



Time-varying risk, mispricing attributes, and the accrual premium



Prodosh E. Simlai

Department of Economics and Finance, College of Business and Public Administration, University of North Dakota, 293 Centennial Drive, Grand Forks, ND 58202, United States

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ABSTRACT

We examine the mispricing attributes of the accrual effect in the presence of time-varying common risk factors, which are not independent of aggregate economic conditions. We find that the persistence of unconditional abnormal returns for accrual-based portfolios is not independent of firm-level characteristics such as size and book-to-market ratio (BE/ME). However, after adjusting for time-varying risk measures, the premiums associated with accruals and firm fundamentals are distinct from one another. The empirical evidence shows that a long-short hedge portfolio based on accruals and BE/ME generates significant abnormal returns even in the presence of time-varying risk. Taken together, our time-series and cross-sectional evidence strengthens the assertion that the well-known accrual effect is significantly associated with high-BE/ME value firms that tend to be low-investment firms. The fact that time-varying risk adds to the description of average returns of accrual-sorted portfolios and corroborates the presence of the accrual premium contributes significantly to the literature.

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1. Introduction

Since the seminal works of Sloan (1996), several studies have confirmed that firms with high reported accruals in a fiscal period tend to underperform firms with low reported accruals.¹ In the literature, it has been argued that investors overestimate the persistence of the accrual component of earnings, and that overvaluation may lead to abnormal patterns in stock returns (Bradshaw, Richardson, and Sloan (2006); Dechow, Richardson, and Sloan (2008); Hirshleifer, Hou, Teoh, and Zhang (2004); Richardson, Sloan, Soliman, and Tuna (2005); Xie (2001)). In the last decade, research has shown that the anomalous return pattern associated with accruals is not independent of firm size (Khan (2008); Palmon, Ephraim, and Yezege (2008)), and ought to be linked with various fundamental-to-price ratios such as book-to-market, earnings-to-price, cash-flow-to-price, and sales growth (Beaver (2002); Fairfield, Whisenant, and Yohn (2003), Desai, Rajgopal, and Venkatachalam (2004)). Several other measures and components of accruals have also been investigated (Chan, Chan, Jegadeesh, and Lakonishok (2006); Wei and Xie (2008)).

However, despite the wealth of existing work, it is not clear which of the two most common rationales for the accrual anomaly is better – risk/growth fundamentals or mispricing?² It is also not discernible what role (if any) aggregate economic conditions or business cycle variables play in the evaluation of the relationship between total accruals and firm fundamentals. Motivated by influential but conflicting empirical evidence, in this paper we reinvestigate the abnormal returns of the accrual-sorted portfolios in a multifactor framework of Fama and French (2015a, 2015b) and Hou, Xue, and Zhang (2015). We examine the mispricing attributes of the accrual premium in relation to common firm characteristics such as size (market equity or ME) and book-to-market ratio (BE/ME), as well as time-varying measures of factor risk. We find that the premiums associated with total accruals and firm fundamentals are not distinct from one another, and the time-varying risk corroborates the presence of the accrual premium.

It is noteworthy that most of the existing studies in the literature offer an unconditional treatment of anomalous accrual returns, which fails to account for fluctuations in business conditions. Following Fama (1981), Ferson and Schadt (1996), and Stock and Watson (1999), one can argue that the result is the presence of a noisy measure of aggregate economic conditions in terms of realized excess market returns. In this

E-mail address: psimlai@business.und.edu.

¹ Dechow, Hutton, Kim, and Sloan (2012) and Richardson, Tuna, and Wysocki (2010) provide an update and overview of the recent work.

² An incomplete list of works that have made inroads in this area of research include Guo and Jiang (2010), Wu et al. (2009), Zach (2007), and Zhang (2007).

paper, we establish a robust connection between the accruals anomaly and common firm fundamentals such as ME and BE/ME in the presence of a less noisy measure of aggregate economic conditions. We present a synthesis of the existing work by incorporating time-varying measures of factor risk, which incorporates business cycle variables, and modifying the realized excess market return. The framework allows us to incorporate state variables that are not independent of macroeconomic risk.

Our empirical design is closely related to the recent advances in the accrual anomaly literature. We use the NYSE-AMEX-NASDAQ universe of firms between 1972 and 2012, and follow the balance sheet approach of Sloan (1996) to calculate the accrual component of earnings. We examine the return premium associated with small-size and high-BE/ME firms that is related to total accruals (TA). We incorporate the Fama and French (2015a, 2015b) five-factor model, which consists of a market factor, a size factor, a value factor, an investment factor, and a profitability factor. Following Avramov and Chordia (2006), the set of business cycle variables consists of dividend yield, default spread, term spread, and short-term Treasury bill rate.³ The main difference between our approach and existing work is that, while previous studies use realized excess market return in their accrual pricing models, we use the expected market risk premium and measures of time-varying risk. This set up enables us to understand the relative role of the size and value factors, which are associated with the accounting dimension of the firm, and the relative role of the investment and profitability factors, which have strong links to aggregate macroeconomic variables (Cochrane (2008, 2011)). Since it is thought that during adverse times investors flee from riskier assets to safe assets (Beber, Brandt, and Kavajecz (2009), and Chalmers, Kaul, and Phillips (2013)), by focusing on time-varying risk, our framework helps to explain whether the flight-to-quality affects the accrual premium. At a substantive level, it provides a platform for testing whether the market mispricing of small-size and high-BE/ME firms is associated with the market mispricing of low-accruals firms.

