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Review Article

The Impact of Accounting Information on Stock Returns – Integrative Literature Review

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Abstract:

The literature review provides an integrative (and occasionally critical) review and evaluation of relevant literature. This is mostly done by putting this study in the context of relevant research in capital markets accounting and asset pricing, such as arbitrage pricing and the empirical evidence on return anomalies. This research is related to a few key areas of the existing literature, including accounting for capital markets research, empirical asset pricing research, and the significance of idiosyncratic accounting information. The empirical methodology used in this study, which falls under the purview of arbitrage pricing theory, offers a specification for empirical asset pricing accounting where average equity returns are justified in terms of the accuracy of accounting data. This literature creates a case for investigating the plausible impact of the quality of accounting information on expected equity returns and asset prices. The study meets its objectives by estimating a multifactor asset pricing model where a variable measurement representing the construct of accounting information is on the explanatory side of the model. Toward this end, this study is designed to document empirical evidence with respect to the impact of the quality of accounting information on stock returns.

Keywords: Quality of Accounting Information; Stock Returns; Empirical Framework

Introduction:

The empirical framework used in this study is derived from Miao *et al*. (2021), which, under the umbrella of arbitrage pricing theory, provides an empirical analysis of average equity returns using accounting information quality as an explanation. As a result, this study draws on two strands of the existing literature, namely capital markets research in accounting and empirical asset pricing research with the prominence of idiosyncratic accounting information. In this manner, the literature review section includes five sections: [1] a critical examination of the empirical asset pricing literature in accounting (e.g., Miao *et al.*, 2021), [2] situating the study within the historical development of capital markets accounting research, [3] locating the research within the extant empirical asset pricing literature, [4] linking the study to arbitrage pricing and unidentified factors, and [5] identifying anomalous returns empirically. The purpose of the review is to establish a sound conceptual logic via which the main variable of interest in this study (i.e., the quality of accounting information) can be empirically tied to average equity returns and asset prices.

Review of Literature:

A critique of the empirical framework presented by Maio *et al*. (2021)

Maio *et al*. (2021) continue long-established research on capital markets accounting, which is concerned, in finance and economics terms, with the impact of accounting information on expected equity returns (see, e.g., Habtoor & Alharbi, 2020). In this vein, Maio *et al*. (2021) focus more on the

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quality attribute of the accounting information and the system that produces such information than on the actual set of accounting information and disclosures, which falls under the umbrella of the capital market anomaly where firm-specific volatility covaries with expected equity returns. This is so essential that it extremely instructs the empirical analysis and results in this study. The seminal work of Dechow, Ge & Schrand (2010), which came to the conclusion that any serious analysis of the impact of the quality of accounting information numbers on expected asset returns can hardly be achieved without relevant theoretical underpinnings with the objective of guiding empirical designs and tests, is reiterated by Maio *et al.* (2021). In characterization of the quality of accounting information in terms of the degree to which the accounting feature of reported accruals is represented in the realized stream of cash flows, Maio *et al*. (2021) follow Dechow and Dichev (2002) and Dechow, Ge and Schrand (2010). In this case, Maio *et al*. (2021) measure the quality characteristic of accounting information as the complement to the coefficient of determination of a model that explains current realizations of cash flows in terms of current reported accounting accruals, continuing the measurement tradition started by Francis *et al*. (2005) and Core, Guay & Verdi (2008). In order to do this, Maio *et al*. (2021) conducted their empirical analysis in order to investigate two types of relationships: [1] the cross-sectional relationship between quality of accounting information and the uncertainty of estimating the market systematic risk factor loading, and [2] the cross-sectional relationship between quality of accounting information and expected equity returns. The findings of the tests conducted by Maio et al. were both clearly discernible, with the first association's sign being negative and the second association's sign being positive. In their analysis of their test results, Maio et al. came to the conclusion that the empirical data on the link between predicted equity returns and the accuracy of accounting information is still generally conflicting, developing, and inconclusive in many ways. For instance, in Verrecchia (2001), an influential accounting study, the study found that improvements in accounting information quality are both logical and empirically related to lower expected returns. These improvements can be made by reducing the impact of information asymmetry and better resolving the issues of adverse selection in capital markets. In the same vein, Ng (2011) demonstrated in a study investigation into how public firm-specific information quality influences liquidity risk that the quality of accounting information is predicted to negatively correlate with the cost of equity capital due to improved liquidity and financial flexibility.

