Disclosure Frequency Induced Earnings-Cash Flow Conflict and the Decision to be Public

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This version: January 2017

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We examine whether disclosure frequency induced earnings-cash flow conflict influences the *types* of firms that choose to be public. Using the length of the cash conversion cycle to proxy for the disclosure frequency induced conflict between short-term reported earnings and total cash flows, we find that in the United States, where mandatory disclosure is required quarterly, the proportion of public firms decreases with the length of the industry's cash conversion cycle when cash conversion cycles are longer than one quarter. Furthermore, we find that when the reporting frequency changed from semi-annual to quarterly in UK, the proportion of UK public firms from industries whose cash conversion cycles are between 90 days and 180 days decreased significantly, compared to their US counterparts. Our results shed light on the ongoing debate on the frequency of mandatory disclosure.

Keywords: managerial myopic behavior; mandatory disclosure frequency; earnings-cash flow conflict

Data Availability: Data are publicly available from sources identified in the article.

1. Introduction

Bhojraj and Libby (2005) presents experimental evidence that disclosure frequency induced earnings-cash flow conflict pressures managers in publicly traded firms to choose projects that they believe will maximize short-term reported earnings at the expense of total cash flows. Furthermore, the greater the earnings-cash flow conflict, the more likely myopic behaviors by those managers. Prior studies also find evidence of myopic managerial behavior in publicly traded firms in response to the short-term pressure from mandatory quarterly reporting (e.g., Bushee, 1998; Graham et al., 2005; Bhojraj and Libby, 2005; Roychowdhury, 2006). It is uncertain, however, whether disclosure frequency induced earnings-cash flow conflict influences the t*ypes* of firms that choose to be public in the first place.

In this archival study, we use the length of the cash conversion cycle to proxy for disclosure frequency induced conflict between short-term reported earnings and total cash flows. The empirical proxy is motivated by the experimental design in Bhojraj and Libby (2005) where they manipulate the degree of the conflict between short-term reported earnings and cash flows by varying the timeline of the payoffs from the project. The length of the cash conversion cycle captures the average amount of time each net input dollar is tied up in the production and sales process before it is converted into cash. In this regard, the length of the cash conversion cycle can be interpreted as the average length of time for a representative project to pay off. Therefore, the longer the cash conversion cycle, the longer it takes for a company to convert resources/investments into cash flows.

Anecdotal evidence suggests that mandatory reporting is a potential factor that discourages firms from becoming public. For example, Jonathan Klein, chief executive of Getty Images, commented, "We moved swiftly and adjusted our cost base, invested in our employees

and were able to acquire our then second largest competitor at a knock-down price . . . All of this was possible as a *private* company without the issues of quarterly reporting, providing guidance on earnings, a volatile stock price and external pressures" (Upbin, 2013). Similarly, based on survey of CFOs, Brau and Fawcett (2006) conclude that the primary reason for being private is to preserve decision-making control and ownership.

If managers and the board of directors can rationally anticipate the disclosure induced conflict between short-term reported earnings and cash flows once the firm is public, they are less inclined to become public and more inclined to remain private when the expected conflict is greater. As longer cash conversion cycles increase the conflict between cash flows and reported earnings, exacerbating the short-term pressure from periodic mandatory disclosure, we expect that firms in industries with longer cash conversion cycles face greater short-term pressure from mandatory disclosure, and are less likely to be public to avoid the short-term pressure from periodic mandatory reporting.

To test the hypothesis empirically, we look at the cross-section of all public and private firms in the United States, and examine, at a given point in time, whether industries with longer cash conversion cycles have a smaller percentage of public firms. Using the Census of Manufactures and Compustat, we find that the proportion of public firms decreases with the length of the industry's cash conversion cycle when cash conversion cycles are longer than one quarter. In particular, a one-day increase in the length of the cash conversion cycle is associated with a 0.229% decrease in the proportion of public firms from the mean.

Furthermore, the disclosure frequency induced conflict between short-term reported earnings and cash flows is more pronounced when the cash conversion cycle exceeds the frequency of mandatory reporting than when the cash conversion cycle is shorter than the

frequency of mandatory reporting. Accordingly, we hypothesize that the negative relation between the length of the cash conversion cycle and the decision to be public is more pronounced when the cash conversion cycle exceeds the frequency of mandatory reporting. We find that in the United States, where mandatory disclosure is required *quarterly*, the negative relation between the proportion of public firms and the length of cash conversion cycle is only evident in industries where cash conversion cycles are longer than one quarter. When cash conversion cycles are *shorter* than one quarter, the length of the industry's cash conversion cycle bears no negative relation with its proportion of public firms. The falsification test further confirms that short-term pressure from mandatory quarterly reporting drives the negative relation between the length of the cash conversion cycle and the proportion of public firms.

Finally, we examine whether the proportion of public firms from a particular industry changes in response to a change in the frequency of mandatory reporting. Empirically, we take advantage of a natural experiment in the changes of mandatory disclosure frequency in UK. Starting January 20th, 2007, UK implemented the EU Transparency Directive, which essentially changed the reporting frequency of public firms from semi-annual to quarterly. The quarterly reporting requirement was removed in November 2014. Using a difference-in-differences research design, we find that the proportion of public firms from industries whose cash conversion cycles are between 90 days and 180 days decreased significantly in UK from the period between 2000 and 2006 when the frequency of mandatory reporting was semi-annual to the period between 2007 and 2014 when the frequency of mandatory reporting was quarterly, after controlling for the normal fluctuations in industry composition during these periods in US. More interestingly, the corresponding change in the proportion of public firms from industries whose cash flow cycles are less than 90 days in UK is statistically indifferent from that in US.

The results from the change specification provide direct evidence that compared with US, the increased mandatory reporting frequency in UK leads to a greater conflict of short-term reported earnings and long-term cash flows for firms in industries whose cash conversion cycles are between 90 days and 180 days. This increased conflict eventually results in a net outflow of those firms from the public markets.

This study contributes to multiple strands of literature. First, to the best of our knowledge, this is the first study to investigate whether the conflict between cash flows and reported earnings influences a firm's decision to be public. We find that short-term pressure from quarterly mandatory reporting deters firms with a greater level of conflict between long-term total cash flows and short-term reported earnings from being public. This study complements prior research by suggesting that the public market's focus on short-term performance induces not only myopic managerial behavior in publicly traded firms, but also influences a firm's decision to be public.

Second, the finding that the disclosure frequency induced conflict between long-term cash flows and short-term reported earnings may prevent some firms from entering the public domain provides new insights into the ongoing debate on the frequency of mandatory disclosure. The primary argument for increased disclosure frequency rests on enhancing timeliness and transparency. A key argument against increased disclosure frequency is that more frequent reporting forces managers in publicly traded firms to focus more on short-run performance at the expense of long-run performance (e.g., Bhojraj and Libby, 2005). The evidence in this study suggests that the frequency of mandatory reporting also has an impact on the types of firms that choose to be public in the first place.

Finally, this study complements the strand of literature suggesting an important interaction between capital market and product market behaviors (e.g., Chevalier, 1995; Hellman and Puri, 2000; Campello, 2006). For example, Chevalier (1995) and Campello (2006) find that the debt-to-equity ratio influences a firm's decisions about the capacity and the formation of strategic alliances. Hellmand and Puri (2000) find that the stake taken by venture capitalists influences a firm's product market innovation strategy. All those studies examine whether and how a given financing choice influences product market behaviors. In contrast, we examine how a given product market attribute influences the choice of whether to raise capital from the public market. Specifically, this study suggests that the length of the industry's cash conversion cycle influences the decision to access the public market and that the negative relation between the length of the cash conversion cycle and the proportion of public firms varies with disclosure regulations in the capital market.

