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PhD THESIS

Summary

FINANCIAL CONSTRAINTS AND ACCRUALS ANOMALY IN EUROPEAN CAPITAL MARKET

PhD Advisor:
Prof. Dumitru **MATIŞ**, PhD

PhD student:

Diana **MUREŞAN** (VULTUR)

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THESIS CONTENTS

INTRODUCTION

"How many millionaires do you know who have become wealthy by investing in savings accounts? I rest my case."(Robert G. Allen)

The capital market efficiency is grounded in the capacity of stock prices to reflect the financial information from the market. However, there are deviations from efficient market theory when stock prices movements are not predictable or rational. The unexpected behaviours of stock prices in the capital market are interpreted in the literature as capital market anomalies. The patterns in average stock returns represent anomalies because are not explained by the Capital Asset Pricing Model (Fama and French, 2008). Trading on anomalies can lead to abnormal high returns, although investors should pay attention to risk and transaction costs when they make investments based on anomalies.

Accounting anomalies are explained through cross-sectional tests of return predictability and include post earnings announcement drift, accruals anomaly and value anomaly. One of the most progressive anomalies from accounting is the accruals anomaly initiated by Sloan (1996) who demonstrates that higher accruals determine lower stock returns. This represents earnings' fixation hypothesis. Thus, naïve investors fixate on earnings when predict their forecasting and fail to assimilate the different persistence between accrual and cash flow components of earnings. Investing in firms with higher earnings, when the value of accruals is higher than the value of cash flow may be correlated with a sign of alarm as anticipated earnings may not be realized or earnings persistence may be lower.

Our motivation to examine accruals anomaly is connected to the following reasons: the examination of accruals anomaly in European capital market and the potential implications of financial constraints for accruals anomaly have not been comprehensively explored. Therefore, we contribute to the literature with this respect. While literature provides us numerous studies about the existence of accruals anomaly in US capital market, only a small number of papers treat the accruals anomaly in European capital market. Also, there is little evidence about the incidence of accruals anomaly and the level of financial constraints of a firm (Avramov et al., 2013; Li and Zhang, 2010).

The general objective of our research desideratum is to establish a theoretical and empirical framework for our research theme by providing new evidence about the existence of accruals anomaly. This work represents an exhaustive overview in the literature of accruals anomaly and offers new improvements in the research methodology of accruals anomaly. Specifically, this thesis aims to investigate the existence of accruals anomaly in developed European countries following prior studies (Sloan, 1996; Pincus et al., 2007). In addition to improve the current literature we examine the impact of financial constraints on accruals anomaly. Furthermore, we evaluate whether high and low dividend companies react differently to the level of financial constraints of a company.

We establish several specific objectives in order to achieve our main objective:

- The analysis of current state of the art regarding the literature of accruals anomaly from three perspectives: emergence, expansion and explanation;
- The examination of quantification methods of accruals and stock returns;
- The evaluation of the research methodologies used to test accruals anomaly;
- The estimation of accruals anomaly in European capital market;
- The impact of financial constraints in the occurrence of accruals anomaly;
- The analysis of cross-sectional factors that can determine accruals anomaly;
- The investigation of country characteristics that may determine accruals anomaly.

Research methodologies employed in this study are analytical and empirical ones. We use the descriptive method in the first three chapters when we review the current literature and methodologies related to accruals anomaly through content analysis, comparison, observation, and direct interpretation. The quantitative method used in our empirical analysis is based on the methodology proposed by Sloan (1996) and extended by Pincus et al. (2007) and Chan et al. (2009). This methodology involves the estimation of Mishkin test which is an iterative weighted non-linear least square in two stages. It includes two equations: a forecasting and a pricing one and market efficiency is tested by a likelihood ratio statistic. In addition to the original model, we extend it by introducing an interaction variable and test the accruals anomaly by the level of financial constraints. Further, we complement the Mishkin test with a hedge return test which involves taking a long position in low accruals firms and a short position in high accruals firms. The hedge strategy is applied according to the level of financial constraints.

