Accounting Accruals and Stock Returns:

Evidence from European Equity Markets

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Abstract: In this paper, I show a generalizability of the negative relation of traditional accruals and percent accruals with future returns in eleven countries of the European Union. Positive abnormal returns from hedge portfolios on both accrual measures summarize the economic significance of this generalizability, while the magnitude of returns is higher for traditional accruals (in contrary with current evidence from the U.S. capital market). The magnitude of the accrual effect on stock returns based on both accrual measures is stronger in countries with higher individualism, higher equity-market development and lower concentration ownership. Equity-market liquidity has a positive impact only on the accrual effect based on traditional accruals, while shareholder protection and permission to use accrual accounting have a positive impact only on the accrual effect based on percent accruals. Nevertheless, legal origin and earnings opacity do not exhibit a significant influence. Overall, the paper suggests inability to adjust for potential managerial empire building tendencies and/or overconfidence & self attribution bias about a firm's investment opportunities as underlying driving forces of the accrual anomaly.

Keywords: traditional accruals, percent accruals, stock returns, european equity markets

JEL Descriptors: M41

1. Introduction

The accrual anomaly, first documented by Sloan (1996), refers to the negative relation between working capital accruals and stock returns. Investors tend to overestimate accruals when forming earnings expectations and are systematically surprised when accruals turn out to have low persistence in the future. Further, Sloan (1996) shows that hedge trading strategies constructed by purchasing low-accrual firms and selling high-accrual firms generate positive risk-adjusted returns. Subsequent research in the U.S. capital market, presents extensive evidence on the robustness of the accrual anomaly, but consensus has not been yet reached on what causes the accrual anomaly.

Pincus et al. (2007) in a novel paper, investigate the accrual anomaly in an international setting. They show that accruals' overweighting occurs outside the U.S. capital market (Australia, Canada and U.K.), and its occurrence is associated with specific accounting and institutional factors (legal tradition, shareholder protection, permission to us accrual accounting and ownership concentration). Further, they provide some preliminary evidence on the magnitude of the accrual effect on stock returns throughout the world. Regarding the underlying cause of the global accrual anomaly, Pincus et al. (2007) conclude that it is driven by earnings management and barriers to arbitrage.

My motivation in this paper, similarly with other studies documenting evidence on the generalizability of market anomalies (see for example Fama and French 1998, McLean et al. 2009, Pincus et al. 2007, Rouwenhorst 1998, Titman et al. 2011) is to provide evidence about the occurrence and the magnitude of accrual anomaly worldwide. In particular the objective of the paper is threefold. (1)

investigate the possible occurrence and economic significance of the negative relation between accounting accruals and stock returns; (2) examine whether the magnitude of accrual effect on stock returns could be linked with important country-level factors[1]; (3) distinguish between possible underlying forces of the accrual anomaly.

My study differs from Pincus et al. (2007), at least in three ways. First, I consider total accruals scaled by average total assets and total accruals scaled by absolute earnings as accrual measures in my analysis. Prior research by Richardson et al. (2005) and Hazfalla (2011) in the U.S. capital market, suggests that the magnitude of the accrual anomaly based on both measures is substantially higher than that based on working capital accruals. Second, I examine whether the magnitude, and not just the occurrence, of the accrual effect on stock returns could be affected by fundamentals factors of each country. Third, my work is conducted on a sample of 16 countries of the European Union (EU) prior to its enlargement in 2004 and thus, focuses on a set of countries with developed economies[2], high legal-tradition harmonization[3] and high accounting harmonization (see Van Hulle, 2004)[4].

The remainder of the paper is organized as follows. Section 2 expands on the development of the hypotheses and presents the research design; Section 3

[1] For convenience, "country" and "market" are used interchangeably in the paper.
[2] According to the International Monetary Fund (IMF) all countries of the European Union (EU) prior to the 2004 enlargement are identified as advanced economies. Further, all countries are OECD members. According to International Financial Corporation of the World Bank Group among these countries only Greece and Portugal are characterized as emerging economies, while these countries along with Ireland request a bailout loan package from EU and IMF during the recent financial crisis.
[3] European Union prior to the 2004 enlargement consists mainly of code-law countries. Only, Ireland and United Kingdom are common-law countries. Ball et al. (2000) argue that legal-tradition is a very important country-level characteristic in institutional structures. In code law countries, asymmetric information between stakeholders and firm executives is lower than in common law countries and thus, *a priori*, one could expect a better understanding of the implications of earnings and earnings components for future firm performance (see Pincus et al. 2007).
[4] Burgstahler et al. (2006) argue that accounting standards across European Union member states are fairly similar, though not necessarily equal in every respect.

provides details about data, sample formation and variable measurement; section 4 critically discusses empirical results. Finally, I offer some concluding remarks in section 5.

2. Hypothesis Development and Research Design

Sloan (1996) in a seminal paper shows that the accrual component of earnings is negatively associated with subsequent stock returns. Sloan (1996) interprets his finding as evidence of investors' naïve fixation on earnings and failure to understand the lower persistence of accruals; investors overweight the lower persistence of accruals and consequently overprice accruals. The negative relation of accruals with future returns has come to be known as the accrual anomaly. Sloan (1996) summarizes the economic significance of the accrual anomaly through the exhibition of positive abnormal returns on hedge trading portfolios consisting of a long position on firms with low accruals and a short position on firms with high accruals.

Sloan (1996), examines a sample of NYSE/AMEX firms over the period 1962-1991 and calculates abnormal returns through the CAPM (i.e., one factor alphas) and a characteristic-based benchmark approach that controls for the risk premium associated with firm size (i.e., size-adjusted returns). Subsequent research based on U.S. data, shows that Sloan's (1996) findings are robust to more recent sample periods (Lev and Nissim 2006), the inclusion of Nasdaq firms (Lev and Nissim, 2006) and considerations of additional risk factors (Chan et al. 2006 and Hirshleifer et al. forthcoming).

In all above-mentioned studies, accruals are measured as working capital accruals scaled by contemporaneous average total assets. Following Healy (1985), working capital accruals are defined as the change in net working capital (i.e., net current operating assets) less depreciation expense. However, this measure is narrow since it ignores long-term accruals (i.e., accruals relating to net noncurrent operating assets). To address this issue, Richardson et al. (2005) include long-term accruals to the definition of accruals and find that the extended measure of total accruals improves the magnitude of size-adjusted returns on accrual-hedge portfolios by more than 40%.

Recently, Hafzalla et al. (2011) show that a significant improvement on the performance of accrual-hedge portfolios can be achieved when working capital accruals or total accruals are scaled by the absolute value of earnings instead of the mean value of total assets. Hafzalla (2011) label accruals scaled by the average total assets as “traditional” accrual measures and accruals scaled by the absolute earnings as “percent” accrual measures, and argue that latter measures reflect more accurately investors’ misunderstanding of the reverting nature of accruals. In particular, Hafzalla et al. (2011) provide evidence that the hedge size-adjusted return on percent total accruals is more than 45% larger to the respective return on traditional total accruals, while the hedge size-adjusted return on percent working capital accruals is about 75% larger to the respective return on traditional working capital accruals.

While, there is extensive evidence on the robustness of the accrual anomaly in the U.S. capital market, the underlying driving force of the anomaly is far to be resolved. Several non risk-based, but not mutually exclusive explanations, can be

put forward in order to interpret the accrual anomaly.[5] The most common line of thought follows the conjecture of Sloan (1996) that the anomaly arises from investors' naïve fixation on earnings and a failure to anticipate the lower persistence of accruals. In this line, extrapolative biases concerning future growth (see Bradshaw et al. 2001) and/or inability to adjust for potential earnings management (see Chan et al. 2006, Dechow and Dichev 2002, Richardson et al. 2005, Xie 2001) can be considered as possible driving forces.

Other studies follow the hypothesis that the anomaly is driven from investors' misunderstanding of diminishing marginal returns to new investment and/or overinvestment. In this line, overreaction to past growth can be considered as underlying driver of the accrual anomaly (see Fairfield et al. 2003 and Zhang 2007). At the same time, inability to adjust for potential managerial empire building tendencies and/or overconfidence & self attribution bias about a firm's investment opportunities can be also considered as possible driving forces (see Dechow et al. 2008). A third stream of the literature follows Mashruwala et al. (2006) who hypothesize that it risky and costly for arbitrageurs to find close substitutes for mispriced stocks and thus, the accrual anomaly can not fully arbitraged away. In this line, barriers to arbitrage such as high idiosyncratic volatility, high transaction costs and high stock liquidity can be considered as possible underlying sources of the accrual anomaly.