The remainder of the paper is organized as follows. Section 2 develops the hypotheses. Section 3 discusses the data and the key variable measurements. Section 4 discusses the research design. Section 5 presents empirical results. Section 6 concludes.

II. Hypothesis development

Private ownership allows managers and boards to focus on a company's long-term strategies and the implementation of those strategies. Using the public markets to raise external funds, however, creates a new ownership structure, which induces managers to have a different focus. In the United States, securities offered in public issues must be registered with the Securities and Exchange Commission, and the issuers are subject to mandatory disclosure

requirements thereafter.[1] Once a firm chooses to "go public," it is required to disclose a comprehensive list of prescribed information on a quarterly basis, which may pressure managers and boards of public firms to focus more on the delivery of short-term accounting profits.

Stein (1989) shows, in a theoretical model, that managers in publicly traded firms would sacrifice total cash flows to boost short-term earnings in an effort to influence the market's current assessment of the firm's value. Empirical studies find evidence suggestive of myopic managerial behavior in publicly traded firms in response to the short-term pressure from mandatory reporting. Bushee (1998) and Roychowdhury (2006) provide archival evidence that opportunistic managers in publicly traded firms manipulate their firms' activities to the detriment of future cash flows to achieve financial reporting objectives. Dechow and Sloan (1991) and Baber et al. (1991) show that managers in public firms have incentives to cut their R&D expenditures in order to boost short-term reported profits. A cut in R&D investments, however, slows down the rolling-out of new products and improvements to existing products, both of which potentially lower the firm's market share and long-run cash flows. Graham et al. (2005), using survey data, find that financial executives in publicly traded firms are willing to give up cash value to meet a short-term earnings target. Bhojraj and Libby (2005) provide experimental evidence that, in response to a pending stock issuance, managers more often choose projects that they believe will maximize short-term reported earnings (and price) as opposed to total cash flows, holding constant other stock market pressures.

This study examines whether firms with greater conflict between long-term total cash flows and short-term reported earnings are less likely to be public, thus avoiding the short-term

[1]Public offerings are registered with the Securities and Exchange Commission on Form S-1. If the amount of capital in a public sale is less than $5 million in a 12-month period, the securities being offered are exempt from registration under Regulation A.

pressure from periodic mandatory reporting. We use the cross-industry variation in the length of the cash conversion cycle to proxy for the extent of the disclosure frequency induced conflict between long-term total cash flow and short-term reported earnings. The cash conversion cycle is defined as the average time elapsing between the disbursement of cash to produce a product or provide a service and the receipt of cash from the sale of the product or service. The length of the cash conversion cycle captures the average amount of time each net input dollar is tied up in the production and sales process before it is converted into cash. Therefore, the longer the cash conversion cycle, the longer it takes for a company to convert resources/investments into cash flows on average. The empirical proxy is motivated by the experimental design in Bhojraj and Libby (2005) where they manipulate the degree of the disclosure frequency induced conflict between quarterly reported earnings and cash flows by varying the timeline of the payoffs from the project. The length of the cash conversion cycle, in this regard, can be interpreted as the average length of time for a representative project to pay off.

We argue that, holding the frequency of mandatory disclosure constant, the longer the cash conversion cycle, the higher the level of conflict between long-term total cash flows and short-term reported earnings, and the greater the short-term pressure from periodic reporting. The length of a firm's cash conversion cycle is largely determined by the underlying characteristics of the industry in which the company operates. For instance, the fast food industry has a very short cash conversion cycle, whereas the aerospace manufacturing industry typically has a very long cash conversion cycle. Therefore, we hypothesize that, ceteris paribus, firms in industries with longer cash conversion cycles are less likely to be public, and thus, the proportion of public firms is lower in those industries. This leads to the first hypothesis:

H1: The proportion of public firms is lower in industries with longer cash conversion cycles.

Second, we argue that the conflict between short-term reported earnings and long-term cash flows is induced by disclosure frequency. Therefore, this conflict is more pronounced when the cash conversion cycle exceeds the frequency of mandatory reporting than that when the cash conversion cycle is shorter than the frequency of mandatory reporting. As mandatory disclosure is required *quarterly* in the United States, we hypothesize that the negative relation between the length of the cash conversion cycle and the decision to be public is more pronounced when the cash conversion cycle exceeds one quarter in US. This leads to the second hypothesis:

H2: The negative relation between the length of the cash conversion cycle and the proportion of public firms is more pronounced in industries whose cash conversion cycles exceed one quarter.

Next, we examine whether a firm's decision to be public varies in response to a change in the frequency of mandatory reporting. We take advantage of a natural experiment in the changes of the frequency of mandatory disclosure for public firms in UK. Prior to 2007, the public firms in UK were required to disclose only semi-annual and annual reports. Starting from January 20, 2007, UK public firms were required to publish a new twice-yearly interim management statement in addition to the annual and semi-annual reports as a result of the implementation of the EU Transparency Directive. The addition of interim management statement essentially changed the disclosure frequency of UK public firms from semi-annual to quarterly. In November 2014, the UK Financial Conduct Authority removed the reporting requirement for interim management statements.

Bhojraj and Libby (2005) find that an increase in disclosure frequency can cause myopic behavior to increase if more frequent disclosure causes a greater conflict between short-term

earnings and total cash flows. Accordingly, we expect that the increased disclosure frequency from semi-annual to quarterly discourages a firm's decision to be public in the UK market, especially for those firms in industries whose cash conversion cycles exceed one quarter but are shorter than half a year. For firms in industries whose cash conversion cycles are shorter than one quarter, the increase in the mandatory reporting frequency is unlikely to intensify the conflict between short-term reported earnings and long-term cash flows. Accordingly, the new reporting regime is unlikely to lead to a significant decrease in the proportion of public firms in these industries.

H3a: The increased mandatory disclosure frequency from semi-annual to quarterly in UK decreases the proportion of public firms from industries where cash conversion cycles are between 90 days and 180 days.
H3b: The increased mandatory disclosure frequency from semi-annual to quarterly in UK leads to no significant change in the proportion of public firms in industries where cash conversion cycles are shorter than one quarter.

III. Industry classification and cash conversion cycles

To test hypotheses 1 and 2, we use the North American Industry Classification System (NAICS) to classify industries because Bhojraj et al. (2003) suggest that the NAICS yields groupings of firms that are more economically related and homogeneous than the Standard Industry Classification (SIC) system.[2]

The number of public firms in a given industry (*NUM_PUBLIC*) is obtained from Compustat. As the cash conversion cycle of private firms is not measurable due to the lack of

[2]NAICS uses a six-digit hierarchical coding scheme to classify all product markets into 20 sectors, 5 of which are goods-producing sectors and 15 of which are services-providing sectors. The NAICS was developed in response to structural changes in the economy. Recent developments in information services, new forms of healthcare provision, expansion of services, and high-tech manufacturing are examples of structural changes that cannot be studied under the SIC system. Nine new service sectors and 250 new service industries are recognized under the NAICS. The empirical results are robust using four-digit SIC codes to classify an industry.

available data, the median length of the cash conversion cycle of public firms in a given industry is used as a proxy for the length of the industry's cash conversion cycle (*INDUSTRY_CCC*). More specifically, using Compustat, we compute the length of the cash conversion cycle as the sum of days' sales in receivables plus days' sales in inventory minus days' sales in payables. The indicator variable for cash conversion cycles that are longer than one quarter (*CCC_LONG1Q*) is coded as one if INDUSTRY_CCC is longer than one quarter, and zero otherwise. The average revenue of all public firms in an industry (*INDUSTRY_SALES*) is also obtained from Compustat.

