

The Role of Newswires in Screening and Disseminating Value-Relevant Information in Periodic SEC Reports

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ABSTRACT: We examine the role of newswires in identifying and conveying market-moving information in periodic SEC reports to capital market participants. Using data on Dow Jones Newswires, we find that newswires are more likely to send alerts on firms that do not release preliminary earnings, have credit ratings, are included in major market indices, have litigation exposure, or report losses. Reflective of the market's focus on certain key events, firms with a nonstandard audit opinion, in the process of delisting, reporting unusual accounting items, or raising equity capital also receive alerts. Moreover, not only do we find significant price and volume reactions to the alerts at the daily level, but also we document immediate intra-day market activity triggered by the alerts, whereas we detect no similar reaction for SEC filings that trigger the alerts. Additional analysis suggests that the intra-day reaction is not driven by noise trading.

Keywords: *information intermediaries; newswires; periodic SEC reports; information dissemination; market microstructure.*

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I. INTRODUCTION

This study examines the role of newswires as an information intermediary in capital markets. We focus on Dow Jones Corporate Filing Alert (hereafter, DJCFA), a service offered by Dow Jones Newswires that screens for and disseminates important market-moving information in SEC filings to professional investors and other market participants in a timely manner.¹ What firm and informational characteristics in a periodic report would motivate a newswire service to issue an alert? Given that the SEC filings are already publicly available on EDGAR, is the information disseminated by the newswire service incrementally value-relevant to investors? We address these two questions in this study.

Despite extensive research on the role of financial analysts in the capital market, there is only limited evidence on the economic function of *pure* information intermediaries such as newswires.² We choose a context in which information intermediaries must be highly skilled to identify market-moving information. As earnings press releases become increasingly preemptive (Francis et al. 2002; D'Souza et al. 2010a), swift identification of any value-relevant information in periodic reports requires astute information screening by intermediaries. In addition, despite the sophistication of U.S. capital markets, academic research suggests that the confluence of demand- and supply-side effects restricts the market's processing ability when it is inundated with information or when facing complex information (Hirshleifer et al. 2008; You and Zhang 2009), which is commonly the case in periodic reports (Griffin 2003; Li and Ramesh 2009a).

We posit that even large investors generally do not satisfy the cost-benefit calculus for combing through periodic reports of every stock they own or in their investment possibility set to identify market-moving information. The broad market demand for corporate accounting information, coupled with the prevalence of high fixed costs and close-to-zero marginal costs in the market for information goods (Romer 1990), provides the impetus for information intermediaries such as DJCFA to enter the marketplace. To quote Dow Jones:

From initial public offerings to Chapter 7 liquidations, Dow Jones Corporate Filings Alert offers readers invaluable information and analysis beyond news available in press releases. As the volume of company filings to the SEC keeps growing, we can save our readers time and give them the edge they need in an information-overloaded environment. ("Dow Jones Newswires Re-Launches Corporate Filings Alert; Division Will Also Open First Bureau in Wilmington, Delaware," April 2, 2001, Business Wire)

Our analysis is based on a comprehensive sample of 26,615 alerts pertaining to 20,797 periodic SEC reports issued by Dow Jones over the post-EDGAR period 1997–2004, representing 9 percent of all periodic reports in our sample. While roughly 82 percent of the filings with alerts

¹ The alerts we examine are mostly recitation of specific facts already disclosed by companies in their periodic SEC reports and, therefore, are unlikely to reflect the *quid pro quo* relation found between reporters and their corporate sources (Dyck and Zingales 2003). We understand that Dow Jones News Services has strict conflict-of-interest policies to ensure independence in coverage of companies. Also, given the factual nature of the Dow Jones alerts, they do not suffer from the spin effect presented in the typical news stories (Dyck and Zingales 2003; In et al. 2007).

² We view a pure information intermediary as "an independent, profit-maximizing information processing system performing its activities (information acquisition, processing, and distribution) on behalf of other agents' information needs" (Rose 1999, 79). Academic research on newswires as an information intermediary include Dawkins and Bamber (1998) who find that the adverse market reaction to corporate bankruptcy filings is mostly due to information in bankruptcy filings disseminated through Broad Tape, and Dopuch et al. (1986) who find that the stock market reacts adversely only to audit qualifications discussed by media. Also see Dyck and Zingales (2003), Bhattacharya et al. (2009), Fang and Peress (2009), Solomon (2009), Soltes (2009), and Bushee et al. (2010) on the broader role of business press in shaping the capital market information environment. See D'Souza et al. (2010b) on the role of capital market data aggregators.

receive only one alert, another 12 percent receive two, with the remainder receiving three or more. The number of news categories in an alert ranges from one to seven, with a mean value of two.³ While Dow Jones takes 2.3 weekdays on average to release an alert after the corresponding filing, 68 percent of the initial alerts are released within 24 hours.

Our first analysis examines the demand-and-supply considerations in the information market that guide the alert decision. Specifically, we posit that the market demand for information arises from investor awareness and the information environment. Consistent with the investor awareness argument (Wurgler and Zhuravskaya 2002; Chen et al. 2004; Chen et al. 2006; Docking and Downen 2006; Elliott et al. 2006; Mase 2006; D'Souza et al. 2010b), firms included in S&P major market indices are more likely to receive a Dow Jones alert. Reflective of equity and credit market demands, analyst following and coverage by credit-rating agencies are positively associated with the incidence of receiving alerts. Investors in loss firms are alerted more often, given that traditional profitability measures alone are insufficient for valuation purposes (Hayn 1995; Collins et al. 1997; Chen et al. 2002; Ajinkya et al. 2005). Firms skipping preliminary earnings announcements also experience a higher incidence of alerts, given that their periodic reports are more apt to include information hitherto not disclosed to the marketplace. Consistent with the value of identifying market-moving information, we find more alerts on firms from industries with higher litigation risk.

Among the key firm-specific events, firms raising equity capital, approaching delisting, experiencing large price reactions at preliminary earnings announcements, reporting extraordinary or special items, or receiving a nonstandard audit opinion are more likely to prompt an alert by Dow Jones. In terms of economic significance, nonstandard audit reports increase the probability of an alert by 5.1 percentage points, followed by firms without a preliminary earnings announcement (3.7 percentage points), periodic reports of firms with a credit rating (3.0 percentage points), firms subject to delisting (1.9 percentage points), firms listed in major market indices (1.2 percentage points), and firms facing a higher litigation risk (1.1 percentage points). In terms of supply-side effects, we find that Dow Jones' propensity to issue an alert drops when the market is inundated with a large number of periodic reports. We also provide evidence that Dow Jones switches resources away from periodic reports on days when there is increased incidence of earnings releases in the marketplace. Conditional on issuing an alert, we find that the time lag between issuing the initial alert and the filing of the periodic report is roughly 40 (22) percent shorter in firm-quarters without a preliminary earnings announcement (for firms in industries with higher litigation risk).

Our second set of analyses focuses on the information content of filing alerts. After controlling for earnings announcements and filing of periodic reports, we find significant price and volume reactions on the days when Dow Jones issues an alert. However, the reactions are limited to the initial alert regardless of whether the initial alert is followed by another alert. Using the *Alert Day* observations, we also find that, while legal- and bankruptcy-related alerts consistently generate higher price and volume reactions compared to the other news categories, alerts with missing subject codes generate significantly lower market reactions, consistent with constraints on immediate trading either based on algorithms or that require human intervention.

One obvious concern with using daily data is the possible endogeneity that market participants are more focused on filings that trigger an alert for reasons other than the information contained in the alerts themselves. We address this endogeneity by comparing the price and volume reactions over a narrow intra-day period surrounding the release of filing alerts with those

³ Dow Jones categorizes the alerts based on more than 200 subject codes, which we collapse into ten broad news categories. See Section III for details.

of a pseudo-event matched on the weekday and release time of the alert. Compared to the 60-minute pre-event period, the absolute stock returns (trading volume) for each of the first five minutes following the alert are between 27 and 52 percent (18 and 69 percent) higher, with no similar reactions following pseudo-events. In addition, our formal statistical tests show that the price and volume reactions to alerts during the first 16 minutes (including the event minute) are significantly higher than those during the comparable pre- and post-event windows as well as those during the corresponding pseudo-event window. However, when we base our analysis on the actual filing time of periodic reports, we find no significant price or volume reactions. Our results for the alerts and filings hold when we split the sample observations into 10-K filings versus 10-Qs. More importantly, despite the fact that there are abnormally low price and volume reactions generally surrounding the release of 10-Q reports (Li and Ramesh 2009a), 10-Q-based alerts generate immediate price and volume reactions comparable to those generated by 10-K-based alerts. In addition, we find significant volume reactions from both large and small trades to alerts, with small trades exhibiting a more pronounced volume activity. Finally, we conduct a battery of tests to show that the intra-day price/volume reactions to alerts are not merely due to noise trading or market over-reaction.

Overall, our study makes several contributions to the extant literature. First, capital allocation and social welfare are clearly dependent on the efficiency of financial markets (Jennings and Barry 1983). Our study provides large-sample evidence regarding the key role played by newswires in reducing information overload faced by market participants and improving price efficiency. Second, while the traditional asset-pricing literature assumes instantaneous information diffusion and complete market reaction to publicly available information (Merton 1987), the behavioral finance literature allows for bounded rationality and slow diffusion of information (e.g., Hong and Stein 1999). However, there is no substantial body of literature that examines the cost-benefit trade-offs market participants face in shaping the capital market information infrastructure. Our study helps to fill this gap by showing that newswire services such as DJCFA act as delegated information intermediaries in the capital market. Finally, our study is an early attempt in using market micro-structure data to study the role of information intermediaries. This approach has broader application for parsing the pricing and trading implications in numerous contexts with confounding events (Brown et al. 1992; Ecker et al. 2006; Li and Ramesh 2009a).

Section II discusses the role of newswires in shaping the capital market information infrastructure and describes the Dow Jones alert service. Section III describes our sample screening procedures and presents descriptive evidence on the filing alerts. The analyses of factors that influence Dow Jones to issue an alert and the market reaction to the alerts are detailed in Sections IV and V, respectively. The final section provides a conclusion.

II. NEWSWIRES AND THE MARKET FOR INFORMATION IN PERIODIC REPORTS

In this section, we first postulate the role of newswires generally in the market for information in periodic SEC reports, followed by a discussion of the Dow Jones Corporate Filing Alert service, the specific newswire service that we study.

Role of Newswires in the Market for Information in Periodic SEC Reports

Consistent with earnings releases increasingly preempting periodic SEC reports (Francis et al. 2002; D'Souza et al. 2010a), Li and Ramesh (2009a) report no significant price or volume reactions surrounding the filing of quarterly periodic reports and find evidence of market reaction to

10-K reports only under limited circumstances.⁴ When periodic reports contain key value-relevant information, in some circumstances managers themselves have incentives to highlight it to mitigate litigation risk (Li and Ramesh 2009a; Li and Ramesh 2009b). However, when such disclosure incentives are absent, the speed with which the market assimilates new information from periodic SEC reports must be determined by the demand and supply forces at work in the market for corporate accounting information. Recent research suggests that when corporate information releases cluster in calendar time (Hirshleifer et al. 2008) or contain extensive textual information as in periodic SEC reports (You and Zhang 2009), the stock market does not process the information in a timely fashion.

However, while most investors acting alone would find it formidable to perform detailed quantitative and textual analysis on periodic reports of all stocks in their investment set, the nature of market for information goods suggests that information intermediaries such as newswires would enter the marketplace acting as information-gathering agents and serve a multitude of principals. Romer (1990) suggests that, although the market for information goods is characterized by large fixed costs, it faces trivial reproduction and dissemination costs, thereby virtually eliminating marginal cost. Given the broad market demand for corporate accounting information, sophisticated information intermediaries can obtain economies of scale by spreading the large fixed cost of information retrieval and processing among many customers (Veldkamp 2006). We argue that these market characteristics provide the impetus for newswire services with extensive expertise in the financial information market to act as delegated information intermediaries to large groups of market participants for collecting key information from periodic reports.

