Frequent Financial Reporting and Managerial Myopia

Arthur Kraft
Cass Business School
City University London

Rahul Vashishtha*
Fuqua School of Business
Duke University

Mohan Venkatachalam
Fuqua School of Business
Duke University

May 2017

Abstract: Using the transition of US firms from annual reporting to semi-annual reporting and then to quarterly reporting over the period 1950-1970, we provide evidence on the effects of increased reporting frequency on firms' investment decisions. Estimates from difference-in-differences specifications indicate that increased reporting frequency is associated with an economically large decline in investments. Additional analyses reveal that the decline in investments is most consistent with frequent financial reporting inducing myopic management behavior. Our evidence informs the recent controversial debate about eliminating quarterly reporting for US corporations.

JEL Classification: M40, M41, G30, G31
Keywords: Financial reporting frequency; real effects; myopia; investment; short termism

*Corresponding author: Rahul Vashishtha, Fuqua School of Business, Duke University, 100 Fuqua Drive, Durham, NC 27708. Email: rahul.vashishtha@duke.edu, Tel: +1-919-660-7755, Fax: +1-919-660-7972.

We thank Vikas Agarwal, Sanjeev Bhojraj, Robert Bloomfield, Qi Chen, Mark DeFond (the editor) Alex Edmans, Vivian Fang, Frank Gigler, Paul Healy, Chandra Kanodia, Christian Leuz, Haresh Sapra, Nemit Shroff, Rodrigo Verdi, Charles Wang, two anonymous referees and workshop participants at Cornell University, Duke University, ESADE-IESE-UPF Joint Seminar (Barcelona), George Mason University, Harvard Business School IMO conference, IE Business School, INSEAD, MIT, University of Minnesota, Nazarbayev University, Ohio State University, Temple University, and WHU-Otto Beisheim School of Management for helpful comments and suggestions. We acknowledge financial support from the Fuqua School of Business, Duke University and the Cass Business School, City University London. This paper was previously circulated under the title "Real Effects of Frequent Financial Reporting."

Appendix

1. Robustness to alternative matching approaches

In this section, we report the robustness of our findings on the effect of reporting frequency increases on investments (i.e., Tables 2, 3, 4 and 5) to several alternative matching approaches to obtain treatment and control firms. First, we establish that our findings are robust to using a finer industry classification for matching purposes. Specifically, under this approach we obtain our treatment and control firms using propensity score matching based on Fama-French 48 industry classification and firm size measured using total assets. Table A1 presents the results from this analysis. Our inferences are quite robust.

Second, we document the robustness of our findings to matching on several other firm characteristics in addition to industry membership and size. Specifically, in addition to Fama-French 10 industry classification and total assets, we augment the list of matching variables to also include Investment opportunities (*INVESTOPP*), *EBITDA*, leverage ratio (*LEVERAGE),* cash scaled by assets (*CASH)*, and pre-treatment levels of both investment measures (*CAPEX* and *CHPPE*). Table A2, Panel A, presents the comparison of treatment and control firms along the matching variables. It can be seen that there are no statistically significant differences between treatment and control firms across any of the matching variables, including investment levels prior to the treatment shock. Table A2, Panel B presents the results of the regression analysis using this alternative matching procedure and again, the results are robust.

Finally, in untabulated analyses, we also explore the sensitivity of our main results to several other variations in our matching approach including: (i) matching control firms within the same industry as treatment firms instead of propensity score matching on industries, (ii) allowing treatment firms to match up to 3 control firms instead of one-to-one matching, (iii) requiring

control firms to have propensity scores within a caliper of 0.05 or 0.01 of treatment firms instead of just using simple nearest neighbor matching with the restriction of common support, (iv) using probit instead of logit models for estimating propensity scores, (v) relaxing the requirement of common support, allowing us to identify a matched control firm for all of our treatment cases, and (vi) retaining all treatment and control cases in the sample by not imposing any matching requirements. We find that our inferences continue to remain unchanged.