We use industry markup to proxy for industry profitability. Industry markup represents the average price-cost margin in an industry. We calculate industry markup using aggregate industry-level data from Annual Survey of Manufacturers publications. Following Allayannis and Ihrig (2001), industry markup (*INDUSTRY_MARKUP*) is defined as follows:

$$INDUSTRY\_MARKUP = \frac{Value\ of\ sales + \Delta\ Inventory - Payroll - Cost\ of\ materials}{Value\ of\ sales + \Delta\ Inventory}$$

A U.S. census takes place every five years and the latest Census of Manufactures used in the sample was published in 2007. To align the census year with the fiscal year, we use the census data for a given year as a proxy for industry concentration, not only for that year, but also for the two years immediately before or after it. For instance, the number of all firms (*NUM_FIRMS_CENSUS*) from the 2007 census is aligned with the number of public firms (*NUM_PUBLIC*), the average sales of all public firms (*INDUSTRY_SALES*), and the industry markup (*INDUSTRY_MARKUP*) for each industry-year observation within the time window from 2005 to 2009. Accordingly, for industry i, the number of all firms (*NUM_FIRMS_CENSUS*) is identical for 2005, 2006, 2007, 2008, and 2009. Therefore, it is necessary to cluster-adjust standard errors in the following empirical analyses. In summary, the

final sample for the empirical tests of hypotheses 1 and 2 includes the 4,832 industry-year observations from 322 industries from 1995 to 2009.

To test hypothesis 3, we compare the industry composition of all public firms in UK during the period from 2007 to 2014 when the frequency of mandatory reporting has changed from semi-annual to quarterly relative to that in a seven-year period prior to the change, namely the period from 2000 to 2006. To mitigate the concern that other concurrent factors influence a firm's decision to enter or exit a particular industry, we use the industry composition of all public firms in the U.S. as the benchmark. U.S. is an appropriate benchmark to the extent that in the corresponding periods, the frequency of mandatory reporting stays at the quarterly interval.

We use Worldscope annual database to obtain financial data for public firms in UK and US. Industry classification is defined by the two-digit Worldscope industry group (Item 6011) to ensure consistent classification among UK and US firms. We calculate industry gross profit margin (Industry_GPM) as the industry average gross profit margin, which is (Item 1001-Item 1051)/Item 1001. Industry_Sales is computed as the industry average of log sales. The final sample to test hypotheses 3 includes 33,662 firm-year observations in UK and 145,817 firm-year observations in US between 2000 and 2014 from WORLDSCOPE.

IV. Research design

4.1.The length of the cash conversion cycle and the proportion of public firms

In tests of hypotheses 1 and 2, the industry-level proportion ($PROPORTION_{it}$) is computed as the fraction of the number of public firms (NUM_PUBLIC_{it}) relative to the total number of firms ($NUM\_FIRMS\_CENSUS_{it}$) for a given industry-year combination. As the proportional-type variable typically does not satisfy the statistical properties of the OLS

estimation, following Draper and Smith (1966), we perform log odds transformation of $PROPORTION_{it}$. The dependent variable in Regression (1) is the log odds ratio (LOG_ODDS_{it}), which is measured as Ln [$PROPORTION_{it}$ / (1-$PROPORTION_{it}$)]. For industry-years where $PROPORTION_{it}$ is 100% (0%), the variable is reset to be 99.99% (0.01%) to avoid a zero value for the denominator (numerator) in the log odds ratio.

Hypotheses 1 and 2 examine whether the proportion of public firms is lower in industries with longer cash conversion cycles when the cash conversion cycle is longer than one quarter. We include a set of control variables while examining the relation between the length of the cash conversion cycle and the proportion of public firms. First, Ali et al. (2009) suggest that, in industries with fewer players, there should be a greater percentage of large public firms, i.e., the type that are more likely to be included on Compustat. Therefore, it is essential to hold the number of players constant in examining the empirical relationship between the length of the cash conversion cycle and the proportion of public firms across industries. Accordingly, we include the number of firms in a given industry ($NUM\_FIRMS\_CENSUS_{it}$). We also include the average sales of firms that are public in a given industry ($INDUSTRY\_SALES_{it}$) to account for the bias that results from large public firms being more likely to be included on Compustat.

Second, proprietary costs of mandatory disclosure could vary across industries and over time. To the extent that firms in more profitable industries face greater proprietary costs of public disclosure, we include the industry-level profitability to capture the cross-industry variation in proprietary costs. The industry-level price-to-cost margin (*INDUSTRY_MARKUP*) is used as a proxy for industry profitability. Proprietary costs of mandatory disclosure could vary considerably over time. Survey evidence indicates that segment information is viewed as the most competitively sensitive information. Under the old segment reporting standard (Statement

of Financial Accounting Standards [SFAS] 14), publicly traded firms were required to classify line-of-business segment information using the industry approach. The definition of industry allowed many firms to report less segment information than what was reported internally. In 1997, the Financial Accounting Standards Board issued SFAS 131, which requires public firms use the management approach. Under the management approach, segment information is presented based on how management internally evaluates the operating performance of its business units. SFAS 131 increases the number of reported segments and provides more disaggregated information (e.g., Berger and Hann, 2003). Moreover, SFAS 131 allows investors to assess the performance of individual operating segments in the same way that management does. To the extent that SFAS 131 increases the number of reported segments and improves the transparency of segment profitability disclosure (e.g., Berger and Hann, 2003; Herrman & Thomas, 2000; Ettredge et al., 2005; Ettredge et al., 2006), we include $POST\_SFAS131_t$ to capture the potential increase in proprietary costs of mandatory disclosure after SFAS 131. $POST\_SFAS131_t$ is an indicator variable, which is coded as one if the year is 1997 or after, and zero otherwise.

Third, implementation costs of mandatory disclosure could vary over time. To the extent that the Sarbanes-Oxley Act of 2002 (SOX) significantly increases the implementation costs of mandatory disclosure requirements (e.g., Engel, Hayes and Wang, 2007), we include $POST\_SOX_t$ to capture the temporal change in implementation costs. $POST\_SOX_t$ is an indicator variable, which is coded as one if the year is 2002 or after, and zero otherwise.

In summary, Regression (1) summarizes the specification to examine the effect of the length of the cash conversion cycle on the proportion of public firms when cash conversion cycles are longer than one quarter:

$$LOG\_ODDS_{it} = \propto + \beta_1 INDUSTRY\_CCC_{it} + \beta_2 NUM\_FIRMS\_CENSUS_{it} + \beta_3 CCC\_LONG1Q_{it} + \boldsymbol{\beta_4 CCC\_LONG1Q_{it}} * \boldsymbol{INDUSTRY\_CCC_{it}} + \beta_5 IINDUSTRY\_MARKUP_{it} + \beta_6 INDUSTRY\_SALES_{it} + \beta_7 POST\_SFAS131_t + \beta_8 POST\_SOX_t + \boldsymbol{\varepsilon_{it}}$$

Regression (1)

The variable of interest is the slope coefficient on the interaction term between INDUSTRY_CCC and CCC_LONG1Q. We expect a statistically and economically significant negative slope coefficient. The overlap in the number of all firms (*NUM_FIRMS_CENSUS*) from the Census of Manufactures implies much autocorrelation. Accordingly, we cluster-adjust the standard errors by census year in the estimation of Regression (1).

4.2. Components of the cash conversion cycle and the proportion of public firms

The cash conversion cycle can be broken down into three components: days' sales in inventory *(INDUSTRY_DSI*), days' sales outstanding in accounts receivable (*INDUSTRY_DSO*), and days' sales in accounts payable (*INDUSTRY_DPO*). Days' sales in inventory measures the amount of time each net input dollar is tied up in the production process and inventory. Days' sales outstanding in accounts receivable measures the amount of time to collect cash from customers. Days' sales in payables measures the days of operation that are financed by suppliers, i.e., the number of days before suppliers are paid. The cash conversion cycle increases with days' sales in inventory and day's sales outstanding in receivables, but decreases with days' sales in payables.