Description of Dow Jones Corporate Filing Alert Service

Newswire services facilitate both the corporate supply of accounting information and the subsequent retrieval by various market participants. While Business Wire and PR Newswire act as agents of public corporations in the information-dissemination process, the major wire services such as Dow Jones, Reuters, and Bloomberg cater to user needs through sophisticated real-time delivery of business news and news alerts. We choose to examine the DJCFA of Dow Jones, Inc. for three reasons. First, Dow Jones is a leading provider of business content and information services to the capital markets through newswires and other channels. Second, DJCFA specifically targets SEC filings, the focus of this study. Third, the alerts issued by this service are publicly available through Factiva. Below we provide a brief description of the history and the information services provided by DJCFA.⁵

In 1989, Dow Jones acquired Federal Filings Inc., a private company that acted as an information intermediary by culling through the voluminous SEC paper filings to extract and disseminate key information to various capital market participants including Wall Street. Dow Jones initially provided the alerts under Federal Filings Newswires, which was relaunched as DJCFA in 2001. The purpose of the alert service is to screen for key information disclosed in SEC filings that were not preceded by a press release, identify various value-relevant information buried in SEC filings, and to offer market-moving alerts. Given that selective disclosure is prohibited under Reg FD, DJCFA monitors SEC filings to quickly draw professional investors' attention to key corporate disclosures in the post-Reg FD period.

⁴ Beyer et al. (2009) find that market reactions to voluntary disclosures are in general greater than that for mandatory disclosures, which suggests that periodic reports may play more of a confirmatory role, adding credibility to prior voluntary disclosures such as preliminary earnings announcements or management forecasts.

⁵ This sub-section is based on our discussions with Rick Stine of Dow Jones, various news releases relating to DJCFA obtained through Factiva, online search, and other publicly available news sources. We limit our discussions to SEC filings although DJCFA also reviewed bankruptcy court filings and information sources.

During the period we study, DJCFA was staffed by editors and reporters with industry-specific expertise to search for market-moving items of interest to professional investors and Wall Street. Specifically, the DJCFA staff determines data-collection strategies and dissemination speed based on perceived market following and news value.⁶

The DJCFA service targets traders on the floor of major exchanges, at the trading desks of various brokerage houses, mutual funds, and hedge funds, although individual investors can access a large portion of real-time news from Dow Jones Newswires through *The Wall Street Journal Online* (<http://www.wsj.com>). Along with DJCFA, Dow Jones news is distributed to over 100 vendors. Market participants who need real-time information obtain Dow Jones news through distribution platforms hosted by Thomson Reuters, Bloomberg, FactSet, etc. Those interested in archival research rely on services such as Factiva.⁷

III. SAMPLE AND DESCRIPTIVE EVIDENCE ON DOW JONES CORPORATE FILING ALERTS

In this section, we first describe our sample construction, and then provide descriptive statistics on Dow Jones Corporate Filing alerts.

Sample Screening Procedure and Distribution

Our sample screening procedure is detailed in Table 1, Panel A. We ran a keyword search in Factiva Academic and obtained 36,984 entries for the period of 1997–2004.⁸ Of these, 3,220 are advertisements for the DJCFA service, 1,996 are news articles related to a group of firms rather than an individual firm's periodic report, and 438 are rumors. Given that we focus on the alerts that follow 10-K/10-Q filings, we exclude alerts pertaining to 8-Ks, notices of non-timely filing, amended filings, and periodic filings of foreign companies. We further drop alerts for small business companies because they face different mandatory disclosure standards. Finally, we delete a small set of observations with alerts unrelated to SEC filings (230), alerts related to SEC filings other than 10-Ks/10-Qs (67), or alerts without filing time stamps (54). The final sample consists of 26,615 alerts. Panel B indicates that these alerts are related to 20,797 periodic SEC filings (hereafter, alerted filings). While more than 80 percent of these filings generate only a single alert, a few filings generate as many as five or more alerts.

Untabulated results show that, while the proportion of 10-K/10-Q filings with an alert monotonically declined from 1997 to 2000, it rebounded beginning 2001, reflecting Dow Jones' increased emphasis on the alert service after Reg FD.⁹ When examined by industry, the alert sample is representative of the overall Compustat population, except that there are disproportionately more (less) alerted filings in the retail (financial services) industry.

⁶ While the Dow Jones alert service that we study is largely a recitation of information in periodic SEC reports, the service does require its reporters' judgment to choose what specific information to include in the alert. However, unlike capital market muckrakers (Foster 1979), business press (Miller 2006), or Dow Jones' other alert/newswire services, DJCFA includes neither critical analyses nor reporters' assessment of the market implications of the information in the alert.

⁷ Beginning July 2, 2009, Dow Jones has restructured the DJCFA service for various financial reasons given the current market conditions. The restructured service will utilize limited DJCFA reporters along with the entire corporate reporting staff at the New York desk to look for market-moving alerts to be sent either as part of DJCFA or broadly through Dow Jones Newswires.

⁸ Based on discussions with Factiva, we used the free text string "10-K" or "10-Q" or "10K" or "10Q" or "10KSB" or "10QSB" or "10-KSB" or "10-QSB" with "Dow Jones Corporate Filing Alerts" as the source. We searched the period beginning in 1997, the first full calendar year after EDGAR became effective, and ending in 2004, the last year for which we are able to consistently identify alerts related to periodic reports through *Factiva Academic*.

⁹ See "Dow Jones Newswires Re-Launches Corporate Filings Alert; Division Will Also Open First Bureau in Wilmington, Delaware," April 2, 2001, Business Wire.

TABLE 1

Sample of Dow Jones Corporate Filing Alerts

Panel A: Sample Screening of Dow Jones Corporate Filing Alerts

Dow Jones Corporate Periodic Filings Alerts, 1997–2004	36,984
Less: advertisements	(3,220)
news related to a group of firms ^a	(1,996)
rumors ^b	(438)
Initial Sample of Alerts	31,330
Less: alerts after 8-K filings ^c	(514)
alerts after filing of notice of delay under Rule 12b-25 ^d	(1,881)
alerts after amended filings ^e	(233)
alerts for foreign firms who file only 20-F/6-Ks with the SEC	(613)
alerts from SB filings ^f	(1,123)
alerts related to non-filing news ^g	(230)
alerts related to non-periodic filings (S-4, 13D, DEF 14A, etc.)	(67)
alerts without filing time ^h	(54)
Final Sample of Alerts	26,615

Panel B: Frequency of Corporate Filing Alerts of Each Periodic SEC Filing

	Frequency	%	Total
1	17,051	81.99	17,051
2	2,529	12.16	5,058
3	750	3.61	2,250
4	269	1.29	1,076
5	126	0.61	630
Above 5	72	0.35	550
	20,797	100.00	26,615

^a We identify this type of news by searching the news title for keywords such as “corporate filing alerts: the morning’s top news,” “federal filings business news,” “CFA early summary,” “high yield information,” “daily market wrap-up,” etc.

^b Keywords to identify this type of news are “notice of rumor” or “daily rumor.”

^c Alerts are included in this group if (1) the source of a corporate filing alert indicates 8-K filings; or (2) the firm filed an “8-K” or “8-K/A” on or one day before the alert day, and no 10-Ks/10-Qs were filed within 20 weekdays prior to the alert day.

^d Alerts are included in this group if (1) the source of corporate filing alert is “NT 10-K” or “NT 10-Q”; (2) the news title contains keywords such as “delayed,” “not timely,” “extension to file,” “files NT,” etc.; or (3) the firm filed a form NT 10-K or NT 10-Q on or a day before the alert day, and no 10-Ks/10-Qs were filed within 20 weekdays prior to the alert day.

^e Alerts are included in this group if (1) the source of corporate filing alert indicates amended filings; (2) the news title contains keywords such as “files amended”; or (3) the firm filed a “10-K/A,” “10-K405/A,” or “10-Q/A” on or one day before the alert day, and no 10-Ks/10-Qs were filed within 20 weekdays prior to the date of alert.

^f Alerts are included in this group if (1) the source of corporate filing alert is “10KSB” or “10QSB”; or (2) the firm filed a form 10KSB or 10QSB form on or a day before the alert day.

^g These alerts are related to earnings announcements, bankruptcies, Moody’s downgrading, lawsuits, etc.

^h This group consists of 26 alerts with corresponding 10-K/10-Q filings available from EDGAR but not in the SEC filing time database and 28 alerts having no corresponding filings from either the EDGAR or the SEC filing time database.

News Content of Corporate Filing Alerts

To analyze news content, we group the more than 200 subject codes provided by Dow Jones Newswires into ten broad news categories (see note in Table 2). For the 26,013 alerts with

TABLE 2
Descriptive Statistics on Alerts by News Categories

Panel A: Frequency Distribution of the Number of News Categories in Alerts

Number of News Categories	Frequency	%	Total
1	10,875	41.81	10,875
2	8,880	34.14	17,760
3	4,313	16.58	12,939
4	1,517	5.83	6,068
5	355	1.36	1,775
6	60	0.23	360
7	13	0.05	91
Total	26,013	100.00	49,868

Panel B: Frequency Distribution of News Categories

Performance (<i>PER</i>)	23,785	47.7%
Credit Related (<i>CRE</i>)	8,422	16.9%
Equity Related (<i>EQU</i>)	4,711	9.4%
Business Structure Change (<i>BSC</i>)	2,993	6.0%
Corporate Legal Issue (<i>LGL</i>)	2,776	5.6%
Employment Related (<i>EMP</i>)	2,635	5.3%
Corporate Business (<i>BUS</i>)	920	1.8%
Forecast (<i>FOR</i>)	753	1.5%
Bankruptcy (<i>BKC</i>)	528	1.1%
Tax Related (<i>TAX</i>)	296	0.6%
Other (<i>OTH</i>)	2,049	4.1%
Total	49,868	100.0%

We group the more than 200 news subject codes provided by Dow Jones into ten broad news categories, the details of which are available from the authors. Of the 26,615 filing alerts in Table 1, we exclude 326 alerts with missing subject codes and 276 alerts whose subject codes are too broad to be meaningful (e.g., “Corporate/Industrial News,” “Commodity/Financial Market News”). Performance news (*PER*) includes information on sales, earnings, and dividends. Credit (*CRE*) (equity news (*EQU*)) provides information on debt (equity) issuances/changes. Business structure changes (*BSC*) capture major corporate events such as mergers and acquisitions, joint ventures, divestitures and spin-offs, while corporate business news (*BUS*) provides details on government and nongovernment contracts, new products/services, intellectual property, licensing agreements, research and development, and outsourcing. Issues such as management turnover, executive compensation, layoffs, or insider stock transactions are classified as employment-related news (*EMP*). In addition, we have news groups corresponding to management forecasts (*FOR*), bankruptcy (*BKC*), legal issues (*LGL*), and tax matters (*TAX*). Subject codes that cannot be easily classified into any of the above news categories are included in “Other” (*OTH*).

non-missing subject codes, we identify 49,868 news categories. Table 2, Panel A shows that the number of news categories assigned to an alert ranges from one to seven, and the majority of alerts have more than one news category. Panel B shows that around 50 percent of categories are performance related, which is not surprising given that the primary objective of Dow Jones Corporate Filing Alerts is to highlight market-moving information. The second and third largest groups are credit- and equity-related news, followed by alerts relating to business structure changes, legal issues, and employment matters. Forecasts, bankruptcy, and tax matters are the smallest groups, accounting in total for only three percent of all news categories.