2. Financial Slack Tests

In this section, we provide an additional test to differentiate between the disciplining and myopia channels by exploiting the contrasting predictions offered by the two channels regarding the role of financial slack. The disciplining channel predicts that the decline in investments should be more pronounced for firms with greater financial slack. Managers are more likely to overinvest when there is sufficient financial slack available to engage in overinvestment (e.g., Jensen, 1986). Therefore, if the decline in investment reflects a correction in prior overinvestment, we expect it to manifest for firms that had more financial slack prior to the reporting frequency increase.

The myopia channel predicts the opposite. Models of myopia show that myopia is more likely to manifest when there is greater capital market pressure and managers care more about short term stock price. Stein (1989) notes that lack of financial slack can be a source of capital market pressure. Managers of firms with less slack have greater incentives to improve short term earnings at the expense of longer run value in anticipation of future equity issuances and enhanced capital market scrutiny. Financial slack insulates managers from such capital market pressures. Thus, the myopia channel predicts that the decline in investments is less pronounced when the firm has greater financial slack in the pre-treatment periods.

To determine which of these two predictions are borne in the data, we divide the sample into high slack and low slack samples using three different proxies for financial slack, all of which are measured in the year prior to the reporting frequency increase. Our first proxy for financial slack is an index of financing constraints developed in Kaplan and Zingales (1997). Firms with higher values of the Kaplan-Zingales index are more likely to experience difficulties financing their ongoing operations. Therefore, we classify firms with below median values of Kaplan-Zingales index for the year prior to the treatment year as high slack firms.[1] For our second proxy, we focus on the firm's ability to pay dividends as it captures availability of free cash flows. We classify firms that paid a common dividend for the year prior to the treatment year as high slack firms. Finally, we follow the approach specified in Hadlock and Pierce (2010) who document that firms' financial constraints can be measured using an index based solely on firm size and age. Hadlock and Pierce (2010) determine the appropriate weights for combining size and age into a single financing constraints index using data over the period 1995 to 2004. To avoid using weights determined from a completely different period than our sample, we use a more flexible approach in which we partition the firms into different groups based on size and age independently. Specifically, we estimate separate regressions in which we classify firms with above median size and age to be less financially constrained.

We estimate equation (1) for the two subsamples of high and low slack firms separately. Table A3 presents results for the three different approaches to capture financial slack and for both investment variables, *CAPEX* and *CHPPE*. Except for the size based partition of the Hadlock-Pierce model, we find that the investment decline manifests solely for low slack firms

[1] Kaplan-Zingales (1997) is calculated as –1.002×(net income + depreciation and amortization expense)/lagged PP&E + 0.2826389×(Total assets–book value of common equity–deferred tax _balance sheet + market cap of common equity)/total assets + 3.139193× Total debt/total assets – 39.3678×total dividend/lagged PP&E – 1.314759× cash and equivalent/lagged PP&E.

and it is statistically and economically insignificant for high slack firms. We view this evidence as broadly consistent with managerial myopia being the dominant source of the investment decline.