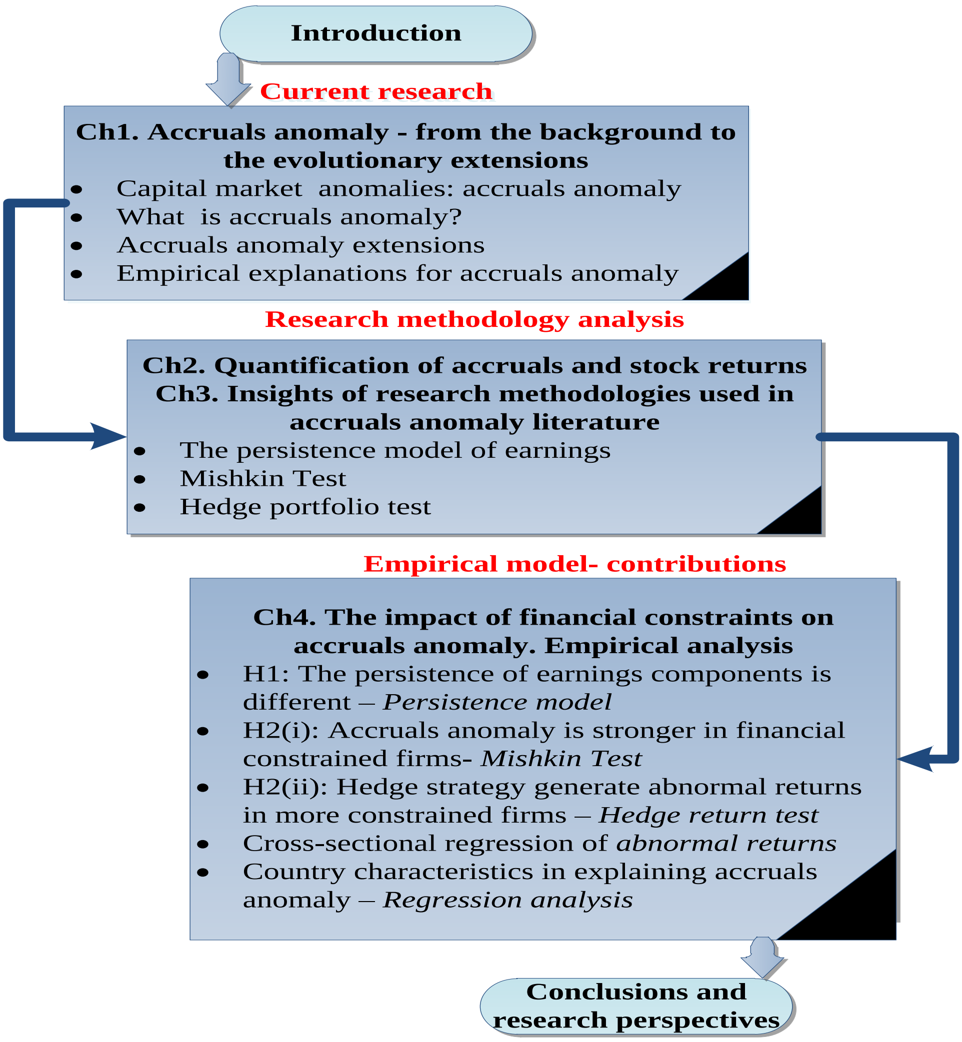
We start our thesis by positioning the accruals anomaly stream of research in capital market research in accounting literature. Then, we outline the expansions and the explanations from accruals anomaly literature and provide a conceptual and a theoretical delimitation of accruals and stock returns. Further, we accomplish a critical and analytical examination of the various methodologies used in the literature of accruals anomaly. The exhaustive and comparative analysis of the current methodologies helped in designing our research model. Lately, we implement our research model on developed European capital market. We sought to provide evidence about the influence of financial constraints in the occurrence of accruals anomaly. Next, we validate our results by various robustness tests. The last part, searches for various cross-sectional and country factors that may determine accruals anomaly.

The thesis is structured in four chapters: chapter 1 reviews the literature of accruals anomaly, chapter 2 presents the methods of quantification of accruals and stock returns as main variables for the empirical model, chapter 3 analyses the research methodology and chapter 4 investigates the existence of accruals anomaly.

Chapter 1 – Accruals anomaly from the background to the evolutionary extensions is meant to establish a framework for the research theme in the literature. Accruals anomaly is part of the accounting anomalies which belongs to capital market research in accounting. Further, we review the current evidence of accruals anomaly by clustering the literature in key topics related to its extensions or its explanations. The development of accruals anomaly includes: the reaction of sophisticated investors to accruals information, investigation of accruals anomaly outside the US capital market or the sensitivity of accruals anomaly to different research design changes.

Chapter 2 – Quantification of accruals and stock returns –performs a comprehensive explanation for accruals and stock returns. Accruals and stock returns represent basic variables in our research as we intend to analyse the impact of accruals on stock returns. Thus, we present the most common methods to compute them, a comparative analysis between them and their interpretation. The methods used to compute accruals are divided in balance sheet and cash flow methods. The balance sheet method is the most used in the literature, although the cash flow method has become more known since it was demonstrated that balance sheet method has measurement biases. The last section describes the methods of computing stock returns, portfolio returns, the creation of size portfolios and the determination of size-adjusted returns.

