The Market Reaction to Bank Regulatory Reports

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Abstract: We investigate the role of bank regulatory reports in the information environments of banks. We find that: (1) Call Reports, but not FR Y-9Cs, elicit economically significant stock price and volume reactions when they are publicly released despite the fact that Call Reports usually follow earnings announcements; (2) the release of the Call Reports is tightly clustered around the 30th day after quarter-end; and, (3) after bank regulators undertook a "modernization project" to speed the processing and public dissemination of regulatory reports, the banking industry routinely experiences abnormal stock price volatility and trading volume on the 30th day of the quarter. Our findings are of interest to regulators who require and monitor the reports, banks who prepare the reports, investors who may use the reports, and academics who can base research designs on the timing patterns we uncover.

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Introduction

As publicly traded U.S. banks are announcing earnings and filing 10-Ks and 10-Qs, bank regulators are quietly releasing somewhat similar reports called Call Reports and FR Y-9Cs for each bank. This release process represents a parallel but less understood quarterly reporting system for an industry of considerable systemic importance. Our study examines the role of this parallel system in the industry's information environment, revealing previously unpublicized patterns in the timing of the reports and the related effects on equity markets. We examine whether stock prices respond to the release of the reports, whether the response depends on the timing of the reports relative to other quarterly report releases, and whether the reports affect responses to the other releases. We also examine whether reactions vary with bank characteristics, such as size and risk, which are hypothesized to make the reports more or less informative to investors. Understanding the effects on banks' equity values is important not only because of the fundamental role that equity values play in resource allocation, but also because the values are thought to be useful supervisory signals to regulators (e.g. Furlong and Williams 2006). We examine how equity values impound the very reports that regulators have designed for supervising banks.

The Call Reports and Y-9Cs are publicly accessible on regulatory websites or through subscription data providers such as SNL Financial. Call Reports present information at the individual bank level. In other words, they are filed by each individual bank subsidiary of a bank holding company (BHC) or by independent banks that are not part of a BHC. Y-9Cs present information consolidated at the BHC level, and are thus filed only by BHCs. The two types of reports have similar organization and reportable items.

The information in the reports includes an income statement and balance sheet, and

considerably overlaps with the information in 10-K/Q forms.[1] Compared to 10-K/Qs, the bank regulatory reports tend to be more granular and standardized. That is, they contain finer subcategories of financial statement items and additional details about mortgage lending activities, securitizations, derivatives, regulatory capital, and credit risk. The quantitative information is presented in standardized schedules with almost no qualitative disclosures, in contrast to the free-form tables and text that characterize 10-K/Qs. 10-K/Q releases tend not to cause discernable market reaction (Li and Ramesh 2009). It is an open question whether this finding generalizes to Call Reports and Y-9Cs, given their higher degree of granularity and standardization.

The Call Report and Y-9C release process occurs outside of the Securities and Exchange Commission (SEC) channels; the reports do not appear on the SEC's EDGAR platform used to distribute financial reports such as earnings announcements and 10-Ks, and banks rarely file SEC form 8-Ks to announce the report releases. A historical record of the public release dates is not publicly available, and our Freedom of Information Act request for the release dates was denied. We instead obtained release dates by tracking the release of each report in real time from January 1, 2012 to March 31, 2014 through SNL Financial, which scans the regulatory reporting websites multiple times per day and provided us with a daily listing of the reports that had become available for download.[2]

During this period, we find that most Call Reports become public on their due date, which for nearly all banks is the 30th calendar day following quarter-end or the next business day if the

[1] The recognition and measurement practices followed in creating the regulatory reports conform to U.S. generally accepted accounting principles (GAAP), although the reports provide information that goes beyond what is required by U.S. GAAP. Because Call Reports are bank-level reports, each bank (along with its consolidated subsidiaries) is considered an accounting entity (FDIC 2012, 11).

[2] Gathering these dates in real time by downloading the bank files each day from SNL Financial was necessary because SNL Financial overwrites its record of the original filing when there is an amendment.

30th calendar day falls on a weekend or holiday.[3] Approximately 92 percent of Call Reports are released in the five trading days around the 30th calendar day, beginning on day 27 and ending on day 31. Days 29 and 30 are the peak days, with 17 percent released on day 29 and 56 percent released on day 30. Virtually all are filed by day 35, the deadline for a few large banks with foreign offices. Releases of Y-9Cs cluster around their due date as well, which is the 40th day following interim quarter-ends and the 45th day following the fourth quarter-end. Peak times for Y-9C releases are days 36 to 44 following interim quarters and days 40 to 49 following the fourth quarter. Based on public statements by regulators and our own empirical analysis (described later), we estimate that the regulatory reports began exhibiting these timing patterns in 2005.

We find that Call Reports elicit statistically and economically significant stock price and volume reactions when they are publicly released. The market reaction is significant even when the Call Report follows the quarterly earnings announcement (which is the most common scenario). To proxy for price reaction we compute a measure of price volatility based on the absolute value of returns on the report release day and the following day (event days 0 and +1). Our trading volume metric is also measured over the same two-day window. In our main regression specification, we find that mean price volatility (trading volume) around Call Report release dates is 8.4 percent (8.6 percent) higher than the non-event day mean. Mean price volatility and volume are similarly elevated for Call Reports that follow earnings announcements. Call Reports that precede earnings announcements are characterized by elevated volume but not price volatility. We find no statistically significant price or volume reaction to releases of Y-9C reports; the most plausible explanation is that Y-9Cs are released late in the reporting season, after the information contained therein has been preempted by Call Reports, earnings announcements, and sometimes 10-K/Qs.

[3] For ease of exposition, we refer to "day 30" as the 30th calendar day following quarter-end, or as the next business day if the 30th calendar day falls on a weekend or holiday.

Sensitivity tests provide more evidence that Call Report releases are the cause of the elevated market activity. We detect no elevated market activity in the days just prior to day 30, except among the banks whose Call Reports are released on those days. Thus, the market activity around these early report releases cannot be attributed to general market factors. On day 30 itself, we find elevated price volatility both for the banks for which Call Reports are released on day 30 and for the banks for which Call Reports were previously released. This is consistent with information in the day 30 Call Reports spilling over to other banks. A possible alternative explanation may be that market events other than Call Report releases routinely affect bank stocks on day 30. This alternative explanation does not, however, seem likely because, as explained further below, we find that bank stocks do not exhibit elevated activity on day 30 until 2005, the year bank regulators began releasing Call Reports in a tight cluster around day 30. A further sensitivity test shows that our main results are quantitatively similar after controlling for potentially confounding events.

We next investigate whether the market reaction to Call Reports varies with bank characteristics. We focus on Call Reports released after earnings announcements because this is the most common sequence and results may speak to why investors find the Call Report useful after they have seen the earnings announcement. We find that the price reaction to Call Reports decreases in bank size, consistent with large banks having more robust information environments that make Call Reports less relevant. There is also evidence that the market reaction to Call Reports increases in bank risk, as measured by asset/liability maturity gaps, and decreases with the incurrence of losses.

In late 2005, bank regulators completed a "modernization project" to speed the processing and public dissemination of regulatory reports (Gruenberg 2006; FFIEC 2006, 5). We find a pattern

of market responses to Call Reports that is consistent with the timing of the modernization project. We extend the sample period back to the year 2000 and partition by year to determine when day 30 became a market-moving event day in the banking industry. We find that eight of the nine years between 2005 and 2013 exhibit statistically higher price volatility and/or trading volume around day 30. In contrast, none of the five years between 2000 and 2004 exhibit statistically higher price volatility or trading volume around day 30. Finally, an earlier draft of this study was covered in the business press and promoted to investor clients of SNL Financial and Barclays. We find that market reaction to Call Report releases became more pronounced after the coverage, indicating a limited awareness of Call Report releases prior to the study.

Our findings have several implications for practice and regulation. First, we highlight the fact that market-moving information about banks is routinely released in a tight window around the 30th day of every quarter, a fact that has not been well understood or empirically examined. For some banks this information release precedes the earnings announcement, which is a highly unusual way for public company earnings information to be unveiled. Typically public companies give prior notice of the date and time of the earnings announcement so that investors can prepare for it.[4] In contrast, no prior notice of the date and time of a Call Report release is available. Furthermore, the release itself typically is not accompanied by a public alert such as an 8-K, thus providing a timing advantage to investors who subscribe to alerts from private data vendors or who conduct their own scraping of regulatory websites. The test for changes in market reaction after the early draft of the study was publicized suggests a prior limited awareness of the report release process. The opaque aspects of the report dissemination process may still be limiting investor attention.

[4] Regulation FD requires advanced notice of earnings conference calls (SEC 2000). Although no advanced notice of earnings press releases is technically required, in practice the vast majority of public companies issue prior notices of earnings press releases because conference calls are typically conducted in conjunction with the press release. Even before Regulation FD, it was common practice for firms to give prior notice of earnings releases.

Second, the finding that bank stock prices respond to information that is required by bank regulators provides evidence supporting the proposition that bank regulators can use equity market values as signals in their supervisory processes (Furlong and Williams 2006; Curry, Fissel, and Hanweck 2003). Third, the findings are suggestive of a positive externality related to the costly regulatory reporting process; even after earnings are released, investors react to Call Report releases. The reaction suggests that the reports have immediate incremental information content, unlike 10-K and 10-Q filings which tend not to elicit immediate market reaction (as found in this and other studies discussed later). We do not find that the market reaction is systematically traceable to specific information items or schedules in the report, suggesting that investors' uses of the reports are highly contextual. Consistent with highly contextual usage, a manager of SNL's banking data unit states that clients consider granularity to be the primary benefit of the reports. A secondary benefit is the reports' standardization, which allows for efficient and reliable input into valuation models, thus facilitating the immediate market reactions observed in the tests.

Finally, our study's results have two important implications for academic research. First, it appears that researchers can create relatively accurate approximations of Call Report release dates, despite the absence of a historical record. Our timing analysis shows that day 30 is an accurate assumption for 56 percent of Call Report releases, and an event window spanning days 27 to 31 captures 92 percent of releases. Second, in market studies involving samples that include banks, research designs should take into account banks' abnormal market activity around day 30 and the potential preemption of earnings announcements or other disclosures that follow day 30.

1. Motivation and Background

2.1 Motivation

The banking industry plays a crucial role in the economy by acting as a financial intermediary between capital providers (e.g. depositors) and borrowers. Bank equity serves as a

buffer to shield capital providers, or government insurers of capital providers, from losses. The market valuation of this buffer may serve as a useful supervisory signal to regulators because it aggregates market participants' judgments about bank risk (Furlong and Williams 2006; Curry et al. 2003). Although the interests of equity holders do not perfectly align with those of bank regulators, Furlong and Williams (2006, 20) conclude that stock prices signal relevant aspects of risk to regulators, and point out that it may be more practical for regulators to rely on stock prices than debt prices because stocks tend to trade in more liquid markets. The Federal Reserve Board (FRB) stated that "a review of market indicators in the lead up to the recent financial crisis reveals that market-based data often provided an early signal of deterioration in a company's financial condition" (FRB 2012, 640). Moreover, to implement Section 166(c)(1) of the Dodd-Frank Act, the FRB proposes using several equity- and debt-based market indicators, including a version of the market-to-book ratio, as "remediation triggers" for heightened supervisory review as soon as numeric thresholds are breached. The effectiveness of these market-based indicators depends, in part, on the ability of market values to promptly impound information from regulatory reports.

Understanding the use of bank regulatory reports in equity markets is also important because of the costs of preparing and distributing the reports. An interagency body called the Federal Financial Institutions Examination Council (FFIEC) expends public resources to maintain the report distribution website and to validate and publicly release each report as fast as within one day of receipt (FFIEC 2006, 6). The costs associated with such rapid turnaround may not be justified if investors derive little immediate informational value from the reports. The reporting process is also costly for bank preparers. Frequent mergers and acquisitions in the banking industry make it difficult and costly to integrate reporting systems. Moreover, some report items require manual data capture methods (American Bankers Association et al. 2011). A better understanding

of the externalities associated with public dissemination of the reports may help policymakers in setting reporting requirements.

Finally, the study contributes to the academic literature on market reaction to routine financial disclosures. A long line of studies finds that SEC 10-K/Q forms have little information content incremental to earnings announcements, despite containing the complete set of financial statements, footnotes, and a host of other disclosures. Studies of the period prior to electronic filing on the SEC's EDGAR website generally find no market reaction around 10-K/Q filing dates. Easton and Zmijweski (1993) conduct the largest-sample study of the pre-EDGAR period and find a statistically significant market reaction only when the 10-K/Q is the only release of financial results for the period.[5] In these cases, the 10-K/Q is the de facto earnings release.

A similar pattern has persisted during the period of electronic filing on EDGAR. While some studies of the EDGAR period find a statistically significant market reaction on 10-K/10-Q filing dates (Asthana and Balsam 2002; Griffin 2003; You and Zhang 2009), Li and Ramesh (2009) point out that the studies do not consider the role of concurrent news about earnings. After eliminating cases when the 10-K/Qs serve as the de facto earnings release, or when an earnings announcement is concurrently issued with a 10-K/Q, Li and Ramesh (2009) find no reliable reaction to 10-Qs and find that reaction to 10-Ks is concentrated in the relatively small number of 10-Ks filed around calendar quarter-ends. The authors attribute the quarter-end reaction to increased market attention and information transfer across firms at calendar quarter-end. Our study examines whether the market reacts to a financial report that is similar to the 10-K/Q except that it has a standardized format, more granular quantitative disclosures, and considerably fewer qualitative disclosures. Thus, the study improves understanding of circumstances under which financial

[5] Other studies of the pre-EDGAR period include Foster and Vickrey (1978), Foster, Jenkins, and Vickrey (1983), Cready and Mynatt (1991), and Stice (1991). In general, these studies find little market reaction to 10-K filings.

information beyond that provided in earnings announcements has information content.