Our findings are easy to summarize. Similar to the existing literature, we find that the persistence of unconditional abnormal return patterns with respect to TA is related to firm size and BE/ME. After we adjust for time-varying risk, a long-short portfolio based on TA and BE/ME generates significant abnormal returns. The size- and TA-based double-sorted long-short hedge portfolio, on the other hand, displays no such over-performance, and the evidence suggests that the well-known accrual anomaly is limited to value stocks only. Our results are robust for various sub-periods and when the five Fama-French common risk factors are included. We utilize a framework that is not independent of aggregate economic conditions. The presence of time-varying risk factors allows us to capture the expected return effects of state variables without identifying them. Taken together, our time-series and cross-sectional evidence suggests that the well-known accrual effect is significantly associated with high-BE/ME value firms that tend to be low-investment firms. Furthermore, the abnormal returns of small-size firms are less likely attributable to total accruals, and the investment and operating profitability add to the description of average returns provided by accrual-sorted portfolios. The idea that time-varying factors can complement and enhance our understanding of the accrual effect adds significantly to the literature.

The rest of the paper is organized as follows. The following section provides an overview of the existing literature. Section 3 describes the data. Section 4 reviews the research design and outlines the empirical methodology used in this paper. Section 5 starts with an overview of the characteristics of portfolios sorted by accruals and firm characteristics. This section also contains our main results concerning various tests of mispricing. In the final section, we conclude with brief comments.

³ Prior works in the literature that use one or more of such variables are Campbell (1987), Fama (1981), Fama and French (1988, 1989), Fama and Schwert (1977), Ferson and Harvey (1999), Keim and Stambaugh (1986), and Petkova and Zhang (2005).

2. Related literature and our incremental contribution

According to the Statement of Financial Accounting Concepts 1 (FASB 1978), the main objective of financial reporting is to provide information that is useful for existing and potential investors. The fact that market misunderstands reported financial accounting information that is associated with accruals clearly goes against such objective and thus has generated a lot of interest among academics and practitioners. In the literature, the accrual effect is comprised of two main findings. First result is that the accruals are less persistent than cash-flows, and the second being the negative relationship between accruals and future stock returns.

Regarding the possible explanations of the accrual anomaly, there exist a wide variety of opinions. Several authors suggest that the accrual anomaly may derive in part or full from rational risk premia (Fama and French (2008); Khan (2008), Wu, Zhang, and Zhang (2009)). There is considerable debate about whether the accrual effect is a special case of the value effect (Fairfield et al. (2003), Desai et al. (2004)). Hirshleifer, Hou, and Teoh (2012) document that investors misvalue accruals and cast doubt on the rational risk-based explanation. A number of works employ accrual reversals in tests of earnings management and accrual mispricing (Baber, Kang, and Li (2011), Dechow et al. (2012)). Allen, Larson, and Sloan (2013) show that accruals consist of two distinct processes - first process represents accruals supporting firm growth and the second process represents accruals relating to temporary fluctuations in working capital. Among other work, Fedyk, Singer, and Sougiannis (2013) provides evidence consistent with the investor fixation explanation for the accrual anomaly. Altogether, a large body of the existing literature focuses on the subjectivity involving the estimation of accruals and ties the accrual anomaly to both the growth and earning fixation explanation.

Considerable research has investigated the occurrence of the accrual effect using broader definition of accruals and in a wide range of markets. Richardson, Sloan, Soliman, and Tuna (2006) provide a parsimonious algebraic decomposition of accruals into a component capturing growth, a component capturing accounting distortions and an interaction term between these components. Fama and French (2008) demonstrate that the accrual anomaly is present even among large and liquid firms. Work by Green, Hand, and Soliman, (2011) argue that the magnitude of the anomalous return associated with accruals have declined in recent years in the U.S. In fact, Green et al. (2011) argue that the hedge returns to the long-short accrual portfolio have decayed in the U.S stocks markets to the point that they are no longer positive. Recently, Strydom, Skully, and Veeraraghavan (2014) investigate firm-level accrual mispricing and revealed both under and overpricing of accruals.

With respect to international evidence, Chan et al. (2006) show that the accrual anomaly exists in the U.K. Pincus, Rajgopal, and Venkatachalam (2007) and Papanastopoulos (2014) confirm the existence of the accrual effect in several countries. Pincus et al. (2007) consider discretionary accruals in their analysis and find supportive evidence of a significant role of earning management in explaining the accrual anomaly. Leippold and Lohre (2012) find that in 22 out of 26 countries, there is a positive hedge return associated with the accrual effect. Mouselli, Jaafar, and Goddard (2013) document that for the U.K stocks, accruals quality explains the cross-section of stock returns, but does not represent an asset pricing factor. Strydom et al. (2014) show that the firm-level mispricing differ from that documented at the country level. Their findings suggest that while the firm-level accrual effect remains, the country-level accrual effect have diminished. Recently, Papanastopoulos and Tsiritakisb (2015) document that accounting distortions contribute to the negative relationship between accruals and future earnings performance in 14 developed European equity markets.

We differentiate our study with prior research by focusing on the connection between economic fundamentals and mispricing of the accrual component of earnings. Given the existing risk/growth interpretations

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