Pincus et al. (2007) contributes to the growing literature on the accrual anomaly, by providing evidence that the market overweights the lower persistence of working capital accruals on three capital markets outside U.S.: Australia, Canada and U.K. Notably, Pincus et al. (2007) show an underweighting of accrual

[5] The rational (i.e., risk-based) explanation suggests that low-accrual firms are fundamental riskier than high-accrual firms and thus, are priced to yield higher expected returns (see Khan 2006 and Wu et al. 2010)

persistence in Germany, Malaysia, Singapore, Spain and Indonesia. They also show that accruals' overweighting is more likely to occur in countries with a common law tradition, higher allowance of accrual accounting and lower concentration of share ownership. For shareholder protection, an important characteristic in international studies concerning the generalizability of asset pricing regularities, findings are controversial: accruals' overweighting is more likely to occur in countries with weaker outside shareholder rights and less likely to occur in countries with stronger legal enforcement.

Further, Pincus et al. (2007) provide out-of-U.S. sample evidence about the profitability of trading strategies on working capital accruals. Based on regressions estimated with decile-ranks of accruals[6], they show that significantly positive size-adjusted returns can be earned from an accruals' overweighting strategy in Australia, Canada and U.K. They also show that significantly positive size-adjusted returns can be earned from an accruals' underweighting strategy in Indonesia and Singapore. Pincus et al. (2007) conclude that the accrual anomaly may arise from earnings manipulation and limits to arbitrage.[7]

Recognizing that the accrual anomaly is not just a freak occurrence in the U.S. forms my essential motivation to examine the accrual anomaly in european capital markets setting. The first objective of my research is to investigate the possible occurrence and economic significance of the negative relation between accounting accruals and stock returns. In particular, I examine whether total accruals scaled by

[6] Desai et al. (2004) and Pincus et al. (2007) argue that under this regression approach, zero-investment portfolios are constructed by taking long (short) in firms within the lowest (highest) decile of accruals.

[7] In a recent study, Leippold and Lohre (2012) show that hedge trading portfolios on working capital accruals can generate significantly positive raw returns in Australia and UK, but not in Canada, Indonesia and Singapore. Among these countries, they document significantly positive risk-adjusted alphas from the Fama – French (1993) three-factor model on hedge portfolios only for Australia. Additionally, they show that hedge raw and risk-adjusted alphas are both positive and statistically significant in Hong Kong, Denmark, Germany, Italy, Japan and Switzerland. France exhibit significant raw returns and insignificant alphas, while South Korea and Thailand exhibit the opposite pattern.

average total assets (traditional accruals, hereafter) and total accruals scaled by absolute value of net income (percent accruals, hereafter) are negatively related with future returns in 16 major european equity markets: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the U.K. Then, I assess the return-performance of portfolios on traditional accruals and percent accruals.

In this way, I extend the work of Pincus et al. (2007) who consider in their analysis only working capital accruals scaled by average total assets as basic accrual measure. Based on Richardson et al. (2005), traditional accruals are more properly defined than working capital accruals in that they incorporate the investment in net long-term assets. Richardson et al. (2005) using U.S. data, demonstrate that by using traditional accruals one can obtain larger hedge abnormal returns than those obtained from working capital accruals. According to Hafzalla et al. (2011), percent accruals are superior to traditional accruals in identifying mispriced stocks in that they successfully rank observations that are more extreme into the extreme portfolios than do traditional accruals. Hafzalla et al. (2011) provide evidence from the U.S. capital market that percent accruals produces higher excess returns than traditional accruals. These issues raise important questions about whether and how traditional and percent accruals are related with future returns outside the U.S. stock market. Does the negative relation of traditional and percent accruals with future returns occurs in european capital countries? Which is the economic effect from this possible relation? The first testable hypothesis of the paper is as follows:

H1: The negative relation of traditional and percent accruals with future returns can be generalized in european capital markets.

The hypothesis is examined through regressions of future size and book to market adjusted returns (i.e., abnormal characteristic-adjusted returns) on traditional and percent accruals, after controlling for size and book to market ratio. Further, I investigate the magnitude of future raw and abnormal returns generated from hedge portfolios formed on traditional and percent accruals.

The second objective of the study is examine whether the magnitude of accrual effect on stock returns could be linked with differences in important country-level factors. In particular, I consider seven country-level characteristics that, *a priori*, could affect differently the magnitude of hedge abnormal returns earned from traditional and percent accruals. These are: cultural environment, equity market development, shareholder protection, permission of accrual accounting, earnings opacity, ownership concentration and limit to arbitrage. My work differs from that of Pincus et al. (2007) in two ways: First, Pincus et al. (2007) examines whether the occurrence of accruals' overweighting is associated with several country-level characteristics. Second, Pincus et al. (2007) focus on a set of international stock markets. Instead, I focus on set of european stock markets that are likely to be developed economies and to enjoy high legal-tradition and accounting harmonization.[8]

Starting with cultural environment, I rely on social psychologists who argue that in individualistic (collectivistic) cultures people tend view themselves less (more) connected to the social context and more (less) differentiated from others

[8] Pincus et al. (2007) focus on sample that consists of: Australia, Canada, U.S., eight asian capital markets and nine european capital markets.

(see Markus and Kitayama, 1991). Further, in individualistic cultures people think more positively about themselves and focus on their own internal attributes (see Markus and Kitayama, 1991). As a result, there is a positive link between individualism and overconfidence & self attribution bias. Chui et al. (2010), provide empirical evidence for this link. Note also, that based on Heaton (2002), overconfidence can also lead to overinvestment. Thus, it is reasonable to expect a positive relation between individualism and the magnitude of hedge abnormal returns attributable to accruals. My second hypothesis is:

H2: The accrual effect on stock returns is stronger in countries with higher individualism.

Watanabe et al. (2011) argue that the effects of the effects of decreasing return to scale should be more (less) visible in more (less) developed markets due to easier access to external financing (financing constraints). In a similar vein, Titman et al. (2011) argue that the degree of equity-market development may be positively associated with managerial overinvestment tendencies. Firm executives in countries with more developed capital markets are more likely to invest due to the easiness of their access to external markets, than firm executives in countries with less developed external capital markets.

According to Alford et al. (1993) and Ali and Hwang (2000), earnings are more (less) value relevant in more (less) developed equity markets. Heron and Lie (2004), Rangan (1998) and Teoh et al. (1998) argue that managers often opportunistically manipulate earnings around periods in which they raise equity financing. As a consequence, firm executives may have higher (lower) motives to

engage in earnings management in more (less) developed equity markets with easier to external financing (constraints in external financing). Thus, I predict a positive relation between equity market development and the magnitude of hedge abnormal returns attributable to accruals. My third hypothesis is:

H3: The accrual effect on stock returns is stronger in countries with higher equity - market development.

There is substantial evidence in the literature suggesting that a positive link between investor protection and corporate governance. Strong investor protection and corporate governance mechanisms may reduce managerial tendency to overinvest and managerial ability to manipulate earnings. Thus, one can expect a negative relation between shareholder protection and the accrual effect on stock returns. Nevertheless, John et al. (2008) show a positive relation of investment activities by firm executives with investor protection mechanisms or corporate governance. This implies a positive impact of investor protection on the magnitude of the accrual effect on stock returns. Thus, while I include in the analysis shareholder protection as an important country-level characteristic, I do not make any hypothesis about its influence on the accrual effect.

For the extent of accrual accounting usage, one needs to recognize that the bottom-line earnings number reported in the income statement is the result of an extended accounting process with considerable room for managerial discretion at every step. Hung (2001) argues that within countries that allows a higher use of accrual accounting, motives for earnings management by firm executives are higher. Hence, the degree of allowance to use accrual accounting is expected to be

positively with the magnitude of hedge abnormal returns attributable to accruals. This leads to the following hypothesis:

H4: The accrual effect on stock returns is stronger in countries that allow a higher use of accrual accounting.

Bhattacharya et al. (2003) define the earnings opacity of a country "as the extent to which the distribution of reported earnings in that country fails to provide information about the distribution of the true, but unobservable, economic earnings in that country". They argue that, at least, three factors could affect earnings opacity: earnings management, accounting standard setting and the enforcement of accounting standards (i.e., audit quality). Thus, to the extent that earnings opacity is subject to managerial discretion, one can expect a positive impact of earnings opacity on the magnitude of hedge abnormal returns attributable to accruals. This leads to the fifth hypothesis:

H5: The accrual effect on stock returns is stronger in countries with higher earnings opacity.