Untabulated analysis indicates that 10-K alerts are more about credit and equity arrangements, employment-related issues, and bankruptcy than 10-Q alerts, possibly due to business events

related to these news categories occurring more frequently around the finalization of the annual report. In contrast, the higher incidence of performance-related news alerts based on 10-Q reports is consistent with Dow Jones grabbing the market's attention when it is likely to be less attentive (Barber and Odean 2008; Li and Ramesh 2009a). Another piece of untabulated descriptive evidence is that, while filings made within trading hours contain significantly more performance-related news, those made after trading hours contain more news in all other categories with several of the categories showing statistically significant differences. One conjecture is that firms try to avoid market attention to non-performance-related news by filing periodic reports after trading hours.

Timing of Dow Jones Corporate Filing Alerts

We obtain corporate filing alert release date/time from *Factiva Academic* and 10-K/10-Q filing date and time stamp from an EDGAR database. The alert release time stamp represents the time when an alert becomes available to the Dow Jones Corporate Filing Alert subscribers, and the 10-K/10-Q filing time stamp is when the periodic filing first appears in EDGAR.¹⁰ Figure 1 plots the frequency of SEC filings and the corresponding initial alerts in blocks of 30-minute intervals. While the number of filings steadily accumulates over most of the SEC working hours of 8:30 a.m. to 5:30 p.m.,¹¹ the distribution of alerts is relatively smoother and saddle-shaped, with two small peaks at 11:30 a.m. and 3:30 p.m. Untabulated analysis indicates that the first hump for alerts in Figure 1 is caused by Dow Jones' heightened collection efforts to clear the backlog of periodic SEC reports filed during the previous business day.

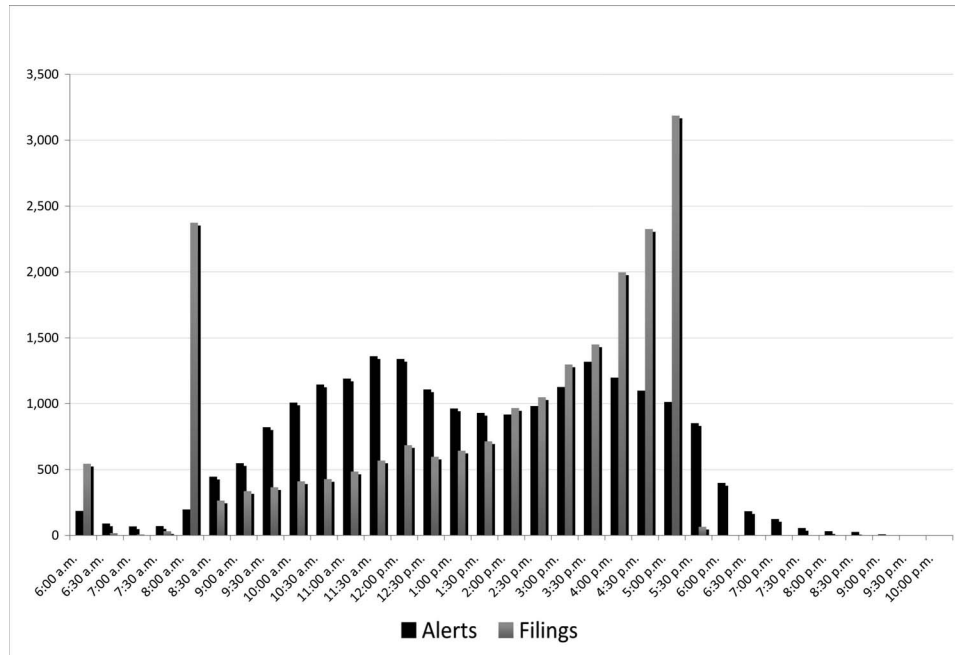
We next examine the timeliness of corporate filing alerts by measuring the release lag as the number of weekdays between the periodic SEC report filing time and the release time of the first alert (*RL_WEEKDAY*).¹² Because 68 percent of the initial alerts are released within 24 hours after the SEC report is filed, we also measure the release lag in minutes (*RL_MINUTE*) for such alerts. Table 3, Panel A indicates that, on average, it takes Dow Jones Newswires 2.3 weekdays to release an alert after the corresponding SEC report is filed, with one weekday each for the median and the inter-quartile range. We also present statistics on the release lag for 10-K alerts and 10-Q alerts separately and find that the average *RL_WEEKDAY* is almost the same for the two groups. However, for alerts released within one weekday, the median collection time (*RL_MINUTE*) is 43 percent less for alerts based on 10-Q filings than 10-Ks (113 versus 197 minutes), consistent with increased complexity requiring additional time to review 10-K reports for market-moving information.

¹⁰ Based on our discussions with SEC's Office of Information Technology, we understand that the periodic report time stamp is a good indication of when the filing could be accessed by users, but at least in the earlier years not everyone had instantaneous access to EDGAR (Balsam et al. 2002). When EDGAR was first rolled out, the Level 1 subscribers to EDGAR and their clients (which included many Wall Street firms and investment houses) had immediate access to the filings. The filings were not available at the public website for another 24 hours, which was changed in the year 2002 ("SEC Announces Free, Real-Time Public Access to EDGAR Database," <http://www.sec.gov/news/press/2002-75.htm>). Untabulated results show that (1) after year 2002 more alerts were issued within the first 15 minutes of filing; and (2) after eliminating these potentially confounding observations from our sample, alerts do (filings do not) trigger significant immediate market activity in periods both before and after the change in the public availability of periodic reports.

¹¹ Based on our discussions with SEC's Office of Information Technology, periodic reports filed before 5:31 p.m. Eastern time will receive a filing date and time identical to its EDGAR receipt date and time. Filings with a receipt time on or after 5:31 p.m. Eastern time will be assigned the next business day after the receipt date as the filing date and 6:00 a.m. as the filing time. Prior to 2003, the practice appears to have been the use of an 8:00 a.m. time stamp. The two spikes at 6:00 a.m. and 8:00 a.m. are consistent with the SEC time-stamping practice.

¹² We calculate *RL_WEEKDAY* as the number of hours elapsed from the time when a filing appears on EDGAR to the time when the first alert is released by DJCFA and divide it by 24. We subtract 2 if this timeframe contains a weekend. Similarly, the weekend is excluded in computing *RL_MINUTE*.

FIGURE 1
Calendar Time Frequency of SEC Filings and the Corresponding Initial Dow Jones Alerts



This figure presents the time distribution of 20,797 periodic SEC filings and the corresponding initial alerts between 1997 and 2004. The x-axis depicts the time in 30-minute intervals, and the y-axis is the number of periodic SEC filings and the corresponding initial alerts. Unreported analysis reveals similar patterns between 10-K and 10-Q filings/alerts.

Finally, we use the number of news categories in an alert to proxy for the news value to DJCFA subscribers and provide descriptive statistics on the release time of the first alert in Table 3, Panel B. We find that the mean of *RL_WEEKDAY* (the proportion of alerts released within 24 hours after filing) decreases (increases) almost monotonically with the number of news categories, consistent with Dow Jones staff placing higher priority on periodic reports with possibly multiple market-moving information.¹³

IV. DETERMINANTS OF NEWswire ALERTS ON PERIODIC SEC REPORTS

In this section, we first develop predictions regarding the circumstances in which a newswire service is likely to issue an alert based on information in periodic SEC reports. Past research has not identified contexts in which information intermediaries more saliently disseminate to market participants information already disclosed by companies (Dopuch et al. 1986). Our predictions are

¹³ Our inferences from Table 3 are unaltered when we exclude observations relating to filings with a time stamp in the interval [6:00 a.m., 8:00 a.m.] Eastern time.

TABLE 3
Time Lag between Periodic SEC Filings and the Initial Corporate Filing Alerts

Panel A: Descriptive Statistics on Time Lag of 10-Ks versus 10-Qs

	<i>RL_WEEKDAY</i>			<i>RL_MINUTE</i>		
	Total	10-K	10-Q	Total	10-K	10-Q
n	20,797	6,929	13,868	14,069	4,632	9,437
Mean	2.325	2.325	2.324	453.187	513.396	423.634
Std.	3.269	3.350	3.227	516.042	520.629	511.215
Min	1	1	1	0	0	0
P5	1	1	1	8	12	7
Q1	1	1	1	40	61	34
Median	1	1	1	137	197	113
Q3	2	2	2	1,064	1,091	1,045
P95	8	7	8	1,337	1,344	1,331
Max	42	42	33	1,440	1,439	1,440

Panel B: Descriptive Statistics on Collection Speed by the Number of News Categories

Number of News Categories	Obs.	Mean of <i>RL_WEEKDAY</i>	Standard Deviation of <i>RL_WEEKDAY</i>	Proportion of One-Weekday Release
Missing	245	3.294	3.678	0.501
1	8,163	2.338	3.572	0.718
2	6,991	2.463	3.270	0.631
3	3,511	2.245	2.979	0.662
4	1,256	1.823	2.157	0.722
5	302	1.798	2.316	0.722
6	54	1.222	0.945	0.926
7	13	1.154	0.376	0.846

Panel A presents descriptive statistics on the release lag between the periodic SEC report filing time and the release time of the initial alert. *RL_WEEKDAY* is the release lag measured in weekdays, which is calculated as the number of hours elapsed from the time when a filing appears on EDGAR to the time when the first alert is released by DJCFA, divided by 24. Given that 68 percent of alerts are released within 24 hours after the corresponding periodic SEC reports are filed, we also calculate release lag in minutes, denoted *RL_MINUTE*, for these alerts. For both *RL_WEEKDAY* and *RL_MINUTE* we exclude weekends in the calculation. For 74 observations, their filing time stamp is post-alert, which is likely caused by data error. We replace the negative time lag with 0 for this analysis.

Panel B reports statistics on *RL_WEEKDAY* and the proportion of alerts released within 24 hours after filing for groups formed by the number of news categories in each alert.

based on firm characteristics that capture market demand for information and key firm-specific events likely to heighten market's attention on those firms. We then test our predictions using information on Dow Jones alerts.

Predictions

We posit that market demand for information relates to firm characteristics that capture investor awareness and information environment. Prior studies (Wurgler and Zhuravskaya 2002; Chen et al. 2004; Chen et al. 2006; Docking and Downen 2006; Elliott et al. 2006; Mase 2006) suggest that firms whose shares are included in a major market index have increased investor awareness. Consistent with this argument, D'Souza et al. (2010b) find that data aggregators place

higher collection priority on the financial statement information of these firms. Therefore, we predict that newswire services are more likely to target periodic reports of firms whose stocks are included in the S&P 500, S&P MidCap 400, or S&P SmallCap index (*SP1500*). All explanatory variables are defined in Table 4.

In addition, we expect that the nature of the information environment to be associated with the demand for newswire services. Extant research suggests that analyst following and institutional ownership are positively associated with the corporate information environment (O'Brien and Bhushan 1990; Frankel et al. 1999; Jiambalvo et al. 2002; Bushman et al. 2004; Piotroski and Roulstone 2004), but each may have a differential information search focus. As analysts have a competitive advantage in extracting industry-level information from firm performance (Piotroski and Roulstone 2004), we predict that newswire alerts could act as a complementary source by providing idiosyncratic information in firms with greater analyst following (*Analysts*). On the contrary, institutional investors are likely to expend greater resources in gathering firm-specific information (Jiambalvo et al. 2002; Piotroski and Roulstone 2004), which could result in newswire services competing with institutions' private search efforts. We therefore refrain from a directional prediction for institutional ownership (*Instown*). We consider the availability of a credit rating (*Rating*) as a proxy for creditor demand, thereby predicting a positive association with the existence of newswire alerts.