INDUSTRY_DSI is the median days' sales in inventory of firms that are already public in a particular industry at a given point in time, which is calculated as inventory divided by daily cost of goods sold. INDUSTRY_DSO is the median days' sales outstanding in accounts receivable of firms that are already public in a particular industry at a given point in time, which is calculated as accounts receivable divided by daily sales. INDUSTRY_DPO is the median

days' sales in accounts payable of firms that are already public in a particular industry at a given point in time, which is calculated as accounts payable divided by daily cost of goods sold.

Regression (2) summarizes the specification that explores which component of the cash conversion cycle dominates the negative relation between the length of the cash conversion cycle and the proportion of public firms when cash conversion cycles are longer than one quarter:

$$\begin{aligned} LOG\_ODDS_{it} = \propto\ &+ \beta_1 CCC\_LONG1Q_{it} + \beta_2 INDUSTRY\_DSI_{it} + \boldsymbol{\beta_3 CCC\_LONG1Q_{it} * INDUSTRY\_DSI_{it}} \\ &+ \beta_4 INDUSTRY\_DSO_{it} + \boldsymbol{\beta_5 CCC\_LONG1Q_{it} * INDUSTRY\_DSO_{it}} \\ &+ \beta_6 INDUSTRY\_DPO_{it} + \boldsymbol{\beta_7 CCC\_LONG1Q_{it} * INDUSTRY\_DPO_{it}} \\ &+ \beta_8 NUM\_FIRMS\_CENSUS_{it} + \beta_9 INDUSTRY\_MARKUP_{it} + \beta_{10} INDUSTRY\_SALES_{it} \\ &+ \beta_{11} POST\_SFAS131_t + \beta_{12} POST\_SOX_t + \boldsymbol{\varepsilon_{it}} \end{aligned}$$

Regression (2)

If days' sales in inventory dominates the negative relation between the length of the cash conversion cycle and the proportion of public firms, we expect a significant negative slope coefficient on the interaction term between INDUSTRY_DSI and CCC_LONG1Q. If days' sales in accounts receivable dominates the relation, we expect a significant negative slope coefficient on the interaction term between INDUSTRY_DSO and CCC_LONG1Q. If days' sales in accounts receivable dominates the relation, we expect a significant positive slope coefficient on the interaction term between INDUSTRY_DPO and CCC_LONG1Q.

4.3. Changes in disclosure frequency and changes in the industry composition of public firms

We use a difference-in-differences research design to examine the impact of the change in frequency of mandatory disclosure on UK firms' decisions to be public. Specially, we compute the industry median cash conversion cycle of UK public firms during 2000-2006, where only semi-annual and annual reports were required. We then partition public firms in UK into three groups based on the median length of cash conversion cycle in an industry: the first group consists of firms in industries whose median cash conversion cycles are less than 90 days, the

second group consists of firms in industries whose median cash conversion cycles are between 90 days and 180 days, and the third group consists of the remaining. The indicator variables, CCCDM1, CCCDM2, and CCCDM3, are set to be one if a firm belongs to industries whose median cash conversion cycle measured over the period from 2000 to 2006 is less than 90 days, between 90 days and 180 days, or more than 180 days, respectively, and zero otherwise.[3] We use public firms in US as the benchmark and assign the U.S. firms into the above-defined three groups based on their industry membership. The indicator variable for the change in mandatory disclosure frequency, QTRRP, is equal to one for observations between 2007 and 2014, and zero for observations between 2000 and 2006.

More specifically, we use the following logistic regression to examine whether the increase in mandatory disclosure frequency leads to a lower likelihood of being public for UK firms in industries whose cash conversion cycle is between one quarter and half of a year:

$$CCCDMi_{l,t} = \alpha + \beta_1 UK_{l,t} + \beta_2 QTRRP_t + \boldsymbol{\beta_3 UK_{l,t} * QTRRP_t} + \beta_4 Industry\_GPM_{l,t} + \beta_5 Industry\_Sales_{l,t} + \varepsilon_{l,t} \quad (i=1,2,3)$$

Regression (3)

The interaction term between QTRRP and the indicator variable for UK firms (UK) captures the difference-in-differences comparison and is expected to be negative when the dependent variable is CCCDM2.

V. Empirical results

5.1. Results for the relation between the cash conversion cycle and the proportion of public firms

[3] CCCDM does not change over time. For example, Textile is one of the industries that have median cash conversion cycle between 90 days and 180 days measured over the period from 2000 to 2006. Firms in textile have CCCDM2=1, CCCDM1=0, and CCCDM3=0 for the entire period from 2000 to 2014. Changes in CCCDM are only driven by firms entering or exiting a particular industry.

Table 1 provides descriptive statistics on the 4,832 industry-year observations. On average, 2.86% of firms in an industry are public firms. The average length of the cash conversion cycle is 102 days and the median length of the cash conversion cycle is 91 days, with one industry having a cash conversion cycle as short as one day and another having a cash conversion cycle as long as 407 days. The average number of firms in an industry, according to the Census of Manufactures, is about 694 firms, with one industry having only 5 firms and another having as many as 22,180. The average industry-level markup is 30%, whereas the median industry-level markup is 31%. The average industry-level revenue is 1,740 million and median industry-level sales are 475 million.

Table 2 provides the correlation table. On the univariate basis, the Pearson correlation between the length of cash conversion cycle (*INDUSTRY_CCC*) and the log odds ratio of public firms (*LOG_ODDS*) is 0.028 and statistically insignificant, and the Spearman correlation is 0.079 and statistically significant. The Spearman and Pearson correlations between the log odds ratio of public firms (*LOG_ODDS*) and the number of firms in a given industry (*NUM_FIRMS_CENSUS*) are –0.590 and –0.512, respectively, both of which are statistically significant with a *p*-value of 0.01. This is consistent with the finding in Ali et al. (2009) that, in industries with fewer players, there is a greater percentage of large public firms, i.e., the type of firms that are more likely to be included on Compustat. The significant correlations between the number of firms and the proportion of public firms validates the necessity to control for the number of firms in a given industry in examining the relationship between the length of the cash conversion cycle and the proportion of public firms.

Table 3 presents the multivariate regression results on the relationship between the length of an industry's cash conversion cycle and the industry-level proportion of public firms. In the

first column, we include only the length of the cash conversion cycle and the number of firms as independent variables to explain the variation in the proportion of public firms across different industries. The two variables combined are able to explain 26.3% of variation in the proportion of public firms across different industries. The slope coefficient on NUM_FIRMS_CENSUS is -0.512 and statistically significant (*p*-value = 0.001), consistent with prior findings that industries with fewer players have a greater percentage of large public firms. The slope coefficient on INDUSTRY_CCC is 0.011 and statistically insignificant, suggesting no relation between the length of the cash conversion cycle and the proportion of public firms when all lengths of cash conversion cycles are considered.

In the second column of Table 3, four control variables, including the industry-level profitability (*INDUSTRY_MARKUP*), the industry-level sales (*INDUSTRY_SALES*), the indicator variable for the post-SFAS 131 regime (*POST_SFAS131*), and the indicator variable for the post-SOX regime (*POST_SOX*) are included to explain the variation in the proportion of public firms across industries. With the control variables, the explanatory power of the regression increases slightly from 26.3% to 29.1%. For example, consistent with the expectation that firms in more profitable industries face greater proprietary costs of public disclosure, and thus have greater incentives to avoid the commitment to mandatory disclosure, the slope coefficient on the industry-level profitability ($INDUSTRY\_MARKUP_{it}$) is negative and statistically significant (*p*-value = 0.001). The slope coefficient on the industry-level sales ($INDUSTRY\_SALES_{it}$) is positive and statistically significant (*p*-value = 0.001), consistent with the bias that larger firms are more likely to be included on Compustat (e.g., Ali et al., 2009).