Warfield et al. (1995) argue that as the concentration of share ownership decreases, investors focus more in financial statements to minimize asymmetric information between firm executives and equity market participants. Indeed, as investors rely more on reported accounting figures, managers may have greater motives to engage in earnings manipulation. On the other hand, as the concentration of share ownership increases, owners are more likely to be insiders,

and thus, have a greater access to information about a firm's "true" underlying economic condition: quality of accounting numbers, managerial investment incentives, strength of investment opportunities. Therefore, it is reasonable to expect a negative association between ownership concentration and the magnitude of hedge abnormal returns attributable to accruals. This leads to the following hypothesis:

H6: The accrual effect on stock returns is stronger in countries with lower ownership concentration.

The final characteristic used in my analysis is equity-market liquidity since it could be associated with higher barriers to arbitrage. High liquidity in equity markets implies that stock prices stay closer to fundamental values due to lower arbitrage cost. Thus, liquidity is expected to be positively related with magnitude of hedge abnormal returns attributable to accruals. This leads to the final hypothesis:

H7: The accrual effect on stock returns is stronger in countries with higher equity-market liquidity.

In order to test my cross-country hypotheses about fundamental factors associated with the magnitude of the accrual effect on stock returns, I consider regressions of abnormal returns earned from country-specific hedge portfolios (formed on traditional and percent accruals) on country-level characteristics, after controlling for the level of size and book to market ratio in each country. Further, I

assess the performance of the magnitude of future abnormal returns earned from hedge portfolios formed on traditional and percent accruals, conditional on the level of selected country-level characteristics.

The third objective of the paper is to distinguish between possible underlying forces of the accrual anomaly. The current evidence on what causes the negative relation between accruals and stock returns in the U.S. capital market is still inconclusive. Importantly, my analysis on the relation of country-level characteristics with the magnitude of the accrual effect on stock returns could help in distinguishing among possible driving forces of the accrual anomaly, in a european capital markets setting. If inability to adjust for potential earnings management is the driving force, the accrual effect on stock returns should be stronger among countries with higher accrual usage allowance, higher earning opacity and weaker shareholder protection. If overconfidence is the driving force, the accrual effect should be found stronger among countries with higher individualism. A similar prediction applies, if the underlying source is inability to adjust for potential empire building incentives.

Notably, if the accrual anomaly arises from at least one of the above mentioned sources, the accrual effect on stock returns is expected to be stronger among markets with higher equity-market development and lower ownership concentration, since suboptimal behavior by firm executives such as earnings manipulation and overinvestment may be more prevalent in these markets. At the same time, investor protection is predicted to be negatively associated with managerial bookkeeping mischief, while the relation of investor protection with managerial investment discretion is unclear; it can be negative or positive. Further, if the accrual anomaly is associated with limits to arbitrage, then the accrual effect

on stock returns should be stronger in countries with higher equity-market liquidity.

3. Data, Sample Formation and Variable Measurement

Data for firm-level accounting and market variables are obtained from Worldscope and Datastream International provided by Thomson Financial and cover all listed firms from 1988 to 2009 for countries of the European Union prior to its enlargement at 2004. In particular, the European Union, before this enlargement, consists of the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the U.K. However, Luxembourg is excluded from the sample since the average percentage of foreign firms listed on Luxembourg stock exchange amounts up to 82% between 1995 and 2008.

I select non-financial common stocks that are listed on the major stock exchange in each country from both active and defunct research files of Worldscope and Datastream in order to avoid the survivorship bias. I exclude, closed-end funds, trusts, ADRs, REITs, units of beneficial interest, other financial institutions and foreign firms.[9] I also exclude firm-year observations with negative book value of equity or with no valid data to calculate accrual measures, market capitalization and book to market ratio. All firm-level accounting and market variables are expressed in U.S. dollars.[10]

[9] I also perform initial data screenings for basic coding errors via the methods outlined in Ince and Porter (2006).

[10] All results remain qualitatively similar when I repeat the analysis using the local-currency converted firm-level variables for all countries.

Traditional and percent accruals are calculated through the indirect (balance) method. In particular, the numerator on both accrual measures is equal to the annual change in net operating assets (NOA). Net operating assets are equal to the difference between operating assets (OA) and operating liabilities (OL). Operating assets are calculated as the residual amount from total assets after subtracting cash & cash equivalents (i.e., financial assets), and operating liabilities as the residual amount from total assets after subtracting minority interest, preferred stock, total debt (i.e., financial liabilities) and total common equity, as follows:

$$OA_t = TA_t - CASH_t \quad (1)$$

where:

- TA_t: Total assets (Worldscope data item 02999).
- $CASH_t$: Cash and cash equivalents (item 02001).

$$OL_t = TA_t - MINT_t - TD_t - OPS_t \quad (2)$$

where:

- $MINT_t$: Minority interest (item 03426).
- TD_t: Total debt (item 03255).
- OPS_t: Ordinary and preferred shares (item 03995).

$$NOA_t = OA_t - OL_t \quad (3)$$

Traditional total accruals (TACC) are measured as the annual change in NOA scaled by contemporaneous average total assets (AVTA) and percent total accruals (PACC) are measured as the annual change in NOA scaled by the absolute value of net income (NI):

$$TACC_t = \frac{\Delta NOA_t}{AVTA_t} \quad (4)$$

$$PACC_t = \frac{\Delta NOA_t}{|NI_t|} \quad (5)$$

where:

- NI_t: Net Income (item 01551).

Market capitalization (MV, item 08001) is measured six months after the financial year-end (e.g. June). Book to market ratio (BV/MV) is defined as the ratio of the financial year-end book value of equity (item 03501) to the market capitalization. I also use the natural logarithm of market capitalization (SIZE) and the natural logarithm of book to market ratio (BM). Consistent with previous research, TACC, PACC, SIZE and BM are winsorized at the top and bottom 1% of their distribution within each country.

Stock returns are calculated inclusive of dividends using the return index provided by Datastream (item RI), which is defined as the theoretical growth in the value of a share holding unit of equity at the closing price applicable on the ex-dividend date. The raw equity return for a firm at month j is calculated as: $r_j = \frac{RI_{j+1}}{RI_j} - 1$. In order to eliminate extreme outcomes from the calculation of monthly raw returns, I impose the following filters: i) following Ince and Porter (2006), I delete all the zero returns from the last observation to the first observation with non-zero return; ii) following Ince and Porter (2006), I set the returns of two consecutive months as missing if an increase over 300% at month and a decrease more than 50% is observed; iii) following McLean et al. (2009), I trim monthly returns at the top and bottom 1% of their distributions within each country.

Once, I get firm-monthly returns, I calculate one-year ahead annual raw stock return (RET_{t+1}) using compounded 12-monthly buy-and-hold returns. The 12-

month return cumulation period begins six months after financial year-end. For the measurement of abnormal returns, I follow the approach based on the matching return to the benchmark portfolio based on market capitalization and book-to-market ratio (i.e., characteristic-based benchmark approach). In this way, returns are adjusted for size and book to market effects.[11] In particular, the one-year ahead annual abnormal return ($ARET_{t+1}$) is calculated as follows. Each year, firms are first sorted into four quintile portfolios by market capitalization (MV) and in each of the resulted quintile portfolios are further sorted into other four quintile portfolios by the book-to-market ratio (BV/MV). This procedure results in 16 benchmark portfolios and the matching return is the annual one-year ahead weighted average return of all firms in the benchmark portfolio. Then, the abnormal return ($ARET_{t+1}$) for a firm is the difference between the raw return (RET_{t+1}) and the matching return of the benchmark portfolio to which the firm belongs. If a firm delists during the period, then the last available return index (RI) before delisting is used to calculate the delisting return and the proceeds are reinvested into the benchmark portfolio.

All the above mentioned criteria on data collection, sample formation and variable measurement yield a final sample that consists of 62,019 firm-year observations (i.e., equivalent to 744,228 firm-month observations) with non-missing financial statement and stock market firm-level variables. Note that, I require each country to have at least 30 stocks in any year during the sample period, in order to ensure a reasonable number of firms for the portfolio and regression tests. Appendix A provides details about the final sample, while Appendix B provides the definition of firm-level variables. As expected, the U.K.

[11] Fama and French (2008) argue that size and book to market-adjusted returns are almost similar to factor alphas from the Fama-French (1993) three-factor model.

equity market represents the largest part of the overall sample, accounting for about 32% of the total firm-year observations. France is the second largest and Germany is the third largest, accounting for about 14.5% and 12% of the total observations, respectively. Austria, Ireland and Portugal belong to the smallest part of the overall sample, with each country accounting for about 1.5% of the total firm-year observations. Each of the remaining countries typically account for less than 6% of the total firm-year observations.