Figure 1 **Outline of the thesis**



(Source: authors' projection)

Chapter 3 – Insights of research methodologies used in accruals anomaly literature accomplishes a critical introspection in research methodologies by presenting: the persistence model of earnings, the Mishkin test which is used to confirm whether the market is efficient or not, and the hedge returns strategy as a complementary test.

This chapter analyses in detail the basic models, debates from the literature and the extensions applied to these models.

Chapter 4 – The impact of financial constraints on accruals anomaly. Empirical analysis represents an examination of accrual anomaly on 12 developed countries from Europe and whether financial constraints influence the occurrence of this phenomenon. We employ an extended version of Mishkin test to illustrate whether more or less constrained companies reflect a higher level of accruals anomaly. We complement this test with a hedge portfolio strategy and a cross-sectional analysis which examines the determinants of abnormal returns. In the end, we will analyse country differences in explaining accrual anomaly.

Through this work, we intend to extend the recent literature on accruals anomaly existence around the world by a critical introspection in empirical research methodologies. Also, we want to provide evidence about the effect of financial constraints on accruals anomaly and their impact on high/low dividend companies.

Our research desideratum aims to highlight the challenges generated by the accruals anomaly in a global capital market and the possible results' interferences in selecting different empirical models. We emphasize that investors from all over the globe should enhance their understanding of accruals information as accruals anomaly becomes a pervasive anomaly encountered in many capital markets and influenced firstly by the companies' characteristics and secondly by the countries' prerogatives.

Summary of Chapter 1

ACCRUALS ANOMALY – FROM THE BACKGROUND TO THE EVOLUTIONARY EXTENSIONS

This chapter represents an exhaustive literature review of accruals anomaly through three dimensions: emergence, expansion and explanation. We start by presenting the context in which accruals anomaly has been determined in capital market research as a stream of market efficiency tests. Also, we accomplish a conceptual and theoretical delimitation of accruals anomaly in literature by providing an intrinsic evaluation of accruals anomaly implications.

The literature on accounting anomalies is incorporated in tests of market efficiency stream of research, in particular cross-sectional tests of return predictability. Capital market anomalies reflect the unexpected behaviours of the price in capital market. These behaviours are deviations from efficient market theory. Khan (2011) provides two steps in identifying anomalies: the identification of mispricing signal and the estimation of economic and statistical reliability of the mispricing signal. A proper exploitation of the price movements can lead to positive abnormal returns. Nonetheless, Siegel (1998) recommends investors caution to risk and transaction costs, when they perform strategies based on anomalies.

Sloan (1996) is the first who documented the accruals anomaly. According to him, accruals anomaly represents the negative relation between stock returns and accruals. He attributes this relation to naïve fixation of investors. Thus, the market fails to understand that accruals are less persistent than cash flows and extreme accruals imply less persistent earnings. Thus, investors overvalue high accruals firms and undervalue low accruals firms (Kothari et al., 2006b). Therefore, high accruals determine negative future returns and low accruals determine positive future returns.

The research on accruals anomaly is developed in two directions: extensions of accruals anomaly and alternative explanations for the occurrence of accruals anomaly. The literature of accruals anomaly contains a handful of studies that extend Sloan (1996) affirmations in order to find a better measure of earnings quality or an improved trading strategy by using a broader definition of accruals (Richardson et al., 2005; Hirshleifer et al., 2004; Hribar and Collins, 2002), by studying the reactions of sophisticated investors to accruals information (Elgers et al., 2003; Ali et al., 2008; Lev and Nissim, 2006) or by examining the existence of accruals anomaly around the world (Pincus et al., 2007; LaFond, 2005).

Further, we walked through the various studies that attempted to offer explanations for the accruals anomaly; especially why accruals anomaly occurs. Researchers have investigated whether accruals anomaly may be determined by its components, by subsequent events, by transaction costs or whether it is related with other anomalies. Therefore, the evidence reveals that accruals anomaly is more precisely driven by: inventory changes (Thomas and Zhang, 2002; Chan et al., 2006), less reliable accruals (Richardson et al., 2005) and abnormal accruals (Xie, 2001). Beneish and Vargus (2002) also suggest that income-increasing component of accruals could propel to accruals anomaly. Previous research investigates the integrity of accruals anomaly or whether it is different from other anomalies (Fama and French, 2008). They emphasize that accrual effect is one of the most pervasive return anomalies in all size groups in their cross-section regressions. Similar results were found for net stock issues and momentum anomalies. Other papers have tried to examine if there exist any connections between accruals anomaly and other related anomalies from accounting or even finance. For example, it has been investigated the relation of accruals anomaly with post-earnings announcement drift anomaly (Collins and Hribar, 2000); analysts' forecast revisions anomaly (Barth and Hutton, 2004) or value glamour anomaly (Desai et al., 2004; Cheng and Thomas, 2006).