Academic research also suggests that when firms experience losses, market participants face an information environment in which traditional profitability measures may be lacking for valuation purposes (Hayn 1995; Collins et al. 1997; Chen et al. 2002; Ajinkya et al. 2005). As additional disclosures of loss firms may be relevant to the marketplace, we also predict that newswires would more often generate alerts for loss firms (*Loss*) to enable investors to better evaluate their financial circumstances.

Li and Ramesh (2009a) find that that a segment of firms first releases its quarterly earnings information only with the periodic reports (also see Amir and Livnat 2005). While the lack of a preliminary earnings release is consistent with lower value relevance of earnings and limited coverage by sophisticated market participants, periodic reports of these firms are more apt to include information hitherto not disclosed to the marketplace. Therefore, we expect newswire services to closely monitor the periodic reports of firms that did not provide a preliminary earnings release (*NoPrelim*). Finally, we consider exposure to litigation risk (*Litigation*) as another factor that is likely to influence newswire services to search for market-moving information in periodic reports.

We next identify key firm-specific events that create heightened market attention in general or point to the existence of potentially value-relevant information in periodic reports. With respect to general market attention, we expect that firms raising capital (*Stockissue* and *Debtissue*), that are takeover targets (*Takeover*), or confronting financial distress (*Ch11* and *Delisting*) face increased market scrutiny and, therefore, would be fitting targets of newswire services, as their periodic reports could contain useful information to interested stakeholders.

With respect to potentially value-relevant information, we first consider circumstances surrounding preliminary earnings releases that would enhance the confirmatory role of periodic reports (Beyer et al. 2009). Specifically, we argue that the market is more likely to demand confirming or negating information in periodic reports when preliminary earnings announcements generate large price reactions (*EA_mktr*) or when firms just meet or beat earnings targets (*JMOB*). In addition, we posit that firms reporting extraordinary items (*Extraordinary*) or special items (*Special*) and firms receiving a nonstandard audit opinion (*Nonstandard*) are likely to include in their periodic filings important information about the economic circumstances they face. Consequently, the periodic reports of such firms are likely to attract news alerts.

To test these predictions, we employ the following empirical model (firm and quarter subscripts are suppressed):

$$\begin{aligned} prob(Alert) = \Phi \bigg(& \beta_0 + \beta_1 SP1500 + \beta_2 Analysts + \beta_3 Instown + \beta_4 Rating + \beta_5 Loss \\ & + \beta_6 NoPrelim + \beta_7 Litigation + \beta_8 Stockissue + \beta_9 Debtissue + \beta_{10} Takeover \\ & + \beta_{11} Ch11 + \beta_{12} Delisting + \beta_{13} ER_mktr + \beta_{14} JMOB + \beta_{15} Extraordinary \\ & + \beta_{16} Special + \beta_{17} Nonstandard + \beta_{18} ROA + \beta_{19} Leverage + \beta_{20} Liquidity \\ & + \beta_{21} Arbrisk + \beta_{22} Volume + \beta_{23} nEA100 + \beta_{24} nFL100 + \sum_{T=1998}^{2004} \beta_{25,T} YT + \varepsilon \bigg). \end{aligned} \quad (1)$$

As additional controls, we include three performance measures (*ROA*, *Leverage*, and *Liquidity*), given the documented relationship between firm performance and propensity for disclosures (Frankel et al. 1999). Moreover, we add controls for idiosyncratic volatility (*Arbrisk*) and trading volume (*Volume*), given that trading frictions can dampen the demand for corporate accounting information even among sophisticated investors (Collins et al. 2003; Ali et al. 2003; Mashruwala et al. 2006; D'Souza et al. 2010b). Finally, we include proxies for the overall market incidence of earnings announcements (*nEA100*) and periodic reports (*nFL100*) to capture supply-side constraints of newswire services when the market is inundated with corporate accounting information. D'Souza et al. (2010b) document similar effects for a data aggregator.

Empirical Analysis Based on Dow Jones Alerts

Our empirical analysis is based on a sample of 210,620 firm-quarters with a 10-K or 10-Q report, with Dow Jones issuing an alert in less than 9 percent of the cases (18,599/210,620). The low incidence is not surprising, given that the market focuses more on earnings announcements, which increasingly provide detailed financial statement information, and thereby preempt disclosures in periodic filings. Consequently, information intermediaries must have cost-effective screening mechanisms to identify value-relevant information buried in periodic reports.

Our untabulated univariate test results are largely consistent with our predictions. For instance, in support of the investor awareness argument, roughly 38 percent of the alert sample pertains to firms included in one of the S&P major market indices, compared to only about 20 percent in the non-alert sample. Similarly, the median analyst following (institutional ownership) in the alert sample is thrice (more than twice) that of the non-alert sample, consistent with equity holders' demand for information. The evidence on credit demand is strong, with half of the alert sample having an S&P credit rating, as compared to less than a quarter in the non-alert sample. Consistent with nontrivial supply-side effects, periodic reports that do not receive alerts are likely to be filed on days when the median number of filings made with the SEC is 542, as compared to 186 for periodic reports that received alerts.

Turning to the multiple regression analysis, model (1) we estimate using Chamberlain's Random Effects probit estimator, with the results presented in Table 4, Panel A.¹⁴ In addition to reporting marginal effects (measured using partial average effects) and their p-values, we also

¹⁴ Two observations are in order. First, Chamberlain's Random Effects probit offers a consistent approach to incorporating unobserved firm-specific heterogeneity as well as the ability to estimate marginal effects. We do not consider fixed

report the economic significance of each independent variable as the marginal effect itself for the indicator variables and the marginal effect times the inter-quartile range for all other explanatory variables.

The overall model is statistically significant, as indicated by the Wald Chi-squared statistic, with a Pseudo R^2 of 13.5 percent. Thirteen of the 16 predicted effects have statistically significant marginal effects with the correct signs at the two-tailed 0.10 level. Given that the unconditional probability of an alert from Dow Jones is around 0.09, the reported economic significance of many of the predicted effects appears material. We list below variables for which the economic significance is at least half of a percentage point and the statistical significance is at least at the 0.05 level:

Variable	<i>Nonstandard</i>	<i>NoPrelim</i>	<i>Rating</i>	<i>Delisting</i>	<i>SP1500</i>	<i>Litigation</i>	<i>Special</i>	<i>Loss</i>	<i>Stockissue</i>
Economic Significance	0.051	0.037	0.030	0.019	0.012	0.011	0.007	0.005	0.005

Taken together, we find that Dow Jones staff considers investor awareness, information environment, and key firm-specific events to identify potentially value-relevant information from periodic SEC reports. Of the control variables, the supply-side proxies show the largest effect on the incidence of alerts, with the probability of alerts declining by 0.017 when the intensity of earnings releases in the marketplace (*nEA100*) increases by its inter-quartile range (221). The evidence is consistent with the perceived priority of earnings announcements and, consequently, the diversion of Dow Jones' resources away from the periodic reports.

We next provide descriptive evidence on factors associated with the speed with which Dow Jones releases the alert.¹⁵ In Table 4, Panel B we report the results of a pooled Poisson regression on the subsample with alerts in which the dependent variable is the alert lag (*RL_WEEKDAY*) and the independent variables are as in model (1).¹⁶ Given that we use a Poisson regression, the economic significance levels we report are percentage changes in alert lag for a unit increment for all indicator variables and at inter-quartile range for all continuous variables (Wooldridge 2003, 574). Conditional on issuing an alert, we find that only a few of the variables are statistically significant in explaining the alert lag. However, we find some effects with large economic significance in that the alert lags are roughly 40 (22) percent shorter for firm-quarters without a preliminary earnings announcement (for firms with higher litigation risk). In addition, consistent with supply-side constraints, the alert lag is affected by information overload, with about a 9 (16) percent delay for an inter-quartile range increment in the number of earnings announcements (periodic SEC filings) released on the same day as the alerted filings.

effects probit or fixed effects logit, as the former is inconsistent and the latter does not identify marginal effects (Wooldridge 2002, Chapter 15). Second, from an implementation standpoint, the Chamberlain's Random Effects approach models unobserved heterogeneity as a linear function of firm-specific means of all time-varying independent variables in the panel data plus an error term with zero mean and variance s^2_e . Consequently, the Chamberlain's Random Effects probit is a pooled regression that includes the firm-specific means of all time-varying independent variables as additional explanatory variables to control for unobserved heterogeneity at the firm level.

¹⁵ Periodically, Dow Jones sends summary reports to its clients touting its ability to beat its competition in identifying market-moving information from SEC filings. For instance, in its March 2009 issue of Dow Jones Financial Services Solutions' *The Edge*, Dow Jones states that "on Feb. 16, the Friday ahead of a three-day weekend for the U.S., the Dow Jones Corporate Filings Alert scooped the competition with its report, unmatched by our competitors until four days later, that State Street Corp. disclosed billions of dollars in unrealized losses in its investment portfolio and the off-balance-sheet entities it manages."

¹⁶ We do not report fixed effects Poisson results because the time-invariant indicator *Litigation*, which has significant influence on the alert lag, would be omitted from the regression. However, the inferences of fixed effects Poisson are very similar to those of pooled Poisson, except that *EA_mkt* and *Nonstandard* become insignificant.

TABLE 4

Determinants of the Issuance and Timing of Corporate Filing Alerts

Panel A: Determinants of Corporate Filing Alert

	Pred. Sign	Marginal Effect	p-value	Economic Sig.
<i>SP1500</i>	+	0.0116	(0.019)**	0.0116
<i>Analysts</i>	+	0.0006	(0.065)*	0.0031
<i>Instown</i>	+/-	-0.0004	(0.000)***	-0.0195
<i>Rating</i>	+	0.0299	(0.000)***	0.0299
<i>Loss</i>	+	0.0054	(0.017)**	0.0054
<i>NoPrelim</i>	+	0.0370	(0.000)***	0.0370
<i>Litigation</i>	+	0.0107	(0.000)***	0.0107
<i>Stockissue</i>	+	0.0053	(0.020)**	0.0053
<i>Debtissue</i>	+	-0.0013	(0.601)	-0.0013
<i>Takeover</i>	+	0.0082	(0.105)	0.0082
<i>Ch11</i>	+	-0.0141	(0.097)*	-0.0141
<i>Delisting</i>	+	0.0192	(0.001)***	0.0192
<i>EA_mktr</i>	+	0.0578	(0.002)***	0.0020
<i>JMOB</i>	+	-0.0005	(0.774)	-0.0005
<i>Extraordinary</i>	+	0.0067	(0.061)*	0.0067
<i>Special</i>	+	0.0071	(0.000)***	0.0071
<i>Nonstandard</i>	+	0.0512	(0.000)***	0.0512
<i>ROA</i>		-0.0582	(0.000)***	-0.0017
<i>Leverage</i>		0.0127	(0.078)*	0.0040
<i>Liquidity</i>		-0.0181	(0.051)*	-0.0078
<i>Arbrisk</i>		0.0012	(0.008)***	0.0035
<i>Volume</i>		0.0002	(0.000)***	0.0008
<i>nEA100</i>		-0.0078	(0.000)***	-0.0171
<i>nFL100</i>		-0.0007	(0.000)***	-0.0092
Year dummies?			Yes	
Obs.			147,119	
Pseudo R ²			0.135	
Wald Chi-squared			5,806.67	

Panel B: Determinants of Alert Lag (*RL_WEEKDAY*)

	Pred. Sign	Marginal Effect	p-value	Economic Sig.
<i>SP1500</i>	-	0.0092	(0.790)	0.0092
<i>Analysts</i>	-	-0.0035	(0.211)	-0.0177
<i>Instown</i>	-/+	-0.0003	(0.626)	-0.0128
<i>Rating</i>	-	0.0146	(0.662)	0.0146
<i>Loss</i>	-	-0.0233	(0.417)	-0.0233
<i>NoPrelim</i>	-	-0.3979	(0.000)***	-0.3979
<i>Litigation</i>	-	-0.2237	(0.000)***	-0.2237
<i>Stockissue</i>	-	-0.0023	(0.913)	-0.0023
<i>Debtissue</i>	-	0.0494	(0.242)	0.0494
<i>Takeover</i>	-	0.0202	(0.744)	0.0202
<i>Ch11</i>	-	-0.0316	(0.808)	-0.0316
<i>Delisting</i>	-	-0.0222	(0.749)	-0.0222

(continued on next page)

Panel B: Determinants of Alert Lag (*RL_WEEKDAY*)

	Pred. Sign	Marginal Effect	p-value	Economic Sig.
<i>EA_mktr</i>	—	−0.8969	(0.005)***	−0.0310
<i>JMOB</i>	—	−0.0248	(0.321)	−0.0248
<i>Extraordinary</i>	—	−0.0407	(0.314)	−0.0407
<i>Special</i>	—	−0.0106	(0.689)	−0.0106
<i>Nonstandard</i>	—	0.0969	(0.006)***	0.0969
<i>ROA</i>		0.0611	(0.691)	0.0018
<i>Leverage</i>		−0.0516	(0.366)	−0.0165
<i>Liquidity</i>		0.0625	(0.391)	0.0269
<i>Arbrisk</i>		−0.0071	(0.283)	−0.0208
<i>Volume</i>		−0.0017	(0.000)***	−0.0074
<i>nEA100</i>		0.0401	(0.000)***	0.0885
<i>nFL100</i>		0.0124	(0.000)***	0.1627
Year dummies?			Yes	
Obs.			14,940	
Pseudo R ²			0.096	
Wald Chi-squared			738.25	

*, **, *** Represent statistical significance at two-tailed 0.1, 0.05, and 0.01 levels, respectively.