Data for country-level characteristics are taken from various publicly available sources. As a measure of individualism, I use the index constructed and extended by Greet Hofstede (1980, 2001). The individualism index (IDV) is based on a psychological survey of IBM employees in 72 countries and included about 88,000 responses. The value of the index is calculated from the country mean scores on 14 questions about the employees' attitudes towards their work and private lives and ranges from 0 to 100. A high value of the index indicates a high level of individualism. Chui et al. (2010) use the individualism index to study the momentum anomaly in an international setting, while Titman et al. (2011) to study the asset growth anomaly in an international setting. Data for individualism index are taken from the website of Hofstede (http://geert-hofstede.com).

For equity market development I use two proxies: the access-to-equity market index (ACCESS) and the importance-of-equity market index (IMP). The access-to-equity index is based on annual surveys, published at *Global Competitiveness Report* from 1999 to 2006, about the ability of firms to raise equity in local stock markets. The survey question is the statement "stock markets are open to new firms and medium-sized firms and responses by firm executives to the statement are scaled from 1 (strongly agree) to 7 (strongly disagree). A high value of the

index indicates better and easier access to equity markets. Data for the access-to-equity market index is taken from LaPorta et al. (2006) as the average of the annual scores for the period 1999-2006. The importance-of-equity market index (IMP) is the average of the ratio of stock market capitalization held by small shareholders to gross domestic product for the period 1996-2000. A high value of the index indicates a high level of equity market importance. Both measures of equity market development are used by Titman et al. (2011) to examine the international asset growth anomaly and by Watanabe (2009) in investigating the relation between the international value/growth anomaly and the international asset growth anomaly. Data for the importance-of-equity market is taken from LaPorta et al. (2006).

For shareholder protection, I also consider two proxies: the legal origin of a country (LEG) and the anti-self dealing index (ANTISELF). In particular, I create an indicator on a country's legal origin, equalling 1 for a country with English, German and Scandinavian origin and 0 for a country with French origin. This indicator is based on findings of Gugler et al (2003, 2004) and LaPorta (2002) that French origin countries are less effective in corporate governance than English, German and Scandinavian countries. The anti-self dealing is developed by Djankov et al. (2008) for 72 countries and represents the protection of minority shareholders against self-dealing transactions. It is an average of ex-ante and ex-post private control of self-dealing. As argued, this index is a more appropriate measure than the anti-director index constructed by LaPorta et al. (1997, 1998). The anti-self dealing index takes values from 0 to 1, with higher values indicating stronger shareholder protection. Titman et al. (2011) and Watanabe et al. (2011) consider the anti-self dealing index as a measure of shareholder protection in their

studies on the global asset growth anomaly, while Watanabe (2010) on a study about the global external financing anomaly. Data for a country's legal origin and the anti-self dealing index can be found in Djankov et al. (2008).

As proxy of the degree of allowance of accrual accounting, I use the accrual index (ACCI) developed by Hung (2001). It is an equally weighted index of 11 accrual-related accounting standards, where countries are ranked based on the existence of specific accrual standards.[12] The higher the index, the higher the use of accrual accounting in a country is permitted. Pincus et al. (2007) consider the accrual index in examining the global accrual anomaly. Data for the index are given in Hung (2001).

Turning to earnings opacity, I consider the earning quality index (EOP) developed by Bhattacharya et al. (2003). This index is an average across three indices associated with earnings aggressiveness, loss avoidance and earnings smoothing. A high value of the index indicates a high level of earnings opacity. To my knowledge, this is the first paper that uses earnings opacity to investigate market anomalies in an international setting. Data for the index are available in Bhattacharya et al. (2003).

The median percentage of common shares owned by the three largest shareholders in the ten largest nonfinancial firms is used as ownership concentration proxy (OWCR). As proxy of equity-market liquidity (LIQ), I use the total value of stocks traded as a percentage of GDP averaged over 1996-2000. Pincus et al. (2007) consider ownership concentration in investigating the global accrual anomaly, while Watanabe (2009) consider equity-market liquidity in

[12] In particular, Hung's (2001) accrual intensity index is based on accounting standards associated with goodwill, equity method, deprecation and accelerated depreciation, purchased intangibles, internally developed intangibles, research and development costs, interest capitalization, lease capitalization, allowance of the percentage of completion method, pension accounting, and accounting for other post retirement benefits.

investigating the relation between the international value/growth anomaly and the international asset growth anomaly. Data for both proxies are given by LaPorta et al. (2006). Appendix C summarizes the definition of all country-level characteristics.

4. Results

4.1. Summary Statistics on Traditional and Percent Accruals

Table 1 reports summary statistics for accrual measures. Panel A provides univariate statistics (mean, median, standard deviation). Starting with traditional accruals, the mean value of TACC is the highest (0.104) in Greece and the lowest in Switzerland (0.037). Similarly, the median value of TACC is the highest (0.096) in Greece and the lowest in Switzerland (0.033). Ireland and Norway exhibit mean values of TACC close to that of Greece, while Germany and Netherlands exhibit median values of TACC close to that Switzerland. The mean value of TACC across the rest sample of countries ranges from 0.052 to 0.074, while the median value of TACC ranges from 0.04 to 0.069. Ireland, Norway, Sweden and U.K. exhibit the higher standard deviations of TACC of about 0.23, while Austria, France, Italy and Switzerland the lower standard deviations TACC of about 0.15. Standard deviation of TACC across other countries range from 0.16 to 0.196. The country-average mean, median and standard deviation of TACC is 0.066, 0.049 and 0.186, respectively. When all countries are considered together, univariate statistics are almost similar to the country-averages.

Turning to percent accruals, Greece is the country with the highest mean, median and standard deviation of PACC: 7.06, 1.988 and 27.92, respectively. Italy and Norway, as Greece, exhibit high standard deviations: 23.392 and 21.185, respectively. Netherlands is the country with the lowest mean value of PACC (0.84). U.K. has the lowest median value (0.488). Netherlands has the lowest standard deviation of PACC (5.605), followed by U.K. (8.125). Accross other countries, the mean value of PACC ranges from to 1.078 to 5.125, while the median value of PACC ranges from 0.519 to 1.163. Standard deviation of PACC across other countries ranges from 9.823 to 16.21. The country-average mean, median and standard deviation of PACC is 2.768, 0.856 and 14.335, respectively. When all countries are considered together, the mean, median and standard deviation of PACC is 2.408, 0.677 and 13.565, respectively. Overall, findings in Panel A reveal a substantial variation of traditional and percent accruals across countries, and confirm Hazfalla (2011) findings that percent accruals are more extreme measures than traditional accruals.

Panel B presents pair-wise correlations - Pearson (above diagonal) and Spearman (below diagonal) between TACC and PACC. Starting with Pearson correlations, Netherlands has the highest correlation of about 0.61, followed by Switzerland and U.K with a correlation around 0.555. Greece has the lowest correlation between TACC and PACC of about 0.363, followed by Italy, Norway and Finland with a correlation around 0.42. Across other countries, correlation between TACC and PACC ranges from 0.442 to 0.526. The average-correlation is about 0.482, while when all countries are consider together the correlation lowers to 0.427

Spearman correlations are noteworthy: they are extremely high and almost similar between countries. Greece has again the lowest correlation of about 0.815. Netherlands, Switzerland and U.K. have again the highest correlation of about 0.915. The average-correlation between TACC and PACC is about 0.891. By looking at Pearson correlations, one could argue that at first glance traditional accruals are not highly correlated with percent accruals. Nevertheless, Spearman correlations suggest that when traditional and percent accruals are converted to ranked variables, they do not differ and they are almost similar measures. Thus, it is really a very interesting exercise to examine whether the profitability of an accrual-based hedge trading portfolio in european equity markets can be improved, if percent accruals are considered as the ranking measure instead of traditional accruals.

[Table 1 about here]

4.2. Rank-Regressions of Abnormal Returns on Traditional and Percent Accruals

In this section, I test the first hypothesis of the paper concerning the occurrence of the negative relation of traditional and percent accruals with future stock returns in european capital markets. For this purpose, I consider Fama-MacBeth (1973) regressions of one-year ahead abnormal (size and book to market adjusted) returns (ARET) on accrual measures, after controlling for the natural logarithm of market capitalization (SIZE) and the natural logarithm of book to market ration (BM), and report the time-series averages of the resulting parameter coefficients (resulted t-statistics are based on the time-series variation of coefficients).

