

# Components of the Thesis

Leopold Ingenohl

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## 1 Motivation & Importance

### 1.1 Investor Activism

- Importance - who are the targets of activism? (Coffee Jr. and Palia, 2014)
- Within the sample of 13D filings, some of the acquirers are corporations that are potential fullacquirers, while other acquirers are institutional investors that are not likely to pursue a complete takeover. (Brigida and Madura, 2012)
- We find that the market reacts favorably to activism, consistent with the view that it creates value. The filing of a Schedule 13D revealing an activist fund's investment in a target firm results in large positive average abnormal returns, in the range of 7% to 8%, during the  $(-20,+20)$  announcement window (Brav et al., 2008)
- Filing a Schedule 13D allows the investor to behave in an active manner. (Brigida and Madura, 2012)
- these activist shareholders know they can increase the value of the firm they invest in by their own effort (e.g., shareholder activism).(Collin-Dufresne and Fos, 2015)

### 1.2 Anecdotal Reference

- HNA

### 1.3 13D Filings

- Schedule 13D filings must be made within 10 days of acquiring a beneficial ownership of 5% or greater of the outstanding common stock of a U.S. public company. The use of the qualifier 'beneficial' is important because related, yet different entities, may have to file a schedule 13D if their combined ownership of the target is 5% or greater and their voting or investment power is combined (Brigida and Madura, 2012)

- Within the Schedule 13D and 13G filings is information important to this analysis. (Brigida and Madura, 2012)
- 13D Filings (Collin-Dufresne, Pierre; Fos, Vyacheslav)

## 1.4 Abnormal Returns

- An average Schedule 13D filing in our sample is characterized by a positive and significant market reaction upon announcement (Collin-Dufresne and Fos, 2015)
- Short-horizon event studies of stock returns: Many studies have examined what happens to targets firm's stock price when there is a Schedule 13D filing with the SEC (Coffee Jr. and Palia, 2014)
- Brav, Jiang, Partnoy, and Thomas (2008) have documented a positive and significant average abnormal return in response to 13D filings (Brigida and Madura, 2012)
- 10K-Finlings - While abnormal trading volume and return volatility may indicate market reaction to new information, they could also simply reflect an increase in noise trading. (You and X. j. Zhang, 2009)

## 1.5 Corporations

- Corporation (sample selection) - (Collin-Dufresne, Pierre; Fos, Vyacheslav)
- but the runup is even larger if the acquirer is a nonfinancial corporation or a private investor.(Brigida and Madura, 2012)
- Third, among 13D filings, the level of informed trading is higher when the filer is a nonfinancial corporation, private investment firm, intends to merge or acquire, or intends to be an activist investor (Brigida and Madura, 2012)
- Akhigbe, Martin, and Whyte (2007) show that toeholds acquired by corporate bidders are more likely to result in a full acquisition when compared with all other toehold acquirers.(Brigida and Madura, 2012)
- Important table: Target runup by acquirer's identity ( $t = 0$  is the 13D filing date) (Brigida and Madura, 2012)
- difference of the paper: Our analysis differs from earlier analyses...(Brigida and Madura, 2012)
- financial strength forecasts returns (Choi and Sias, 2012)

## 1.6 Difference to prior Research

- difference of the paper: Our analysis differs from earlier analyses...(Brigida and Madura, 2012)
- Focus on the target and not on the investor
- only been seen from the targets perspective: First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)

## 2 Sample Selection

- The sample of trades by Schedule 13D filers is constructed as follows.(Collin-Dufresne and Fos, 2015)
- We compile data from several sources.Stock returns, volume, and prices come from the Center for Research in Security Prices (CRSP). Intraday transactions data (trades and quotes) come from the Trade and Quote (TAQ) database. Data on trades by Schedule 13D filers come from Schedule 13D filings (available on EDGAR) (Collin-Dufresne and Fos, 2015)
- We exclude the acquirer’s stated intent within this model, as the set of variables indicating the acquirer type is highly correlated with the set of variables indicating the acquirer’s intent (Brigida and Madura, 2012)

### 2.1 Filters

- Construction of the SC13D Filings Sample - We retain only assets whose CRSP share codes are 10 or 11, that is, we discard certificates, ADRs, shares of beneficial interest, units, companies incorporated outside the United States, Americus Trust components, closed-end funds, preferred stocks, and Real Estate Investment Trusts (REITs).(Collin-Dufresne and Fos, 2015)
- Further following Fama and French, we: (1) exclude financials, (2) require firms to have Center for Research in Security Prices (CRSP) share codes 10 or 11 (i.e., ordinary shares), and (3) require firms to have total assets of at least 25 million and book equity of at least 12.5 million. 2pChoi2012
- Brav hedge funds, Collin all, my paper just corporations - The evidence is consistent with Brav et al. (2008) and Klein and Zur (2009), who report a significant positive stock reaction to the announcement of hedge fund activism, where the announcement is triggered by Schedule 13D filings. There are two main differences between our samples. First, we consider all Schedule 13D filings while Brav et al. (2008) and Klein and Zur (2009) consider only filings by hedge funds. Second, a Schedule

