Do Information Acquisition Costs Matter? The Effect of SEC EDGAR on Stock Anomalies

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Abstract

I estimate the costs of information acquisition and the extent to which they explain stock anomaly returns. The SEC's staggered implementation of EDGAR from 1993 to 1996 greatly lowered the costs of acquiring accounting information. I study how this quasi-exogenous and staggered shock affects the alphas of 126 accounting and 108 non accounting anomalies. The EDGAR introduction lowers the aver-age alphas for the accounting anomalies by 4.0% per year, explaining more than half of the pre-EDGAR alphas. The attenuation is stronger for the accounting anomaly portfolios that require more up-to-date accounting information and those consisting of EDGAR filer stocks with less information available in the pre-EDGAR period. By contrast, alphas for the non-accounting anomalies remain unaffected. These results imply that the information acquisition costs, which are usually neglected, can be as important as the transaction or short sale costs.

Introduction

- Do information acquisition costs matter? Yes!
  - In theory: Many influential theories argue, for example Grossman and Stiglitz (1980), that costly information acquisition affects investor decisions and market outcomes.
  - In practice: A 2019 survey shows that a typical hedge fund spends over $1 million on data subscriptions every year.
- Yet, prior literature usually focuses on the transaction or short sale costs: Previous studies generally neglect the costs of acquiring information
- This study fills the gap in the literature by:
  - Presenting a clean-cut estimation of information acquisition costs in the U.S. stock market
  - Showing that they can be as important as the transaction or short-sale costs.
  - To the best of my knowledge this is the first study to document a clean-cut estimation of information acquisition costs.

Methodology

- To estimate the costs of acquiring information:
  1. I examine the SEC's staggered implementation of EDGAR.
  2. I study how this shock affects the alphas of 234 stock market anomaly portfolios.
- Three reasons to study the SEC's staggered implementation of EDGAR (1993 - 1996)
  1. A shock that truly lowered the info acquisition costs for the investors
  2. The SEC assigned all the public firms to one of ten implementation phases in a highly randomized fashion.
  3. This allows me to harness a staggered difference-in-difference framework.
     - In every implementation phase, there are treated (EDGAR filers: the firms that start filing electronically) vs controlled (non-EDGAR filers: the firms still waiting their turn to start filing via EDGAR hence still filing with paper) stocks

  ⇒ The EDGAR's introduction serves as an excellent natural experiment to study the causal effect of costly information constraints.
- Why study how the EDGAR introduction affects the alphas of 234 anomaly portfolios?
  - Investors need to collect a complete set of financial information for the entire cross-section of stocks because investors need to first sort all the stocks to be able to identify which stocks to buy or sell.
  - ∴ Anomaly returns will reflect the entirety of investors' info acquisition costs.

  ⇒ Studying a comprehensive set of anomalies captures the entire gamut of EDGAR's information cost-saving effect
- Given an implementation phase:
  - The treated stocks consist of EDGAR filers (the firms that start filing electronically) assigned to the given implementation phase.
  - The controlled stocks consist of the non-EDGAR filers (the firms still waiting their turn to start filing via EDGAR).
  - I construct treated (controlled) anomaly portfolios using the treated (controlled) stocks for each implementation phase.

Data

- Where do the data come from? The data source is very standard.
  - CRSP for daily stock returns
  - CRSP/CompStat/IBES for creating the signals for individual anomalies
  - The historical SEC documents for the EDGAR implementation process
- Following Chen and Zimmermann (2020), I study over 234 anomalies discovered so far:
  - I start with 320 anomalies: only 234 pass the filters I apply.
    - 126 accounting-based anomalies
    - 108 non-accounting-based anomalies
- I compute the alphas for 234 core anomalies over the sample period to generate a panel data of anomaly alphas by month by EDGAR Phase for both the treated and controlled group.
  - The sample period: Jan. 1992 to Dec. 1997
  - Alphas are computed following the Jensen's approach.