All explanatory variables (i.e., SIZE, BM, TACC, PACC) are expressed as scaled decile ranks: I rank the values of each measure into deciles (0 to 9) each year and divide the decile number by 9 so that each firm-year observation related to each measure takes a value ranging between 0 and 1. Desai et al. (2004) argue that the estimation of regressions using scaled decile ranks has two main advantages. First, the slope coefficient can be interpreted as the abnormal return to a zero-investment strategy that takes a long (short) position on firms with high (low) levels of the respective measure. Second, scaled decile ranks control for potential non-linearities and ensure that results are not driven from extreme observations. The test of the first hypothesis of the paper involves the estimation of two models that take the following forms:

Model 1: $$ARET_{t+1} = \gamma_0 + \gamma_1 SIZE_t^{dec} + \gamma_2 BM_t^{dec} + \gamma_3 TACC_t^{dec} + \upsilon_{t+1}$$

Model 2: $$ARET_{t+1} = \gamma_0 + \gamma_1 SIZE_t^{dec} + \gamma_2 BM_t^{dec} + \gamma_3 PACC_t^{dec} + \upsilon_{t+1}$$

In Table 2, I report separate coefficients for each country, averages of coefficients across countries and coefficients when countries are consider all-together. Panel A presents results for TACC. Results reveal negative and statistically significant at the 1% level coefficients on TACC in 11 out of 16 countries of the sample. Denmark has the largest negative coefficient of about -0.16. Put another way, in Denmark a zero-investment portfolio in TACC that consists of a long position on firms within the lowest decile and a short position on firms within the highest decile generates an abnormal return of 16%. Interestingly, countries accounting together for about 60% of the total firm-year observations exhibit large coefficients: for U.K., France and Germany they are -0.125, -0.122 and -0.118, respectively. The coefficient for Belgium is -0.12, while for Sweden -0.123. Netherlands, Norway, Spain and Switzerland have coefficients around -0.1,

while Italy has the lowest negative & statistically significant coefficient of about -0.061. Austria, Finland, Greece, Ireland, Portugal have coefficients statistically indifferent from zero. The country-average coefficient is -0.087, while when all countries are considered together the coefficient increases to -0.1.

Panel B presents results for percent accruals. Results reveal negative coefficients on PACC in 12 out of 16 countries that are statistically significant at the 1% level in 9 countries, at the 5% level in 2 countries and at the 10% level in 1 country. Denmark (Italy) is again at the top (bottom) of the distribution with a statistically significant coefficient of -0.12 (-0.055). The coefficients for U.K., France and Germany are -0.094, -0.108 and -0.095, respectively. Belgium has a coefficient equal to -0.112, while Sweden and Switzerland have a coefficient equal to -0.106. Ireland, Norway and Spain have coefficients close to -0.085, while Netherlands equal to -0.061. Austria, Finland, Greece, Portugal have coefficients statistically indifferent from zero. The country-average coefficient is -0.067, while when all countries are considered together the coefficient increases to -0.08. Note that the magnitude of the latter coefficients is about 20% lower than the magnitude of the respective coefficients based on traditional accruals.

Overall, the evidence in Table 2 supports the first hypothesis (H1) about the existence of the negative relation between accounting accruals and stock returns in european equity markets. Though, my findings are not directly comparable with Pincus et al. (2007) respective regression due to different sample formation, time-period, measures of abnormal returns and control variables, they indicate a greater occurence and magnitude of the accrual effect on stock returns based on traditional total accruals and percent accruals relative to working capital accruals in european equity markets.

[Table 2 about here]

4.3. Raw and Abnormal Returns of Portfolios on Traditional and Percent Accruals

In this section, in order to test the first hypothesis of the paper, I assess the performance of portfolios based on traditional and percent accruals. Specifically, I investigate whether one-year ahead raw and abnormal returns can be earned from country-specific portfolios, country-average portfolios and portfolios when countries are considered all-together. Country-specific portfolios are formed as follows: each year (six months after the financial year-end) firms are sorted on each accrual measure and allocated into five equal-sized portfolios (quintiles) based on these ranks. Then, I report time-series averages of one-year ahead raw & abnormal returns for the lowest portfolio, the highest portfolio and the hedge (i.e., consisting of a long position in the lowest quintile and a short position in the highest quintile) portfolio (resulted t-statistics are based on the time-series variation of returns). A "country-average" portfolio is formed as a portfolio that puts an equal weight on each country-specific portfolio (resulted t-statistics are based on the variation of country-specific returns). The "all-countries" portfolios are formed with the same procedure used for country-specific portfolios with firms from all countries (results are reported for lowest, highest and hedge accrual portfolio).

In Table 3, I report one-year ahead raw returns (RET) from country-specific portfolios, country-average portfolios and portfolios when countries are considered all-together. Panel A presents results based on TACC. Hedge raw returns are

positive in 10 out of 16 countries. Among positive hedge raw returns, 6 are statistically significant at the 1% level, 2 is at the 5% level and 2 at the 10% level. Norway (Switzerland) has the highest (lowest) hedge raw return of about 0.146 (0.056). Hedge raw returns for U.K., France and Germany are equal to 0.085, 0.081 and 0.099, respectively. Belgium and Denmark have hedge raw returns of about 0.09 and 0.095, respectively. The hedge raw return for Spain is equal to 0.081. Austria, Finland, Greece, Ireland, Italy and Sweden exhibit insignificant raw returns. The country-average hedge raw return is 0.064, while when all countries are considered together increases to 0.081.

Panel B present results for PACC. Hedge raw returns are now positive and statistically significant at the 1% level in 7 countries, at the 5% in 2 countries and at the 10% level in 2 countries. Norway has the highest hedge raw return of 0.13, followed by Belgium with a hedge return of about 0.121. Italy has the lowest hedge raw return of 0.041, followed by Netherlands with a hedge return of 0.053. The magnitude of hedge returns obtained from percent accruals for UK., France and Germany is similar to that obtained from traditional accruals (0.086, 0.091 and 0.088, respectively). In contrary, hedge raw returns for Sweden turn now to be large and significant (0.102), while for Portugal turn to be insignificant. For Spain and Denmark returns range from 0.07 to 0.079, while for Austria, Finland, Greece and Ireland are insignificant. The country-average hedge raw return is equal to 0.066, while when all countries are considered together increases to 0.094. Thus, the performance of the country-average hedge portfolios based on PACC is similar with that based on TACC. When all countries are consider together, hedge raw returns obtained from PACC are about 15% larger than those obtained from TACC due to the performance of the lowest portfolio.

[Table 3 about here]

In Table 4, I report one-year ahead abnormal returns (ARET) from country-specific portfolios, country-average portfolios and portfolios when countries are considered all-together. Panel A presents results based on TACC. Abnormal returns are positive in 10 countries. Out of these countries, returns are statistically significant at the 1% level in 6 countries and statistically significant at the 5% level in 4 countries. Denmark has the highest hedge abnormal return of about 0.102. Hedge abnormal returns near 0.09 appear for U.K., France and Germany (0.097, 0.089 and 0.092, respectively). The hedge abnormal return for Netherlands is 0.085, while for Belgium is 0.082. Norway, Spain, Sweden and Switzerland have hedge abnormal returns around 0.075 (0.075, 0.077, 0.074 and 0.076, respectively). Abnormal returns for Austria, Finland, Greece, Ireland, Italy and Portugal are insignificantly different from zero. The country-average hedge raw return is equal to 0.064, while when all countries are considered together increases to 0.078.

Panel B presents results for PACC. Hedge abnormal returns are positive and statistically significant at the 1% level, 5% level and 10% level in 7, 3 and 2 countries, respectively. Belgium has the highest hedge abnormal return of about 0.101, followed by Denmark with a return of about 0.097. Large abnormal returns near 0.085 appear for Spain and Sweden. For France and U.K. hedge abnormal returns range from 0.07 to 0.075. Germany, Netherlands, Norway and Switzerland have hedge abnormal returns around 0.065 (0.062, 0.062, 0.064 and 0.067, respectively). The hedge abnormal return is the lowest for Italy (0.045) and insignificant for Austria, Finland, Greece and Portugal. The country-average hedge

raw return is equal to 0.053, while when all countries are considered together increases to 0.062. Thus the hedge returns obtained either from the country-average portfolio or the "all-countries"-portfolio on PACC are about 20% lower than those obtained from the respective portfolios on TACC. Note also that hedge abnormal returns from TACC portfolios are higher in 11 countries than those from PACC portfolios.