Panel A reports the Chamberlain's Random Effects probit regression results of factors that trigger the issuance of Dow Jones corporate filing alerts, while Panel B reports the pooled Poisson regression results of factors that determine the alert lag between the periodic SEC report filing time and the release time of the initial alert, measured in weekdays. Given that the estimated Chamberlain's Random Effects coefficients are not directly interpretable, we report the marginal effects (calculated as the partial average effect) and their two-tailed p-values based on firm-clustered standard errors. The marginal effects in Panel B equal the estimated Poisson coefficients. The economic significance is the same as the marginal effect for indicators and calculated as the marginal effect multiplied by the inter-quartile range for continuous variables.

Variable Definitions:

- SP1500* = 1 if the firm is in the S&P 1500 index at the end of current fiscal quarter, and 0 otherwise;
- Analysts* = number of analyst following over the current fiscal quarter; we obtain analyst following from the I/B/E/S database;
- Instown* = percentage of institutional stock ownership (winsorized at 100) at the end of the calendar quarter at or immediately preceding the current fiscal quarter; we obtain institutional ownership from Thomson Financial Spectrum;
- Rating* = 1 if S&P credit rating is available for the firm in the current fiscal quarter, and 0 otherwise;
- Loss* = 1 if net income before extraordinary items is negative for the current fiscal quarter, and 0 otherwise;
- NoPrelim* = 1 if the earnings information is first released through periodic SEC reports for the current fiscal quarter, and 0 otherwise. This includes cases where there is no preliminary earnings announcement, earnings announcement date concurs with the periodic SEC filing date, or the earnings announcement is made after the periodic SEC report is filed;
- Litigation* = 1 for industries found to be exposed to high litigation risk: biotech (SIC 2833–2936), computer hardware (SIC 3570–3577), electronics (SIC 3600–3674), retail (SIC 5200–5961), and computer software (SIC 7371–7379), and 0 otherwise;
- Stockissue* = 1 for any of the six quarters leading to the firm's stock issuance (including the quarter of stock issuance) and 0 otherwise; we obtain the stock issue information from *SDC*;
- Debtissue* = 1 for any of the six quarters leading to the firm's public debt issuance (including the fiscal quarter of debt issuance), and 0 otherwise; we obtain the public debt issue information from *SDC*;
- Takeover* = 1 for any of the six quarters leading to the firm's delisting from a stock exchange because of mergers and acquisitions (including the quarter of takeover), and 0 otherwise;
- Ch11* = 1 for quarters [−5, 5] centered on the fiscal quarter when the firm files Chapter 11 petition, and 0 otherwise; we obtain the Chapter 11 bankruptcy information from Professor Lynn M. LoPucki's Bankruptcy Research Database;
- Delisting* = 1 for any of the six quarters leading to the firm's delisting from a stock exchange because of financial distress (including the quarter of delisting), and 0 otherwise;

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- EA_mktr* = market reaction at the earnings announcement day, measured as absolute value of daily return minus value-weighted market return and winsorized at its top and bottom 0.5 percentile values; this variable is set to 0 if *NoPrelim* equals 1;
- JMOB* = 1 if the earnings surprise is between \$0.00 and \$0.03 per share, and 0 otherwise. Earnings surprise is measured as actual earnings per share (EPS) minus median of the latest five individual EPS forecasts made over a period from the previous quarter's earnings announcement to the current quarter's earnings announcement. Both actual value and forecasts of EPS are obtained from the unadjusted I/B/E/S database. If I/B/E/S data are not available for a firm-quarter, then we define earnings surprise as seasonally adjusted EPS (i.e., EPS in the current quarter minus EPS in the same quarter of prior year);
- Extraordinary* = 1 if an extraordinary item is reported in the Compustat database for the current fiscal quarter *q*, and 0 otherwise;
- Special* = 1 if a special item is reported in the Compustat database for the current fiscal quarter *q*, and 0 otherwise;
- Nonstandard* = 1 if the auditor's opinion on the firm's financial statements for the current fiscal year is not "unqualified," and 0 otherwise; we obtain auditor's opinion from the Compustat database (item #149) and this variable is set to 0 for interim quarters;
- ROA* = net income before extraordinary items divided by total assets at the beginning of the current fiscal quarter, winsorized at its top and bottom 0.5 percentile values;
- Leverage* = long-term debt divided by total assets at the end of the current fiscal quarter, winsorized at its top and bottom 0.5 percentile values;
- Liquidity* = sum of cash and cash equivalents and receivables divided by total assets at the end of the current fiscal quarter, winsorized at its top and bottom 0.5 percentile values;
- Arbrisk* = standard deviation of residuals from a regression of firm-specific daily returns on the returns of the CRSP equally weighted market index over the current fiscal quarter (a minimum of five observations is required); we multiply the standard deviation of residuals by 100 and winsorize it at its top and bottom 0.5 percentile values;
- Volume* = daily trading volume (in millions of dollars) averaged over the current fiscal quarter, winsorized at its top and bottom 0.5 percentile values;
- nEA100* = number of all earnings announcements (in 100s) made on the day of the firm's filing of its periodic SEC report of the current fiscal quarter; and
- nFL100* = number of periodic SEC filings (in 100s) released on the day of the firm's filing of its periodic SEC report of the current fiscal quarter.

V. DOES THE MARKET REACT TO NEWSWIRE ALERTS ON PERIODIC REPORTS?

In this section, we first use daily returns and trading volume to examine the market reaction to the alerts issued by Dow Jones. For those alerts issued during trading hours, we next examine intra-day price and volume reactions to isolate the immediate trading implications of the alerts and control for any endogeneity present in the analysis based on daily data.

Daily Returns and Volume Analysis

Using daily data over the period 1997–2004, we develop a multiple regression model to jointly examine market reactions to Dow Jones alerts after controlling for the effects of periodic filings and earnings announcements:

$$DV_t = \alpha + \sum_{Event=1}^7 \sum_{Day=-2}^2 \beta^{Event,Day} \cdot Indicator_t^{Event,Day}, \quad (2)$$

where *DV* is a measure of daily stock price or volume reaction (defined below). The independent variables are 35 indicator variables corresponding to five event days [−2 to +2] surrounding each of the following seven events:

- Dow Jones alerts;
- Two types of earnings announcements (interim, annual);

- Two types of 10-K reports (without an alert, followed by an alert); and
- Two types of 10-Q reports (without an alert, followed by an alert).¹⁷

We include separate indicator variables for periodic reports with and without a Dow Jones alert to control for any characteristics of the alert firm-quarters that might engender a differential reaction to the periodic filing.

Following Li and Ramesh (2009a), the dependent variable for stock returns is based on the absolute value of the difference between daily return and value-weighted market return. Following Cready and Mynatt (1991), the trading volume measure is based on the natural logarithm of the sum of volume and 0.000255, where volume equals daily trading volume divided by total outstanding shares. We standardize both the stock returns and trading volume measures by subtracting their firm-year mean and dividing by their firm-year standard deviation and denote them as *SAER* and *STV*, respectively.¹⁸ Table 5, Panel A indicates that, after controlling for earnings announcements and periodic SEC filings, firm-quarters with a Dow Jones alert elicit statistically significant price and volume reactions on the event day (day 0).¹⁹

In Table 5, Panel B, we report the results of an expanded regression in which we break down the alert days into three sub-groups: (1) the initial alert days with a single alert; (2) the initial alert days containing multiple alerts; and (3) issuance of follow-up alerts subsequent to the initial alert day (coefficients of all other events are suppressed). The results indicate that the market reactions are limited to the initial alert day regardless of whether it is followed by another day with an alert. While the follow-up alerts may have market implications, our results based on daily data do not provide any evidence of their market-moving effects.

While this study and the extant research find no immediate price or volume reactions to the filing of 10-Q reports (Li and Ramesh 2009a; Lu 2006), one unanswered question is whether alerts based on 10-Q reports generate a market reaction, which we examine next. Given that the market reaction to follow-up alert days is not statistically significant, we focus on the effect of all initial alert days combined when comparing between 10-K and 10-Q alerts. The results in Table 4, Panel C show that both 10-K- and 10-Q-based alerts are associated with significant price and volume reactions (all other coefficients suppressed). Taken together, we find that initial alerts, whether based on annual or quarterly reports, provide incrementally value-relevant information.

We next provide evidence on the differential value relevance of various news categories. Given the general market reactions to all alerts, we estimate the following conditional regression based on 17,454 *Alert Day* observations with non-missing price and trading volume data:

$$\begin{aligned}
 DV_t = & \beta_0 + \beta_1 PER_t + \beta_2 CRE_t + \beta_3 EQU_t + \beta_4 BSC_t + \beta_5 LGL_t + \beta_6 EMP_t + \beta_7 CBS_t + \beta_8 FOR_t \\
 & + \beta_9 BKC_t + \beta_{10} TAX_t + \beta_{11} OTH_t + \beta_{12} Missing_t + \beta_{13} Unclassified_t + \beta_{14} Multiple_t \\
 & + \beta_{15} Second\ Alert\ Day_t + \beta_{16} Third\ and\ Following\ Alert\ Days_t + \varepsilon_t.
 \end{aligned} \tag{3}$$

Regression (3) includes indicators for each of the news categories as well as controls for alerts with subject codes missing (*Missing*) or not classifiable as firm-specific news (*Unclassified*). Given that the news categories are not mutually exclusive, we are able to include indicator variables for each of them. In addition, we include an indicator for days with multiple alerts

¹⁷ If the alerts or periodic reports are released after the market closes (i.e., post 4:00 p.m. Eastern time), we re-center the five-day event window around the next business day.

¹⁸ In untabulated analysis, we use a Z-transformation of rank scores (Blom 1958) of absolute excess returns and share turnover as nonparametric measures for our dependent variables (Easton and Zmijewski 1993; Carter and Soo 1999; Li and Ramesh 2009a). The tenor of our market reaction results remains unaltered.

¹⁹ See Li and Ramesh (2009a) for a discussion of a calendar quarter-end effect surrounding the filing of 10-K reports as well as evidence of a possible information transfer during quarter-ends. Our inferences regarding the market reaction to alerts are identical after controlling for the quarter-end effect (untabulated).