2.2 Institutional Background

Federally supervised commercial banks and BHCs must file financial statement-based reports with federal regulators each quarter. The two most extensive reports are the Call Report and the Y-9C, each containing over 2,000 reportable items and exceeding 50 pages.[6] Y-9Cs are filed by BHCs and Call Reports are filed by each individual bank within a BHC or by banks that are not part of BHCs.[7]

The reportable items for the Call Report are set by the FFIEC, an interagency body that primarily consists of high-ranking representatives from the Federal Reserve Board, FDIC, Office of the Comptroller of the Currency, and National Credit Union Administration. Reportable items for Y-9Cs are set by the Federal Reserve Board because it is the designated regulator of bank holding companies, but in practice the Call Report and Y-9C contain a similar set of reportable items which are usually reported on nearly identical schedules. Both reports include an income statement and balance sheet based on U.S. GAAP, along with many supporting schedules that usually present sub-classifications of particular income statement or balance sheet elements. The next section details differences between bank regulatory reports and 10-K/Qs.

Call Reports must be submitted and must have passed all of the FFIEC's validity checks within 30 days after quarter-end, or 35 days for banks that have more than one foreign office (FDIC 2013, 7). Bank regulators state that "a few larger banks with foreign offices" qualify for the 35-day deadline (FRB et al. 2007). Y-9Cs must be submitted to the Federal Reserve Board within 40 days after interim quarter-ends, unless that day falls on a weekend or holiday, and within 45 days after

[6] The official form name of the Call Report is "FFIEC 031" for banks with domestic and foreign offices and "FFIEC 041" for banks with domestic offices only.
[7] Bank holding companies with total consolidated assets of less than $500 million generally are not required to file Y-9Cs.

the quarter-ending December 31. Based on communications with FDIC staff, the reports are typically publicly available on the FFIEC website within 24 hours of receipt.

Regulatory agencies do not make public a record of the original submission or release dates. The fields on the two report types that denote the date and time of submission are designated as confidential and are withheld from the public.[8] For both report types, a "last update" date is publicly observable on the front page the reports. However, this date is overwritten whenever the report is amended, and amendments are made frequently. In our sample, 36.3 percent of the reports are amended within the first 3 months, and our review in 2014 of ten Call Reports and ten Y-9Cs filed in 2008 and 2009 found that six (ten) Call Reports (Y-9Cs) had "last update" dates after the legal filing deadline, indicating that the original date had been overwritten. Consequently, studies that seek to examine the market reaction to the original filing of these reports should not rely upon the report date on the front page of the reports.

Banks expend significant resources on regulatory reporting, incremental to the resources expended in GAAP reporting, as illustrated by the following comment letter excerpt from a bank industry lobby group:

> "In anticipation of meeting the LBP [Large Bank Pricing] rule's requirements for fourth quarter 2011 (and beyond), LBP banks have and continue to work hard to develop systems and to educate personnel to capture the data required. In doing so, it has become clear that there continue to be real practical barriers to capturing and reporting data consistently, even prospectively. The banks have found that automated solutions are not available and cannot be easily created to capture information. As a consequence, they have had to look to manual methods for data capture, which is very costly and time consuming, and involves considerable training for thousands of employees" (ABA et al. 2011, 2).

Federal legislation has been proposed to reduce the reporting burden for some banks (Hensarling 2016, 500-501). Regulators themselves also expend resources in validating the reports and posting

[8] The Call Report fields are RSSD8798 and RSSD8799.The Y-9C fields are BHCKF841 and BHCKF842.

online. Between the banks and the regulators, the reports are checked against approximately 2,000 validation criteria and are not posted unless the criteria are met (Gruenberg 2006). Investment in a "modernization" project in 2005 allowed regulators to begin taking delivery of the reports on the day after quarter-end (compared to weeks after) and allowed the reports to be publicly released within a day of receipt (compared to several days after) (FFIEC 2006, 6).

2.3 Differences between Bank Regulatory Reports and 10-K/Qs

There is much redundancy across bank regulatory reports and 10-K/Qs. We compared the bank regulatory reports to a 10-K/Q of five banks of varying sizes, and noted four major areas where the bank regulatory reports tended to provide more information than did the 10-K/Qs. First, the bank regulatory reports provide a more detailed breakdown of trading assets and liabilities by type (schedule RC-D on the Call Report and schedule HC-D on the Y-9C). This schedule must be completed by banks with greater than $2 million of trading assets in any of the prior four quarters. The breakdown includes Treasury securities, government agency securities, five types of mortgage-backed securities, and other debt securities, as well as short positions broken down by equity, debt, and other securities.

Second, the bank regulatory reports contain a schedule of the dollar volume of residential mortgages originated, purchased, and sold during the quarter, along with repurchases, indemnifications, and warranty reserves for sold loans (schedule RC-P on the Call Report and schedule HC-P on the Y-9C). The schedule must be completed by banks with $1 billion or more in total assets or banks with greater than $10 million in residential mortgage lending activity for two consecutive quarters. The mortgages are classified into closed-end first liens, closed-end junior liens, and open-end loans extended under lines of credit. 10-K/Qs often contain no comparable schedule and less detailed information about residential mortgage lending.

Third, the bank regulatory reports contain a schedule showing, for each major asset category, the portion of the asset that is classified into each of four risk-weight categories (schedule RC-R on the Call Report and schedule HC-R on the Y-9C). The same is presented for derivatives and off-balance-sheet items such as letters of credit and loan commitments. The risk-weightings are used to compute total risk-weighted assets, which serves as the denominator of the Tier 1 and Tier 2 risk-based capital ratios. The schedule allows investors to understand the risk composition of each asset or exposure. The schedule also lists the notional amounts of derivative contracts by type (interest rate, foreign exchange, gold, etc.) and by maturity (one year or less, two to five years, and over five years). Comparable information is not consistently included in 10-K/Qs.

Fourth, the bank regulatory reports contain a schedule showing securitization and asset sale activities by loan type (schedule RC-S on the Call Report and schedule HC-S on the Y-9C). Loan types include residential mortgage, home equity, credit card, auto, and commercial. Several features of the securitizations are reported, including the balance of assets sold and securitized with servicing retained or with recourse, the maximum amount of credit exposure arising from the recourse, unused commitments to provide liquidity to the securitizations, and past due loan amounts, charge-offs, and recoveries related to the securitizations. This information is more detailed and structured than what is typically found in 10-K/Qs.[9]

Bank regulatory reports do lack some information that is found in 10-K/Qs. Major items that are contained in 10-K/Qs but are not found in the regulatory reports include: the Statement of Cash Flows, footnotes to the financial statements, shares outstanding and per share information, financial information for non-bank segments, and qualitative disclosures such as Management's Discussion and Analysis of Results, the Item 1 Business section, the auditor report, governance information,

[9] Y-9Cs, but not Call Reports, also report quarterly averages for some balance sheet items (Schedule HC-K). This information is not required for 10-Qs but is for 10-Ks. See Owens and Wu (2015).

and internal control deficiencies. In summary, there is substantial overlap across bank regulatory reports and 10-K/Qs, but each type of report contains some unique information.

2. Sample Selection and Preliminary Analysis

3.1 Sample Selection

We restrict the sample to publicly traded BHCs that file a Y-9C report and also own a commercial bank that files a Call Report, excluding eight publicly traded commercial banks that are not held by BHCs. In order to link the BHCs to commercial banks, we use the Summary of Deposits file from the FDIC website. We identify the public release dates of the Call Reports and Y-9Cs from January 1, 2012 to March 31, 2014 by downloading on a daily basis the reports available in the SNL financial institutions database.[10] This allows us to track when a regulatory report was initially filed and subsequently amended.[11] Each day after quarter end, we tracked the release date and subsequent amendments of reports in real time. For example, for the fourth quarter-ended December 31, 2011 we tracked the release and amendment dates of all fourth-quarter Call Reports and Y-9Cs filed from January 1, 2012 to March 31, 2012.

We obtain earnings announcement and 10-K/Q filing dates from Compustat and stock market return, volume, and shares outstanding data from CRSP. All other data items come from Federal Reserve Y-9C reports unless stated otherwise. To avoid potential confounding in our market reaction tests caused by a bank concurrently releasing two or more types of filings, we remove a BHC's day t from the sample if two or more filings occur on days t-1 to t+1. Our final sample used in the market reaction tests consists of 164,802 BHC-day observations across 319

[10] SNL financial also collects, standardizes, and disseminates all relevant corporate, financial, market and M&A data for the banking, financial services, insurance, real estate, energy, and metals & mining industries.

[11] Any report released on a U.S. holiday or a weekend is adjusted to the next trading day. In addition, during the sample period the U.S stock market was closed due to Hurricane Sandy on October 29th and 30th of 2012 and therefore we assign October 31st as the regulatory filing date.

BHCs.

If a BHC is a multibank holding company (i.e. owns multiple commercial banks), it will be affiliated with multiple Call Reports in a given quarter and may stagger the issuance dates of those Call Reports. However, only 12 percent of the BHCs in our sample are multibank holding companies, and 49 percent of the time these multibank holding companies issue all of their Call Reports on the same day. On average, the Call Reports filed by a multibank holding company on its first filing day of the quarter reveal 62 percent of the holding company's total assets (the median percentage of assets revealed is 85 percent). Given that there are relatively few BHCs with staggered Call Reports and that a large portion of their assets tend to be reported on the day in which the first Call Report is released, we make the design choice in all analyses to include only the first Call Report filing day for a given BHC in each quarter.

3.2 Market Reaction Metrics

We measure market reaction in short windows around the report release dates using a price and a volume metric. The price volatility metric is computed as follows:

$$RET_{it} = \frac{\sum_{t=0}^{1} |R_{it} - R_{Mt}|}{E\left(\sum_{t=0}^{1} |R_{it} - R_{Mt}|\right)} \quad (1)$$

where R_{it} (R_{Mt}) is bank i's (CRSP value weighted index) stock return on day t. The numerator is the absolute value of the market-adjusted return cumulated over days t and t+1. The denominator is the mean of this quantity measured during the last month of the previous quarter, which controls for the bank's normal level of price volatility near the event dates. We use the last month of the previous quarter as a baseline for a bank's price volatility because this month tends not to have filing events. Using absolute returns eliminates the need to specify an expectations model for the direction in which the market will respond to a filing. We include the return on day t+1 to accommodate reports that are filed after market hours, and to allow time for market participants to

process the information in the filings.

The volume metric is computed as follows:

$$VOL_{it} = \frac{\sum_{t=0}^{1} \frac{V_{it}}{Shs_{it}}}{E\left(\sum_{t=0}^{1} \frac{V_{it}}{Shs_{it}}\right)} \quad (2)$$

where V_{it} is bank i's trading volume on day t, and Shs_{it} is bank i's shares outstanding on day t. The numerator of the metric sums bank i's share turnover (V_{it} / Shs_{it}) over days t and t+1. The denominator controls for the normal level of two-day share turnover during the last month of the previous quarter.[12] The VOL (RET) metric is sensitive to cases when there is disagreement (consensus) among investors about how the information in a filing affects firm value (Beaver 1968). While we expect results to be similar across the two metrics, we use both metrics to deal with the possibility that reaction to bank regulatory filings may tend to be dominated by either disagreement or consensus.

3.3 Timing of the Reports and Preliminary Test of Market Reaction

Figure 1, Panel A, shows timing patterns for releases of the four types of reports: earnings announcements, Call Reports, Y-9Cs, and 10-K/Qs. The figure plots the percentage of reports released each day, by report type, over the 62 trading days following quarter-end. We designate the 30th calendar day as day 0 in the figure in order to more clearly display the clustering of Call Reports that occurs around the 30th calendar day following quarter-end.[13] Thus, other days in the

[12] We do not market adjust bank i's share turnover because the share turnover of our sample banks tends to exhibit a weak relation with market-level share turnover. In untabulated analysis, we estimate firm-quarter regressions of two-day firm-level share turnover on two-day market-level share turnover over the last month of the quarter (i.e. over the control period used in the VOL denominator). We find no statistically positive relation for 52 percent of bank quarters. This absence of a statistically positive relation is particularly common among banks whose Call Reports are released before earnings announcements; we find no statistically positive relation for 69 percent of these bank quarters, with 35 percent having a negative estimated relation. Later we conduct robustness tests to assess the effect of market-adjusting share turnover on main inferences.

[13] In our sample period, the 30th calendar day always falls on a trading day.

figure represent the number of *trading days* before or after the 30th calendar day.[14]

[Insert Figure 1 here]

The figure shows that releases of Call Reports tightly cluster around the 30th calendar day, with 91.6 percent of Call Reports arriving between days -3 and +1. The peak days are -1 and 0, with 17.3 percent arriving on day -1 and 56.3 percent arriving on day 0. Earnings announcement activity begins before the Call Report activity, starting around day -12, peaking at day -4, and substantially finishing by day +12. Y-9Cs are released later in the reporting season, beginning around day +4.