Summary of Chapter 2

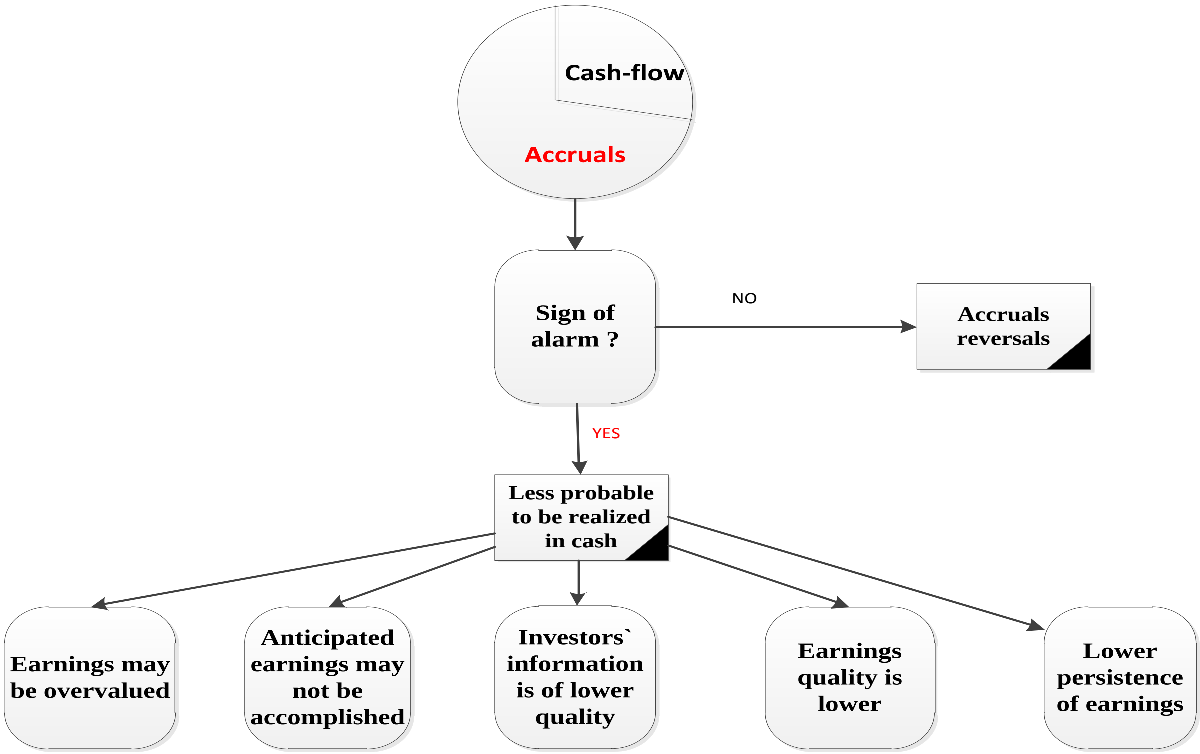
QUANTIFICATION OF ACCRUALS AND STOCK RETURNS

The negative relation between ***accruals*** and ***stock returns*** is named in the literature as ***accruals anomaly***. Thus, accruals and stock returns represent fundamental variables in our research work and a correct quantification and interpretation is required before our empirical estimations.

The use of a broader definition of accruals represents an extension of Sloan (1996) study in the accruals anomaly literature. During time, definition of accruals had a constant evolution. Either considered as a component of earnings, or a determinant of earnings persistence, the evolution and the significance of this concept is incontestable. Starting with Sloan (1996), Healy (1985) and Jones (1991) it was defined as non-cash working capital and depreciation. Since the revolutionary appearance of the cash flow statement and the controverted study of Hribar and Collins (2002) which claim that the balance sheet method may diminish the results, a new era of the accruals definition started. Hence, accruals are computed as difference between earnings and cash flow. Further, based on the assumption that all balance sheet accounts are products of the accrual accounting system, Richardson et al. (2005) introduce a more complex measure of accruals based on the change in net operating assets other than cash.