Locating the Study within the Historical Development of Capital Markets Research in Accounting

Contemporary neoclassical-based accounting research can be classified into two broad categories: [1] capital markets research (CMR), and [2] positive accounting theory (PAT) (Kothari, 2001; Habtoor *et al*. 2016). Whereas influential developments in agency theory and models of mechanism design form the pillars of PAT (Watts & Zimmerman, 1986), the relationship between stock returns (or prices) and accounting information defines the very heart of capital markets accounting research (Lev & Gu, 2016; Al-Ali *et al*., 2018). Capital markets research in accounting owes its birth exclusively to breakthrough developments in financial economics and economic theory, namely Friedman's (1953) positive economic theory, Markovitz portfolio theory (Markowitz, 1968), and the related Fama's (1965) efficient market hypothesis and Sharpe's (1964) capital asset pricing model. In this regard, it was the seminal work of Ball and Brown (1968) on post announcement earnings drift and Beaver (1968) on the information content of accounting disclosures that eventually established the capital markets research tradition for accounting scholars. Ever since, the supply of accounting studies adhering to the capital markets tradition has been both rich and insightful while addressing a wide array of issues, including short window tests, long window tests, market efficiency tests, fundamental analysis, accounting-based valuation, stochastic and time series properties of earnings and management forecasts, determinants of the earnings response coefficients, earnings management, cross-sectional studies of the value relevance of accounting information, the decision facilitating role of accounting, and corporate governance (Karuna, 2019; Kothari, 2001). In fact, accounting studies under the capital markets research paradigm can be broadly categorized based on two main dimensions: [1] the methodology dimension, and [2] the conceptual inquiry dimension (Kothari, 2001; Musbah, Habtoor

& Sritharan, 2021). Methodologically, Lo and Lys (2000) classify the large body of capital markets research in accounting into: [1] non-directional information content studies following Beaver (1968), [2] surprise mapping and identification of informative marginal sets of accounting information following Ball and Brown (1968), and [3] empirical cross-sectional analysis of the value relevance of accounting information following Amir, Harris and Venuti (1993). Conceptually, Karuna (2019) classifies the accounting literature on capital markets into two main areas: [1] tests of market efficiency, and [2] fundamental analysis and accounting-based valuation. Capital market accounting research on market efficiency closely followed the relatively well-developed asset pricing literature in finance and economics (Salah & Habtoor, 2017; Salama, Habtoor, & Isaac, 2019). In this view and following the taxonomy in Lo and Lys (2000), this study is classified methodologically as an empirical cross-sectional analysis of the value relevance of accounting information. However, conceptually, the study is related to tests of market efficiency because it directly tests, and reports claims with respect to the impact of accounting idiosyncratic volatility on asset returns. The study also relates to fundamental analysis and accounting-based valuation because of the emphasis placed on explaining equity returns in terms of the quality of accounting information.

The Empirical Asset Pricing Foundation for the Role of Accounting Information

The ability to explain asset returns and prices in terms of discounting future payoffs by underlying risk quantities has enabled accounting scholars to conduct rigorous and market-based studies. In fact, in asset pricing research, accounting information is typically introduced through tests of market efficiency (Kothari, 2001). However, it is important to note in this context that the enormous majority of asset pricing research conducted throughout the years may be classified in a variety of ways (Brandimarte, 2017). Asset pricing models, for example, may be divided into categories such as theoretical or empirical, rational or behavioral, absolute (i.e., equilibrium) or relative, aggregating or averaging, and most crucially, multifactor or single factor (Barillas & Shanken, 2018). The choice of an asset pricing model, or school of thought, will greatly inform accounting research questions and the formulation of refutable statements, research designs, theoretical predictions, and empirical analysis. This taxonomy of asset pricing models is a revolving axis of capital markets accounting research that is centered on tests of market efficiency (Leuz & Wysocki, 2016). The reason for this is that typical asset price models generally used in accounting research can be viewed as tests of market efficiency via joint hypothesis tests. The CAPM maintains the exact same set of restrictive assumptions as efficient markets with respect to perfect, complete, and frictionless markets in which all market agents are rational with complete and transitive preferences to only risk and return while entertaining the same investment time horizon and possessing identically homogeneous expectations and where all assets are infinite. It follows that the return anomalies study in finance and economics has shed a lot of light on tests of market efficiency in capital markets accounting research ever since excess returns were clearly differentiated from the theoretically impossible abnormal returns according to the CAPM. In order to reject the CAPM based on documented empirical evidence that the rather theoretically implausible abnormal returns can still be significantly observed in a wide range of circumstances, a return anomaly study typically involves relaxing one or more assumptions of the CAPM when formulating and testing (Tabouli, Habtoor & Nashief, 2016). For instance, Black (1972) demonstrated that the CAPM equilibrium connection between beta and anticipated returns does not hold when loosening the assumption of limitless borrowing at the risk-free rate by suggesting a zero-beta CAPM. Mayers (1972) introduced a CAPM with non-marketable human assets, relaxing the premise of completely marketable assets. In 1973, Rubinstein challenged investors' beliefs that they should only focus on risk and returns and unveiled a three-moment model for valuing securities. Using a mean-partial lower moment of returns model, Hogan and Warren (1974) hypothesized that the market risk beta quantity should not be determined by the covariance between the returns on the market portfolio and the risk-free rate. A negative correlation between market systematic risk and anticipated returns for financial assets was found by Haugen and Heins in 1975. Roll (1977) argued that because it is impossible to reproduce a theoretically diversified portfolio in practice, the CAPM theory is barely testable. According to Stattman (1980), the important accounting attribute of book