13D filing is required to have information on trades in order to be included in our sample. That is, we restrict our sample to cases in which the Schedule 13D filer actively accumulates shares and crosses the 5% threshold.(Collin-Dufresne and Fos, 2015)

- We exclude filings for targets in the financial and utility industries (Brigida and Madura, 2012)
- Outlook on what could have been done to filter more

### 3 Summary Statistics for the sample - Investor & Target

- Table to show the sample-selection process: Table 1 Sample selection 10-K (You and X. j. Zhang, 2009)
- Characteristics of the Investor/Target (size, key figures) (Coffee Jr., John C.; Palia, Darius)
- Distribution of the Filings across the time window
- Outlook of what could be done or what will follow: depicts the average daily trading volume (number of shares traded scaled by the number of shares outstanding) over the 21 trading days centering around the 10-K filing date (You and X. j. Zhang, 2009)

### 4 Financial Condition - Investor

- What do I use?
- Why can I use it?
- Control variables - implementation?
- only been seen from the targets perspective: First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)
- expected stock returns are related to three variables: the book-to-market equity ratio (Bt/Mt), expected profitability, and expected investment.(Fama and French, 2006)
- I chose nine fundamental signals to measure three areas of the firm's financial condition: profitability, financial leverage/liquidity, and operating efficiency (Piotroski, 2000). I define the aggregate signal measure, F-SCORE, as the sum of the nine binary signals. The aggregate signal is designed to measure the overall quality, or strength, of the firm's financial position, and the decision to purchase is ultimately based on the strength of the aggregate signal.

- We compute two summary measures of firm strength. The first, OHt, is a measure of bankruptcy risk developed by Ohlson (1980). (Fama and French, 2006)

## 4.1 F-Score

### 4.1.1 What is it?

- Piotroski's (2000, 2005) f-score is the sum of nine binary signals that form a "... composite measure of firm strength" [Fama and French (2006, page 496)] (Choi and Sias, 2012)
- The second composite measure of firm strength, PTt, is from Piotroski (2000). It is the sum of nine binary variables, each equal to 1 if a given condition holds and 0 otherwise. (Fama and French, 2006)
- Financial Performance Signals used to Differentiate high BM Firms (Piotroski, 2000)

### 4.1.2 Why is it used?

- Our key finding is that, consistent with previous evidence from both developed and emerging market studies, stocks with a high F score earn a significant return premium over stocks with a low F score. (Hyde, 2014) - justification using the f-score to determine company strength. High fscore leads to higher returns hence stronger firms have higher returns. Result: f-score can be used as a proxy for financial strength in comparison to market return. If the returns are higher for high f-scores, the investors must see a high f-score as a representation of financial strength
- We use f-score as the financial strength metric because: (1) it forecasts returns even after accounting for other known stock return predictors such as size, book to market, and asset growth (Fama and French, 2006), (2) the f-score components are commonly used in financial statement analysis, and (3) f-score forecasts profitability consistent with the explanation that f-score proxies for expected profitability (Fama and French, 2006). (Choi and Sias, 2012) - check appendix
- OHt produces strong negative average slopes when used alone to forecast profitability; higher probability of default is (not surprisingly) associated with lower future profitability. But in the multiple regressions, OHt loses most of its explanatory power, at least for forecasts more than a year ahead. In contrast, though the positive average slopes on the PTt measure of firm strength are smaller when other variables are in the profitability regressions, they remain more than 2.3 standard errors from zero (Fama and French, 2006)

- The Piotroski (2000) and Ohlson (1980) measures of firm strength, which are proxies for expected net cash flows (earnings minus investment), are also related to average returns in the manner predicted by Eq. (3) (Fama and French, 2006)
- financial variables that reflect changes in these economic conditions should be useful in predicting future firm performance. This logic is used to identify the financial statement signals incorporated in this paper. (Piotroski, 2000)
- Importance f-score: relative to broader variables capturing changes in the overall health of these companies (Piotroski, 2000)
- This approach represents one simple application of fundamental analysis for identifying strong and weak value firms (Piotroski, 2000)