Table A1: Robustness to matching using finer industry classification

This table presents evidence on the robustness of our findings on the effect of increased reporting frequency on investments to propensity score matching using Fama-French 48 industry classification and total assets. All variable definitions and specifications are similar to the ones used in Tables 2, 3 and 5 of the paper. All specifications include time-varying firm level controls, firm fixed effects, and state-year interactive fixed effects, except in columns (13) and (14) in which we replace state-year interactive fixed effects by industry-year interactive fixed effects. All regressions are estimated on the restricted sample of involuntary adopters except for columns (9) – (12) where under definition 1, we consider a treatment sample of firms that altered the reporting frequency surrounding the SEC mandate including three years prior to the SEC mandate to allow for early adopters. For definition 2, we consider a more stringent treatment sample consisting of firms that altered reporting frequency in the years following the SEC mandate. *t*-statistics, reported in parentheses, are calculated based on standard errors obtained by clustering at the firm level. Statistical significance (two-sided) at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	Main Results		Timing of effects						Alternative definitions of involuntary adopters			
									Definition 1		Definition 2	
	CAPEX	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Treat*Before(-1)			0.007	-0.000								
			(0.838)	(-0.029)								
Treat*Before(-2)					0.003	0.000						
					(0.441)	(0.008)						
Treat*After	-0.013**	-0.017**	-0.011*	-0.016**	-0.013**	-0.017**			-0.012*	-0.017**	-0.015	-0.027**
	(-2.182)	(-2.497)	(-1.645)	(-2.155)	(-1.962)	(-2.345)			(-1.728)	(-2.205)	(-1.262)	(-2.056)
Treat*After(+1,+2)							-0.014**	-0.017**				
							(-2.146)	(-2.397)				
Treat*After(+3,+5)							-0.013*	-0.017**				
							(-1.944)	(-2.255)				
Observations	5,469	6,490	5,469	6,490	5,469	6,490	5,469	6,490	4,630	5,157	2,546	2,849
R-squared	0.642	0.525	0.642	0.526	0.642	0.525	0.642	0.525	0.635	0.522	0.651	0.562

	Industry-Year interactive fixed effects		Controlling for Life cycle effects			
			Age		Retained Earnings	
	CAPEX	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*
	(13)	(14)	(15)	(16)	(17)	(18)
Treat*After	-0.016***	-0.017***	-0.013**	-0.016**	-0.011	-0.018**
	(-2.923)	(-3.109)	(-2.107)	(-2.387)	(-1.525)	(-2.434)
Observations	6,452	7,818	5,469	6,490	4,660	5,067
R-squared	0.635	0.502	0.643	0.527	0.659	0.569

Table A2: Robustness to matching on additional firm characteristics

This table presents evidence on the robustness of our findings on the effect of increased reporting frequency on investments to matching on several other firm characteristics in addition to just industry and size. Specifically, in addition to Fama-French 10 industry classification and total assets, we augment the list of matching variables to also include Investment opportunities (*INVESTOPP*), *EBITDA*, leverage ratio (*LEVERAGE),* cash scaled by assets (*CASH)*, and pre-treatment levels of both investment measures (*CAPEX* and *CHPPE*). All variable definitions and specifications are similar to the ones used in Tables 2, 3, 4 and 5 of the paper. *Panel A* presents the covariate balance between treatment and control firms on the matching variables. *Panel B* presents results from the regression specifications. All specifications include time-varying firm level controls, firm fixed effects, and state-year interactive fixed effects, except in columns (13) and (14) in which we replace state-year interactive fixed effects by industry-year interactive fixed effects. All regressions are estimated on the restricted sample of involuntary adopters except for columns (9) – (12) where under definition 1, we consider a treatment sample of firms that altered the reporting frequency surrounding the SEC mandate including three years prior to the SEC mandate to allow for early adopters. For definition 2, we consider a more stringent treatment sample consisting of firms that altered reporting frequency in the years following the SEC mandate. *t*-statistics, reported in parentheses, are calculated based on standard errors obtained by clustering at the firm level. Statistical significance (two-sided) at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

Panel A: Covariate balance on matching variables

	Treatment Mean	Control Mean	t-stat of difference
ASSETS ($ millions)	103.547	113.419	0.658
EBITDA	1.554	1.555	0.053
INVESTOPP	0.203	0.200	-0.506
LEVERAGE	0.149	0.145	-0.533
CASH	0.111	0.105	-1.182
CAPEX	0.096	0.098	0.396
CHPPE	0.063	0.064	0.113

Table A2 (continued)

Panel B: DiD estimates of the effect of reporting frequency increase on investments