On the figure we overlay a plot of the mean price volatility metric (RET) by day across banks (see the topmost plot and the secondary vertical axis). To isolate the price volatility related to bank regulatory reports, we remove the price volatility related to earnings announcements by excluding from the daily means the five trading days around each bank's earnings announcement, spanning one day before to three days after. Untabulated analysis shows that the sample banks have elevated RET over this five-day window. The figure shows a clear spike in mean RET at day 0, coinciding with the spike in Call Report releases. The plot hovers around a mean RET of 1.2 prior to day 0, spikes to 1.36 at day 0, and then sharply declines over the next three days. There are no other observable spikes in RET that coincide with peak times for Y-9C or 10-K/Q releases. Untabulated patterns in the plot of mean VOL are similar to the patterns in RET.

Figure 1, Panels B and C show similar plots for fourth-quarter versus interim reports. Both panels continue to show that price volatility peaks with the release of the Call Reports on day 0. Fourth-quarter Call Reports are more clustered than interim Call Reports. Days -1 and 0 contain 18.5 percent and 64.3 percent of fourth quarter Call Reports, compared to 16.7 percent and 52.3 percent for interim Call Reports. Fourth quarter Call Reports are rarely released after day 0; day +1

[14] Figure 1 may not be used as an indication of the degree of clustering of Y-9C reports because fourth-quarter Y-9Cs have a different due-date than interim quarter Y-9Cs; we address this issue next.

contains only 1.4 percent of fourth quarter Call Reports, compared to 9.9 percent of interim Call Reports. Both panels continue to show that Y-9C releases generally do not begin until after earnings announcements and Call Report releases end. Releases of fourth-quarter Y-9Cs tend to precede 10-K filings. Interim Y-9Cs are released in roughly the same time frame as 10-Qs.[15] To summarize the sequencing of the reports, earnings announcements usually arrive first and Call Reports usually arrive second, although in a minority of cases Call Reports arrive first. Y-9Cs and 10-K/Qs arrive later.

Figure 2 shows disclosure timelines for three particular BHCs following the fourth quarter-ended December 31, 2013. Panel A shows that the first disclosure for BBCN Bancorp is the earnings announcement, which is issued 27 days after the fourth quarter-end. Three days later the Call Report is released, followed by the Y-9C and then the 10-K. The reporting sequence of earnings announcement, then Call Report, then Y-9C, and then 10K/Q is the most common sequence in the sample. Panel B shows that JPMorgan Chase exhibits the same sequence as in Panel A, but files four Call Reports. The first three Call Reports are released on the same day (day 31) while the last Call Report is released five days later. Only 13 percent of BHCs need to file more than one Call Report.

Finally, Panel C provides an example of a bank that files its Call Report before the earnings announcement. Old National Bancorp's Call Report is released 29 days after quarter-end followed by the earnings announcement 5 days later. Approximately 19 percent of the bank-quarters in our sample are cases like this in which the bank files the Call Report before the earnings announcement. 78 percent of these cases involve banks that later issue a press release to announce earnings, as

[15] Because we tailor the day numbering scheme to the Call Report due date, the figures slightly understate the degree of Y-9C clustering. This occurs because the number of trading days between day 0 and the due date of the Y-9C varies across quarters. For example, in one quarter the Y-9C due date might fall on day +7 but in another quarter it might fall on day +8.

opposed to the 22 percent of cases in which banks never issue a press release and simply file a 10-Q as the de facto earnings release. On average, the Call Report precedes the earnings release by eleven days (median is six days). These banks tend to be smaller (median assets of $1.1 billion versus $2.1 billion for the full sample) and 33 percent have analyst following. Approximately 68 percent of these banks repeat the pattern of filing the Call Report before the earnings announcement in other quarters. Banks that file a Call Report before an earnings announcement in at least one quarter do so an average of three times over our nine sample quarters.

[Insert Figure 2 here]

4. Research Design

4.1 Market Activity around Public Release Dates

We use the following specification to test for abnormal price volatility or trading volume around the release dates of earnings announcements, Call Reports, Y-9Cs, and 10-K/Qs:

$$RET_{it} \text{ or } VOL_{it} = \alpha + \beta_1 EA_{it} + \beta_2 EA\_EXPANDED_{it} + \beta_3 CALL_{it} + \beta_4 Y9C_{it} + \beta_5 10KQ_{it} + \varepsilon_{it} \quad (3)$$

for all i banks and t trading days. We estimate the model parameters using the trading days in the three months following quarter-end.

The EA_{it}, $CALL_{it}$, $Y9C_{it}$, and $10KQ_{it}$ explanatory variables are (1, 0) indicators denoting whether an earnings announcement, Call Report, Y-9C report, or 10-K/Q is filed by bank i on day t. As explained earlier, we remove a bank's day t from the sample if two or more filings occur on days t-1 to t+1. Thus, the two-day RET and VOL metrics for a given filing event are unlikely to reflect market reaction to the other filings. Additionally, untabulated analysis shows that market activity around earnings announcements is abnormally high beginning one trading day before the announcement and continuing until three trading days after the announcement. To avoid the confounding effect of this market activity when isolating activity around other filing events, we

include an indicator variable called EA_EXPANDED that equals one on trading days -1 and (+1,+3) relative to earnings announcement dates.

Next we augment equation (3) to determine whether the price or volume reaction depends on the sequencing of the reports. We focus on the sequencing of the earnings announcement and the Call Report because they are almost always the first two reports in the sequence, and because no evidence of reaction to Y-9Cs and 10-K/Qs is found when estimating equation (3). The specification is as follows:

$$RET_{it} \text{ or } VOL_{it} = \alpha + \beta_1 EA1_{it} + \beta_2 EA2_{it} + \beta_3 EA\_EXPANDED_{it} + \beta_4 CALL1_{it} + \beta_5 CALL2_{it} + \beta_6 Y9C_{it} + \beta_7 10KQ_{it} + \varepsilon_{it} \quad (4)$$

The suffix of 1 or 2 on the EA and CALL variables denotes whether the report was filed first or second. EA1 (EA2) is an indicator variable for earnings announcement days that precede (follow) Call Report filing days. CALL1 (CALL2) is an indicator variable for Call Report filing days that precede (follow) earnings announcement days. $\beta_1 > \beta_2$ and $\beta_4 > \beta_5$ provides evidence that earlier filings preempt later filings due to redundancy of information.

4.2 Market Reactions and Bank Characteristics

Next we examine whether market reactions to the filings vary cross-sectionally with bank characteristics. We continue to hold the sequencing of the filings constant as in equation (4), and interact EA1, EA2, CALL1, and CALL2 with variables that proxy for bank characteristics:

$$RET_{it} \text{ or } VOL_{it} = \alpha + \beta_1 EA1 + \beta_2 EA2 + \beta_3 EA\_EXPANDED_{it} + \beta_4 CALL1 + \beta_5 CALL2 + \beta_6 Z + \beta_7 EA1*Z + \beta_8 EA2*Z + \beta_9 CALL1*Z + \beta_{10} CALL2*Z + \beta_{11} Y9C + \beta_{12} 10KQ + \varepsilon \quad (5)$$

where Z is the bank characteristic (bank and time subscripts are not included to ease readability). The bank characteristics we examine are size, capital ratio, asset-liability maturity gap, loss incurrence, and absolute changes in earnings, loan loss reserves, and charge-offs (see the Appendix

for variable definitions).

The primary interaction of interest is CALL2*Z because we are most interested in why investors react to a Call Report after they have seen the earnings announcement. Reactions to Call Reports may be stronger for large banks because of increased market attention. On the other hand, large banks may have more robust information environments and more channels for information dissemination, which would make Call Reports less relevant. Reactions to Call Reports may be stronger for riskier banks, such as those with low capital ratios or large asset-liability maturity gaps, because investors desire more information about risk metrics and exposures than that provided in an earnings announcement. Reactions to Call Reports may be stronger for banks with negative earnings due to the increased risk of financial distress posed by losses. On the other hand, reactions may be weaker for loss banks because they are more likely to exercise their abandonment option, reducing investors' propensity to capitalize quarterly innovations in financial performance into the stock price (Hayn 1995; Burgstahler and Dichev 1997). Reactions to Call Reports may be stronger when more reportable items are filled in, when performance metrics such as earnings, loan losses, or charge-offs change dramatically from quarter to quarter, or when there is a higher degree of change across the amounts reported on particular schedules.

4.3 History of Day 30 Market Activity

Finally, given that the Call Report releases are clustered in a tight window around the 30th day of each quarter, we test whether and for how long the 30th day has been characterized by abnormally high market activity in the banking industry. We extend the sample period back to 2000 and estimate equation (3) by year, replacing the CALL indicator with a "day 30" indicator called A_CALL. We use a day 30 indicator because actual Call Report release dates are not available outside of our main sample period. We also replace the Y9C indicator with an A_Y9C variable that

equals 1 on day 45 (40) following fourth (interim) quarter-ends:

$$RET_{it} \text{ or } VOL_{it} = \alpha + \beta_1 EA_{it} + \beta_2 EA\_EXPANDED_{it} + \beta_3 A\_CALL_{it} + \beta_4 A\_Y9C_{it} + \beta_5 10KQ_{it} + \varepsilon_{it} \quad (6)$$

We expect that the estimated coefficient on A_CALL will be consistently positive and statistically significant over 2005 to 2013. Such a pattern in the coefficients would be consistent with abnormal market activity on day 30 beginning to occur after banking regulators completed the modernization project to streamline the processing and dissemination of regulatory reports.

5. Results

5.1 Descriptive Statistics for Test Variables

Table 1, Panel A presents descriptive statistics for the two market reaction variables (RET and VOL) as well as the bank characteristic variables. RET has a mean of 1.18 which indicates that price volatility in the three months after quarter-end is, on average, 18 percent higher than price volatility in the month that preceded the quarter-end. Mean VOL of 1.4 indicates that average volume in the three months after quarter-end tends to be 40 percent higher than volume in the month preceding quarter-end. Mean (median) bank assets (ASSETS) is $44.5 ($2.1) billion. Only 6.1 percent of our sample banks report negative earnings (LOSS). Table 1, Panel B presents Spearman and Pearson correlations among the variables. The two market reaction variables (RET and VOL) are positive and significantly correlated (0.171 Pearson and 0.193 Spearman).

[Insert Table 1 here]

5.2 Descriptive Statistics for Amendments

Table 2, Panel A provides descriptive statistics on the frequency, timing, and magnitude of amendments to Call Reports.[16] The descriptive statistics reflect amendments that occur in the three

[16] These amendments are mutually exclusive of the accounting errors corrected using cumulative effect adjustments on line 2 of Call Report schedule RI-A – Changes in Bank Equity Capital. If a bank corrects an error by amending a past

months after quarter-end, which is our window for tracking the release of the original regulatory reports and subsequent amendments in real time. Given that most Call Reports are filed around day 30, the statistics generally reflect amendments that are filed over the next 60 days.

Panel A shows that 970, or 36.3 percent, of Call Reports are amended in the three months after the quarter-end. Untabulated analysis shows that amendments are particularly common in the first 16 days after release; the first 16 days account for 46 percent of the total amendments filed over the remainder of the quarter. An FDIC staff member explained that these early amendments likely stem from detailed reviews of the Call Reports conducted by FDIC analysts during the two weeks following submission. The reviews are distinct from the automated validation checks that the reports must pass before they are posted. As discussed earlier, amendments often continue to be filed over the ensuing years; we find that six of ten randomly selected Call Reports from 2008 and 2009 were amended at least once over the next six years. The high rate of amendments, both over the near and long term, is surprising because Call Report instructions state that amendments are not required unless errors are material as defined in FASB Concepts Statement 8 (FDIC 2013, 7). However, an FDIC staff member indicated to us that, in practice, Call Reports are amended for errors of almost any size.

Only 114 of the 970 amendments (11.8 percent) alter the total assets balance, and the mean change in assets across the 114 amendments is miniscule: $2.95 million or 0.2 percent of total assets. Only 198 of the 970 amendments (20.4 percent) alter the Tier 1 Capital Ratio, and the mean (median) difference in the Tier 1 Capital Ratio across the 198 amendments is 21 (6) basis points, which represents a 1.3 (0.4) percent change in the Tier 1 Capital Ratio for these banks.

report, this line on schedule RI-A would be left blank. Conversations with bank regulators indicate that more significant errors should be corrected via amendment while less significant errors can be corrected by making a cumulative effect adjustment on schedule RI-A.

In Panel B we examine the market reaction to the 758 amended Call Reports that do not coincide with an earnings announcement, Y9C, and/or 10-K/Q release. There is no evidence of price or volume reactions to the amendments, which is not surprising given the small effects on assets and capital ratios observed in Panel A. Taken together the results from Table 2 indicate that a significant number of Call Reports are amended, but the amendments tend to be immaterial as evidenced by the small mean size of the errors and the lack of market reaction.

[Insert Table 2 here]

5.3 Univariate Tests of Market Reaction

Table 3 compares the return (RET) and volume (VOL) metrics over the two-day (0, +1) window around event days and non-event days for each of the four types of filings (EA, CALL, Y9C, 10KQ). As explained in the sample selection section, we exclude an event day if the bank releases another filing within one day of the event day. Non-event days are the trading days in a quarter when none of the four types of filings are released. Results for earnings announcement event days are labeled as "EA" in the table. Consistent with prior research (e.g. Beaver 1968), we find higher mean and median RET and VOL on earnings announcement event days relative to non-event days ($p < 0.01$). Mean and median RET on earnings announcement days are approximately 65 percent higher compared to non-event days.