TABLE 5

Regression Results of Market Reaction Surrounding Corporate Filing Alerts

Panel A: OLS Regression Results of Market Reactions to All Alerts

	Pred. Sign	Standardized Absolute Excess Return (SAER)				
		Day -2	Day -1	Day 0	Day 1	Day 2
Event 1: Annual Earnings Release (n = 43,194)	+	0.027***	0.076***	0.433***	0.506***	0.125***
Event 2: Interim Earnings Release (n = 131,185)	+	0.043***	0.109***	0.473***	0.518***	0.127***
Event 3: 10-Ks without Alerts (n = 37,696)	+	-0.013	0.005	0.054***	0.046***	0.070***
Event 4: 10-Ks with Alerts (n = 5, 600)	+	-0.027	0.012	0.099***	0.055***	0.040***
Event 5: 10-Qs without Alerts (n = 120,668)	+	-0.063	-0.073	-0.057	-0.080	-0.054
Event 6: 10-Qs with Alerts (n = 10,659)	+	-0.060	-0.064	-0.016	-0.071	-0.056
Event 7: All Alerts (n = 17,561)	+	0.009	-0.023	0.033***	-0.011	-0.003
	Pred. Sign	Standardized Trading Volume (STV)				
		Day -2	Day -1	Day 0	Day 1	Day 2
Event 1: Annual Earnings Release (n = 43,194)	+	-0.020***	0.081***	0.503***	0.625***	0.341***
Event 2: Interim Earnings Release (n = 131,185)	+	-0.031***	0.064***	0.457***	0.564***	0.287***
Event 3: 10-Ks without Alerts (n = 37,696)	+	0.004	0.011**	0.049***	0.023***	0.034***
Event 4: 10-Ks with Alerts (n = 5,600)	+	-0.004	-0.005	0.037***	0.031**	0.047***
Event 5: 10-Qs without Alerts (n = 120,668)	+	-0.051	-0.066	-0.063	-0.083	-0.058

(continued on next page)

	<u>Pred. Sign</u>	<u>Standardized Trading Volume (STV)</u>				
		<u>Day -2</u>	<u>Day -1</u>	<u>Day 0</u>	<u>Day 1</u>	<u>Day 2</u>
Event 6: 10-Qs with Alerts (n = 10,659)	+	-0.036	-0.035	-0.009	-0.060	-0.029
Event 7: All Alerts (n = 17,561)	+	-0.006	-0.032	0.029***	-0.014	-0.016

Panel B: OLS Regression Results of Market Reactions to Initial Alerts versus Follow-Up Alerts

	<u>Pred. Sign</u>	<u>Standardized Absolute Excess Return (SAER)</u>				
		<u>Day -2</u>	<u>Day -1</u>	<u>Day 0</u>	<u>Day 1</u>	<u>Day 2</u>
Initial - Single Alerts (n = 14,453)	+	0.011	-0.029	0.033***	-0.016	-0.004
Initial - Multiple Alerts (n = 1,799)	+	0.012	0.039*	0.056**	0.023	0.007
Follow-up Alerts (n = 1,309)	+	-0.005	-0.023	0.014	0.006	-0.006

	<u>Pred. Sign</u>	<u>Standardized Trading Volume (STV)</u>				
		<u>Day -2</u>	<u>Day -1</u>	<u>Day 0</u>	<u>Day 1</u>	<u>Day 2</u>
Initial - Single Alerts (n = 14,453)	+	0.006	-0.021	0.044***	0.002	-0.004
Initial - Multiple Alerts (n = 1,799)	+	-0.037	-0.010	0.057**	0.011	-0.004
Follow-up Alerts (n = 1,309)	+	-0.024	-0.070	-0.043	-0.081	-0.049

Panel C: OLS Regression Results of Market Reactions to 10-K Alerts versus 10-Q Alerts

	<u>Pred. Sign</u>	<u>Standardized Absolute Excess Return (SAER)</u>				
		<u>Day -2</u>	<u>Day -1</u>	<u>Day 0</u>	<u>Day 1</u>	<u>Day 2</u>
Alerts following 10-Ks (n = 5,598)	+	0.015	-0.040	0.043***	0.016	0.022*
Alerts following 10-Qs (n = 10,654)	+	0.008	-0.012	0.032***	-0.026	-0.015

(continued on next page)

	Pred. Sign	Standardized Trading Volume (STV)				
		Day -2	Day -1	Day 0	Day 1	Day 2
Alerts following 10-Ks (n = 5,598)	+	-0.001	-0.031	0.046***	0.018	0.027**
Alerts following 10-Qs (n = 10,654)	+	0.002	-0.014	0.045***	-0.005	-0.021

*, **, *** Represent statistical significance at one-tailed 0.1, 0.05, and 0.01 levels, respectively.

This table reports OLS regression results of market reactions based on a sample of 12,201,115 daily observations between 1997 and 2004. *SAER* is calculated as absolute value of daily return minus value-weighted market return, while *STV* is calculated as $\log(\text{volume} + 0.000255)$, where volume equals to daily trading volume divided by outstanding shares. We normalize both measures by subtracting firm/year mean and then dividing by firm/year standard deviation. In the Panel A regressions, we include 35 indicators for event days $[-2, +2]$ surrounding the following events: (1) Dow Jones alerts; (2) two types of earnings announcements (interim and annual); (3) two types of 10-K reports (without an alert, followed by an alert); and (4) two types of 10-Q reports (without an alert, followed by an alert). If the alerts or periodic reports are released after the market closes (i.e., post 16:00 Eastern time), we re-center the five-day event window to the next business day. In the Panel B regressions, we break down alert event days into three groups: initial alert days with a single alert; initial alert days containing multiple alerts; and issuance of follow-up alerts subsequent to the initial alert day. In the Panel C regressions, we further break down all initial alert days into 10-K- and 10-Q-based alerts. For brevity, we omit the coefficients for all other indicators in Panel B and Panel C as the inferences remain the same. The tenor of our results is similar when we use time-clustered standard errors to adjust for cross-sectional dependence.

(*Multiple*), and indicators for the second trading day with another alert(s) based on the same periodic report (*Second Alert Day*), and alert days beyond the second day for the same periodic report (*Third and Following Alert Days*).

The statistically significant return and volume model intercepts in Table 6 reflect the average market reactions reported in Table 5 for the alert subsample. When discussing Table 6 results, we limit our discussions to indicator variables with consistent price and volume reactions. Compared with other news categories, the legal- and bankruptcy-related alerts generate both higher price reaction and trading volume, whereas the alerts with missing subject codes generate significantly lower market reactions. The results for bankruptcy-related alerts are consistent with the deterioration in the conventional public sources of information on distressed companies coupled with the demand from sophisticated market participants for trading in such companies (Gilson 1995).²⁰

The lower price and volume reactions to alerts without a specific news category suggest that immediate trading based either on algorithms or requiring human intervention is constrained in these circumstances. As in the expanded regression results, we find that follow-up alerts issued one or more days after the initial alert generate much less market activity. The lower market reaction for delayed alerts is consistent with the limits to any single information intermediary's ability to consistently identify market-moving information hidden in periodic reports long after their filing. Overall, while the market responds most strongly to legal- and bankruptcy-related alerts, alerts without a specific news category and delayed alerts may not be value-relevant.

Finally, we compare the results in Tables 4 and 6 to examine whether factors that influence Dow Jones' alert decisions also result in significant market reaction when alerts contain news relating to these factors. Given that the analysis in Table 6 is based on the conditional sample of alerts, the reported coefficients merely capture the incremental market reaction. To measure the total market reaction, we report the sum of the coefficient corresponding to each of the news categories and the intercept (Coeff. + Const.) in Table 6.²¹ In Table 4 we find that Dow Jones is more likely to issue alerts for firms with a credit rating or when they issue equity. Consistent with this evidence, we find that equity-related (*EQU*) and credit-related (*CRE*) news categories generate significant return and volume reactions.

Intra-Day Returns and Volume Analysis

One obvious concern with using daily data is the possible endogeneity that market participants are more focused on firm-quarters with an alert for reasons other than the information contained in the alerts. We partially control for this possibility in Table 5 by including separate indicator variables for periodic reports with and without a Dow Jones alert in addition to indicators for the alerts themselves. In this subsection we attempt to isolate the price and volume reactions to a narrow intra-day period surrounding the release of Dow Jones alerts, thereby potentially eliminating other confounding effects.

We start with the subsample of alerts issued within trading hours (15,403), and then limit our focus to those alerts issued between 10:30 a.m. and 3:00 p.m. (11,059) to allow for the 60-minute

²⁰ Consistent with our result for the legal-related alerts, our discussions with a money manager indicate that some institutional investors rely on information intermediaries to track litigation-related disclosures or information of companies they follow.

²¹ Coeff. + Const. captures the total market reaction to an initial single alert that contains news content corresponding to the specific category (i.e., setting *Multiple*, *Second Alert Day*, and *Third and Following Alert Days* to zero).

TABLE 6
Regression Results of Market Reaction by News Categories

	<i>SAER</i>		<i>STV</i>	
	Coeff.	Coeff. + Const.	Coeff.	Coeff. + Const.
Performance (<i>PER</i>)	-0.0405 (0.195)	0.1236 (0.000)***	0.0026 (0.926)	0.0909 (0.000)***
Credit Related (<i>CRE</i>)	-0.0449 (0.021)**	0.1193 (0.000)***	-0.0196 (0.277)	0.0687 (0.028)**
Equity Related (<i>EQU</i>)	-0.0471 (0.028)**	0.1170 (0.001)***	-0.0292 (0.152)	0.0591 (0.080)*
Business Structure Change (<i>BSC</i>)	-0.0714 (0.004)***	0.0928 (0.012)**	-0.0133 (0.589)	0.0750 (0.036)**
Corporate Legal Issue (<i>LGL</i>)	0.0558 (0.079)*	0.2199 (0.000)***	0.0849 (0.002)***	0.1732 (0.000)***
Employment Related (<i>EMP</i>)	0.0257 (0.598)	0.1898 (0.001)***	0.1063 (0.022)**	0.1946 (0.000)***
Corporate Business (<i>BUS</i>)	0.0143 (0.800)	0.1785 (0.003)***	0.0924 (0.077)*	0.1807 (0.002)***
Forecast (<i>FOR</i>)	-0.0531 (0.049)**	0.1111 (0.004)***	-0.0055 (0.830)	0.0827 (0.021)**
Bankruptcy (<i>BKC</i>)	0.1403 (0.056)*	0.3045 (0.000)***	0.2341 (0.001)***	0.3224 (0.000)***
Tax Related (<i>TAX</i>)	0.0117 (0.883)	0.1759 (0.043)**	0.0361 (0.629)	0.1244 (0.127)
Other (<i>OTH</i>)	0.0383 (0.294)	0.2024 (0.000)***	0.0848 (0.004)***	0.1730 (0.000)***
Missing	-0.3026 (0.000)***	-0.1384 (0.055)*	-0.2693 (0.001)***	-0.1810 (0.014)**
Unclassified	0.0693 (0.448)	0.2335 (0.006)***	0.0816 (0.265)	0.1699 (0.011)**
Multiple	0.0576 (0.039)**		0.0386 (0.141)	
Second Alert Day	-0.0821 (0.012)**		-0.0991 (0.002)***	
Third and Following Alert Days	-0.0861 (0.218)		-0.2143 (0.003)***	
Constant	0.1641 (0.000)***		0.0883 (0.004)***	
R ²	0.0034		0.0060	

*, **, *** Represent statistical significance at two-tailed 0.1, 0.05, and 0.01 levels, respectively.