Investors should be cautions when accrual component of earnings is higher than cash flow component of earnings. In these situations, anticipated earnings may not be realized and converted in cash. If accruals are higher and cash flows are lower it could be interpreted as a sign of a low quality of earnings (figure 2). Hence, if net income is high due to high accruals, it could be a sign of alarm and it is less probably that income will be converted in cash.

Figure 2. **What happens if accrual component of earnings is higher than cash flow component of earnings?**



(Source: authors' projection)

Secondly, through the modelling of total accruals by various cross-sectional models we can estimate discretionary and non-discretionary accruals. The accruals models are based on the assumption that abnormal accruals will reduce the benefits of decisions (Dechow et al., 2010). The residuals from discretionary models represent unexpected accruals, called discretionary accruals and are used as a proxy for earnings management in the literature. Normal or non-discretionary accruals are connected with the fundamental performance of firms and represent the expected accruals, given firms' operations and conditions. When normal accruals are modelled correctly, abnormal accruals will represent distortions of lower quality (Dechow et al., 2010). Results from the previous studies (Chan et al., 2006; Xie, 2001) confirm that non-discretionary accruals do not predict future returns and discretionary accruals contribute to the predictability of returns.

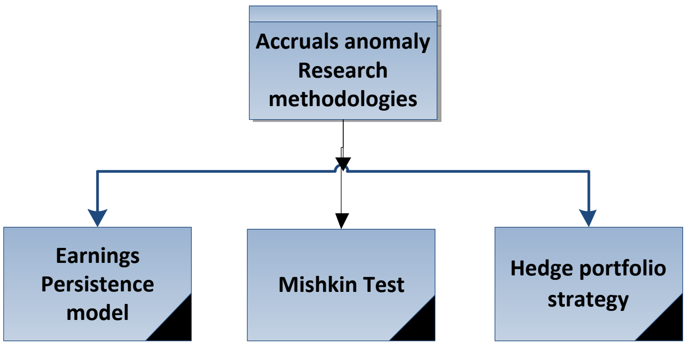
Lastly, stock returns and abnormal returns represent dependent variables in the empirical model which examines accruals anomaly. Although the process of computing abnormal returns seems simple, it raises many problems to the researchers as it can be the subject to biases when portfolios are rebalanced or multi-period portfolio returns are decomposed (Liu and Strong, 2008). Thus, we performed a conceptual and empirical delimitation for the proper understanding of the various methods used in the literature to determine stock returns. In the first step we will cumulate monthly returns over a period of 12 months denoted as annual buy-and-hold returns. The second step involves the computation of the portfolio return in each size decile. The last step is the difference between annual buy-and-hold return and portfolio returns to which the firm belongs.

Summary of Chapter 3

INSIGHTS OF RESEARCH METHODOLOGIES USED IN ACCRUALS ANOMALY LITERATURE

This chapter represents a critical introspection in the research methodologies used in accruals anomaly literature. Because the literature offers a variety of methods and models for each step of the research process, we accomplish an analytical and comparative interpretation of the various methodologies in order to facilitate the selection of the proper models in the construction of our own research design. We split the methodologies in three sections: persistence model, Mishkin test and hedge portfolio test.

Figure 3. **Research methodologies from accruals anomaly literature**



(Source: authors' projection)

The basic research hypothesis of the persistence model is whether the accrual component of earnings is less persistent than the cash flow component of earnings. Accrual and cash flow should provide different persistence related to future earnings. This is equivalent with investors' fixation on earnings, failing to perceive the different persistence of accrual and cash flow components of earnings. Also, it shows that earnings performance is not mean reverting or transitory, but depends on its components.

The literature of accruals anomaly has known a culminant expansion since the work of Sloan (1996). The author demonstrates that investors are not able to understand the different persistence of accruals and cash flow components of earnings by using the Mishkin test. This is a test used in macro-econometrics for rational hypothesis, which tests for the market efficiency. Thus, this is the most powerful instrument that the literature is offering for the test of accruals anomaly and its critical interpretation was helpful in designing our model.

The evolution of the accruals anomaly research was based primarily on the new perspectives offered by researchers to the estimation of Mishkin test. Most of the studies have extended Mishkin test by developing different approaches (Muresan, 2015). Although the Mishkin test has been applied with success in different contexts, the conflicting evidence (Kraft et al., 2007) has determined model improvements through the inclusion of new variables, by dividing the firms in smaller groups or by following other estimations.