The earnings announcement precedes the Call Report in 1,556 cases (labeled as EA1) and follows the Call Report in 185 cases (labeled as EA2). Mean and median RET and VOL are statistically significantly higher on earnings announcement event days regardless of whether the earnings announcement precedes or follows the Call Report. The market reaction is somewhat higher for earnings announcements that precede Call Reports (mean RET of 1.98 for EA1 days versus 1.66 for EA2 days). In contrast, there is little difference between mean and median VOL

across EA1 and EA2 events. Later we use regression analyses to formally test whether the market reaction to earnings announcements is attenuated when they follow the release of Call Reports.

Next we examine the market reaction around Call Report filing dates (labeled CALL). We find higher mean and median RET and VOL on Call Report filing days relative to non-event days ($p < 0.01$).[17] The mean (median) RET on Call Report filing days is 7.3 (9.5) percent higher than on non-event days. The mean and median RET and VOL are statistically significantly higher on Call Report event days when the Call Report follows the earnings announcement (labeled CALL2). The evidence suggests that, despite the prior release of earnings, the market finds the Call Report to be informative.[18]

There is no evidence of higher price volatility or volume on CALL1, Y-9C or 10-K/Q event days. In fact, mean and median RET and VOL are statistically significantly lower on Y-9C event days. Taken together, the results indicate that the equity market finds earnings announcements and the Call Reports immediately informative; this is not so for Y-9Cs and 10-K/Qs.

[Insert Table 3 here]

5.4 Regression-based Tests of Market Reaction

We use regression analysis to examine: (1) whether the equity market responds to the

[17] To ensure that t-statistics for the difference in mean and median tests are well specified in light of the large overall sample size in the RET variable, we simulate a distribution of t-statistics by repeating the following randomization procedure 10,000 times. We randomly assign 2,061 of the 159,002 total sample observations to a pseudo-CALL group (because there are 2,061 observations in the actual CALL group) and the rest to a pseudo-non-event group. Then we compute t-statistics for the difference in mean and median RET across the pseudo-CALL group and the pseudo-non-event group. The resulting empirical distributions of t-statistics closely conform to the theoretical t-distribution. The empirical distribution of t-statistics for the difference-in-means (Wilcoxon) test has a 90^{th}, 95^{th}, and 99^{th} percentile of 1.28, 1.64, and 2.25 (1.25, 1.59, and 2.32). The corresponding percentiles for the theoretical distribution of t-statistics are 1.28, 1.65, and 2.33. The slightly lower percentile values found in the empirical distributions indicates that in our sample it is slightly *more* difficult to reject the null hypothesis at the given confidence level using parametric tests.

[18] In this analysis, many EA2 and CALL1 events are omitted because they occur within one day of other filings. This explains why CALL1 events represent only 10 percent of total CALL events in this sample in contrast to the 19 percent previously reported for the full sample. Separately, the counts of EA1 and CALL2 events differ due to five bank quarters in which the release dates of the Call Report and the 10K/Q are within one day of each other, causing five CALL2 events to be omitted from the sample.

release of the Call Report and the Y-9C; (2) whether the market response depends on the timing of the regulatory reports relative to earnings announcements; (3) whether the timing of the regulatory reports affects responses to earnings announcements; and, (4) whether market reaction varies with bank characteristics. The regression framework allows us to cluster standard errors by day to account for the fact that many of the event dates occur on the same day across banks. It also allows us to control for the several days of heightened market activity around earnings announcements (using EA_EXPANDED).

Table 4 presents results from estimating equation (3). Column 1 (3) presents results when using RET (VOL) as the dependent variable. Both columns indicate positive and statistically significant price and volume reactions to earnings announcements (EA) and Call Reports (CALL). In column 1, the estimated EA coefficient of 0.79 represents a 68 percent increase in mean price volatility across sample banks over the two-day earnings announcement window.[19] Market activity also tends to be high during the days around earnings announcements, as evidenced by the significantly positive coefficient on EA_EXPANDED in both regressions. The estimated CALL coefficient of 0.0975 in the RET regression indicates an 8.4 percent increase in mean price volatility over the two-day Call Report filing window. The results provide no evidence of market reaction to the release of Y-9Cs or 10-K/Qs, which tend to be released late in the reporting season. The estimated coefficients on the Y9C and 10KQ variables are not statistically different from zero or are statistically negative.

We next examine whether the market response to Call Reports and earnings announcements depends on the order in which the two reports are released (columns 2 and 4). We first focus on the reaction to earnings announcements conditional on whether the Call Report has been released. The

[19] 68 percent = 0.7856 estimated EA coefficient / 1.1598 non-event day mean from the intercept.

results from the RET regression in column 2 indicate that, when the Call Report precedes the earnings announcement (EA2), the market response to the earnings announcement is attenuated; an F-test indicates that the estimated coefficient on EA2 is significantly lower than the estimated coefficient on EA1 ($p < 0.01$). The estimated EA2 coefficient is lower by 40 percent in the RET regression. Therefore the RET results indicate that Call Reports issued in advance of earnings announcements tend to preempt information in earnings announcements. In contrast, we do not find evidence that VOL reaction to earnings depends on whether the Call Report was released first; in the VOL regression the coefficients on EA1 and EA2 are 0.55 and 0.54 (which are not statistically different from each other). Thus, there is evidence that early Call Reports tend to reduce price reaction but not volume reaction to earnings announcements.

We now focus on reaction to Call Reports conditional on whether earnings have been announced. The estimated coefficient on CALL2 is significantly positive in both the RET and VOL regressions ($p < 0.05$), indicating both price and volume reaction to Call Reports released after earnings announcements. The estimated coefficient on CALL1 is not statistically significant in the RET regression but is statistically positive in the VOL regression ($p < 0.05$). The absence of price reaction, but the existence of volume reaction, to CALL1 events is consistent with disagreements among traders about the price implications of early Call Reports. Perhaps the signals in Call Reports are less ambiguous to traders after they have received the bank's earnings release and accompanying management commentary. The CALL1 coefficient is not statistically higher than the CALL2 coefficient in either regression, providing no evidence that earnings announcements preempt the type of information in Call Reports on which investors focus.

[Insert Table 4 here]

5.5 Supplemental Analysis of Reactions to Call Reports

To investigate whether the estimated EA1 and EA2 coefficients from the RET regression differ simply because of the types of banks that tend to fall into the EA1 versus EA2 categories, we re-estimate the regression on the subsample of banks that fall into both categories during the sample period. Untabulated results are similar. We continue to find a statistically significant difference between the EA1 and EA2 coefficients and do not find a statistical difference between the CALL1 and CALL2 coefficients.

Cready and Hurtt (2002) advocate a measure of volume based on the number of trades rather than the number of shares traded. From the Trade and Quote database, we construct a trade count measure similar to VOL, with the numerator as the count of trades on days t and t+1 and the denominator as the mean of this quantity measured during the last month of the previous quarter. Using this trade count measure as the dependent variable in the regressions, we continue to find that the estimated coefficients on CALL and CALL2 are statistically positive. The estimated coefficient on CALL1 is negative and not statistically significant, in contrast to the result from the VOL regression but consistent with the result from the RET regression. Thus, there is robust evidence of market reaction to CALL2 events but not to CALL1 events.

Recall that the VOL metric does not include an adjustment for market-level volume because of a generally weak relation between firm-level and market-level volume (see footnote 12). Next we re-estimate the VOL regressions after using a market-adjusted version of VOL called ALT_VOL. Following Garfinkel and Sokobin (2006), the volume metric is computed as follows:

$$ALT\_VOL_{it} = \sum_{t=0}^{1}\left[\frac{V_{it}}{Shs_{it}} - \frac{V_{Mt}}{Shs_{Mt}}\right]/2 \; - E\left(\sum_{t=0}^{1}\left[\frac{V_{it}}{Shs_{it}} - \frac{V_{Mt}}{Shs_{Mt}}\right]/2\right) \qquad (7)$$

where V_{it} (V_{Mt}) is bank i's (CRSP universe) trading volume on day t, and Shs_{it} (Shs_{Mt}) is bank i's (CRSP universe) shares outstanding on day t. The first part of the metric sums bank i's share turnover (V_{it} / Shs_{it}) over days t and t+1, and adjusts the bank's share turnover for the share

turnover of the market on those same days. The second part of the metric adjusts this market-adjusted turnover metric for the bank's average level of market-adjusted turnover during the last month of the previous quarter. We subtract the second part of the metric from the first part, rather than dividing by this second part, because each part can have negative values.

When re-estimating regression (3) with ALT_VOL as the dependent variable, we find that the coefficient on CALL is positive but statistically insignificant. CALL1 banks appear to be driving the lack of significance because, when re-estimating regression (4), we find that the coefficient CALL1 is negative and statistically insignificant but the coefficient on CALL2 is positive and statistically significant (consistent with the original result). As reported in footnote 11, CALL1 banks in particular tend not to exhibit the expected relation between firm-level and market-level share turnover. Thus, attempting to market adjust could create noise in the volume measure, particularly for CALL1 banks. Also indicative of noise in the market-adjusted volume measure, the ALT_VOL regression reveals a statistically insignificant reaction to the *earnings announcements* of CALL1 banks (i.e. the estimate of the EA2 coefficient is statistically insignificant), in contrast to the consistent findings of prior literature showing strong volume reaction to earnings announcements.

5.5.1 Spillover Effects

Call Report releases could generate two types of spillover effects. First, as Call Report releases begin to build in the days leading up to day 30, information from these early reports could spill over to the stocks of banks that have not yet filed (a "pre-day 30" spillover effect). Second, the comprehensive information about the banking industry that emerges from the flood of Call Reports released on day 30 could spill over to the stocks of banks that do not file on day 30 (a "day 30" spillover effect).

To test for the "pre-day 30" spillover effect, we add five indicator variables to equation (3) that denote days 25 to 29 (DAY25, DAY26, etc.). Each variable equals 1 on the designated day for banks for which Call Reports are *not* released on that day. Positive estimated coefficients on these variables would indicate that information from early Call Reports spills over to banks whose Call Reports are not released on those days. To test for the "day 30" spillover effect, we include two indicator variables that equal 1 on day 30 for banks whose Call Reports are *not* released on day 30. DAY30_PRE (DAY30_POST) equals 1 on day 30 for banks for which Call Reports are released before (after) day 30. Positive estimated coefficients on these variables would indicate that information from day 30 Call Reports spills over to banks whose Call Reports are not released on day 30. In this regression, we also partition the CALL indicator variable by whether the bank's report is actually released on day 30 (CALL_30) or not on day 30 (CALL_NON30). These two variables aid in understanding whether the market reaction to Call Reports detected in the base specification is driven by market attention on day 30; a significantly positive coefficient on CALL_30 but not on CALL_NON30 would indicate that Call Reports elicit market reaction only during times of high investor attention stemming from high volumes of filings. Li and Ramesh (2009) report a similar finding for 10-Ks.

Results are presented in Table 5. We find no evidence of a "pre-day 30" spillover effect. None of the estimated coefficients on the DAY25, DAY26, etc. indicator variables is statistically positive in the RET or VOL regression. Instead, elevated market activity is observed in this "pre-day 30" period only when a bank's Call Report is actually released, as reflected in the statistically positive coefficient on CALL_NON30.

We find some evidence of a "day 30" spillover effect. On day 30, price volatility is elevated for the banks for which Call Reports were released prior to day 30, as reflected in the statistically

positive coefficient on DAY30_PRE in the RET regression. This spillover effect is, however, not observed in the VOL regression. Also, this spillover effect is not observed among banks for which Call Reports are released after day 30, as reflected in the negative DAY30_POST coefficient in both regressions. Only 60 observations have DAY30_POST = 1, compared to 287 observations with DAY30_PRE = 1. Thus, a "day 30" spillover effect involving price volatility is observed for the more common scenario.

[Insert Table 5 here]

5.5.2 Concurrent events: FOMC and GDP announcements

Statements of the Federal Open Market Committee (FOMC) and "advance" estimates of quarterly growth in gross domestic product are sometimes released on or near the 30th day of the quarter. During the sample period, six of the 18 FOMC statements and four of the nine GDP announcements were released on or within a day of day 30. The market-adjustment embedded in the RET metric implicitly controls for these events to the extent that they affect both bank and non-bank stocks. For additional control, we re-estimate equation (3) after including two indicator variables that equal 1 on the days of FOMC statements and GDP announcements. In untabulated analysis we find that including the indicators has little effect on the coefficient magnitude or significance of CALL. In the RET regression, the coefficient declines slightly from 0.0975 to 0.0963 and remains significant at the 5 percent level. In the VOL regression, the coefficient magnitude and significance level are quantitatively similar to those reported in Table 4. Thus, we conclude that these events do not confound the main results.

5.6 Regression-based Tests of Variation in Market Reaction

Table 6 presents results from estimating equation (5), which interacts CALL1, CALL2, EA1, and EA2 with cross-sectional attributes of the banks. The CALL2 interactions are of primary

interest because they reflect the factors affecting the information content of the Call Report after the market has seen the earnings announcement. Panel A (B) presents results for the RET (VOL) regressions.

The first column presents interactions involving bank size (LogASSETS). The estimated coefficient on the CALL2*LogASSETS interaction is negative in both the RET and VOL regression and is statistically significant in the RET regression ($p < 0.05$), indicating that larger banks tend to have less price reaction to Call Reports released after earnings announcements. This finding is consistent with larger banks providing more information through channels other than the Call Report, which, in turn, makes the Call Report less relevant to investors. One opportunity to provide more information is the announcement of earnings and the accompanying report. Larger banks do indeed appear to have more informative earnings announcements, as evidenced by the positive and statistically significant estimated coefficients on the EA1*LogASSETS and EA2*LogASSETS interactions. Thus, reaction to the Call Reports of large banks could tend to be lower in part because the earnings announcements of these banks (and the related earnings conference calls) tend to preempt more Call Report information.

