervening weekend, this 8-K features a trading gap of three days.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

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FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of report (Date of earliest event reported): **July 13, 2010**

Emergent BioSolutions Inc.
(Exact Name of Registrant as Specified in Charter)

Item1.01. Entry into a Material Definitive Agreement.

On July 13, 2010, Emergent BioDefense Operations Lansing Inc., a wholly-owned subsidiary of Emergent BioSolutions Inc. ("Registrant"), entered into an agreement with the Office of the Biomedical Advanced Research and Development Authority ("BARDA") of the U.S. Department of Health and Human Services to develop and obtain regulatory approval for large-scale manufacturing of BioThrax® (Anthrax Vaccine Adsorbed) in the Registrant's vaccine manufacturing facility in Lansing, Michigan.

The agreement is a cost-plus-fixed-fee development contract valued at up to approximately $107 million, including a two-year base period of performance of approximately $54.6 million, and three option years valued at a total of approximately $52.3 million. The two-year base period of performance is from July 19, 2010 to July 18, 2012. Each additional option period, if exercised, would extend the period of performance by an additional year, and the entire contract period of performance would end on July 18, 2015.

Activities to be conducted during the two-year base period include completion of characterization and immunogenicity studies, successful consistency lot validation, and a pre-IND meeting. Optional activities to be conducted following BARDA's exercise of each option year would include, among other things, stability demonstrations, clinical studies and biologics licensing application activities.

A copy of the Registrant's press release announcing the award is attached as Exhibit 99.1.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: July 19, 2010 EMERGENT BIOSOLUTIONS INC.
By:_____

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