Results

- I run the staggered Difference-in-Difference regression using the panel data I created:

$$\alpha_{i,p,t} = \gamma_t + \beta_1 * EDGAR_{i,p} + \beta_2 * Post_{i,p,t} + \boldsymbol{\beta_3} * EDGAR_{i,p} * Post_{i,p,t} + \epsilon_{i,p,t}$$

- $\alpha_{i,p,t}$: The Fama-French 3 or 5 Factor alpha of the anomaly portfolio p in month t for phase i
  - For both decile (1-10) and quintile (1-5) portfolio either equal-weighted (EW) or value-weighted (VW)
  - The alpha is in percentage
- $EDGAR_{i,p}$: Indicator variable
  - 1: if the portfolio is constructed with the EDGAR filers (the treated group)
  - 0: if the portfolio is constructed with the non-EDGAR filers (the controlled group)
- $Post_{i,p,t}$: Indicator variable
  - 1: if the month is after the EDGAR implementation is in effect
  - 0: if the month is before the EDGAR implementation is in effect

Main hypothesis

Anomaly Portfolio	Constructed with	EDGAR's Info Cost-saving Effect for Investors?	Δ Alpha upon EDGAR Introduction?
Accounting Anomalies (126)	EDGAR filers (Treatment Group)	Yes (∵ Filing electronically)	Attenuation
	Non-EDGAR filers (Control Group)	No (∵ Still filing with paper)	No Attenuation
Non-Acc. Anomalies (108)	Either EDGAR filers or non-EDGAR filers	No	No Attenuation

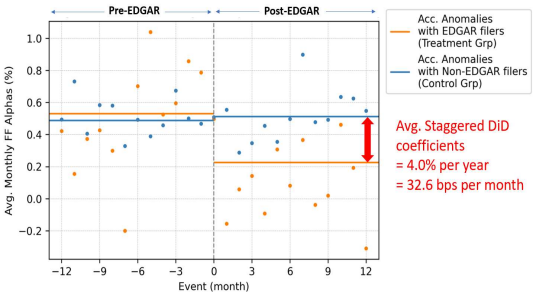
- DiD regression results for accounting anomalies with FF5 factor alphas as the dependent variable:

	FF5 Alpha 1-5 EW	FF5 Alpha 1-5 VW	FF5 Alpha 1-10 EW	FF5 Alpha 1-10 VW
Post	-0.164**	-0.111	-0.134	-0.237**
	(0.0645)	(0.0813)	(0.0911)	(0.111)
EDGAR	-0.0116	0.134	0.00391	0.133
	(0.0927)	(0.0844)	(0.116)	(0.104)
Post # EDGAR	-0.253**	-0.343***	-0.316**	-0.371***
	(0.103)	(0.0983)	(0.125)	(0.122)
Mon. FE	Yes	Yes	Yes	Yes
S.E. Cluster	Anomal.&Mon.	Anomal.&Mon.	Anomal.&Mon.	Anomal.&Mon.
Num. Anomalies	126	126	126	126
Mean of Dep. Var.	0.409	0.299	0.467	0.398

Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Main findings

- I find that the EDGAR introduction lowers the average alphas for the accounting-based anomalies by 4.0% per year.



- This attenuation explains over one-half of their pre-EDGAR alphas.
  - This shows that the estimated 4% information acquisition costs can be as important as transaction or short-sale costs!
- The non-accounting anomalies do NOT weaken.
- The accounting anomalies weaken more in the first month following the EDGAR implementation.
- Accounting anomalies that rely more on recent information show greater attenuation of alphas.
- Accounting anomalies with less information available prior to the EDGAR introduction also experience greater attenuation.

References

Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. *The American economic review*, *70*(3), 393-408.

Chen, A. Y., & Zimmermann, T. (2020). Open-source cross-sectional asset pricing. *Available at SSRN*.