We present the general model and its estimation, the debates on Mishkin test and analyse the most relevant studies in this field that apply Mishkin test and follow a different approach than the initial one. This critical examination of the extended studies on Mishkin test highlights that adding new variables in the model enhances the results, providing insightful information about the occurrence of accruals anomaly.

The literature comprises a handful of studies that apply the hedge return test as a complementary or alternative measure to Mishkin test in order to confirm the presence of accruals anomaly or to provide robustness. Sloan (1996) was the first who complemented the Mishkin test with a hedge strategy. As the current literature of accruals anomaly has extended, researchers have implemented the hedge strategy in different ways, requiring a critical evaluation. Furthermore, we perform a theoretical and analytical delimitation of this theory and its interpretation.

The hedge trading strategy requires taking a long position in low accruals firms and a short position in high accruals firms. In accruals anomaly literature, the hedge portfolios test is used to determine the accruals mispricing and its possible implications (Collins et al., 2003). The correct implementation and comprehension of the hedge strategy will bring up to 12% return per year, according to Sloan (1996).

Summary of Chapter 4

THE IMPACT OF FINANCIAL CONSTRAINTS ON ACCRUALS ANOMALY. EMPIRICAL ANALYSIS

The purpose of this chapter is to investigate the existence of accruals anomaly in developed European countries following prior studies (Sloan, 1996; Pincus, 2007). Moreover, we want to examine whether accruals anomaly is influenced by the financial constraints of companies. Thus, we compare empirical findings of accruals anomaly in high and low dividend companies to illustrate whether it is influenced by the financial constraints of a company. We exploit this issue as dividend yield is related to expected stock returns.

This research contributes in two directions to the existing literature: the effect of financial constraints on accruals anomaly and the impact of dividend yield on financial constraints. Literature provides little evidence about the impact of financial constraints on accruals mispricing and by our empirical study we intend to fill this gap.

The innovation of this study is to evaluate whether the accruals anomaly increase when financial constraints are higher and whether the degree of the dividend yield can influence the occurrence of accruals anomaly regardless the level of financial constraints.

Our empirical analysis compares the differences in accruals anomaly in high and low dividend groups in 12 developed countries from Europe between 1996 and 2011 including all non-financial listed companies. We follow the existing literature in accruals anomaly by implementing the Mishkin test and hedge returns tests in an extended version. Mishkin test is the econometrical test used in accruals anomaly literature to test whether market is mispricing accruals. Mishkin test is estimated simultaneously in two stages by an iterative weighted non-linear least squares procedure. We have extended original Mishkin test by including an interaction dummy variable for low/high dividend companies.

Through this work we will expand on the recent literature on accruals anomaly existence around the world and on financial constraints explanations for the occurrence of accruals anomaly.

Basic research hypotheses

H1: The persistence of accrual component of earnings is different than the persistence of cash flow component of earnings.

H2(i): The accruals anomaly is stronger in financial constrained companies

H2(ii): A trading strategy taking a short position in high accruals firms and a long position in low accruals firms generates abnormal returns for companies which are more constrained.

Variables required for estimating accruals anomaly include earnings, accruals and cash flow components of earnings and size-adjusted returns. All variables are defined mainly following Sloan (1996) and Pincus et al. (2007) definitions.

Interaction variable included in our model is measured through dividend yield ratio (dividend per share during the last 12 months divided by the market value at the end of the fiscal year). Further, we use a financial constraint to our model. Financial constraint is proxied by total debt to common equity ratio, where a higher ratio determines financial constraint and a low ratio unconstraint.

For the test of market efficiency we use a likelihood ratio statistic, distributed asymptotically $x^2(q)$. The null hypothesis is that market is pricing efficiently earnings components regarding the forecasting of future earnings.

Mishkin test is employed separately in unconstrained and constrained groups to observe whether accruals anomaly is more pronounced in more constrained companies. In order to confirm the mispricing of accruals the persistence from the pricing equation must be significantly different than the persistence from the forecasting equation.

Overall, the results from the Mishkin test suggest that European capital market is mispricing accruals predominantly in high dividend companies among companies which are more constrained financially confirming our hypothesis. This evidence confirms our hypothesis that constrained companies are more predisposed to encounter accruals anomaly. This suggests that financial constraints can be a cause for accruals anomaly, in particular because a higher ratio for debt to common equity ratio is connected with earnings volatility suggesting that a higher part of a company's growth is financed by debt.

These results support the current findings from the literature that market is not able to differentiate between accrual and cash flow component of earnings. Although UK has the higher number of companies from our estimations and significant results, the reliable findings from the pooled sample and from the other countries inference that accruals anomaly exists in other countries than US, and it connected with a firm's financial situation and opportunistic earnings management.