We find that Call Report reactions vary with one of two bank risk factors. Price reaction around CALL2 events increases with asset/liability maturity gaps ($p < 0.05$), but has no statistically significant association with low capital ratios. Price reaction around CALL2 events decreases with the incurrence of losses (LOSS) ($p < 0.01$). This result is consistent with Hayn (1995) who finds that loss firms have muted reactions to earnings reports because liquidation becomes more likely. We do not find evidence that the market reaction to Call Reports varies with the absolute value of the change in earnings (ΔE), absolute value of the quarterly change in loan charge-offs (ΔCHRG_OFF), or absolute value of the quarterly change in loan loss (ΔLL). In the volume-based

regressions, none of the CALL2 interactions have statistically significant coefficients.

In supplemental analysis, we attempt to determine whether reaction to Call Reports varies with bank complexity and the level of detail in the earnings announcement, but the measures are highly correlated with bank size and the regressions exhibit signs of severe multicollinearity after including interactions that control for bank size (these results are not tabulated). Our measures of complexity are the number of Y-9C cells containing non-zero values and an indicator variable capturing derivatives usage. The two measures have correlations with logged bank assets of 0.91 and 0.68. Alternative measures of complexity that focus on the number of non-zero cells in particular Y-9C schedules are also highly correlated with bank size. Our measure of earnings announcement detail is a word count of the earnings release, which has a correlation with logged bank assets of 0.68. No clear evidence emerges that reactions to Call Reports vary with these factors.

We also attempt to determine whether reaction to Call Reports varies with *changes* in the information on key schedules from quarter to quarter, focusing on the four schedules described earlier that typically contain information not found in 10-K/Qs (Schedules RC-D, RC-P, RC-R, and RC-S). To compute how much a schedule changes for a given bank in a given quarter, we calculate the absolute quarterly change in each item on the schedule, sum the changes across items, and scale by the beginning total assets of the bank. We then use this measure of change as an interaction variable in regression (5). We do not find statistically significant interaction effects with CALL2 for any of the schedules individually or in total (these results are not tabulated).

[Insert Table 6 here]

5.7 How Long has Abnormal Market Activity Occurred on "Day 30" in the Banking Industry?

Next we examine how long and how consistently "day 30" of the quarter has been

characterized by heightened market activity in the banking industry. We expand the sample period to the years 2000 to 2013 and include all publicly traded BHCs that have the daily CRSP data necessary for constructing test variables.[20] We use this sample to estimate equation (6) by calendar year. The estimated coefficient on A_CALL reflects the extent to which there is abnormal price volatility or volume on the four "day 30s" that occur in a given year. Table 7, Panel A (B), presents results from estimating equation (6) when RET (VOL) is the dependent variable. Across the nine RET regressions for the years 2005 to 2013, the estimated A_CALL coefficients are statistically positive in five years, and statistically negative in one year. In contrast, none of the five RET regressions between 2000 and 2004 have statistically positive A_CALL coefficients, and one has a statistically negative coefficient. The VOL regressions exhibit an even starker shift around 2005. The estimated A_CALL coefficients are statistically positive in eight of the nine VOL regressions between 2005 and 2013, and are not statistically positive in any of the five regressions between 2000 and 2004. Combining the RET and VOL results, we find that eight of the nine years between 2005 and 2013 exhibit abnormally high price volatility and/or volume around day 30, while none of the five years between 2000 and 2004 do. This pattern is consistent with the late 2005 completion of the "modernization project" undertaken by bank regulators to speed the processing and public dissemination of regulatory reports.

[Insert Table 7 here]

5.8 Investor Awareness of Call Report Releases

The main results show that some investors are aware of Call Report releases and trade on them. However, the extent of awareness among the investing public is unclear. National media

[20] We obtained the database of BHCs from the Federal Reserve Bank of New York (http://www.newyorkfed.org/research/banking_research/datasets.html). The dataset yields 769 BHCs with stock returns available on CRSP sometime between January 1, 2000 and December 31, 2013.

coverage of our study in August 2015 provides a natural experiment for gauging prior awareness.[21] We examine market activity around the two quarterly Call Report releases that occurred following the media coverage (pertaining to the third- and fourth-quarter Call Reports of 2015). If the media coverage prompted more investors to trade on the Call Report information, we would expect higher levels of trading volume (VOL) around these Call Report release dates. Expectations for price reaction (RET) are less clear. Higher trading volume may result in larger price reactions, particularly if the orders tend to be in the same direction. On the other hand, having more traders in the market may improve market liquidity, reducing the price impact of trading.

Table 8 presents coefficient estimates for equation (6) for sample periods preceding and following the media coverage. The 2014 and pooled 2010 to 2014 samples represent pre-coverage periods. The 2015 sample represents the post-coverage period. Because we are examining only the last two quarterly Call Report releases for 2015, we compare with only these two quarters in the earlier years. Due to recency of the sample periods, our data source for returns and volume in all periods is Bloomberg rather than CRSP, with the Russell 3000 index used to market-adjust the returns. The regression specification uses the Day 30 indicator variable, A_CALL, because actual release dates of individual Call Reports are unavailable outside of the main sample period.

Consistent with investors growing in awareness of Call Report releases following press coverage of our study, the estimated coefficient on A_CALL in the 2015 VOL regression is 0.265, compared to 0.140 in the 2014 regression and 0.144 in the pooled 2010 to 2014 regression. Based on a two-tailed test, the 2015 coefficient is statistically higher than the 2014 (2010-2014) coefficient at the 10 (5) percent level. Untabulated analysis finds that the 2015 coefficient is the

[21] The study was covered by Bloomberg (Hamilton and Katz 2015), the Wall Street Journal Moneybeat blog (Tracy 2015), and other regional and Canadian publications. SNL Financial and Barclays Equity Research also featured the study to subscribers.

highest of any year since 2005, the year that bank regulators modernized the Call Report release process. The estimated coefficients on the other information event variables (EA, EA_EXPANDED, A_Y9C, and 10KQ) are not statistically higher in 2015 compared to the two pre-coverage periods. Additionally, the 2015 intercept, reflecting mean trading activity on non-event days, is slightly lower and not statistically different from the intercepts of the two pre-coverage periods. Thus, the higher VOL around 2015 Call Report releases appears to be unique to Call Report information events and is not due to higher overall trading levels during the time period.

We also find evidence of higher price reactions (RET) to Call Report releases in 2015 compared to pre-coverage periods ($p < 0.10$). However, there is evidence of statistically higher price reactions to other information events (EA, EA_EXPANDED, and 10KQ) in 2015 as well. The 2015 intercept is also statistically higher than in the pooled 2010 to 2014 sample. We do not use these RET results to make an inference about changes in Call Report awareness because the increase in price reaction is not unique to Call Reports and the expected relation between awareness and price reaction is unclear. Finally, in untabulated analysis, we find that the higher post-coverage VOL and RET reactions are concentrated in the CALL2 events (those in which the Call Report is released after the earnings announcement). CALL1 events do not elicit statistically significant VOL or RET reaction in the post-coverage period.

[Insert Table 8 here]

6. Conclusion

Each quarter, bank Call Reports and Y-9Cs are publicly released in the same general time frame as earnings announcements and SEC filings. Because the core of the bank regulatory reports is a set of GAAP-based financial statements, the reports overlap with information in earnings announcements and SEC filings. The bank regulatory reports tend to contain more granular and standardized information, but lack footnotes and other qualitative disclosures. We shed light on the

role that this parallel reporting system plays in the banking industry's information environment.

We find that the majority of Call Reports become public around the 30th calendar day after quarter-end, and elicit statistically significant stock price and volume reactions. In contrast, Y-9Cs do not, likely because their information content is preempted by earlier filings. It is most common for Call Reports to be released after earnings announcements, yet they tend to elicit significant market reactions. In the rarer cases when Call Reports precede earnings announcements, we find volume reaction but no price reaction. Call Reports also appear to preempt some of the information in earnings announcements; when a Call Report precedes an earnings announcement, mean price volatility around earnings announcements is 40 percent lower.

The clustering of Call Reports around day 30, and the resulting market reaction, have implications for practice, regulation, and future research. The large amount of information about banks that is released around day 30 is relevant to portfolio allocation decisions concerning exposure to individual bank stocks and exposure to the industry as a whole. The information becomes available in a standardized format well before 10-Ks and 10-Qs are available, and sometimes before earnings are announced. The predictable increase in industry-level volatility around day 30 may also be relevant to investment strategies that are sensitive to volatility, such as option straddles. Relevant for banking regulation, the findings imply that bank stock prices respond to reports that bank regulators have designed for supervisory purposes, which supports the notion that equity market values could be a useful signal for regulatory supervision (Furlong and Williams 2006; Curry et al. 2003).

The report dissemination process is more opaque than SEC-governed processes. The exact timing of report releases does not appear to be widely known by market participants; the report due dates are a matter of public record but the timing of the releases leading up to the due dates is not.

Additionally, the process of amending reports erases historical data and provides no indication of which items were amended. In general, unlike SEC-designed processes for releasing financial information, the reporting processes of bank regulators lack advanced notices, public alerts, and a historical archive of activity. A more user-friendly and orderly process of dissemination may allow more information to be impounded into stock prices more quickly. We find evidence that investor attention increased after an early draft of this study was made public. It is an open question for future research whether an efficient equilibrium has been reached.

There are two main implications for academic research. First, for market studies in general, if banks are included in the sample, then research designs should account for the abnormal market movements of bank stocks around day 30 and the potential preemption of earnings announcements or other disclosures that follow day 30. Second, researchers can approximate Call Report release dates by assuming that the releases are clustered around the 30th day of the quarter. We find evidence that the "day 30" clustering assumption is valid for years going back to 2005, which is consistent with the completion date of the "modernization project" undertaken by regulators to streamline the processing and public dissemination of regulatory reports. To encourage and improve research in this area, bank regulators could publish the historical release dates. Such research could lead to better understanding of the usefulness of market prices as supervisory signals.

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APPENDIX

Variable Definitions

Note: "Day 30" means the 30th day of the quarter or the next trading day if the 30th day is non-trading. "Day 40" and "day 45" follow the same convention. All variables that are set equal to 1 under the conditions described below equal 0 otherwise. All continuous variables are winsorized at the 1st and 99th percentile. All items beginning with "bhck", "bhdm", or "bhfn" come from Federal Reserve Y-9C reports.

ASSETS = total assets (bhck2170) at the beginning-of-quarter.

A_CALL = 1 if the date is day 30.

A_Y9C = 1 if the date is day 45 (40) of the fourth (interim) quarter.

CALL = 1 if the date is the Call Report release date.

CALL1 = 1 if CALL=1 and the Call Report precedes the earnings announcement.

CALL2 = 1 if CALL=1 and the Call Report follows the earnings announcement.

CALL_30 = 1 if CALL=1 and the bank's Call Report is released on day 30.

CALL_NON30 = 1 if CALL=1 and the bank's Call Report is not released on day 30.

DAY*X* = 1 on the designated day (e.g., DAY25, DAY26) for banks whose Call Reports are not released on that day.

DAY30_PRE = 1 on day 30 for banks whose Call Reports are released before day 30.

DAY30_POST = 1 on day 30 for banks whose Call Reports are released after day 30.

EA = 1 if the date is an earnings announcement date.

EA1 = 1 if EA=1 and the earnings announcement precedes the Call Report.

EA2 = 1 if EA=1 and the earnings announcement follows the Call Report.

EA_EXPANDED = 1 on days -1 and (+1, +3) relative to earnings announcement dates.

LogASSETS = natural log of ASSETS.

LOSS = 1 if the bank reported negative earnings (bhckg104) in quarter q.

LOW_CR = 1 if the bank's Tier 1 capital ratio (bhck7206) is in the lowest ten percent of the sample, zero otherwise.

LTGAP = the absolute difference between long term earning assets, excluding securities, and long term financial liabilities, scaled by market value of equity (CSHPRQ*PRCCQ from Compustat) and divided by 100. Long

term earning assets excluding securities are computed as bhck0395+bhck0397+bhck1754+bhck1773+bhdmb987+bhckb989+ bhckb528-bhck5526-bhck3197-bhck0384-bhck0387-bhcka511. Long term financial liabilities are computed as bhdm6636+bhfn6636 +bhck3190+bhck4062+bhckc699-bhck3296-bhck3298-bhck3409.

RET = $\frac{\sum_{t=0}^{1}|R_{it}-R_{Mt}|}{E\left(\sum_{t=0}^{1}|R_{it}-R_{Mt}|\right)}$, where the numerator is firm i's average absolute market-adjusted return over days 0 and 1 and the denominator is the mean of this same measure during the last month of the previous quarter. R_{Mt} is the CRSP value-weighted return (VWRETD).

VOL = $\sum_{t=0}^{1}\left[\frac{V_{it}}{Shs_{it}}\right] / E\left(\sum_{t=0}^{1}\left[\frac{V_{it}}{Shs_{it}}\right]\right)$, where V_{it} is firm i's trading volume on day t, and Shs_{it} is firm i's shares outstanding on day t. The numerator is firm i's share turnover (V_{it} / Shs_{it}) over days t and t+1. The denominator is the mean of this same measure during the last month of the previous quarter.

Y9C = 1 if the date is a FR Y-9C release date.