This table reports market reaction results by news categories based on 17,343 Alert Days with market reaction data. *SAER* and *STV* are as defined in Table 5. We create indicators for each news category as well as controls for alerts with subject codes missing (*Missing*) or not classifiable as firm-specific news (*Unclassified*). We cannot categorize 276 alerts whose subject codes do not indicate any firm-specific news categories (e.g., “Corporate/Industrial News,” “Commodity/Financial Market News”). *Multiple* equals 1 if multiple alerts for the same filing are released in one day, and 0 otherwise. *Second Alert Day* (*Third and Following Alert Days*) equals 1 if it is the second alert day (third and following alert days) after the initial alert day, and 0 otherwise. For each news category indicator in the regressions, we report both estimated coefficient and the sum of the coefficient and the intercept. While the former describes the differential value relevance of each news category, the latter captures the total market reaction to an initial single alert that contains news content corresponding to the specific news category (i.e., setting *Multiple*, *Second Alert Day*, and *Third and Following Alert Days* to 0). Two-tailed p-values are calculated based on firm-clustered standard errors and presented in parentheses.

pre- and post-event windows that we examine.²² After merging with the TAQ database, we have 7,913 alerts with complete trading data. In the spirit of Brown et al. (1992, 77–78), corresponding to each alert we identify a pseudo-event (i.e., a pseudo alert) as occurring at the same hour and minute as the alert and on the same weekday of the week that immediately follows the alert. We choose the pseudo-events after the issuance of the alerts so that earnings announcements are less likely to confound our inferences.

For both pseudo and actual alerts, our intra-day return and volume metrics are measured using the TAQ trade files by keeping only trades that meet all of the following criteria (Ng et al. 2008): (1) trades occurred on the NYSE, AMEX, or NASDAQ; (2) trades were made under regular market conditions; (3) trades were made within the normal trading hours (i.e., 9:30 a.m.–4:00 p.m.); (4) trades were good trades without subsequent cancellations; and (5) the transaction price and the number of shares traded were both positive. We consider a window starting 60 minutes prior to the event minute to 60 minutes following (a total of 121 minutes). For each minute in the event window, we calculate the stock return measure (*ABSRET*) as the absolute value of $\frac{(PRICE_t - PRICE_{t-1})}{PRICE_{t-1}}$, where $PRICE_t$ is the trading price of the last transaction within minute t and $PRICE_{t-1}$ is the trading price of the last transaction before minute t . If no transaction occurs within minute t , then *ABSRET* is set to 0. We use the number of shares traded within the minute deflated by shares outstanding as the metric for trading volume, labeled *SVOL*. Untabulated analysis using the un-deflated number of shares traded yields similar results.

In the two panels of Figure 2 we plot the average minute-by-minute *ABSRET* and *SVOL*, respectively, for the Dow Jones alerts versus the pseudo-events. In both cases, we find no noticeable market activity surrounding the pseudo-events, consistent with their proxy for non-event behavior. However, we find almost instantaneous price and volume reactions to the issuance of Dow Jones alerts, with persistent market movements for several minutes following the alert. Compared to the average *ABSRET* of the 60-minute pre-event period, the absolute returns for the first five minutes following the alert (including the minute of the alert) are between 28 to 52 percent higher, with the corresponding figures of –11 to 3 percent for the pseudo-events (untabulated).²³ Results based on *SVOL* are similar, with 18 to 69 percent higher trading activity following the alert, compared to between –4 and 4 percent following the pseudo-events (untabulated).²⁴ In comparison to the market reaction to the alerts, the untabulated analysis provides no evidence of incremental market movements following the filing of periodic reports that triggered one or more alerts.²⁵

²² Two observations are in order. First, limiting our alerts to those issued between 10:30 a.m. and 3:00 p.m. could introduce another selection bias. However, we believe the benefits of our sample restriction outweigh any costs as the opening-of-day and end-of-day market effects documented in the finance literature (Gerety and Mulherin 1992) would inextricably confound our analysis based on the full sample. Moreover, we believe that the incentives of the newswire service should be unaltered by the timing of the alert, so the results based on our restricted sample should have broader implications. Second, Brown et al. (1992) use a similar restriction in their analysis to control for the opening-of-day and end-of-day effects.

²³ Kim et al. (1997) do not find price reactions to the public release of analyst recommendations by Dow Jones through the Broad Tape. The lack of a price reaction is not surprising given that Dow Jones is merely re-releasing information that was privately distributed to important analyst clients before the market opened. In fact, Kim et al. (1997) find that the information released privately to the clients was impounded during the first 5 to 15 minutes after the market opened. In our context, while the periodic reports are publicly available, Dow Jones screens for and identifies market-moving information from them. Indeed, our results suggest that the screening service of Dow Jones has informational value to the marketplace.

²⁴ We also find that the average number of trades in the first 16 minutes $[0, +15]$ subsequent to an alert is 30 as compared to 24 in the same window following a pseudo alert, representing a 25 percent increase.

²⁵ In addition, we plot the price and volume activities of the 48,565 SEC filings during the sample period that did not receive a Dow Jones filing alert and are filed between 10:30 a.m. and 3:00 p.m. To address the quarter-end effect documented in Li and Ramesh (2009a), we divide the filings into three groups: 10-K QEND (3,594), 10-K NQEND

We next formally test the significance of the price and volume reactions to the release of Dow Jones alerts. We define the event window as consisting of the event minute corresponding to the alert (or SEC filing) time stamp and the 15 minutes immediately following the time stamp. To avoid confounds, we further limit our analysis to periodic reports and alerts that are more than 15 minutes apart. We define pre- and post-event periods of the same length (denoted $[-16, -1]$ and $[+16, +31]$) for benchmarking. In addition, using the pseudo-events discussed above, we similarly define three event windows. For each of the 16-minute windows, we calculate the absolute return and share turnover measures. The significance of t-tests for the mean absolute returns and share turnover at the alert and SEC filing event windows are reported in Table 7, Panels A and B, respectively. We also report test results separately for quarterly and annual reports and their corresponding alerts.

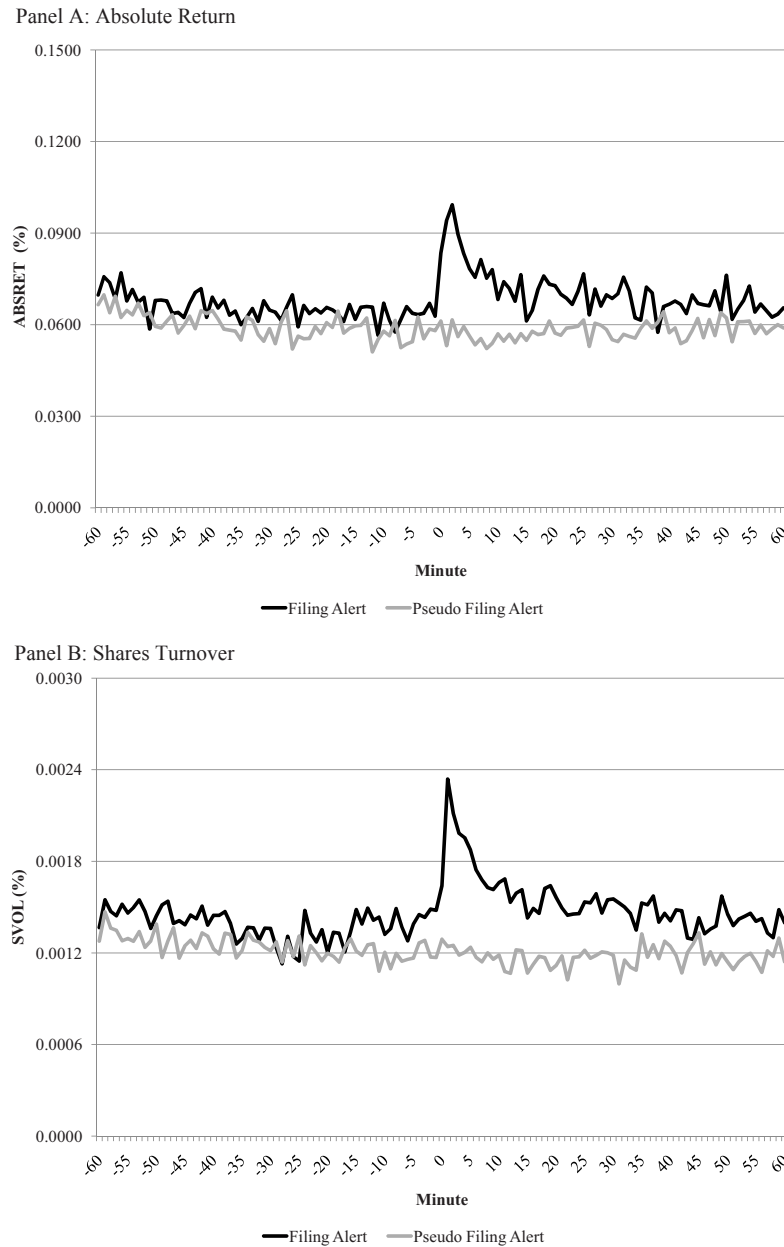
In columns (4) and (5) of both panels, we compare the “true” event-window price or volume measure with that of the pre- and post-event window, respectively. In columns (9) and (10), we report similar test results, but based on pseudo-event windows. Finally, in column (11), we compare the “true” event-window price or volume measure with that of the pseudo-event-window. Focusing on the pseudo-event results for the alerts and the SEC filings in columns (9) and (10), the event-window returns and volume behave in a similar fashion to those in both pre- and post-event window, with only 4 out of 24 comparisons providing significant differences. Overall, the pseudo-event window market reaction appears to be a reasonable benchmark for testing the information content of Dow Jones alerts. In addition, the results are unlikely driven by a small number of trades, in that during the first 16 minutes subsequent to an alert (pseudo alert), 61.5 (59.2) percent of the observations indicate a price change and 75.0 (73.3) percent have nonzero trading volume (untabulated).

As shown in Table 7, Panel A for all alerts (“All”), when compared to the pre- or post-event window, we find a statistically significant increase in market activity at the event window capturing the release of Dow Jones alerts (columns (4) and (5)). This result holds when we benchmark the alert event window against the pseudo-event window (column (11)). Note that the economic significance is larger when we benchmark against the pseudo-event window. For instance, the alert event price reaction is 35 percent larger when compared to the pseudo-event, but it is only 18 percent larger when compared to the pre-event period. The corresponding figures for the trading volume are 47 percent for the pseudo-event comparison and 22 percent for the pre-event comparison.²⁶ When we break down alerts between those that are 10-K-based versus 10-Q-based, the results are largely consistent, in that both sub-groups show significant market reactions. The results in Panel B indicate that, when compared to the pre- or post-event period, the periodic SEC reports do not generate significantly larger price or volume activity during the 16-minute filing window using any of the three benchmarks.

(6,038), and 10-Q (38,933), where 10-K QEND (NQEND) refers to 10-Ks filed within (outside of) the $[-1, +1]$ trading day window around any calendar quarter-end. 10-Q refers to all 10-Q filings. The price and volume charts for all three groups show no evidence of a market reaction around the filing of the periodic reports. This evidence dispels the concern that the lack of an immediate intra-day market reaction to filings that are followed by alerts may not be generalized to other periodic SEC filings. Consistent with Li and Ramesh (2009a), 10-Q graphs show no noticeable market activity throughout the event window, whereas non-quarter-end 10-K graphs show higher market volatility but similar price and trading levels when compared to the 10-Qs. The quarter-end 10-Ks are associated with the highest volatility and trading/price levels among the three groups, but the high volatility and trading levels are present during the entire 121-minute window, consistent with a quarter-end effect (Li and Ramesh 2009a).

²⁶ Consistent with our analysis of determinants of alert lag (Table 4, Panel B), we find that the longer it takes for Dow Jones to issue an alert, the lower is the market reaction. One-standard-deviation increment in the number of minutes between the filing time and the alert time reduces the 16-minute stock return (volume) reaction by 15.8 (16.9) percent (untabulated).