CONCLUSIONS AND RESEARCH PERSPECTIVE

"There is no promised road leading to definite results. What's important is how to keep open as many options as possible." (Makoto Kobayashi)

The stream of research of accruals anomaly has provided a remarkable panorama of empirical studies searching or researching for the best answers to the questions: why or how accrual anomaly exists. Probing deeper into these questions we found conflicting views regarding accruals anomaly from its determination in an accruals accounting system or only to US capital market to the detailed motivation related to accruals components, its reversals or just investors' fixation on earnings.

The present research desideratum exploits the problem of accruals anomaly from three perspectives: why exists accruals anomaly, how can be measured and does it stand in European capital market? Further, we explored whether financial constraints influence the appearance of accruals anomaly and whether high/low dividend firms are more predisposed to this phenomenon.

Accruals anomaly represents a deviation from capital market efficiency where stock prices cannot reflect clearly the real content of accrual and cash flow components of earnings. The cross-sections of stock returns explained by an accounting variable, in our case accruals, is the basic condition for this anomaly. Stock returns are in a negative relation with accruals, thus higher stock returns are determined by lower accruals. The current evidence from the literature has proved that investors are not able to thoroughly understand the different persistence between accrual and cash flow component of earnings, considered to be naïve investors. A lower persistence of accruals determines a lower persistence of earnings, especially when earnings are driven by accruals.

By this study, we provided a full perspective and a comprehensive overview in the accruals anomaly literature. We conducted an updated version of the literature regarding the accruals anomaly situation through three dimensions: emergence, expansion and explanations. The literature contains a handful of studies that use the context of accruals anomaly apparition or genesis to provide empirical motivation for its occurrence. We accomplished a detailed presentation of methods used to compute accruals and we offered an analytical comparison of these methods. Further, through a critical introspection of the research methodologies from accruals anomaly literature, we aimed to facilitate the choices for the construction of our final research design. Finally, we applied these methodologies on countries from European capital market, reiterating the idea that accruals anomaly is not a phenomenon met only in US, but rather wherever exists an accruals accounting system.

The most important feature of accruals anomaly relies on its robustness to different research design changes, samples or estimation specifications. The current research provided evidence that accruals anomaly is robust to a variety of tests including sample characteristics (annual and quarterly data, US and outside US firms), returns measurements, control variables, interaction with other variables, although it may be sensible to accruals definitions, treatment of outliers or the dimension of portfolio returns. The empirical research has confirmed that accruals anomaly is a pervasive anomaly that exists around the globe no matter the legal system or similarities with US capital market.

Other contextual issue that has generated many debates in accruals anomaly literature is related to accruals quantification. The most used method is the balance sheet method proposed by Sloan (1996) defined as non-cash working capital and depreciation, which was followed by other complex measures. Subsequent research has focused on cash flow method proposed by the controversial study of Hribar and Collins (2002) which supports that balance sheet method suffers by measurement biases and can affect the earnings management tests. Sensitivity tests are robust regarding both the balance sheet method and the cash flow method.

The evolution of the accruals anomaly research was related to researchers' attempt in providing explanation for the occurrence of accruals anomaly by offering new perspectives to the estimation of Mishkin (1983) test. We performed a critical examination of the extensions of Mishkin test by various studies and we noticed that developing Mishkin test by adding new variables in the model, by dividing the firms in smaller groups or by following other estimations enhance the results, providing insightful information about the occurrence of accruals anomaly. We observed that all the studies that we reviewed which apply Mishkin test, either in the original or in the modified form, confirm the presence of accruals anomaly on different samples, strengthening the power of the Mishkin test. All the papers that apply Mishkin test complement it with a hedge portfolio strategy to confirm the presence of accruals anomaly. As the current literature of accruals anomaly has extended, researchers have implemented the hedge strategy in different ways, requiring a critical analysis of the new dimensions offered to hedge strategy. The hedge return test can determine positive abnormal returns even larger when the hedge strategy is applied on intersection or combined portfolios of various variables.