The last column of Table 3 presents the results on whether the proportion of public firms decreases with the length of the cash conversion cycle when cash conversion cycles are longer

than one quarter. The slope coefficient on CCC_LONG1Q is positive, suggesting that firms in industries whose cash conversion cycles are longer than one quarter, on average, have a greater need for equity from the public market than firms in industries whose cash conversion cycles are shorter than one quarter. More importantly, the slope coefficient on the interaction term between INDUSTRY_CCC and CCC_LONG1Q is –0.491 and statistically significant (*p*-value = 0.001). The result indicates that, when cash conversion cycles are longer than one quarter, the proportion of public firms is lower in industries with longer cash conversion cycles. The magnitude of the slope coefficient implies that, when cash conversion cycles are longer than one quarter, one day increase in the length of the cash conversion cycle is associated with a 0.086 decrease in the log odds transformation of the proportion of public firms, which is equivalent to a 0.229% decrease in the proportion of public firms from the mean.

Table 4 presents the multivariate regression results on the relation between the three components of the cash conversion cycle and the industry-level proportion of public firms. In the first column, the slope coefficient on CCC_LONG1Q*INDUSTRY_DSI is –0.520 and statistically significant (*p*-value = 0.001). In the next two columns, the slope coefficients on CCC_LONG1Q*INDUSTRY_DSO and CCC_LONG1Q*INDUSTRY_DPO are 0.042 and -0.011, respectively, both of which are statistically insignificant. In the last column, when the three components of the cash conversion cycle are included simultaneously as explanatory variables, the slope coefficient on CCC_LONG1Q*INDUSTRY_DSI is –0.650 and statistically significant (*p*-value = 0.001), and the slope coefficient on CCC_LONG1Q*INDUSTRY_DPO is 0.124 and statistically significant (*p*-value = 0.001). The slope coefficient on CCC_LONG1Q*INDUSTRY_DSO remains statistically insignificant. In summary, when the cash conversion cycle is longer than one quarter, the days'-sales-in-inventory component

dominates the negative relation between the length of the cash conversion cycle and the proportion of public firms.

5.2. Results on change in disclosure frequency and change in the industry composition

Table 5 reports the percentage of firms in the three groups partitioned by the industry median cash conversion cycle, measured using UK data between 2000 and 2006. The first three columns report results for UK firms. 61.3% of public firms in UK are from industries whose median cash conversion cycle are less than one quarter during 2000 and 2006. The percentages are 12.2% and 26.5% for firms in industries with cash conversion cycle between 90 days and 180 days and those in industries with cash conversion cycle longer than 180 days respectively. The corresponding percentages for the period between 2007 and 2014 are 61.9%, 11.1%, and 27.0%, respectively. The change between the two sample periods is only significant for the group of firms whose industry median cash conversion cycles are between 90 and 180 days (p-value = 0.001). The finding suggests that, after UK public firms were required to disclose quarterly reports in 2007, there was a significant decrease in the number of firms from industries whose median cash conversion cycles are longer than 90 days but shorter than 180 days. Examples of such industries include electrical, construction, machinery & equipment, drugs, cosmetics & health care, apparel, textiles, and aerospace. In contrast, in the corresponding periods, there was no significant change in the number of firms from industries whose median cash conversion cycles are shorter than 90 days and those from industries whose cash conversion cycles are longer than 180 days. Both groups are affected to a lesser extent by the increase in the frequency of mandatory reporting.

Another possible reason for the decrease in the proportion of firms from industries whose cash conversion cycles are between 90 days and 180 days is their lesser economic importance. Therefore, we use the industry composition of public firms in US as a benchmark for economics-based industry composition. Interestingly, we find that in US there is a significant increase in the proportion of firms in these industries, including electrical, construction, machinery & equipment, drugs, cosmetics & health care, apparel, textiles, and aerospace, suggesting that these industries have not become less important economically.

The last column of Table 5 reports the difference-in-differences comparison. Compared to their US counterparts, UK firms in industries whose cash conversion cycles are between 90 days and 180 days have a significant lower representation in public markets after public firms were required to disclose quarterly reports. Figure 1 plots the changes in the percentage of firms in each industry in UK and US after UK public firms were required to disclose quarterly reports in 2007. Panel A reports the change for each industry in UK and US separately. Panel B reports the change of the percentage for each industry in UK minus that in US. As evident from Panel B, during the 2007-2014 sample period, there is a marked decrease in the percentage of firms in industries such as electrical, construction, machinery & equipment, drugs, cosmetics & health care, apparel, textiles, and aerospace. All those industries have cash conversion cycles between 90 and 180 days prior to the change in the frequency of mandatory disclosures.

Table 6 reports the results of the logistic regression (3). The coefficient of interest is UK*QTRRP, the interaction term between the indicator variable for UK firms and the indicator variable for quarterly mandatory reporting. As the second column shows, the coefficient on UK*QTRRP is significantly negative (Chi-square =349.19) when the dependent variable is the dummy for industries whose cash conversion cycles are between 90 days and 180 days. In

contrast, the coefficients on the interaction term are both statistically insignificant when the dependent variables are the other two dummies. The two insignificant coefficients on the interaction term in the first and the third columns indicate that there is no significant change in the number of public firms from industries whose cash conversion cycles are either less than 90 days or longer than 180 days in UK relative to that of US.

In summary, using the difference-in-differences research design, we find that, after controlling for common factors that affect firms entering or leaving a particular industry, there is a net outflow of firms in the industries, whose cash conversion cycles are longer than 90 days but shorter than 180 days, from the public markets in response to the increase in the frequency of mandatory reporting from semi-annual to quarterly in UK.

V. Conclusion

To summarize, this study presents evidence that the proportion of public firms is lower in industries with longer cash conversion cycles, and *only so* when the cash conversion cycle exceeds the frequency of mandatory reporting. The evidence suggests that the underlying driver for the negative relation is the short-term pressure from mandatory quarterly reporting. We also find evidence that there is a net outflow of firms whose cash conversion cycles are longer than a quarter but shorter than semi-annual from the public market in response to the increase in the frequency of mandatory reporting from semi-annual to quarterly.

This study explores the cross-sectional variation in the length of cash conversion cycles and the proportion of public firms at the industry level. To provide further insights into the relation between the length of the cash conversion cycle and a firm's commitment to mandatory disclosure, future study could explore the cross-firm variation in the length of cash conversion

cycles within an industry and examine whether firms with the longest (shortest) cash conversion cycles within an industry are the least (most) likely to be public. For instance, one possibility is to examine whether firms that choose to voluntarily deregister with Securities and Exchange Commission (e.g., Leuz et al., 2008) are those that have cash conversion cycles that are longer than those of their industry peers that remain registered.