values boosts anticipated returns. According to Banz (1981), businesses with lower market values for their stock typically generate greater projected returns. The value premium in the UK market was empirically documented by Dimson, Nagel and Quigley in 2003. In this view, it is evident that the majority of the frequently reported abnormalities were mostly connected to accounting, publicly available information, and the influence that information has on asset values through the medium of firm-specific risk. On the same topic and for the same empirical reasons, the CAPM's poor track record has given rise to other models that are widely considered as less constrictive while still being theoretically supported. Among such models, the arbitrage pricing hypothesis stood out (APT).

Arbitrage pricing theory and the relevance of unnamed factors

Originated by Ross (1976), and unlike the equilibrium or absolute theoretical framework of the CAPM, APT is rather a relative pricing framework, where the expected return of a portfolio is explained by comparing it to the expected returns of other portfolios. In the practical sense, APT is simply using the known prices of some given portfolios for the purpose of uncovering the unknown price of the portfolio for which pricing is sought (Ingersoll, 1987). It is essential in this context to explain the meaning and implications of arbitrage. An arbitrage opportunity is a self-financing, risk-free strategy that pays positive returns (Cochrane, 2005). An efficient market is, by definition, arbitrage-free, but that does not mean that an arbitrage-free market precludes excess returns (Brandimarte, 2017). This is to say that, an efficient market only implies absent arbitrage opportunities (Borup, 2019). In fact, generating excess returns (i.e., realizing further gains from trade) is still very possible in an arbitrage-free context due to the trade motivators of risk sharing and different time preferences. Irrespective of market efficiency, it is universally agreed upon among both theorists and practitioners that arbitrage opportunities are so rare that we can safely assume they do not exist. It follows that the assumptions of APT are typically those of market efficiency. Furthermore, APT assumes that the expected returns of the relevant explanatory portfolios are statistically independent (i.e., uncorrelated) (Ross, 1976). Toward this end, the APT is greatly limited by the fact that market risk factors, similar to those in the CAPM, are not identified. Moreover, even with identified risk factors, APT models have to still account for the inherent difficulty in estimating the betas (or the factor loadings) of those factors (Zhang, 2006). After all, perhaps the true logic behind the prominence of APT in the contemporary finance literature is that it has provided a central theoretical framework for many authoritative assets pricing models, including the influential three-factor model developed by Fama and French (1995). The ultimate thesis of Fama and French (1995) was to document the empirical regularities with portfolio risk premiums instructed by the firm-specific characteristics of value and size (of course, in addition to the market portfolio risk premium instructed by the CAPM’s covariance risk).

Empirical Evidence of Return anomalies in accounting

A significant body of literature was designed to document empirical regularities based on portfolio risk premiums instructed by several firm-specific variables, most prominently the accounting characteristics of book value investments, accounting earnings, and financial reporting features at large. Toward this end, in an event study, Bradshaw, Richardson and Sloan (2001) studied published earnings’ forecasts of sell-side analysts and showed that such forecasts fail to account for the predictability of declining future accounting earnings associated with high reported accruals. Their results are consistent with investors' failing to predict declining future earnings (i.e., low quality earnings) based on accounting violations in the form of high reported accruals (in particular, high working capital accruals). This is also important because it is consistent with the inefficient market return anomaly that financial reporting management may be employed so as to increase future returns around certain events, particularly equity issuance (see, e.g., Cohen, Nelson & Walsh, 2002; Al-Hammali, Habtoor & Heng, 2021; Algwizi, & Habtoor, 2020). Haugen and Baker (1996) showed that a portfolio risk premium instructed by net investments earns excess equity returns in the US market. Cohen, Nelson and Walsh (2002) confirmed the investment portfolio risk premium, and Chan, Karceski and Lakonishok, (2003) employed non-parametric tests to study the time series behaviour of earnings growth for persistence and cross-sectional predictability and document the basic economic intuition of competitive pressures that long-term earnings growth is not persistent and