Overall, findings in Table 3 and Table 4 confirm earlier regression results and are consistent with the first hypothesis of the paper (H1) that the negative relation between accruals and stock returns occurs in european equity markets. At the same time, they suggest that the ability of accrual hedge portfolios to earn abnormal returns can be improved if sorting is based on traditional accruals instead of percent accruals. As such, traditional accruals are superior to percent accruals in european equity markets, in contradiction to Hazfalla et al (2001) findings in U.S. capital markets on the same issue.[13]

[Table 4 about here]

4.4. Summary Statistics on Country-level Characteristics

Table 5 summarizes basic information about statistics of the country-level characteristics. Those characteristics are: the individualism index (IDV), the access-to-equity market index (ACCESS), the importance-to-equity market index

[13] Leippold and Lohre (2012) document that hedge quintile portfolios based on working capital accruals generate a country-average annualized raw return of about 0.066 and a country-average annualized alpha from the Fama-French three factor model of about 0.048 in 13 out of 16 european equity markets of my sample (Austria, Finland and Portugal that generate insignificant returns in study are not included in their study) from 1994 to 2008. The respective country-average returns in my sample (i.e., when Austria, Finland and Portugal are excluded) are: raw return of 0.072 based on traditional total accruals, raw return of 0.077 based on percent accruals, abnormal return of 0.075 based on traditional total accruals and abnormal return of 0.065 based on percent accruals.

(IMP), the legal tradition index (LEG), the anti-self dealing index (ANTISELF), the accrual accounting index (ACCI), the earnings opacity index (EOP), the ownership concentration ratio (OWCR) and the equity-market liquidity index (LIQ).

Panel A reports univariate statistics (mean, median standard deviation, minimum, maximum). IDV ranges from 27 (for Portugal) to 89 (for United Kingdom) with a mean value around 65, a median value near 70 and a high standard deviation around 16. ACCESS ranges from 4.89 (for Austria) to 6.43 (for Netherlands), has a mean and median value close to 6, and a standard deviation equal to 0.635. IMP has a minimum value of 0.07 (for Austria) and a maximum value of 1.44 (for Switzerland). The mean value, median value and standard deviation of IMP is equal to 0.529, 0.325 and 0.408, respectively.

7 countries have a French origin (i.e., LEG equals zero) and 9 countries have a German, Scandinavian and English origin (i.e., LEG equals one). The lowest (highest) value of ANTISELF is 0.203 for Netherlands (0.95 for United Kingdom). It has a mean value, median and standard deviation equal to 0.422, 0.4 and 0.204, respectively.

Accrual accounting is permitted to the lowest extent in Switzerland with a minimum value of 0.32 and to greatest extent in Ireland and United Kingdom (which are the only common-law countries in the sample) with a maximum value of 0.82. ACCI has a mean value of about 0.613, a median value of about 0.57 and a standard deviation of about 0.152. EOP has a minimum value of -0.246 for Ireland and maximum value of -0.083 for Greece. The European Union prior to 2004 enlargement has a mean value of EOP equal to -0.166 with a standard deviation of

about 0.051. Note that the standard deviations of ACCI and EOP are much lower relative to the standard deviations of the other indices used in the paper.

The lowest value of OWCR is 0.19 for United Kingdom, while the highest value is 0.67 for Greece. The average of OWCR is 0.441 and the standard deviation is 0.124. The most liquid market is Switzerland with LIQ equal to 206.27 and the least liquid market is Austria with LIQ equal to 6.71. The mean value, median value and standard deviation of the LIQ are 62.863, 41.35 and 49.825, respectively. Overall, summary statistics suggest a substantial cross-country variation across the selected characteristics.

Panel B presents pair-wise correlations - Pearson (above diagonal) and Spearman (below diagonal) between country-level characteristics. IDV exhibits a positive correlation with the ACCESS (both Pearson and Spearman) and negative correlation (only Pearson) with the OWCR. As expected, measures of equity-market development are highly correlated: the Pearson (Spearman) correlation between ACCESS and IMP is 0.723 (0.827). Both measures have a strong negative correlation (both Pearson and Spearman) with OCWR. ACCESS and IMP have also a strong positive correlation (both Pearson and Spearman) with LIQ. Further, ANTISELF is positively correlated with the ACCI (only Pearson) and negatively correlated with EOP (both Pearson and Spearman) and OWCR (only Pearson). Finally, results reveal a negative correlation between ACCI and EOP (both Pearson and Spearman). Overall, the evidence suggests the presence of significant correlations between some of the selected country-level characteristics.

[Table 5 about here]

4.5. Regressions of Country-Specific Hedge Abnormal Returns from Traditional and Percent Accruals on Country-Level Characteristics

In this section, I test cross-country hypotheses about fundamental factors associated with the magnitude of the accrual effect on stock returns (i.e., H2 to H7). I consider regressions of one-year ahead annual abnormal returns of country-specific hedge quintile portfolios from accrual measures ($HARET_{c,t+1}$) on time-invariant country-level characteristics. The calculation of abnormal returns on country-specific hedge quintile portfolios from accrual measures is described in Section 4.3, while summary statistics about country-level characteristics are presented in the previous section. The mean annual level of size (natural logarithm of market capitalization) for each country and the mean annual level of book to market (natural logarithm of book to market ratio) for each country, are included as time-variant control variables in all regressions. In particular, investigation of H2 up to H7 involves the estimation of a model that takes the following form:

Model 3:
$$HARET_{c,t+1} = \gamma_0 + \gamma_1 SIZE_{c,t} + \gamma_2 BM_{c,t} + \gamma_3 IDV_c + \gamma_4 ACCESS_c + \gamma_5 IMP_c + \gamma_6 LEG_c + \gamma_7 ANTISELF_c + \gamma_8 ACCI_c + \gamma_9 EOP_c + \gamma_{10} OWCR_c + \gamma_{11} LIQ_c + \upsilon_{c,t+1}$$

Regressions are estimated by ordinary least squares (OLS) with Newey and West (1987) correction-approach for autocorrelation. Note that pair-wise correlations between country-level characteristics presented in the previous section suggest that if country-level characteristics are included all-together in regression analysis (i.e., estimation of the full model), possible multicollinearity may induce incorrect coefficient signs. Regression results are provided in Table 6.[14]

[14] Results are qualitatively similar if I instead use the Petersen (2008) estimation procedure clustered by country.

Panel A present results based on country-specific hedge abnormal returns from TACC. Results reveal that the coefficient IDV is positive and statistically significantly at the 1% level, supporting the second hypothesis (H2) that the accrual effect on stock returns is stronger in countries with higher individualism. Further, the coefficient on ACCESS and IMP are positive and statistically significant at the 5% level and 10% level, respectively. This finding is consistent with the third hypothesis (H3) that the accrual effect on stock returns is stronger in countries with higher equity-market development.

The coefficients on LEGAL and ANTISELF, ACCI, and EOP are statistically indifferent from zero. Recall, that for shareholder protection, I do not make any conjecture about how it impacts the cross-country variation of the accrual effect on stock returns. Further, these findings contradict the fourth hypothesis (H4) that the accrual effect on stock returns is stronger in countries that allow a higher use of accrual accounting and the fifth hypothesis (H5) that it is stronger in countries with higher earnings opacity.

The coefficient on OWCR is negative and statistically significant at the 10% level, supporting the sixth hypothesis (H6) that the accrual effect on stock returns is stronger in countries with lower ownership concentration. The coefficient on LIQ is positive and statistically significant at the 5% level, supporting the final hypothesis (H7) that the accrual effect on stock returns is stronger in countries with higher equity-market liquidity. In the full model, the coefficient on IDV, ACCESS and LIQ have similar signs (i.e., positive) and are statistically significant at the 10% level, 10% level and 1% level, respectively. At the same time, in the full model the coefficient on IMP is statistically significant at the 5% level but with

opposite sign (i.e., negative), while the coefficient on OWCR turns to be insignificant.

Panel B present results based on country-specific hedge abnormal returns from PACC. The coefficients on IDV, ACCESS are positive and statistically significant at the 1% level, while the coefficient on IMP is positive and statistically significant at the 5%. Thus, these findings suggest that the accrual effect on stock returns is stronger in countries with higher individualism and higher equity-market development, confirming the second hypothesis (H2) and the third hypothesis (H3) of the paper, respectively.

The coefficient on LEGAL is insignificant, while on ANTISELF positive and statistically significant at the 10% level, suggesting that the accrual effect on stock returns may possibly be stronger in countries with stronger shareholder protection. The coefficient on ACCI is now positive and statistically significant at 10% level, confirming the fourth hypothesis (H4) that the accrual effect on stock returns is stronger in countries that allow a higher use of accrual accounting. The coefficients on EOP and LIQ are insignificant, a finding inconsistent with the fifth hypothesis (H5) and the final hypothesis (H7) that the accrual effect on stock returns is stronger in countries with higher earnings opacity and higher equity-market liquidity, respectively.