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Figure 1 Change in industry distributions among UK and US firms after UK firms are required to disclose quarterly reports

Panel A: Changes in the percentage of firms in each industry in UK and US after UK firms are required to disclose quarterly reports

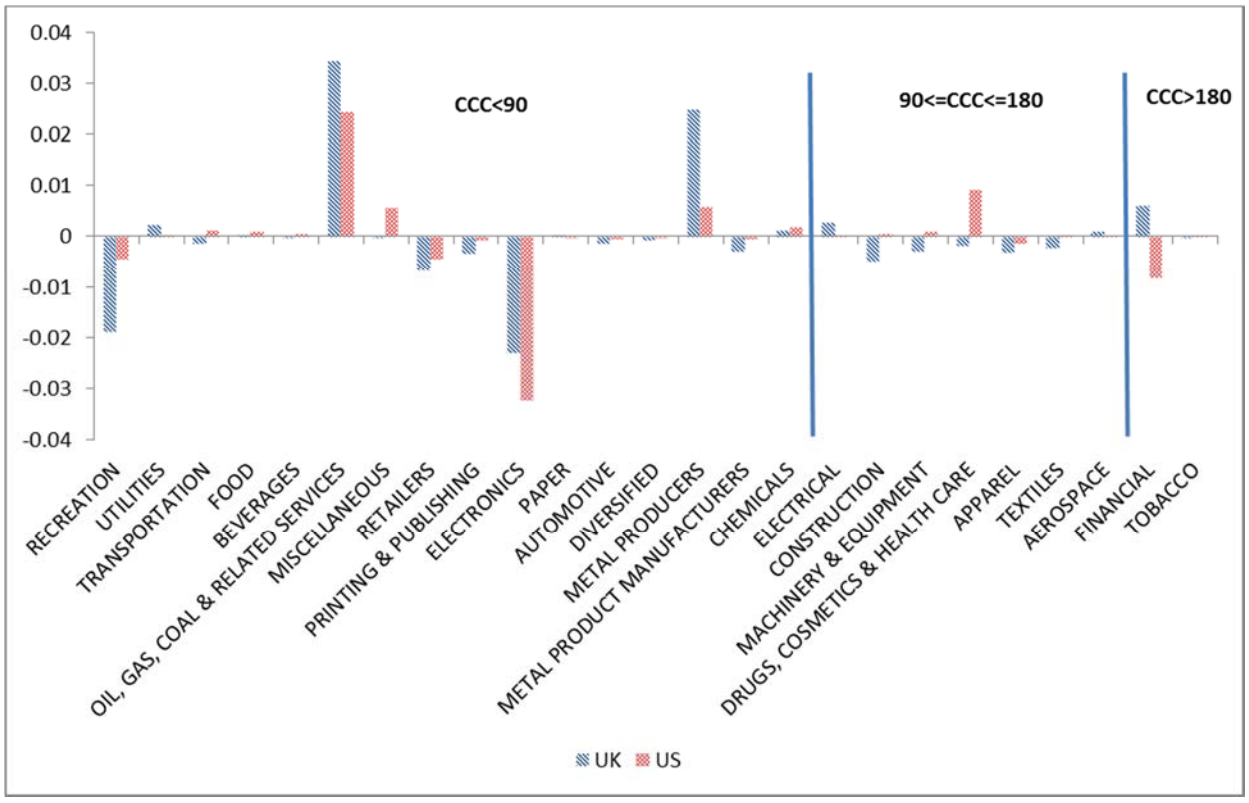
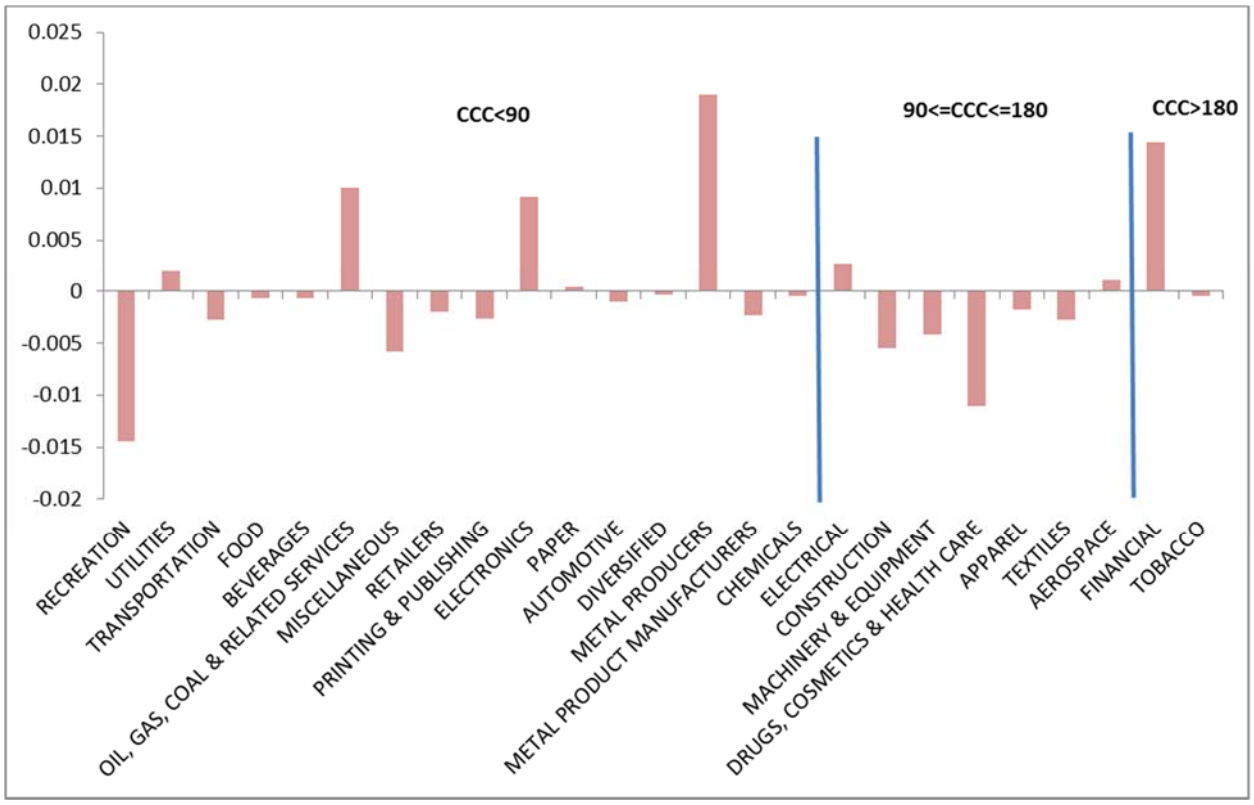


Figure 1
(Continued)

Panel B: Differences in the changes in the percentage of firms in each industry between UK and US after UK firms are required to disclose quarterly reports



Panel A plots the changes in the percentage of firms in each industry in UK and US after UK firms are required to disclose quarterly report in 2007. The changes are calculated between two periods: 2000-2006 and 2007-2014. Industry median cash conversion cycle (CCC) is measured using all UK observations in Worldscope between 2000 and 2006 when quarterly reporting was not required. CCC is calculated as days' sales outstanding plus days' sales in inventory minus days' sales in payables. Industries are defined by the two-digit industry group (Item 6011) in Worldscope. Panel B plots the differences in changes in the percentage of firms in each industry between UK and US after UK firms are required to disclose quarterly report in 2007.

Table 1
Descriptive Statistics on Cash Conversion Cycles and Industry Characteristics

	NUM_FIRMS_CENSUS	PUBLIC%	INDUSTRY_CCC	INDUSTRY_MARKUP	INDUSTRY_SALES
N	4832	4832	4832	4832	4832
Mean	693.90	2.86	102.08	0.30	1740.54
Median	312.00	1.14	90.45	0.31	475.48
Std	19.93	4.81	1.25	0.03	83.71
Min	5.00	0.01	0.50	0.12	0.01
Max	22,180.00	50.00	407.63	0.43	106661.87

The percentage of public firms *(PUBLIC%$_{it}$)* is computed as the percentage of public firms relative to all firms for a given industry-year. We use the census data for a given year as a proxy for industry concentration, not only for that year, but also for the one or two years immediately before or after it. NUM_FIRMS_CENSUS$_{it}$ is the number of all firms, both private and public, which is obtained from the Census of Manufactures. INDUSTRY_CCC$_{it}$ is the median length of the cash conversion cycles of firms that are already public in a particular industry at a given point in time, where cash conversion cycle is calculated from Compustat as days' sales outstanding plus days' sales in inventory minus days' sales in payables in year t. INDUSTRY_SALES$_{it}$ is the average sales of firms that are already public in a particular industry at a given point in time, which is calculated from Compustat as the average sales of all public firms in year t. INDUSTRY_MARKUP$_{it}$ is defined as $(Value\ of\ sales + \Delta\ Inventory - Payroll - Cost\ of\ materials)/\ (Value\ of\ sales\ + \Delta\ Inventory)$, which is calculated using aggregate industry-level data from Annual Survey of Manufacturers publications.