FIGURE 2
Average Intra-Day Market Reaction to Dow Jones Filing Alerts, by Minute



These figures are based on 7,913 Dow Jones filing alerts issued between 10:30 a.m. and 3:00 p.m. of trading days over 1997–2004. The corresponding pseudo-event window starts with the same hour and minute as the filing alert and on the same weekday of the week that immediately follows the filing alert. *ABSRET* is calculated as the absolute value of $\frac{(PRICE_t - PRICE_{t-1})}{PRICE_{t-1}}$, where $PRICE_t$ is the trading price of the last transaction within minute t and $PRICE_{t-1}$ is the trading price of the immediately previous transaction before minute t . If no transaction occurs

within minute t , then $ABSRET$ is set equal to 0. Shares turnover is the number of shares traded within the minute deflated by total shares outstanding ($SVOL$). All measures have been winsorized at their respective top 0.1 percent.

Sensitivity Analyses and Robustness Checks

To corroborate our findings, we conduct a series of untabulated sensitivity analyses and robustness checks. One concern about the immediate market reactions to Dow Jones alerts is that they may merely reflect noise trading as opposed to trading behavior consistent with improved price efficiency. If so, one would expect complete price reversals as informed traders enter to correct any mispricing or over-reaction. When we classify Dow Jones alerts into good and bad news based on the sign of the price reaction during the five minute window $[0, +4]$, we find no evidence of any price reversal in the bad news group during the next 120 minutes. However, while we find a 30 percent price reversal in the good news group by the 30-minute point, there is no further reversal during the next 90 minutes. In addition, we find no inter-day price reversals when we regress *Alert Day* returns against returns of the next two days.²⁷ Overall, while there is some evidence of intra-day reversal in good news alerts, our primary results do not appear to be driven by noise trading.

To gain further insight into the intra-day market responses to Dow Jones alerts and periodic filings, we examine volume reactions separately for small versus large trades during the window $[0, +15]$. Following [Bhattacharya \(2001\)](#), we define a large (small) trade as any transaction with a dollar value higher than \$50,000 (lower than \$5,000). However, when the stock price is over \$50, any transaction with less than or equal to 100 shares is also defined as a small trade. We calculate the standardized trading volume ($SVOL$) separately for large and small trades by deflating the corresponding raw volumes by total shares outstanding. Untabulated results show that: (1) both large and small trades exhibit significant volume reactions to the issuance of Dow Jones alerts in the first 16-minute event window; (2) small trade volume reaction in the event window exceeds that in the corresponding pseudo-event window by 83.4 percent, but the reaction is only 35.6 percent higher for large trades; and (3) periodic SEC filings generate insignificant volume reactions from both large and small trades. Overall, the large and small trade results echo the aggregate trading volume results. Finally, we find that large trades neither lead nor lag small trades, further refuting the alternative explanation of noise trading.²⁸

Prior research suggests that bad news would attract more coverage by media and other information intermediaries ([Gaa 2009](#)), as managers have lower incentives to disseminate such information voluntarily ([Kothari et al. 2009](#)). Based on the first five-minute price response to the alert, we assign firm-quarters into bad news, good news, and no response categories. Using an ordered probit model, we find that none of the news categories in [Table 6](#) is significantly associated with the sign of the market response. Taken together, our analysis provides a consistent picture of the market reacting immediately to the release of Dow Jones alerts. While we find no pervasive evidence of an immediate price or volume reaction to periodic reports, our results do not suggest that periodic reports never engender instantaneous market reaction. Future research could

²⁷ In our inter-day analysis, we use a pseudo-event day (i.e., the same weekday in the next week) as the benchmark to control for the short-term price reversal documented in the finance literature (see discussions in [Thomas and Zhang \[2008\]](#)).

²⁸ While the total trading volume is not correlated with the level of institutional ownership, we find a statistically significant positive (negative) correlation between event-window volume due to large (small) trades and institutional ownership. To the extent that small trades are more representative of individual trading, DJCFA service is acting as an attention-grabber that facilitates trades by individual investors ([Barber and Odean 2008](#)).

TABLE 7
Intra-Day Absolute Returns and Trading Volume Surrounding Dow Jones Filing Alerts, SEC Filings, and Control (Pseudo-Event) Periods

Panel A: Dow Jones Filing Alerts

		Event				
		Event Window [0,+15]	Pre-Event Window [−16,−1]	Post-Event Window [+16,+31]	Event Minus Pre-Event	Event Minus Post-Event
		(1)	(2)	(3)	(4)	(5)
All	Return	0.485	0.409	0.440	0.075***	0.044***
(7,615)	Turnover	0.029	0.024	0.025	0.005***	0.004***
Alerts on 10-K	Return	0.532	0.397	0.491	0.134***	0.040
(2,704)	Turnover	0.027	0.021	0.024	0.006***	0.003**
Alerts on 10-Q	Return	0.459	0.416	0.412	0.043**	0.047***
(4,911)	Turnover	0.030	0.025	0.026	0.005***	0.004***

		Pseudo-Event (One Week after Event)					
		Event Window [0,+15]	Pre-Event Window [−16,−1]	Post-Event Window [+16,+31]	Event Minus Pre-Event	Event Minus Post-Event	Event Minus Pseudo-Event
		(6)	(7)	(8)	(9)	(10)	(11)
All	Return	0.357	0.380	0.369	−0.023*	−0.012	0.128***
(7,615)	Turnover	0.020	0.020	0.019	0.000	0.001	0.009***
Alerts on 10-K	Return	0.385	0.402	0.397	−0.017	−0.012	0.147***
(2,704)	Turnover	0.022	0.021	0.020	0.000	0.001	0.005**
Alerts on 10-Q	Return	0.342	0.368	0.354	−0.026*	−0.012	0.117***
(4,911)	Turnover	0.019	0.019	0.018	−0.001	0.000	0.011***

(continued on next page)

Panel B: SEC Filings Tagged by Alerts

		Event				
		Event Window [0,+15]	Pre-Event Window [-16,-1]	Post-Event Window [+16,+31]	Event Minus Pre-Event	Event Minus Post-Event
		(1)	(2)	(3)	(4)	(5)
All	Return	0.332	0.333	0.358	0.000	-0.026
(3,669)	Turnover	0.019	0.018	0.020	0.000	-0.002**
10-K Filings	Return	0.318	0.337	0.346	-0.019	-0.028
(1,088)	Turnover	0.019	0.018	0.020	0.001	-0.001
10-Q Filings	Return	0.339	0.331	0.363	0.008	-0.025
(2,581)	Turnover	0.018	0.018	0.020	0.000	-0.002**

		Pseudo-Event (One Week after Event)					
		Event Window [0,+15]	Pre-Event Window [-16,-1]	Post-Event Window [+16,+31]	Event Minus Pre-Event	Event Minus Post-Event	Event Minus Pseudo-Event
		(6)	(7)	(8)	(9)	(10)	(11)
All	Return	0.333	0.326	0.353	0.007	-0.020	-0.001
(3,669)	Turnover	0.018	0.018	0.019	0.000	-0.002***	0.001
10-K Filings	Return	0.358	0.334	0.378	0.024	-0.020	-0.040
(1,088)	Turnover	0.017	0.016	0.019	0.001	-0.001	0.002
10-Q Filings	Return	0.323	0.323	0.343	0.000	-0.020	0.015
(2,581)	Turnover	0.018	0.018	0.020	-0.001	-0.002**	0.001

*, **, *** Represent statistical significance at two-tailed 0.1, 0.05, and 0.01 levels, respectively.

This table is based on the sample period 1997–2004.

Panel A presents the absolute returns and shares turnover during the 16-minute alert window and the corresponding pseudo-event window. All alerts and the two subsamples—10-K-based alerts and 10-Q-based alerts—are shown separately with the respective numbers of observations in parentheses. Only Dow Jones filing alerts issued (1) between 10:30 a.m. and 3:00 p.m. of trading days and (2) beyond 15 minutes after the corresponding SEC filings are included in this analysis. The corresponding pseudo-event window starts with the same hour and minute as the filing alert on the same weekday of the week that immediately follows the filing alert. |Return| is the absolute value of return. Turnover is number of shares traded divided by total shares outstanding. Both metrics have been winsorized at top 0.1 percent and are shown in percentage (%). Event Window refers to the 16 minutes [0, +15] relative to the filing alert. Pre-Event (Post-Event) Window refers to the 16-minutes period immediately before (after) Event Window. The significance tests on difference are based on regressions with the difference as dependent variable regressed on the intercept, after controlling for heteroscedasticity and firm-specific clustering. Panel B presents similar metrics for SEC filings tagged by alerts. Only SEC filings that (1) are filed between 10:30 a.m. and 3:00 p.m. of trading days and (2) are tagged by at least one alert with the first alert issued beyond 15 minutes after the SEC filings are included.

identify circumstances that contribute to immediate processing and reaction to information in periodic reports, which could help regulators grapple with the information mosaic of the mandatory disclosure system currently in place.

VI. CONCLUSION

As capital markets continue the transition into the information age, market participants face not only exponential growth in the quantum of available financial information, but also rapid increases in the number of channels for obtaining information. The new information landscape can stifle even sophisticated investors as they encounter information overload. Consequently, major capital market participants are increasingly relying on internal resources as well as delegated external information intermediaries to screen the influx of corporate financial reports and identify value-relevant information on a timely basis to make informed investment decisions.

Our study focuses on the Corporate Filing Alert service provided by Dow Jones, Inc., which seeks to identify and convey important market-moving information buried in lengthy periodic SEC reports to market participants. We find that for all 10-K/10-Q reports filed between 1997 and 2004, only 9 percent received one or more Dow Jones alerts. Sixty-eight percent of the alerts are issued within 24 hours after the release of corresponding SEC reports.

In general, we posit that Dow Jones' decision to issue an alert is driven by newsworthiness and, therefore, by the perceived value that investors might place on the selected information in periodic SEC reports. We consider investor demand arising from investor awareness and information environment. We find evidence that the likelihood of receiving alerts increases in firms that do not release preliminary earnings, have credit ratings, are included in major market indices, have litigation exposure, or report losses. Among key firm-specific events, firms with a nonstandard audit opinion, in the process of delisting, reporting unusual accounting items, or raising equity capital are more likely to receive an alert. Conditional on issuing an alert, alerts are issued faster on the periodic reports of firm-quarters without a preliminary earnings release or firms from industries with high litigation risk.

Regarding the information content of alerts, we document significant price and volume reactions on the day when news alerts are issued, with bankruptcy- and legal-related news generating the largest reactions. To circumvent any selection bias in firm-quarters followed by DJCFA, we examine the 121-minute event window surrounding the release of alerts, finding that both absolute stock returns and turnover are significantly higher in the 16-minute window immediately following the alert compared with the pre-event or pseudo-event period. The market reactions to alerts are not due to noise trading, although both large and small trades contribute to the reactions. Taken together, our results support the conclusion that Dow Jones alerts convey value-relevant information to investors. Future research could examine whether the documented market reaction reflects both real and informational effects of Dow Jones alerts.

From a regulatory standpoint, the current SEC Commissioner Troy A. Paredes noted that "[t]he federal securities laws primarily focus on ... mandating disclosure. Relatively little attention is paid to how the information is used—namely, how investors and securities market professionals search and process information and make decisions based on the information the federal securities laws make available" (Paredes 2003, 418).²⁹ Our study suggests that the SEC should consider expanding both the breadth and depth of the interactive disclosure requirements. To the extent that mandatory disclosures become more technologically friendly, capital market information intermediaries are bound to leverage the technology by designing faster and better-targeted information search and dissemination strategies to further enhance the efficiency of U.S. capital markets.

²⁹ Commissioner Troy A. Paredes' writing that we cite was published when he was an academic.

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