ΔCHRG_OFF = the absolute difference in charge-offs as a percentage of loans and leases (bhck4635/bhckb528) in quarter q minus the same quantity in quarter q-1.

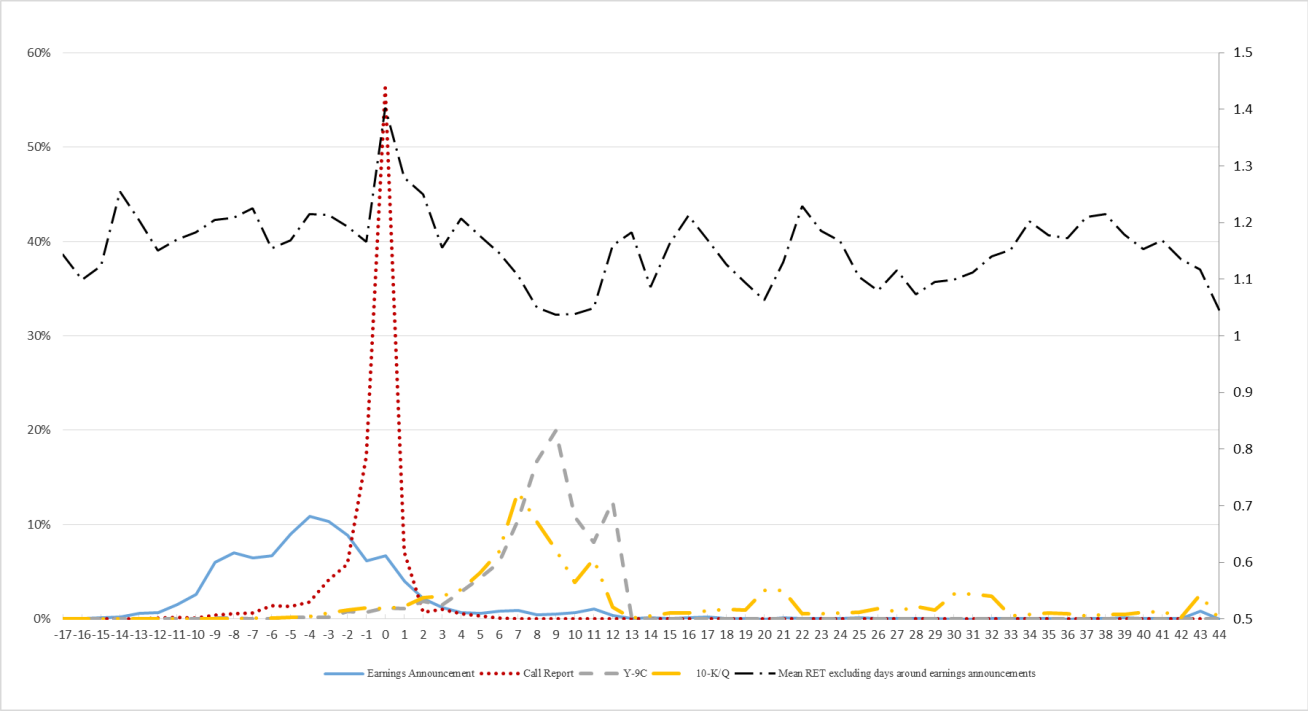
ΔE = the absolute difference in earnings (bhck4340) in quarter q minus earnings in quarter q-4, scaled by market value of equity (cshoq*prccq).

ΔLL = the absolute difference in allowance for loan and lease losses as a percentage of loans and leases (bhck3123/bhckb528) in quarter q minus the same quantity in quarter q-1.

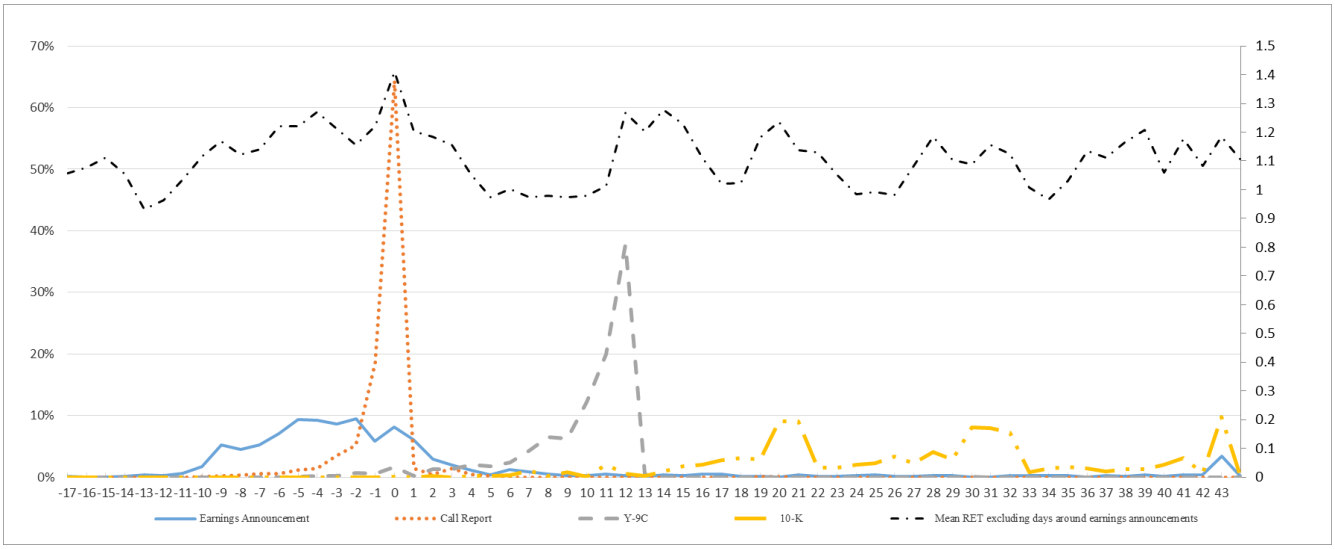
10KQ = 1 if the date is a 10K/Q filing date.

FIGURE 1
Public Release Dates of Earnings Announcements, Call Reports, FR Y-9Cs, and 10-K/Qs
(day 0 is the 30th day of the quarter)

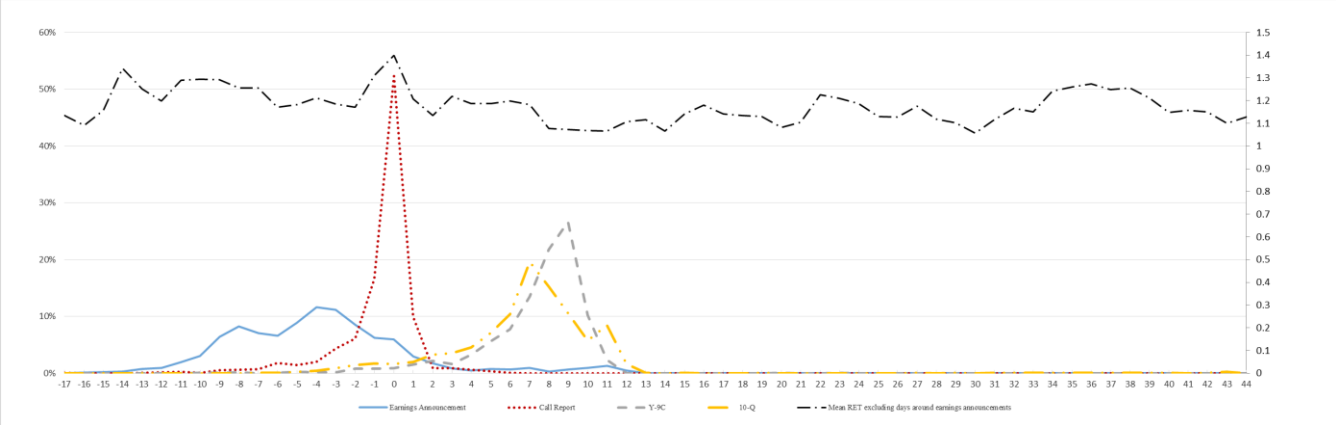
Panel A: Full Sample



Panel B: Fourth-Quarters



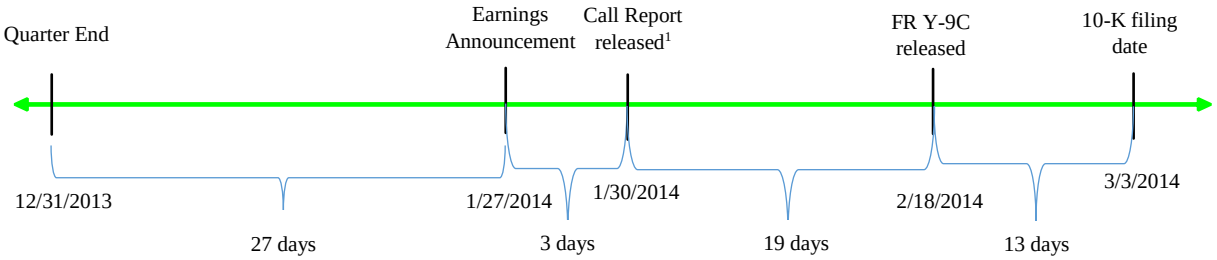
Panel C: Interim Quarters



Each panel plots the percentage of earnings announcements, Call Reports, Y-9Cs, and 10-K/Qs released each day over the 62 trading days following quarter-end. Day 0 is the 30th calendar day after quarter-end or the next trading day if the 30th calendar day is non-trading. An additional plot that corresponds to the secondary axis is the mean price volatility metric (RET) by day across banks, excluding days (-1, +3) relative to earnings announcements. The sample is based on 2,673 firm-quarters across 319 BHCs. See Appendix for variable descriptions.

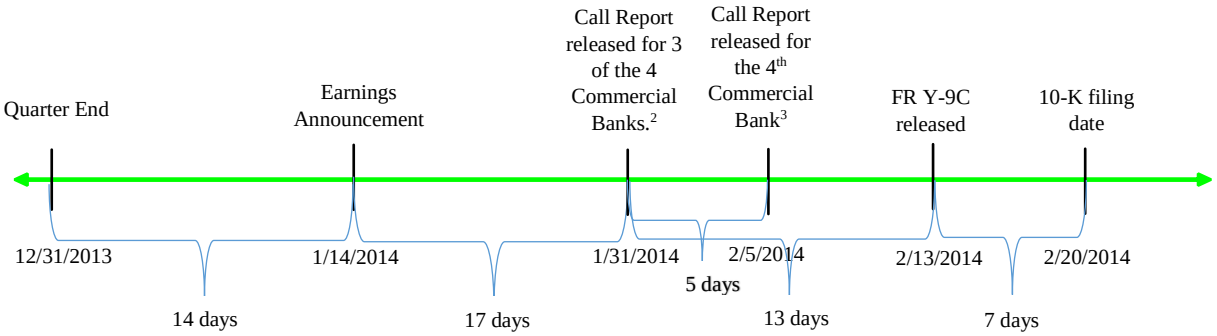
FIGURE 2
Disclosure Timelines for Three Sample Bank Holding Companies

Panel A: Timeline for BBCN Bancorp



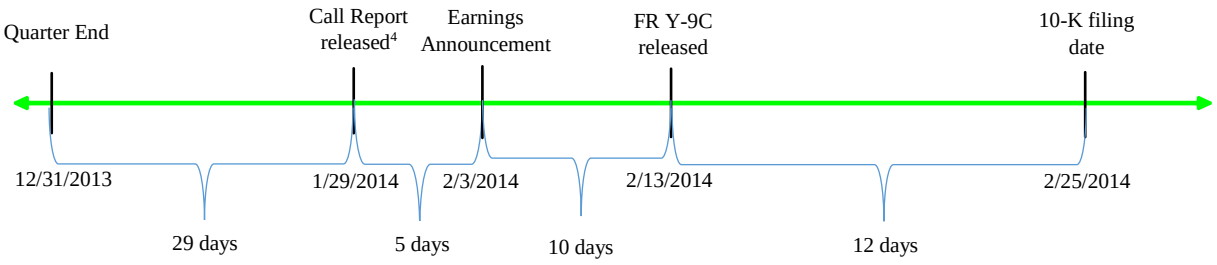
[1]The commercial bank within BBCN Bancorp that reported its Call Report on this day was BBNC Bank.

Panel B: Timeline for JPMorgan Chase



[2]The commercial banks within JPMorgan Chase that filed Call Reports on this day were JPMorgan Bank and Trust Company, National Association; JPMorgan Chase Bank, Dearborn; and Chase Bank USA, National Association.
[3]The commercial bank within JPMorgan Chase that filed its Call Report on this day was JPMorgan Chase Bank, National Association.

Panel C: Timeline for Old National Bancorp



[4]The commercial bank within Old National Bancorp that reported its Call Report on this day was Old National Bank.