Our thesis investigated the existence of accruals anomaly in developed European countries by comparing the results from constrained and unconstrained companies. The level of financial constraint is measured through the total debt to common equity ratio. Our main contribution to the research evidence was to innovatively examine the impact of financial constraints on accruals anomaly and the effect of accruals anomaly on low/high dividend companies. We follow to observe whether accruals anomaly is dependent on financial constraints, especially if there is higher evidence in more constrained companies. Our results confirm our hypotheses that a higher level of financial constraints indicates the presence of accruals anomaly, following high dividend companies. Through our empirical analysess we contribute to the current evidence of accruals anomaly outside US capital market and provide insights to the type of companies that are more predisposed to accruals anomaly. Our tests are complemented by a hedge strategy which confirms our hypothesis and are validated by several robustness tests. We also show that there are other factors on the level of a company that can determine accruals anomaly like earnings management corroborated by country factors that can sustain the occurrence of accruals anomaly like legal system, legal enforcement or accruals index.

Contributions

The main contributions of our thesis are highlighted as follows:

- An updated review of accruals anomaly literature from three perspectives: emergence, expansion and explanation;

- Analysis of the development of research methodologies from accruals anomaly literature;
- The extension of Mishkin test by the inclusion of an interaction variable in the model;
- The examination of the effect of dividend yield on accruals anomaly;
- The estimation of the impact of financial constraints on accruals anomaly;
- The analysis of accruals anomaly in European capital market on a recent period;
- Determination of cross-sectional factors that can influence accruals anomaly;
- The effect of country factors in the occurrence of accruals anomaly;
- Validation of the results by several robustness tests.

Policy implications

Through our research, we want to offer insightful information about the accruals anomaly and why this phenomenon should not be neglected. Understanding that accruals anomaly is a phenomenon that occur world widely, in different circumstances, can improve investors' actions and enhance the capital market efficiency. We present below the implications of our results:

- No more naïve investors. The principal category of stakeholders affected by accruals anomaly is investors; they should predict investments based on accruals and cash flow components of earnings and understand that accruals persistence is different than cash flow persistence;
- Hedge trading strategy based on short position in high accruals firms and long position in low accruals firms can bring positive abnormal returns in companies which are more constrained;
- Accruals anomaly is influenced by the level of financial constraints; more constrained financial companies are more likely to be exposed by accruals anomaly. Thus, investors should take care when invest in more constrained companies.

- Accruals anomaly can occur due to earnings management, investors should be aware of the signs of earnings management, especially a stronger effect of discretionary accruals;
- Analysts should include in their forecasting accruals in order to determine investors to look to accrual component of earnings and thus lead to a lower level of accruals mispricing.
- Managers should contribute to a better disclosure of information based on accruals to help investors understand the role of accruals.
- Regulators should also be involved in a higher disclosure of information and should determine companies to divulgate more on accruals.

Further research

In addition to consolidate our research, we would like to apply our estimations on quarterly data and estimate abnormal stock returns through the Fama-French three factor models with an extension that should include dividend yield and financial constraints in the estimation. We have realized that it would be interesting to investigate the impact of accruals anomaly on the intersection of high versus neutral groups and low versus neutral groups of different financial distress proxy as total debt to capital ratio, long debt to capital ratio, total debt to common equity ratio or financial leverage instead of low and high companies. New perspectives in this area are offered by the use of an alternative and complex method for sample estimation procedure, called k-mean clustering. K-mean is a method used for cluster analysis in data mining and has been recently used in various accounting studies (Boonlert et al., 2006). There are some recent papers (Dyczkowska, 2010; Höglund 2013; Ecker et al., 2013) that have tried alternative methods for grouping the companies, in order to obtain better results. We consider that it would be interesting to analyse whether firms grouped by k-mean clustering based on several variables which proxy for financial distress would perform similarly with our results or provide stronger results. Also, we would like to investigate the existence of accruals anomaly at firm level following Strydom et al. (2014) approach which can be applied to smaller samples and offers insights whether accruals are overpriced or underpriced.

The limits of our research are connected with our future research as follows. There is a need for alternative methods to estimate abnormal returns, like the Fama-French three factor in order to strengthen robustness. Also, the increased number of missing data for some companies forced us to apply Mishkin test on a small number of observations which may cause biases in estimation. Thus, we intend to estimate the model proposed by Strydom et al. (2014) at firm level to increase the power of our results in the samples where we have small number of observations. To vanish the limits of our research further research is needed.

Through this intensive study, we intended not only to make a critical interpretation of the current research and methodologies by clustering the literature in key topics, but to apply the research methodology in order to contribute to the current evidence of accruals anomaly.

We accomplished in an analytical and empirically approach a different overlooking to the problem of accruals anomaly in important chapters. This scientific discussion highlighted the important challenges generated by accruals anomaly in a global capital market for investors, for companies, and why not, for regulators. Therefore, our results help us reiterate the idea that accruals anomaly is one of the most robust and pervasive anomalies from capital market research.

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