Table 2
Correlation Table of Dependent and Independent Variables
(Pearson Correlations above and Spearman Correlations below Diagonal)

	LOG_ODDS	INDUSTRY _CCC	NUM_FIRMS _CENSUS	INDUSTRY _MARKUP	INDUSTRY _SALES	POST_SFAS131	POST_SOX
LOG_ODDS	1.000	.028	-.512**	-.044**	.171**	-.046**	-.074**
INDUSTRY_CCC	.079**	1.000	-.071**	-.048**	-.126**	-.051**	-.091**
NUM_FIRMS_CENSUS	-.590**	.025	1.000	.013	-.066**	.006	.001
INDUSTRY_MARKUP	-.148**	-.071**	-.085**	1.000	.024	-.028	-.029*
INDUSTRY_SALES	.312**	-.261**	-.117**	.115**	1.000	.054**	.097**
POST_SFAS131	-.041**	-.063**	.016	-.097**	.137**	1.000	.413**
POST_SOX	-.066**	-.119**	.018	-.048**	.187**	.413**	1.000

Correlation coefficients are reported in table 2. *Correlation is significant at 0.05 level and **Correlation is significant at 0.01 level.

Table 2
(Continued)

The proportion of public firms *(PROPORTION$_{it}$)* is computed as the percentage of public firms relative to all firms for a given industry-year. The log odds ratio of the proportion of public firms (*LOG_ODDS$_{it}$*) is measured as Ln [PROPORTION$_{it}$ / (1-PROPORTION$_{it}$)]. *NUM_FIRMS_CENSUS$_{it}$* is the number of all firms, both private and public, which is obtained from the Census of Manufactures. INDUSTRY_CCC$_{it}$ is the median length of the cash conversion cycles of firms that are already public in a particular industry at a given point in time, where cash conversion cycle is calculated from Compustat as days' sales outstanding plus days' sales in inventory minus days' sales in payables in year t. INDUSTRY_SALES$_{it}$ is the average sales of firms that are already public in a particular industry at a given point in time, which is calculated from Compustat as the average sales of all public firms in year t. INDUSTRY_MARKUP$_{it}$ is defined as $(Value\ of\ sales + \Delta\ Inventory - Payroll - Cost\ of\ materials)/\ (Value\ of\ sales\ + \Delta\ Inventory)$, which is calculated using aggregate industry-level data from Annual Survey of Manufacturers publications. We use the census data for a given year as a proxy for industry concentration, not only for that year, but also for the one or two years immediately before or after it. POST_SFAS131$_t$ is an indicator variable, which is coded as one if the year is 1997 or after, and zero otherwise. POST_SOX$_t$ is also an indicator variable, which is coded as one if the year is 2002 or after, and zero otherwise.

Table 3
Regression Results on the Proportion of Public Firms and the Length of Cash Conversion Cycles

		Dependent Variable = Ln [(PROPORTION$_{it}$ / (1- PROPORTION$_{it}$)]		
Explanatory Variables	Predicted Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
INTERCEPT	(?)	-4.094** (-138.769)	-4.029** (-79.343)	-4.418** (-46.830)
INDUSTRY_CCC	(?)	0.011 (0.885)	0.019 (1.532)	0.405** (4.365)
NUM_FIRMS_CENSUS	(-)	-0.512** (-41.412)	-0.392** (-16.164)	-0.515** (-13.484)
CCC_LONG1Q	(+)			0.171** (5.586)
CCC_LONG1Q*INDUSTRY_CCC	**(-)**			**-0.491** (-5.385)**
INDUSTRY_MARKUP	(-)		-0.039** (-3.193)	-.040** (-3.345)
INDUSTRY_SALES	(+)		0.155** (12.652)	0.163** (13.345)
POST_SFAS131	(-)		-0.064 (-1.198)	-0.014 (-1.061)
POST_SOX	(-)		-0.075** (-5.639)	-0.070** (-5.251)
Adjusted R-squared		26.3%	29.1%	29.6%
N		4,832	4,832	4,832

*Slope coefficients are significant at 0.05 level.
**Slope coefficients are significant at 0.01 level.

Table 3
(Continued)

Table 3 presents the regression results from Regression (1):

$$LOG\_ODDS_{it} = \propto + \beta_1 INDUSTRY\_CCC_{it} + \beta_2 NUM\_FIRMS\_CENSUS_{it} + \beta_3 CCC\_LONG1Q_{it} + \boldsymbol{\beta_4 CCC\_LONG1Q_{it}} * \boldsymbol{INDUSTRY\_CCC_{it}} + \beta_5 IINDUSTRY\_MARKUP_{it} + \beta_6 INDUSTRY\_SALES_{it} + \beta_7 POST\_SFAS131_t + \beta_8 POST\_SOX_t + \boldsymbol{\varepsilon_{it}}$$

where the proportion of public firms *($PROPORTION_{it}$)* is computed as the percentage of public firms relative to all firms for a given industry-year. The dependent variable is the log odds ratio (LOG_ODDS_{it}) that is measured as Ln [$PROPORTION_{it}$/(1-$PROPORTION_{it}$)]. $NUM\_FIRMS\_CENSUS_{it}$ is the number of all firms, both private and public, which is obtained from the Census of Manufactures. $INDUSTRY\_CCC_{it}$ is the median length of the cash conversion cycles of firms that are already public in a particular industry at a given point in time, where cash conversion cycle is calculated from Compustat as days' sales outstanding plus days' sales in inventory minus days' sales in payables in year t. CCC_LONG1Q_{it} is the indicator variable for long cash conversion cycle, which is coded as one if INDUSTRY_CCC is longer than one quarter, and zero otherwise. $INDUSTRY\_SALES_{it}$ is the average sales of firms that are already public in a particular industry at a given point in time, which is calculated from Compustat as the average sales of all public firms in year t. $INDUSTRY\_MARKUP_{it}$ is defined as $(Value\ of\ sales + \Delta\ Inventory - Payroll - Cost\ of\ materials)/\ (Value\ \ of\ \ sales\ \ + \Delta\ Inventory)$, which is calculated using aggregate industry-level data from Annual Survey of Manufacturers publications. $POST\_SFAS131_t$ is an indicator variable, which is coded as one if the year is 1997 or after, and zero otherwise. $POST\_SOX_t$ is also an indicator variable, which is coded as one if the year is 2002 or after, and zero otherwise.