The coefficient on OWCR is negative and statistically significant at the 1% level, confirming the sixth hypothesis (H6) that the accrual effect on stock returns is stronger in countries with lower ownership concentration. In the full model, coefficients on IDV and ACCESS are statistically significant (at the 1% level and 10% level, respectively) with similar signs (i.e., positive), while the coefficient on IMP is statistically significant at 1% level but with opposite sign (i.e., negative).

The coefficients on ANTISELF, ACCI and OWCR turn to be insignificant, while on LIQ turns to be significant at 1% level with a positive sign.

Overall, the evidence suggests that the accrual effect on stock returns is likely to be stronger in countries with higher individualism, higher equity-market development and lower concentration ratio. Equity-market liquidity has a strong positive impact on the magnitude of the accrual effect based on traditional accruals, but possibly a weaker positive influence when percent accruals are considered as accrual measure. Further, shareholder protection may have a positive impact only on the magnitude of the accrual effect based on percent accruals. Similarly, permission to use accrual accounting has a positive influence only on the effect generated by percent accruals.

Importantly, findings seem to support investors' misunderstanding of diminishing marginal returns to new investment and/or overinvestment as the most consistent explanation of the accrual anomaly (Dechow et al. 2008). Thus, inability to adjust for potential managerial empire building tendencies and/or overconfidence & self attribution bias about a firm's investment opportunities can be considered as possible driving forces of the anomaly. At the same time, findings do not rule out completely the possibility that it is risky and costly for arbitrageurs to find close substitutes for mispriced stocks and thus, the accrual anomaly can not fully arbitraged away (Mashruwala et al. 2006). Thus, limits to arbitrage can be considered as a force associated with the persistence of the accrual anomaly.

[Table 6 about here]

4.6. Abnormal Portfolios of Portfolios on Traditional and Percent Accruals, conditional on Country-Level Characteristics

In this section, I provide additional evidence on cross-country hypotheses about fundamental factors associated with the magnitude of the accrual effect on stock returns (i.e., H2 to H7). In particular, I investigate the magnitude of one-year ahead abnormal returns (ARET) earned from portfolios on traditional and percent accruals, conditional on country-level characteristics. The portfolio formation procedure is as follows. Each year (six months after the financial year-end) countries are classified based on the level of each characteristic into 3 groups: low group (bottom 25%), medium group (middle 50%), high group (top 25%). Then, for each of these groups, I report the country-average abnormal return on the lowest accrual quintile-portfolio, highest accrual quintile-portfolio and the accrual hedge-portfolio, by putting an equal weight on each country-specific accrual portfolio (resulted t-statistics are based on the variation of country-specific abnormal returns).

For LEG, I repeat the same portfolio procedure by considering only two groups since this index takes two values: 0 for countries with French origin and 1 for a country with English, German and Scandinavian origin. For ACCI, I repeat the same procedure by considering tow equal-sized groups, since based on this index I cannot effectively include in the low group the bottom 25% of countries. Panels A, B, C, D, E, F, G, H, and J present results for individualism, access-to-equity market, importance-of-equity market, legal origin, anti-self dealing, permission to use accrual accounting, earnings opacity, ownership concentration

and equity market liquidity, respectively. Country-specific abnormal returns from portfolios on traditional and percent accruals are reported in Table 4.

Table 7 presents results based on TACC. Panel A reveals that countries with high level of IDV have an average hedge abnormal return equal to 0.076 and statistically significant at the 5% level, while countries with low level of IDV have an insignificant hedge abnormal return. Similarly, within the group of countries with high ACCESS and IMP hedge abnormal returns are statistically significant at the 5% level and equal to 0.072 and 0.07, respectively, while within the group of countries with low ACCESS and IMP hedge abnormal return are statistically indifferent from zero.

The hedge abnormal return for countries with French origin is exactly similar in magnitude with that of countries with English-German-Scandinavian origin. The performance of countries with high ANTSELF, ACCI and EOP differs slightly relative to the performance of countries with low ANTISELF, ACCI and EOP. Countries with low OWCR have a hedge abnormal return of about 0.084 (statistically significant at the 1% level), while countries with high OWCR a hedge abnormal return of about 0.044 (statistically significant at the 10% level). Abnormal returns for countries with low and high LIQ are equal to 0.048 (statistically significant at the 10% level) and 0.078 (statistically significant at the 1% level), respectively.

Overall, results reveal that the accrual effect is stronger (disappears) in countries with high (low) individualism and equity-market development. The accrual effect is also stronger (weaker) in countries with low (high) ownership concentration and countries with high (low) equity-market liquidity. These

findings, entirely in accordance with earlier regression results in Panel A of table 6, support H2, H3, H6 and H7, but contradict H4 and H5.

[Table 7 about here]

Table 8 presents results based on PACC. Hedge abnormal returns for countries with high IDV, ACCESS and IMP are statistically significant at the 5% level (for IDV it is also significant at the 1% level) and equal to 0.071, 0.063 and 0.065, respectively. Hedge abnormal returns for countries with low IDV, ACCESS, IMP are statistically indifferent from zero. Within the group of countries with high ANTISELF the hedge abnormal return is 0.083 and statistically significant at the 1% level, while within the group with low ANTISELF it turns to be insignificant

The performance of countries with French origin differs slightly from the performance of countries with English-German-Scandinavian origin. Similar findings are reported for countries with high EOP and LIQ relative to countries with low EOP and LIQ.

In countries with high ACCI the hedge abnormal return is equal to 0.076 and statistically significant at the 1% level, while in countries with low ACCI it is equal to 0.031 and statistically significant at the 10% level. Larger differences are identified for OWCR: hedge portfolio in countries with low OWCR earn abnormal returns of about 0.074 (statistically significant at the 1% level), while in countries with high OWCR earn abnormal returns that are statistically indifferent from zero.

Overall, results reveal that the accrual effect on stock returns is stronger (disappears) in countries with high (low) individualism and equity-market development. They also reveal that the accrual effect on stock returns is stronger

(disappears) in countries with stronger (weaker) shareholder protection and low (high) ownership concentration. The accrual effect is also stronger (weaker) in countries with high (low) permission to use accrual accounting. These findings, similarly with earlier results in Panel B of table 6, are consistent with H2, H3, H4, H6, but inconsistent with H5 and H7.

[Table 8 about here]

5. Conclusion

In this paper, I investigate the relation of accounting accruals with future returns in the countries that belong to the European Union prior to its 2004 enlargement. [15] Adopting the most resent advances in the accounting literature, my analysis is based on traditional total accruals and percent accruals. Recent studies in the U.S. capital market, document that the magnitude of the accrual effect on stock returns based on both measures is substantially higher than that based on working capital accruals. I also investigate whether and how the magnitude of the accrual effect on stock returns is affected by fundamentals factors of each country. Further, the selected research design allows to distinguish between possible underlying forces of the relation between accounting accruals and stock returns

Regression results reveal that the accrual anomaly, based either on traditional accruals or percent accruals, exists in eleven countries of the European Union: Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Switzerland and United Kingdom. Based on both accrual measures, the accrual

[15] Only Luxembourg is excluded since it has mainly foreign listed firms.

anomaly is not present in Austria, Finland, Greece and Portugal, while based on traditional accruals it is also absent in Ireland. Abnormal returns from hedge portfolios based on traditional accruals range from -0.001 for Austria to 0.102 for Denmark with a country-average equal to 0.064. Abnormal returns from hedge portfolios based on percent accruals range from -0.004 for Austria to 0.101 for Belgium with a country-average equal to 0.053.

The magnitude of the accrual effect on stock returns is affected by country-level factors associated with cultural environment, characteristics of equity markets, shareholder protection, usage of accrual accounting, but not by factors associated with legal origin and quality of reported accounting figures. In particular, the accrual effect on stock returns is stronger in countries with higher individualism, higher equity-market development and lower concentration ratio. Equity-market liquidity has a strong positive impact only on the effect generated by traditional accruals. Shareholder protection and permission to use accrual accounting have a positive influence only on the effect generated by percent accruals.

The findings of the paper have several implications to the existing literature: First, they suggest a great generalizability of the accrual anomaly in the European Union that consists of countries that are more likely to have developed economies, legal-tradition and accounting harmonization. They also provide an economic summary from the occurrence of the anomaly. In contrary with documented evidence in the U.S. capital market, my evidence indicates that the magnitude of accrual effect on stock returns obtained from traditional accruals is larger than that obtained from percent accruals.

Second, they suggest that the magnitude of the accrual effect on stock returns is related with cultural, informational, corporate governance and capital market factors of a country. Thus, my findings extent Pincus et al. (2007) work on the link between the possible occurrence of accruals' overweighting and cross-country differences in some of these fundamental factors.