#### 4.1.3 Problems/Comments

- Outlook - Capital structure stability is the exception, not the rule (Deangelo and Roll, 2015)
- but none has permanently maintained even approximately stable leverage (Deangelo and Roll, 2015)
- The evaporating similarity of cross-sections raises questions about the empirical relevance of leverage targeting (Deangelo and Roll, 2015)
- What we do know is that the targets of hedge fund activism are not randomly distributed, but rather tend to have some common characteristics, including in most (but not all) studies a low Tobin's Q, below average leverage, a low dividend payout, and a "value," as opposed to a "growth," orientation. (Coffee Jr. and Palia, 2014)
- See Fama and French (2006) for evidence that accruals proxy for future profitability and forecast returns, Haugen and Baker (1996) for evidence ROE proxies for future profitability and forecasts returns and Fama and French (2006) and Chen, Novy-Marx, and Zhang (2011) for evidence ROA proxies for future profitability and forecasts return (Choi and Sias, 2012)

## 4.2 Expected Return

- Based on accounting fundamentals!!
- The accounting fundamentals used as explanatory variables in the proxies for expected profitability and investment include lagged values of Bt/Mt, a dummy variable for negative earnings, profitability (Yt/Bt) for firms with positive earnings, accruals relative to book equity for

firms with positive ( $+ACt/Bt$ ) and negative ( $-ACt/Bt$ ) accruals, investment ( $dAt/At-1$ ), a dummy variable for firms that do not pay dividends (No Dt), and the ratio of dividends to book equity ( $Dt/Bt$ ). (Fama and French, 2006)

- We include firm size (the log of total market cap,  $\ln MCt$ ) among the fundamental variables because smaller firms tend to be less profitable (Fama and French, 1995). (Fama and French, 2006)
- Expected returns increase in profitability and decrease in accruals. We show that cash-based operating profitability (a measure that excludes accruals) outperforms measures of profitability that include accruals (Ball et al., 2016)
- In our analyses, any increase in profitability that is solely due to accruals themselves has no relation with the cross section of returns. (Ball et al., 2016)
- In other words, the evidence implies that only the cash-based component of operating profits matters in the cross section of expected returns, and the predictive power of accruals is attributable to their negative correlation with the cash-based component (Ball et al., 2016)
- Using a multivariate regression, we test whether FDR still has significant correlation with post-filing stock returns after controlling for the standardized unexpected earnings (SUE) in earnings release (You and X. j. Zhang, 2009)

### 4.3 Measurements (variables) for the financial condition

- industry multiples
- Balance sheet ratios
- ROE, ROA, accruals
- Fundamental analysis
- Working capital adequacy
- Asset performance
- Capitalization structure

### 4.4 Evaluation of the financial strength

- Interpretation of the variables
- Group investors based on the properties

- Pitroskis'f-score as a proxy for financial strength
- Use the expected returns of the investors as a proxy for company strength????  
If so, the components to measure the expected return can be used to form different groups of investors. Another possibility could be to calculate the expected returns and then form groups of investors?
- Average return over the last xx years

## 4.5 Target

- Who are the targets - many report that the typical target firm of an activist investor is smaller, more profitable, has a large institutional ownership level, and has more of a “value” orientation (namely a higher book to market ratio) (Coffee Jr. and Palia, 2014)
- the evidence consistently supports only the generalization that targets of activism often tend to have a lower Tobin's Q and a “value” orientation (Coffee Jr. and Palia, 2014)
- For example, Brav, Jiang, Partnoy and Thomas, supra note 8, find no statistically significant relationship between the target's abnormal returns and their governance and capital structure (Coffee Jr. and Palia, 2014)
- These findings are consistent with the idea that the F Score is most effective when applied to stocks for which the market is slow to incorporate relevant financial information. Deep value stocks are typically neglected by analysts and investors and thus likely to exhibit slow impounding of new information (Hyde, 2014)
- the ‘slow impounding of new information’ hypothesis by showing that future institutional investor demand is high for stocks with high F scores. (Hyde, 2014)
- The finding by Mohr (2012) that the F score effectively discriminates between high and low return stocks amongst growth stocks provides additional justification for broadening the analysis to include all stocks. (Hyde, 2014)
- Our key finding is that, consistent with previous evidence from both developed and emerging market studies, stocks with a high F score earn a significant return premium over stocks with a low F score.(Hyde, 2014)
- First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)



- Analogue to investors? Specifically, the difference between high and low f-score group returns averages 25.73% (statistically significant at the 1% level). (Choi and Sias, 2012)
- Consistent with Piotroski (2000, 2005) and Fama and French (2006), the results reveal a strong positive relation between f-score 10 and future returns—high f-score stocks average annual market-adjusted returns 8.35% greater (statistically significant at the 1% level) than low f-score stocks (Choi and Sias, 2012)