TABLE 1
Descriptive Statistics and Correlations

Panel A: Full Sample Descriptive Statistics

Variable	n	mean	std. dev.	Q1	median	Q3
RET	164,802	1.180	0.895	0.558	0.950	1.529
VOL	164,802	1.403	1.725	0.626	0.955	1.481
ASSETS	164,802	44,516	240,916	1,030	2,122	6,802
LogASSETS	164,802	8.103	1.656	6.937	7.660	8.825
LOW_CR	164,802	0.100	0.300	0.000	0.000	0.000
LTGAP	164,802	0.049	0.078	0.018	0.033	0.053
LOSS	164,802	0.061	0.240	0.000	0.000	0.000
ΔE	161,050	0.037	0.209	0.002	0.005	0.012
ΔLL	164,305	0.001	0.002	0.000	0.001	0.001
ΔCHRG_OFF	164,123	0.001	0.004	0.000	0.000	0.001

Panel B: Pearson (top) and Spearman (bottom) Correlations for the Full Sample

	RET	VOL	ASSETS	LogASSETS	LOW_CR	LTGAP	LOSS	ΔE	ΔLL	ΔCHRG_OFF
RET		**0.171**	**-0.005**	**-0.011**	0.004	**0.011**	**0.006**	0.000	**-0.004**	**0.004**
VOL	**0.193**		**-0.041**	**-0.150**	**-0.014**	**0.057**	**0.012**	**0.022**	**-0.004**	**0.020**
ASSETS	**0.015**	**0.009**		**0.595**	**-0.041**	**0.035**	**-0.004**	**-0.019**	**0.026**	**-0.044**
LogASSETS	**0.015**	**0.009**	**1.000**		**0.058**	**-0.077**	**-0.068**	**-0.078**	**-0.031**	**-0.118**
LOW_CR	0.002	**-0.002**	**0.090**	**0.090**		**0.198**	**0.110**	**0.194**	**0.034**	**0.074**
LTGAP	**-0.006**	**0.002**	**-0.076**	**-0.076**	**0.052**		**0.314**	**0.457**	**0.146**	**0.159**
LOSS	**-0.006**	**-0.035**	**-0.092**	**-0.092**	**0.110**	**0.150**		**0.309**	**0.309**	**0.295**
ΔE	**-0.005**	**-0.009**	**-0.162**	**-0.162**	**0.038**	**0.236**	**0.343**		**0.219**	**0.198**
ΔLL	**-0.011**	**-0.006**	**-0.007**	**-0.007**	0.001	**0.158**	**0.206**	**0.235**		**0.335**
ΔCHRG_OFF	**-0.004**	**-0.018**	**-0.233**	**-0.233**	**0.005**	**0.146**	**0.205**	**0.291**	**0.288**	

Bold denotes significantly different from zero at the 10 percent level or higher. See Appendix for variable descriptions.

TABLE 2
Descriptive Statistics for Amended Call Reports

Panel A: Descriptive Statistics for Amended Call Reports

	n	% of total Call Reports
Amended Call Reports	970	36.29%

Number of calendar days between original and restated Call Report

n	mean	std. dev.	Q1	median	Q3
970	22.18	14.22	11.00	19.00	33.00

Difference in total assets between original and restated Call Report, unscaled and scaled by assets

n	mean	std. dev.	Q1	median	Q3
114	$2.95	$5.79	$0.16	$0.68	$3.04
114	0.158%	0.323%	0.013%	0.042%	0.140%

Difference in Tier1 capital ratio

n	mean	std. dev.	Q1	median	Q3
198	0.210	0.414	0.020	0.060	0.210

Tier 1 capital ratio is from the Federal Reserve Y9C report (bhck7206).

Panel B: Market Reaction to Amended Call Reports (that do not coincide with other filings, n=758)

Market reaction to a restated Call Report						
	n	mean	std. dev.	Q1	median	Q3
RET	758	1.159	0.873	0.557	0.876	1.509
VOL	758	1.28409	1.54940	0.60353	0.92277	1.39108
Non-Event Days						
	n	mean	std. dev.	Q1	median	Q3
RET	156,941	1.171	0.883	0.556	0.946	1.520
VOL	156,941	1.39594	1.72029	0.62320	0.94985	1.47092
RET Difference		-0.0122			-0.0702	
VOL Difference		-0.1119			-0.0271	

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). T-tests (Wilcoxon signed-rank tests) are used for assessing means (medians). See Appendix for variable descriptions.

TABLE 3
Market Reaction to Earnings Announcements, Call Reports, FR Y-9C Reports, and 10-K/Q filings

		RET					VOL				
Variable		**Event**	**Non-Event**				**Event**	**Non-Event**			
EA	Mean	1.945	1.171	Difference in Mean	0.774		1.928	1.396	Difference in Mean	0.532	
	Median	1.567	0.946	Difference in Median	0.621		1.418	0.950	Difference in Median	0.468	
	Std. dev.	1.371	0.883	t-stat	24.828	***	1.993	1.720	t-stat	11.714	***
	n	1,942	156,941	Wilcoxon	27.129	***	1,942	156,941	Wilcoxon	17.256	***
EA1	Mean	1.984	1.171	Difference in Mean	0.813		1.934	1.396	Difference in Mean	0.538	
	Median	1.616	0.946	Difference in Median	0.670		1.425	0.950	Difference in Median	0.476	
	Std. dev.	1.376	0.883	t-stat	23.253	***	1.975	1.720	t-stat	10.701	***
	n	1,556	156,941	Wilcoxon	25.931	***	1,556	156,941	Wilcoxon	17.032	***
EA2	Mean	1.658	1.171	Difference in Mean	0.487		1.927	1.396	Difference in Mean	0.531	
	Median	1.222	0.946	Difference in Median	0.276		1.444	0.950	Difference in Median	0.495	
	Std. dev.	1.261	0.883	t-stat	5.240	***	1.996	1.720	t-stat	3.608	***
	n	185	156,941	Wilcoxon	6.102	***	185	156,941	Wilcoxon	2.950	***
CALL	Mean	1.257	1.171	Difference in Mean	0.086		1.506	1.396	Difference in Mean	0.110	
	Median	1.036	0.946	Difference in Median	0.090		1.067	0.950	Difference in Median	0.117	
	Std. dev.	0.935	0.883	t-stat	4.163	***	1.776	1.720	t-stat	2.797	***
	n	2,061	156,941	Wilcoxon	7.227	***	2,061	156,941	Wilcoxon	3.512	***
CALL1	Mean	1.102	1.171	Difference in Mean	-0.069		1.612	1.396	Difference in Mean	0.216	
	Median	0.957	0.946	Difference in Median	0.011		0.902	0.950	Difference in Median	-0.048	
	Std. dev.	0.790	0.883	t-stat	-1.193		2.532	1.720	t-stat	1.163	
	n	185	156,941	Wilcoxon	0.258		185	156,941	Wilcoxon	-1.121	
CALL2	Mean	1.275	1.171	Difference in Mean	0.104		1.495	1.396	Difference in Mean	0.099	
	Median	1.043	0.946	Difference in Median	0.097		1.107	0.950	Difference in Median	0.157	
	Std. dev.	0.937	0.883	t-stat	4.347	***	1.589	1.720	t-stat	2.443	***
	n	1,551	156,941	Wilcoxon	4.975	***	1,551	156,941	Wilcoxon	1.715	**
Y9C	Mean	1.126	1.171	Difference in Mean	-0.045		1.287	1.396	Difference in Mean	-0.109	
	Median	0.879	0.946	Difference in Median	-0.067		0.859	0.950	Difference in Median	-0.091	
	Std. dev.	0.889	0.883	t-stat	-2.315	**	1.618	1.720	t-stat	-3.094	***
	n	2,131	156,941	Wilcoxon	-4.072	***	2,131	156,941	Wilcoxon	-2.486	**
Y9C (BEFORE 10KQ)	Mean	1.148	1.171	Difference in Mean	-0.023		1.482	1.396	Difference in Mean	0.086	
	Median	0.878	0.946	Difference in Median	-0.068		0.960	0.950	Difference in Median	0.010	
	Std. dev.	0.912	0.883	t-stat	-0.811		1.918	1.720	t-stat	1.473	
	n	1,081	156,941	Wilcoxon	-1.400		1,081	156,941	Wilcoxon	1.130	
10KQ	Mean	1.149	1.171	Difference in Mean	-0.022		1.428	1.396	Difference in Mean	0.032	
	Median	0.925	0.946	Difference in Median	-0.021		0.969	0.950	Difference in Median	0.019	
	Std. dev.	0.865	0.883	t-stat	-1.052		1.778	1.720	t-stat	0.752	
	n	1,727	156,941	Wilcoxon	-0.848		1,727	156,941	Wilcoxon	0.706	
10KQ (BEFORE Y9C)	Mean	1.148	1.171	Difference in Mean	-0.023		1.199	1.396	Difference in Mean	-0.197	
	Median	0.932	0.946	Difference in Median	-0.014		0.927	0.950	Difference in Median	-0.023	
	Std. dev.	0.813	0.883	t-stat	-0.628		1.052	1.720	t-stat	-4.078	***
	n	480	156,941	Wilcoxon	-0.919		480	156,941	Wilcoxon	-1.026	

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). T-tests (Wilcoxon signed-rank tests) are used for assessing means (medians). See Appendix for variable descriptions.

TABLE 4
Disclosure Date Regression Analysis

	Predicted	RET				VOL			
Intercept	?	1.1598	***	1.1610	***	1.3863	***	1.3872	***
		0.0090		0.0090		0.0139		0.0139	
EA	+	0.7856	***			0.5418	***		
		0.0400				0.0478			
EA1	+			0.8225	***			0.5464	***
				0.0427				0.0510	
EA2	+			0.4974	***			0.5398	***
				0.0905				0.1605	
EA_EXPANDED	+	0.3198	***	0.3186	***	0.2736	***	0.2727	***
		0.0236		0.0236		0.0293		0.0292	
CALL	+	0.0975	**			0.1197	**		
		0.0547				0.0529			
CALL1	+			-0.0593				0.2252	**
				0.0540				0.1215	
CALL2	+			0.1139	**			0.1079	**
				0.0600				0.0621	
Y9C	+	-0.0336		-0.0348		-0.0997	***	-0.1006	***
		0.0420		0.0420		0.0419		0.0418	
10KQ	+	-0.0108		-0.0120		0.0420		0.0411	
		0.0283		0.0283		0.0538		0.0538	
Adjusted R-square		1.30%		1.23%		0.20%		0.19%	
n		164,802		164,802		164,802		164,802	

An F-test indicates that the estimated coefficient on EA1 is statistically different from the estimated coefficient on EA2 in the second but not statistically different in the fourth regression (one-tailed p = 0.001, 0.960, respectively).An F-test indicates that the estimated coefficient on CALL1 is statistically different from the estimated coefficient on CALL2 in the second but not statistically different in the fourth regression (one-tailed p = 0.012, 0.381, respectively).

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). The model is estimated using ordinary least squares. Robust standard errors clustered by date are presented below coefficient estimates. See Appendix for variable descriptions.

TABLE 5
Spillover Effects of the Call Report

	Predicted	RET		VOL	
Intercept	?	1.1601	***	1.3877	***
		0.0065		0.0142	
EA	+	0.7859	***	0.5531	***
		0.0422		0.0445	
EA_EXPANDED	+	0.3234	***	0.2895	***
		0.0226		0.0267	
DAY25	+	-0.0150		-0.0367	
		0.0261		0.0920	
DAY26	+	0.0348		-0.0252	
		0.0276		0.0908	
DAY27	+	0.0036		-0.0588	
		0.0284		0.0655	
DAY28	+	-0.0301		-0.0406	
		0.0254		0.0618	
DAY29	+	-0.0449	*	-0.0383	
		0.0228		0.0659	
CALL_30	+	0.1010	***	0.1362	**
		0.0256		0.0715	
CALL_NON30	+	0.1076	***	0.1578	*
		0.0439		0.1025	
DAY30_PRE	+	0.2353	***	0.0728	
		0.0774		0.1406	
DAY30_POST	+	-0.0369		-0.2783	***
		0.1101		0.1160	
Y9C	?	-0.0347	**	-0.1013	***
		0.0172		0.0419	
10KQ	?	-0.0109		0.0410	
		0.0206		0.0538	
Adjusted R-square		2.06%		0.21%	
n		164,802		164,802	

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). The model is estimated using ordinary least squares. Robust standard errors clustered by date are presented below coefficient estimates. See Appendix for variable descriptions.