	Main Results		Timing of effects						Alternative definitions of involuntary adopters			
									Definition 1		Definition 2	
	CAPEX	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Treat*Before(-1)			0.003	0.003								
			(0.396)	(0.363)								
Treat*Before(-2)					0.000	-0.004						
					(0.056)	(-0.419)						
Treat*After	-0.018***	-0.015**	-0.017**	-0.015*	-0.018***	-0.016**			-0.018**	-0.015*	-0.028**	-0.034***
	(-2.708)	(-2.055)	(-2.307)	(-1.719)	(-2.636)	(-2.100)			(-2.510)	(-1.907)	(-2.289)	(-2.828)
Treat*After(+1,+2)							-0.015**	-0.010				
							(-2.159)	(-1.162)				
Treat*After(+3,+5)							-0.020***	-0.020**				
							(-2.805)	(-2.515)				
Observations	5,104	5,495	5,104	5,495	5,104	5,495	5,104	5,495	4,604	4,946	2,511	2,639
R-squared	0.624	0.522	0.624	0.522	0.624	0.522	0.624	0.522	0.625	0.521	0.649	0.558

	Industry-Year interactive fixed effects		Controlling for Life cycle effects			
			Age		Retained Earnings	
	CAPEX	*CHPPE*	*CAPEX*	*CHPPE*	*CAPEX*	*CHPPE*
	(13)	(14)	(15)	(16)	(17)	(18)
Treat*After	-0.017***	-0.015**	-0.017***	-0.014*	-0.020***	-0.018**
	(-2.898)	(-2.256)	(-2.613)	(-1.897)	(-2.698)	(-2.248)
Observations	5,725	6,198	5,104	5,495	4,463	4,691
R-squared	0.646	0.525	0.625	0.524	0.638	0.552

Table A3: Effect of financial slack

This table presents evidence on how the decline in investments following reporting frequency increases depends on availability of financial slack prior to the increase in reporting frequency. We use three different approaches to identify firms with High (Low) financial slack: (i) firms with below (above) median value of financing constraints index from Kaplan and Zingales (1997; KZ index), (ii) firms that pay (do not pay) common dividends, and (iii) firms with above (below) median value of size and age. Coefficient estimates are obtained from a modified version of equation (1) that allows coefficients on all covariates to vary across different levels of financial slack. *TREAT* is an indicator for treatment firms, which are firms that experience an increase in reporting frequency. *AFTER* is an indicator for firm-year observations after the treatment year. Measures of investments include: (i) change in net fixed assets scaled by beginning of year assets (*CHPPE*) and (ii) capital expenditure scaled by beginning of year assets (*CAPEX*). Coefficient estimates for *AFTER* and all control variables (defined in the caption of Table 1) have been omitted for brevity. Coefficient on *TREAT* is suppressed because of firm fixed effects. State represents the state in which a firm's headquarters is situated. *t*-statistics, reported in parentheses, are calculated based on standard errors obtained by clustering at the firm level. Statistical significance (two-sided) at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	CAPEX				*CHPPE*			
	KZ Index	Dividend Payment	Hadlock-Pierce Approach		KZ Index	Dividend Payment	Hadlock-Pierce Approach	
			Size	Age			Size	Age
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*TREAT*AFTER (High Slack)*	-0.001	-0.002	-0.017**	-0.009	-0.004	-0.002	-0.014*	-0.005
	(-0.169)	(-0.394)	(-2.258)	(-1.184)	(-0.483)	(-0.345)	(-1.699)	(-0.557)
*TREAT*AFTER (Low Slack)*	-0.034***	-0.046***	-0.022**	-0.039***	-0.030***	-0.035***	-0.018*	-0.030**
	(-3.995)	(-4.032)	(-2.168)	(-2.949)	(-3.227)	(-2.958)	(-1.771)	(-2.480)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm and State*Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,372	5,787	5,791	5,791	6,273	6,897	6,902	6,902
R-squared	0.648	0.649	0.644	0.645	0.528	0.522	0.518	0.520