## 5 Underlying Justification for using the given measures as a proxy for financial strength

- We report that 10-K document file size provides a simple readability proxy that outperforms the Fog Index, does not require document parsing, facilitates replication, and is correlated with alternative readability constructs.(Loughran and McDonald, 2014)
- Information Availability to the Market
- 10-K Filings - MANAGERS OF PUBLICLY traded firms are required to produce public documents that provide a comprehensive review of the firm’s business operations and financial condition. An important financial disclosure document created by managers to communicate with investors and analysts is the annual report filed pursuant to the Securities Exchange Act of 1934, Form 10-K.(Loughran and McDonald, 2014)
- Second, we recommend using the file size of the 10-K as an easily calculated proxy for document readability (Loughran and McDonald, 2014)
- o ensure that investors would have the necessary information to compute f-scores, Piotroski (2000, 2005) examines annual returns beginning the fifth month following fiscal year end. (Choi and Sias, 2012)
- Data availability
- Why would they use the data?
- Readability: financial information is definitely available - is it readable? (Loughran, MacDonald)
- Because information is incorporated in a given manner, we can use several variables as proxies for financial strength observed by the market in the form of abnormal returns (they know what we know)
- At the time a company files its 10-K report with the SEC, most likely all key information has already been disclosed to the public.(You and X. j. Zhang, 2009)

- Figure 1 shows the valuation methods<sup>2</sup> most widely used by Morgan Stanley Dean Witter’s analysts for valuing European companies. Surprisingly, the discounted cash flow (DCF) is in fifth place, behind multiples such as the PER, the EV/EBITDA and the EV/EG (Fernández, 2001)

## 6 Abnormal Returns - Event Study

- Trading strategy of Schedule 13D filers before the filing day (Collin-Dufresne and Fos, 2015)
- Figure 2 plots the average buy-and-hold return, in excess of the buy-and-hold return on the value-weighted NYSE/Amex/NASDAQ index from CRSP, from 60 days prior to the filing date to 40 days afterward. (Collin-Dufresne and Fos, 2015)
- Short-horizon event studies of stock returns: Many studies have examined what happens to targets firm’s stock price when there is a Schedule 13D filing with the SEC (Coffee Jr. and Palia, 2014)
- For ease of exposition, let us define  $[-x, +y]$  to be  $x$  days before the 13D filing, to  $y$  days after the filing. On this basis - literature (Coffee Jr. and Palia, 2014)
- event-window: we find that most informed trading before a 13D filing is during the event window  $(-10, -6)$ . (Brigida and Madura, 2012)
- event window - We also found that the target runup before a 13D filing is greatest during the event window  $(-10, -6)$ . Therefore, future academic research that estimates the share price response surrounding 13D filings should use a window extending to at least 10 days prior to the filing. (Brigida and Madura, 2012)
- Outlook: with more information processed one could say... A 13D filing by an acquirer may have a more pronounced impact if the filing specifies that the investor intends to be an activist. (Brigida and Madura, 2012)
- Runup = cumulative abnormal return of the target’s stock over the intervals  $(-10, -1)$ ,  $(-5, -1)$ , and  $(-2, -1)$  relative to  $t = 0$  being the filing of the Schedule 13D or 13G. (Brigida and Madura, 2012)
- In fact, 92% of the effect of a Schedule 13D filing on the target’s stock is realized before 3 days prior to the filing. These results show very little new information is revealed to the market when the Schedule 13D filing is made public (Brigida and Madura, 2012)