Table 4
Regression Results on the Proportion of Public Firms and Components of Cash Conversion Cycles

		Dependent Variable = Ln [(PROPORTION$_{it}$ / (1- PROPORTION$_{it}$)]			
Explanatory Variables	Predicted Sign	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)	Coefficient (t-value)
INTERCEPT	(?)	-4.458** (56.649)	-3.985** (-47.177)	-4.131** (-58.183)	-4.395** (-43.502)
CCC_LONG1Q	(+)	0.172** (6.601)	0.001 (0.001)	0.032 (1.301)	0.135** (3.522)
INDUSTRY_DSI	(?)	0.455** (6.938)			0.551** (6.870)
CCC_LONG1Q*INDUSTRY_DSI	**(-)**	**-0.520** (-6.774)**			**-0.650** (-6.944)**
INDUSTRY_DSO	(?)		-0.020 (-0.750)		-0.009 (-0.298)
CCC_LONG1Q*INDUSTRY_DSO	**(-)**		**0.042 (0.934)**		**-0.001 (-0.019)**
INDUSTRY_DSP	(?)			0.043 (1.875)	-0.059 (-1.904)
CCC_LONG1Q*INDUSTRY_DPO	**(+)**			**-0.011 (-0.334)**	**0.124** (2.909)**
NUM_FIRMS_CENSUS	(-)	-0.498** (-41.009)	-0.499** (-40.943)	-0.499** (-40.945)	-0.497** (-41.021)
INDUSTRY_MARKUP	(-)	-0.032** (-2.689)	-0.037** (-3.032)	-0.031** (-2.504)	-0.032** (-2.594)
INDUSTRY_SALES	(+)	0.164** (13.316)	0.159** (12.884)	0.157** (12.745)	0.167** (13.498)
POST_SFAS131	(-)	-0.015** (-1.147)	-0.014 (-1.085)	-0.014 (-1.088)	-0.013 (-1.019)
POST_SOX	(-)	-0.070** (-5.231)	-0.072** (-5.360)	-0.072** (-5.340)	-0.073** (-5.431)
Adjusted R-squared		29.8%	29.2%	29.6%	30.0%
N		4,832	4,832	4,832	4,832

Table 4
(Continued)

Table 4 presents the regression results from Regression (2):

$$LOG\_ODDS_{it} = \propto + \beta_1 CCC\_LONG1Q_{it} + \beta_2 INDUSTRY\_DSI_{it} + \boldsymbol{\beta_3 CCC\_LONG1Q_{it} * INDUSTRY\_DSI_{it}} + \beta_4 INDUSTRY\_DSO_{it} + \boldsymbol{\beta_5 CCC\_LONG1Q_{it} * INDUSTRY\_DSO_{it}} + \beta_6 INDUSTRY\_DPO_{it} + \boldsymbol{\beta_7 CCC\_LONG1Q_{it} * INDUSTRY\_DPO_{it}} + \beta_8 NUM\_FIRMS\_CENSUS_{it} + \beta_9 INDUSTRY\_MARKUP_{it} + \beta_{10} INDUSTRY\_SALES_{it} + \beta_{11} POST\_SFAS131_t + \beta_{12} POST\_SOX_t + \boldsymbol{\varepsilon_{it}}$$

where the proportion of public firms *(PROPORTION$_{it}$)* is computed as the percentage of public firms relative to all firms for a given industry-year. The dependent variable is the log odds ratio (LOG_ODDS$_{it}$) that is measured as Ln [PROPORTION$_{it}$/(1-PROPORTION$_{it}$)]. NUM_FIRMS_CENSUS$_{it}$ is the number of all firms, both private and public, which is obtained from the Census of Manufactures. INDUSTRY_DSI$_{it}$ is the median days' sales in inventory of firms that are already public in a particular industry at a given point in time, which is calculated as inventory divided by daily cost of good sold in year t. INDUSTRY_DSO$_{it}$ is the median days' sales outstanding in accounts receivable of firms that are already public in a particular industry at a given point in time, which is calculated as accounts receivable divided by daily sales in year t. INDUSTRY_DPO$_{it}$ is the median days' sales in accounts payable of firms that are already public in a particular industry at a given point in time, which is calculated as accounts payable divided by daily cost of good sold in year t. CCC_LONG1Q$_{it}$ is the indicator variable for long cash conversion cycle, which is coded as one if INDUSTRY_CCC is longer than one quarter, and zero otherwise. INDUSTRY_CCC$_{it}$ is the median length of the cash conversion cycles of firms that are already public in a particular industry at a given point in time, where cash conversion cycle is calculated from Compustat as days' sales outstanding plus days' sales in inventory minus days' sales in payables in year t. INDUSTRY_SALES$_{it}$ is the average sales of firms that are already public in a particular industry at a given point in time, which is calculated from Compustat as the average sales of all public firms in year t. INDUSTRY_MARKUP$_{it}$ is defined as $(Value\ of\ sales + \Delta\ Inventory - Payroll - Cost\ of\ materials)/\ (Value\ of\ sales\ + \Delta\ Inventory)$, which is calculated using aggregate industry-level data from Annual Survey of Manufacturers publications. POST_SOX$_t$ is also an indicator variable, which is coded as one if the year is 2002 or after, and zero otherwise.

*Slope coefficients are significant at 0.05 level.
**Slope coefficients are significant at 0.01 level.

Table 5
Percentage of firms in groups partitioned by industry median cash conversion cycle measured using UK data between 2000 and 2006

	UK			US			
	2000-2006	2007-2014	Diff.	2000-2006	2007-2014	Diff.	**Diff-in-Diff**
CCC<90	0.613	0.619	0.006	0.653	0.651	-0.002	0.008
			(1.02)			(-0.83)	(1.29)
90<=CCC<=180	0.122	0.111	-0.011**	0.160	0.170	0.010**	-0.021**
			(-3.21)			(5.23)	(-4.88)
180<CCC	0.265	0.270	0.005	0.187	0.179	-0.008**	0.013**
			(1.21)			(-4.01)	(2.90)
N	16,801	16,861		75,805	70,012		

This table presents the percentage of UK and US firms in the three groups partitioned by industry median cash conversion cycle (CCC), which is measured using all UK observations in Worldscope between 2000 and 2006 when quarterly reporting was not required. CCC is calculated as days' sales outstanding plus days' sales in inventory minus days' sales in payables. Industries are defined by the two-digit industry group (Item 6011) in Worldscope. *Difference is significant at 0.05 level and **difference is significant at 0.01 level.

Table 6
Difference-in-differences comparison of change in industry distributions between UK and US

	CCCDM1	CCCDM2	CCCDM3
Intercept	-1.380**	17.255**	-82.569**
	(130.59)	(10,088.73)	(864.01)
UK	0.690**	-0.998**	3.180**
	(728.87)	(1,275.52)	(84.98)
QTRRP	0.003	0.662**	-1.474**
	(0.05)	(1,706.86)	(57.18)
UK*QTRRP	**0.011**	**-0.746****	**0.007**
	(0.11)	**(349.19)**	**(0.00)**
Industry_GPM	-7.214**	-5.422**	44.858**
	(36,220.14)	(8,873.01)	(1,511.43)
Industry_Sales	0.313**	-0.931**	2.814**
	(2,235.82)	(10,432.05)	(607.12)
N	179,479	179,479	179,479

This table presents the regression results from:
$CCCDMi_{l,t} = \alpha + \beta_1 UK_{l,t} + \beta_2 QTRRP_t + \boldsymbol{\beta_3 UK_{l,t} * QTRRP_t} + \beta_4 Industry\_GPM_{l,t} + \beta_5 Industry\_Sales_{l,t} + \varepsilon_{l,t}$
where CCCDM1, CCCDM2, and CCCDM3 are indicator variables that equal to one if the firm belongs to industries whose median cash conversion cycle (CCC) is less than 90 days, between 90 days and 180 days, or more than 180 days, respectively, and zero otherwise. Industry median CCC is measured using all UK observations in Worldscope between 2000 and 2006 when quarterly reporting was not required. CCC is calculated as days' sales outstanding plus days' sales in inventory minus days' sales in payables. Industries are defined by the two-digit industry group (Item 6011) in Worldscope. UK is an indicator variable that equals to one for UK firms and zero for US firms. QTRRP is an indictor variable that equals to one for observations between 2000 and 2006, and zero for observations between 2006 and 2014. Industry_GPM is industry average gross profit margin, which is (Item 1001-Item 1051)/Item 1001. Industry_Sales is industry average of log sales.

*Slope coefficients are significant at 0.05 level.
**Slope coefficients are significant at 0.01 level.