largely unpredictable by various valuation multiples such as price-to-earnings and price-to-book ratios. Related to the growth anomaly, in the cross section, Cooper, Gulen and Schill, (2008) study the relationship between firm-level asset growth rate and future equity returns. They show that—as opposed to previously documented and standard factor cross-sectional determinants of expected equity returns such as value (i.e., book-to-market), size (i.e., market capitalization), past returns, accruals, and other growth measures—the firm-level asset growth rate is a strongly significant predictor of future returns and one that has economically significant substance in the US capital market. Using the annual percentage change in total assets as a comprehensive and simple measure of firm-level growth, their study introduces new empirical evidence that firm-level growth is strongly replicated in the cross-section of expected equity returns and so is fairly priced in the US equity market. They also decompose the firm-level growth effect into its basic components from both the financing and investing sides. They then contend that firm-level growth is empirically explained in terms of variables shown in long-window event studies to be significantly related to total asset expansion and contraction (e.g., changes in operating assets and changes in total debt). They also estimate a conditional CAPM model and conclude that traditional consumption-based models of expected equity return tend to fall short of explaining the firm-level growth effect owing to the apparent inconsistency of the firm-level growth effect with time-varying risk premiums earned by changes in the firm's growth options relative to its existing assets in place. Their empirical evidence is also inconsistent with the theoretical notion that future equity returns tend to decrease with increases in firm investments. Caskey, Hughes and Liu (2012) decompose financial leverage into target (i.e., long-term debt capacity) and excess (i.e., shock to long term debt capacity) components and show that the excess component dominates a negative relation between financial leverage and future returns after controlling for the dynamic properties of the capital structure and the potential for delayed market reactions. They thus show that financial leverage is a fundamental risk component that is priced by equity investors, perhaps due to delayed average recognition of and reaction to news about profitability, investment growth, and financial distress. Their results are consistent with the inefficient market return anomaly that financial leverage has for asset pricing and future equity returns. Whether leverage is a price risk premium in the Saudi capital market is a question that this study is empirically concerned with. The premium is further accentuated by using sorts based on price-to-estimated earnings as opposed to price-to-reported earnings ratios. Their results are consistent with documenting the value premium based on accounting bottom line information (i.e., accounting earnings) and not confining such a premium to small stocks. Most importantly, Fama and French (2015) add accounting earnings and net investments to beta, size, and book-to-market. They then estimated the five-factor model and concluded that accounting information is not redundant but rather meaningfully replicated in the cross section of stock returns over the course of their study sample and period.

Discussion

In view of the preceding presentation, it can be concluded that there is a large and influential body of literature that relates several attributes of publicly available information, including accounting, to expected asset returns. Indeed, the well-developed literature on return anomalies along with the development of APT and multifactor models gave accounting researchers rationality-based opportunities to employ accounting variables in typical asset pricing models under the umbrella of firm-specific or idiosyncratic risk (Levi & Zhang, 2015; Habtoor & Al-Shaibah, 2015a, b). This literature creates a case for investigating the plausible impact of the quality of accounting information on expected equity returns and asset prices. Toward this end, this study is designed to document empirical evidence with respect to the impact of the quality of accounting information on stock returns. The study meets its objectives by estimating a multifactor asset pricing model where a variable measurement representing the construct of accounting information is on the explanatory side of the model. In specific terms, under the umbrella of arbitrage pricing theory, we provide an empirical asset pricing accounting specification following the empirical framework of Maio *et al.* (2021) where average equity returns are explained in terms of the quality of accounting information.

Conclusion:

This study reviewed empirical and theoretical literature with respect to the impact of accounting on contemporaneous equity returns. In this fashion, there are a couple of major strands in the literature that are relevant to the study, namely capital markets research in accounting, empirical asset pricing research, and the influence of idiosyncratic accounting information. The purpose of the review is to establish a sound conceptual logic via which the main variable of interest in this study (i.e., the quality of accounting information) can be empirically tied to average equity returns and asset prices. The study shows that, though theoretical literature revolves mainly around the market model, empirical literature tends to depart from the market with the objective of identifying risk factors directly from data. The study takes the position that the prospects of theoretical models hinge on replicating the vast empirical findings documented over the course of the past two decades.

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Conflict of Interest:

The author has no conflicts of interest to disclose.

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