- Therefore, any analysis of the effect of a Schedule 13D filing on the target stock should consider an event window starting no later than ten days before the filing. (Brigida and Madura, 2012)
- We define market-adjusted returns as the firm's buy and hold return less the CRSP value-weighted index buy and hold return over the same period. (Choi and Sias, 2012)
- computed from the time-series of the differences in the 24 cross-sectional means with Newey-West (1987) standard errors] (Choi and Sias, 2012)
- The buy-and-hold Benchmark approach: The first approach uses a benchmark to measure the abnormal buy-and-hold return for every event firm, and tests the null hypothesis that the average abnormal return is zero. (Ang and S. Zhang, 2011)
- It is well known that event studies are prone to cross-sectional correlation among abnormal returns when the event day is the same for sample firms. (Kolari and Pynnönen, 2010)
- We use the buy-and-hold method to measure the abnormal stock returns for two reasons. (1) As shown in Barber and Lyon (1997), buy-and-hold is favored over cumulative abnormal return (CAR) on a conceptual ground. (2) BHAR facilitates the cross-sectional analysis of how abnormal return varies with complexity. However, as pointed out by Mitchell and Stafford (2000), BHAR may exaggerate the short-term abnormal return due to compounding. To address this issue, we conduct a calendar time analysis. Specifically, each month we place firms into five portfolios based on their most recent FDR (You and X. j. Zhang, 2009)
- We find that the market reacts favorably to activism, consistent with the view that it creates value. The filing of a Schedule 13D revealing an activist fund's investment in a target firm results in large positive average abnormal returns, in the range of 7% to 8%, during the  $(-20, +20)$  announcement window (Brav et al., 2008)
- In the majority of applications, the focus is the effect of an event on the price of a particular class of securities of the firm, most often common equity. (MacKinlay, 1997)
- Useful papers which deal with the practical importance of many of the complications and adjustments are the work by Stephen Brown and Jerold Warner published in 1980 and 1985. The 1980 paper considers implementation issues for data sampled at a monthly interval and the 1985 paper deals with issues for daily data (MacKinlay, 1997)
- Also one can easily modify the statistical framework so that the analysis of the abnormal returns is autocorrelation and heteroskedasticity consist-

ent by using a generalized method-of-moments approach.(MacKinlay, 1997)

- The market model represents a potential improvement over the constant mean model (MacKinlay, 1997)
- Restrictions of the CAPM: The use of the Capital Asset Pricing Model is common in event studies of the 1970s (MacKinlay, 1997)
- ECONOMISTS are frequently asked to measure the effects of an economic event on the value of firms (MacKinlay, 1997)
- mathematics behind it !!
- Computation etc.
- Power functions

## 7 Investor-Target Ratio

- These findings are consistent with the idea that the F Score is most effective when applied to stocks for which the market is slow to incorporate relevant financial information. Deep value stocks are typically neglected by analysts and investors and thus likely to exhibit slow impounding of new information (Hyde, 2014)
- What are the characteristics of the targets?
- useful signals regarding the likelihood of acquisition (Walkling, 1985, and Akhigbe, Martin, and Whyte, 2007) (Brigida and Madura, 2012)
- Since a 13D filing can influence the likelihood that a firm will become a takeover target, it is not surprising that the filing elicits a market reaction.(Brigida and Madura, 2012)
- What kind of companies are the targets (Coffee Jr., John C. Palia, Darius)
- relation between ratio and the market

## 8 Data

### 8.1 Comments

- Testing the error terms from ordinary least-squares estimations of the below regression equations,using the Breusch-Pagan test, found no evidence for significant heteroscedasticity (Brigida and Madura, 2012)

- To reduce any effect of outliers on the estimated coefficients, we also estimate each equation using robust regression employing the Huber weight function. (Brigida and Madura, 2012)

## 8.2 COMPUSTAT - Financial Condition

The base accounting variables, from Compustat, are At, total assets (Compustat data item 6); Yt, income before extraordinary items (18); ACt, accruals [the change in current assets (4), minus the change in cash and short term investments (1), minus the change in current liabilities (5), plus the change in debt in current liabilities (34)]; Dt, total dividends [dividends per share by ex date (26) times common shares outstanding (25)]; and Bt, book equity [total assets (6), minus liabilities (181), plus balance sheet deferred taxes and investment tax credit (35) if available, minus preferred stock liquidating value (10) if available, or redemption value (56) if available, or carrying value (130)]. The accounting variables for year t are measured at the fiscal yearend that falls in calendar year t. (Fama and French, 2006)

### 8.2.1 Screening Variables

1. What consolidation level? - Consolidated
2. What industry? No financial services (FS)
3. What data format? - Standardized
4. Population source? - Domestic
5. Currency? - USD
6. Company Status? - Active & Inactive

### 8.2.2 Variables

1. Identifying Information
  - Company name
  - CIK number
2. Identifying Information cont.
  - GIC variables - GIC sectors etc.
  - NAICS - in addition to GIC?
  - SIC - in addition to GIC?
3. Company Descriptor
  - Acquisition method? - ACQMETH filter by takeover?

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#### 4. Balance Sheet Items

- Current Assets total (ACT)
- Total Assets (AT)
- Account receivables total (ARTFS)
- Cash (CH)
- Liabilities total (LT)
- Long term debt total (DLTT)

### 8.3 CRSP - Event Study Abnormal Returns

## 9 Literature

- For ease of exposition, let us define  $[-x, +y]$  to be  $x$  days before the 13D filing, to  $y$  days after the filing. On this basis (Coffee Jr. and Palia, 2014)
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- signs for takeover?

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