TABLE 6
Factors that Influence the Information Content of the Call Report

Panel A: Cross-Sectional Determinants of Information Content based on Returns

	Predicted	LogASSETS		LOW_CR		LTGAP		LOSS		ΔE		ΔLL		ΔCHRG_OFF	
Intercept	?	1.2484	***	1.1601	***	1.1537	***	1.1589	***	1.1588		1.1613	***	1.1575	
		0.0244		0.0091		0.0098		0.0092		0.0092		0.0096		0.0093	
EA1	+	-0.8974	***	0.8037	***	0.8288	***	0.8185	***	0.8241	***	0.8302	***	0.8247	***
		0.1817		0.0446		0.0535		0.0435		0.0434		0.0536		0.0453	
EA2	+	-1.9209	***	0.4067	***	0.4854	***	0.5201	***	0.4711	***	0.4943	***	0.5334	***
		0.6706		0.0976		0.1157		0.0967		0.0980		0.0969		0.1119	
EA_EXPANDED	+	0.3233	***	0.3186	***	0.3201	***	0.3198	***	0.3186	***	0.3198	***	0.3212	***
		0.0237		0.0236		0.0236		0.0236		0.0240		0.0237		0.0237	
CALL1	+	-0.3993	*	-0.0356		-0.0489		-0.0567		-0.0867	*	-0.0465		-0.0516	
		0.2878		0.0574		0.0539		0.0585		0.0589		0.0529		0.0633	
CALL2	+	0.3741	***	0.1170	**	0.0436		0.1275	**	0.1163	**	0.1340	**	0.1202	**
		0.1601		0.0625		0.0666		0.0613		0.0613		0.0706		0.0626	
Z	?	-0.0108	***	0.0091		0.1480	***	0.0335	***	0.0070		-0.9219		1.3863	*
		0.0031		0.0073		0.0478		0.0118		0.0140		1.2523		0.7231	
EA1_Z	?	0.2043	***	0.1982		-0.1212		0.1737		0.1166		-6.4491		0.5527	
		0.0222		0.1320		0.6717		0.1967		0.1885		27.8272		8.7308	
EA2_Z	?	0.3361	***	0.8336	***	0.1766		-0.3489	*	0.4903		1.9554		-19.4763	
		0.0932		0.3161		0.9362		0.1781		0.4852		16.1821		25.0847	
CALL1_Z	?	0.0461		-0.2197		-0.1984		-0.0400		0.5364		-5.3157		-1.9418	
		0.0393		0.1556		0.6214		0.1624		0.4497		6.2445		15.3232	
CALL2_Z	?/+/+/?/+/+/+	-0.0304	**	-0.0317		1.7841	**	-0.4191	***	-0.0053		-19.6017		-3.6511	
		0.0155		0.0984		0.8473		0.0975		0.1731		18.3072		4.0533	
Y9C	+	-0.0342		-0.0349		-0.0350		-0.0349		-0.0324		-0.0340		-0.0335	
		0.0420		0.0420		0.0422		0.0421		0.0427		0.0422		0.0422	
10KQ	+	-0.0119		-0.0120		-0.0116		-0.0116		-0.0071		-0.0113		-0.0106	
		0.0282		0.0283		0.0283		0.0283		0.0285		0.0283		0.0283	
Adjusted R-square		1.43%		1.24%		1.26%		1.24%		1.25%		1.24%		1.25%	
n		164,802		164,802		164,802		164,802		161,050		164,305		164,123	

Panel B: Cross-Sectional Determinants of Information Content based on Volume

	Predicted	LogASSETS		LOW_CR		LTGAP		LOSS		ΔE		ΔLL		ΔCHRG_OFF	
Intercept	?	2.6770	***	1.3951	***	1.3240	***	1.3813	***	1.3710		1.3894	***	1.3724	
		0.0399		0.0142		0.0149		0.0141		0.0143		0.0144		0.0140	
EA1	+	0.1604		0.5474	***	0.4878	***	0.5477	***	0.5622	***	0.5259	***	0.5351	***
		0.2422		0.0540		0.0626		0.0505		0.0518		0.0590		0.0509	
EA2	+	0.5558		0.4377	***	0.4347	***	0.4478	***	0.4664	***	0.5114	***	0.5790	***
		0.9566		0.1436		0.1424		0.1404		0.1427		0.1631		0.1800	
EA_EXPANDED	+	0.3423	***	0.2726	***	0.2857	***	0.2760	***	0.2773	***	0.2717	***	0.2764	***
		0.0303		0.0292		0.0296		0.0293		0.0298		0.0291		0.0292	
CALL1	+	1.9090	**	0.1809	*	0.0972		0.1887	*	0.0832		0.1708	*	0.1709	
		0.9636		0.1330		0.1847		0.1337		0.1393		0.1270		0.1581	
CALL2	+	0.2409		0.1124	**	0.0842		0.1177	**	0.1239	**	0.1207	**	0.1060	**
		0.2025		0.0642		0.0786		0.0615		0.0630		0.0656		0.0610	
Z	?	-0.1596	***	-0.0787	***	1.2740	***	0.0932	***	0.1788	***	-2.9111		8.7986	***
		0.0039		0.0132		0.1095		0.0215		0.0328		2.1736		1.1566	
EA1_Z	?	0.0524	**	-0.0146		1.7592		0.0608		0.4703		23.8876		17.2668	
		0.0244		0.1116		1.1200		0.3230		0.5691		30.9532		19.5817	
EA2_Z	?	-0.0227		0.9457	*	1.5561		1.4077	**	1.5759		23.0541		-18.6439	
		0.1185		0.5575		2.1031		0.6251		1.5505		23.4917		24.3619	
CALL1_Z	?	-0.2554	**	0.4163		1.9189		0.5611		3.1211	***	35.6083		28.2502	
		0.1250		0.5212		2.0212		0.7572		0.6768		24.2288		56.8044	
CALL2_Z	?/+/+/?/+/+/+	-0.0091		-0.0517		0.8870		-0.2239		-0.2085		-17.7923		1.7168	
		0.0185		0.0678		1.1477		0.2380		0.2365		22.0124		10.4728	
Y9C	+	-0.0907	**	-0.1000	***	-0.1018	***	-0.1009	***	-0.0934	**	-0.1009	***	-0.1020	***
		0.0394		0.0419		0.0417		0.0419		0.0421		0.0419		0.0419	
10KQ	+	0.0429		0.0411		0.0442		0.0422		0.0446		0.0410		0.0433	
		0.0499	**	0.0539		0.0532		0.0537		0.0531		0.0537		0.0535	
Adjusted R-square		2.52%		0.21%		0.54%		0.22%		0.27%		0.20%		0.24%	
n		164,802		164,802		164,802		164,802		161,050		164,305		164,123	

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). The model is estimated using ordinary least squares. Robust standard errors clustered by date are presented below coefficient estimates. See Appendix for variable descriptions.

TABLE 7
Information Content Analysis by Year

Panel A: Returns

	Predicted	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013	
Intercept	?	1.2473	***	1.1110	***	1.2526	***	1.1206	***	1.1963	***	1.2830	***	1.1814	***	1.4920	***	1.4218	***	1.1549	***	1.2253	***	1.2696	***	1.1248	***	1.1925	***
		0.0227		0.0215		0.0210		0.0109		0.0086		0.0117		0.0030		0.0295		0.0312		0.0179		0.0138		0.0226		0.0031		0.0143	
EA	+	0.1906	***	0.2238	***	0.3481	***	0.2744	***	0.3678	***	0.7044	***	0.5929	***	0.5077	***	0.5514	***	0.4961	***	0.7633	***	0.5459	***	0.7574	***	0.7176	***
		0.0567		0.0495		0.0503		0.0389		0.0281		0.0514		0.0361		0.0553		0.0980		0.0704		0.0531		0.0573		0.0424		0.0532	
EA_EXPANDED	+	0.0947	***	0.0639	**	0.1425	***	0.1308	***	0.2029	***	0.3261	***	0.2019	***	0.1127	***	0.1585	***	0.2115	***	0.2622	***	0.0580	*	0.2560	***	0.2469	***
		0.0376		0.0368		0.0568		0.0234		0.0232		0.0272		0.0161		0.0374		0.0522		0.0392		0.0327		0.0373		0.0183		0.0295	
A_CALL	+	0.0354		-0.0424		-0.1048		-0.0290		-0.0332	*	0.1053	**	0.1012	***	-0.0752		-0.1274	***	0.0336		0.1880	**	0.0700		0.0648	**	0.1072	***
		0.1671		0.0607		0.1019		0.0777		0.0205		0.0585		0.0258		0.1086		0.0534		0.1339		0.0853		0.0582		0.0304		0.0023	
A_Y9C	+	0.0364		-0.2427	**	-0.0916		0.0437		0.0501		-0.0892		0.0508	**	0.3793		-0.2650	**	0.0488		0.1637		0.2787		-0.0999	***	-0.1603	***
		0.1110		0.0982		0.1216		0.0939		0.0571		0.0801		0.0298		0.3155		0.1190		0.1417		0.2252		0.3992		0.0273		0.0549	
10KQ	+	0.0149		-0.1205	**	0.0179		-0.0059		0.0711	**	0.0536		-0.1101	***	0.1272		-0.1248	**	0.1836	***	0.0103		-0.0074		0.0154		-0.0151	
		0.1200		0.0588		0.0607		0.0475		0.0368		0.0750		0.0275		0.1035		0.0568		0.0464		0.0397		0.0926		0.0305		0.0485	
Adjusted R-square		0.09%		0.24%		0.34%		0.26%		0.44%		1.14%		0.79%		0.39%		0.45%		0.51%		1.03%		0.46%		1.20%		1.10%	
n		61,637		78,816		83,863		89,991		93,088		96,505		97,136		95,094		92,359		93,754		91,552		87,568		84,588		80,506	

Panel B: Volume

	Predicted	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013	
Intercept	?	1.1506	***	1.1736	***	1.2443	***	1.1869	***	1.1863	***	1.1553	***	1.1753	***	1.3640	***	1.1801	***	1.2414	***	1.1431	***	1.1121	***	1.0289	***	1.1103	***
		0.0210		0.0217		0.0221		0.0211		0.0190		0.0140		0.0168		0.0061		0.0205		0.0188		0.0183		0.0162		0.0042		0.0187	
EA	+	0.0098		0.1935	***	0.2979	***	0.2387	***	0.3344	***	0.3684	***	0.4219	***	0.4818	***	0.2834	***	0.3149	***	0.6109	***	0.5537	***	0.4149	***	0.4880	***
		0.0620		0.0585		0.0666		0.0594		0.0650		0.0490		0.0567		0.0578		0.0806		0.0679		0.0680		0.0624		0.0421		0.0520	
EA_EXPANDED	+	0.1210	***	0.1387	***	0.2190	***	0.2188	***	0.2574	***	0.2873	***	0.3530	***	0.4051	***	0.2743	***	0.1967	***	0.3329	***	0.2631	***	0.2482	***	0.2800	***
		0.0414		0.0434		0.0410		0.0496		0.0467		0.0307		0.0442		0.0332		0.0522		0.0429		0.0405		0.0387		0.0231		0.0361	
A_CALL	+	-0.0677		0.0278		0.1091		0.1332		0.0690		0.1971	***	0.1812	**	0.2573	***	0.1114		0.1044	*	0.1656	*	0.1062	*	0.0623	*	0.1974	**
		0.0796		0.0521		0.1016		0.1220		0.0577		0.0552		0.0875		0.0509		0.1037		0.0798		0.1158		0.0771		0.0408		0.0994	
A_Y9C	+	-0.0659	*	-0.1252	***	-0.0681		-0.0541		0.1896		0.1473		-0.0286		0.0980	**	-0.1845	**	0.1435	***	0.0376		0.0358		-0.1321	***	-0.1293	***
		0.0450		0.0499		0.0907		0.1146		0.1684		0.0667		0.0498		0.0592		0.0845		0.0271		0.1549		0.1457		0.0378		0.0435	
10KQ	+	-0.0882	*	0.0481		0.0309		0.0576		0.0906	*	0.0842		0.0406		0.2265	***	0.0602		0.0234		0.0107		0.0309		0.0658		0.0491	
		0.0535		0.0582		0.0693		0.1348		0.0491		0.0864		0.0714		0.0659		0.0962		0.0745		0.0620		0.0820		0.0464		0.0578	
Adjusted R-square		0.03%		0.04%		0.12%		0.13%		0.19%		0.26%		0.29%		0.33%		0.16%		0.10%		0.50%		0.41%		0.34%		0.44%	
n		61,637		78,816		83,863		89,991		93,088		96,505		97,136		95,094		92,359		93,754		91,552		87,568		84,588		80,506	

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). The model is estimated using ordinary least squares. Robust standard errors clustered by date are presented below coefficient estimates. See Appendix for variable descriptions.

TABLE 8
Information Content Analysis Pre and Post Media Coverage

Panel A: Returns

	RET							Difference in Coefficients	
	Predicted	**2014**		**2010-2014**		**2015**		**2014 vs 2015**	**2010-2014 vs 2015**
Intercept	?	1.3278	***	1.1815	***	1.2325	***	^^	#
		0.0283		0.0095		0.0292			
EA	+	0.9117	***	0.8372	***	1.0423	***		#
		0.1021		0.0419		0.1162			
EA_EXPANDED	+	0.2534	***	0.2752	***	0.4459	***	^	#
		0.0555		0.0224		0.0977			
A_CALL	+	0.0931	**	0.1089	***	0.2494	***	^	#
		0.0558		0.0461		0.0707			
A_Y9C	+	-0.1587	**	-0.0544		0.2893			
		0.0744		0.0339		0.3681			
10KQ	+	-0.2187	***	-0.0154		0.1994	*	^^	
		0.0646		0.0284		0.1501			
Adjusted R-square		1.30%		1.25%		2.34%			
n		42,006		216,160		40,073			

Panel B: Volume

	VOL							Difference in Coefficients	
	Predicted	**2014**		**2010-2014**		**2015**		**2014 vs 2015**	**2010-2014 vs 2015**
Intercept	?	1.1454	***	1.1153	***	1.0932	***		
		0.0260		0.0094		0.0195			
EA	+	0.4653	***	0.5215	***	0.5552	***		
		0.0640		0.0384		0.0819			
EA_EXPANDED	+	0.2674	***	0.3061	***	0.2828	***		
		0.0487		0.0216		0.0471			
A_CALL	+	0.1397	***	0.1439	***	0.2648	***	^	##
		0.0566		0.0311		0.0502			
A_Y9C	+	-0.0259		-0.0771	**	-0.0873			
		0.0477		0.0330		0.0643			
10KQ	+	-0.0623		0.0281		-0.0862			#
		0.0589		0.0315		0.0594			
Adjusted R-square		0.42%		0.51%		0.61%			
n		42,006		216,160		40,073			

***, **, * denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (one-tailed if sign is in the predicted direction, two-tailed otherwise). ^^^, ^^, ^, and ###, ##, # denote significantly different from zero at the 1, 5, and 10 percent levels, respectively (two-tailed). The model is estimated using ordinary least squares. Robust standard errors clustered by date are presented below coefficient estimates. See Appendix for variable descriptions.