Third, findings corroborate Pincus et al. (2007) argument that a naïve version of Sloan's (1996) functional fixation hypothesis is unlikely to be a complete explanation of the accrual anomaly. In this line, they suggest that Dechow et al. (2008) hypothesis about investors' misunderstanding of diminishing marginal returns to new investment and/or overinvestment is likely to be the most consistent explanation of the anomaly.

Fourth, they indicate inability to adjust for potential managerial empire building tendencies and/or overconfidence & self attribution bias about a firm's investment opportunities as underlying driving forces of the accrual anomaly. Similarly, with Pincus et al. (2007) they indicate limits to arbitrage as an important force associated with the persistence of the anomaly.

I believe that my work provides some clearer avenues for future research. Recognizing the limitations associated with the research design in international studies (see the discussion Bushman and Smith 2001), it is important to offer separately in countries outside the U.S. stock market, additional analysis concerning the explanation and the underlying driving forces of the accrual anomaly. I pursue some of these extensions in ongoing research.

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Appendix A: Sample

Country	Firm-Year Obs.	% of Total Obs.
Austria	961	1.550%
Belgium	1,298	2.093%
Denmark	1,989	3.207%
Finland	1,558	2.512%
France	9,016	14.537%
Germany	7,441	11.998%
Greece	2,747	4.429%
Ireland	761	1.227%
Italy	2,908	4.689%
Netherlands	2,353	3.794%
Norway	2,066	3.331%
Portugal	893	1.440%
Spain	1,646	2.654%
Sweden	3,649	5.884%
Switzerland	2,700	4.354%
United Kingdom	20,033	32.301%
Total	**62,019**	**100%**

Appendix B: Definition of Firm-Level Variables

Variable	Measurement (W=Worldscope data item)
Total assets (TA **)**	W02999
Cash & cash equivalents ($CASH$ **)**	W02001
Minority interest ($MINT$ **)**	W03426
Total debt (TD **)**	W03255
Ordinary and preferred shares (OPS **)**	W03995
Total equity (TE **)**	W03501
Net income (NI **)**	W01551
Operating assets (OA**)**	$W02999 - W02001$
Operating liabilities (OL**)**	$W02999 - W03426 - W03255 - W03995$
Net operating assets (NOA**)**	$OA - OL$
Average total assets ($AVTA$**)**	Average value of TA at the beginning and at the end of a financial year
Total accruals ($TACC$**)**	$\Delta NOA / AVTA$
Percent accruals ($PACC$ **)**	$\Delta NOA / \lvert NI \rvert$
Market capitalization (MV **)**	$W08001$ (measured six months after financial year-end)
Book to market ratio (BV/MV **)**	MV/TE
Natural logarithm of market capitalization ($SIZE$ **)**	$Ln(MV)$
Natural logarithm of book to market ratio (BM **)**	$Ln(MV/TE)$
Return index (RI **)**	RI **:** The theoretical growth in the value of a share holding unit of an equity at the closing price applicable on the ex-dividend date.
Monthly raw return (r **)**	$\Delta RI / RI$
Annual one-year ahead raw return (RET **)**	RET is calculated using compounded 12-monthly buy-and-hold returns. The return cumulation period begins six months after financial year-end.
Annual one-year ahead abnormal return ($ARET$ **)**	Six months after each financial year-end, firms are first sorted into four quintile portfolios by MV and in each of the resulted quintile portfolios are further sorted into other four quintile portfolios by BV/MV . This procedure results in 16 benchmark portfolios and the matching return is the annual one-year ahead weighted average return for each benchmark portfolio. $ARET$ is the difference between the RET and the matching return of the benchmark portfolio to which the firm belongs.

Appendix C: Definition of Country-Level Characteristics

Variable	Measurement – Data Sources
Individualism *IDV* **)**	Average score on 14 questions about the IBM employees' attitudes towards their work and private lives. *Source: Hofstede (1980, 2001), www.geert-hofstede.com*
Access-to-equity market (*ACCESS* **)**	Average score on annual surveys, published at *Global Competitiveness Report*, about the ability of firms to raise equity in local stock markets. *Source: LaPorta et al. (2006)*
Importance-of-equity market (*IMP* **)**	Average ratio of stock market capitalization held by small shareholders to gross domestic product. *Source: LaPorta et al. (2006)*
Legal Origin (*LEG* **)**	An indicator equalling 1 for a country with English, German and Scandinavian origin and 0 for a country with French origin. *Source: Djankov et al. (2008)*
Anti-self dealing (*ANTISELF* **)**	Average of ex-ante and ex-post private control of self-dealing indices. *Source: Djankov et al. (2008)*
Permission to use accrual accounting (*ACCI* **)**	An equally weighted index of 11 accrual-related accounting standards. *Source: Hung (2001)*
Earnings Opacity (*EOP* **)**	Average score of three accounting measures: earnings aggressiveness, loss avoidance, and earnings smoothing. *Source: Bhattacharya et al. (2003)*
Ownership Concentration (*OWCR***)**	The median percentage of common shares owned by the three largest shareholders in the ten largest nonfinancial firms. *Source: LaPorta et al. (2006)*
Liquidity (*LIQ***)**	The total value of stocks traded as a percentage of GDP. *Source: LaPorta et al. (2006)*

Table 1
Summary Statistics on Accrual Measures Across Countries

Table 1 reports univariate statistics (mean, median, standard deviation) on and pair wise correlations between (Pearson above diagonal, Spearman below diagonal) accrual measures. Panel A presents univariate statistics, while Panel B pair wise correlations. The sample consists of 62,019 firm-year observations over the period 1988–2009 (details in Appendix A). Firm-level variables are defined in Appendix B. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Univariate Statistics on Accrual Measures Across Countries						
	Traditional Accruals			**Percent Accruals**		
Country	**Mean**	**Median**	**Std.Dev.**	**Mean**	**Median**	**St.Dev**
Austria	0.052	0.04	0.158	1.078	0.965	14.564
Belgium	0.068	0.044	0.18	2.552	0.771	12.411
Denmark	0.058	0.047	0.171	2.588	0.754	13.54
Finland	0.055	0.044	0.16	1.56	0.586	13.272
France	0.058	0.042	0.155	2.313	0.772	10.889
Germany	0.057	0.036	0.196	2.628	0.653	15.203
Greece	0.104	0.096	0.192	7.06	1.988	27.92
Ireland	0.09	0.069	0.236	3.285	1.027	12.433
Italy	0.06	0.049	0.149	4.92	1.163	23.392
Netherlands	0.053	0.037	0.163	0.84	0.546	5.605
Norway	0.094	0.06	0.248	5.125	0.896	21.185
Portugal	0.061	0.047	0.178	3.001	1.162	16.21
Spain	0.062	0.048	0.176	2.345	0.878	12.257
Sweden	0.074	0.051	0.225	2.334	0.519	12.538
Switzerland	0.037	0.033	0.147	1.129	0.529	9.823
United Kingdom	0.068	0.043	0.237	1.524	0.488	8.125
Country - Average	**0.066**	**0.049**	**0.186**	**2.768**	**0.856**	**14.335**
All Countries	**0.065**	**0.045**	**0.202**	**2.408**	**0.677**	**13.565**

Table 1 (continued)

Panel B: Pair-wise Correlations between Accrual Measures Across Countries		
Country	**Pearson**	**Spearman**
Austria	0.489***	0.891***
Belgium	0.526***	0.896***
Denmark	0.478***	0.904***
Finland	0.425***	0.901***
France	0.501***	0.887***
Germany	0.45***	0.887***
Greece	0.363***	0.815***
Ireland	0.442***	0.896***
Italy	0.41***	0.869***
Netherlands	0.61***	0.919***
Norway	0.424***	0.878***
Portugal	0.509***	0.892***
Spain	0.519***	0.906***
Sweden	0.457***	0.885***
Switzerland	0.555***	0.91***
United Kingdom	0.554***	0.912***
Country - Average	**0.482*** **	**0.891*** **
All Countries	**0.427*** **	**0.891*** **

Table 2
Regressions of Abnormal Returns on Accrual Measures

Table 2 presents results from Fama-MacBeth (1973) regressions of one-year ahead abnormal annual returns on accrual measures, after controlling for size (natural logarithm of market capitalization) and book to market (natural logarithm of book to market ratio). All independent variables are expressed as scaled - decile ranks (ranging from 0 to 1). I estimate annual cross-sectional regressions and report the time-series averages of the parameter coefficients (resulted t-statistics are based on the time-series variation of coefficients). I report separate coefficients for each country, averages of coefficients across countries and coefficients when countries are consider all-together. Panel A presents results for traditional accruals, while Panel B for percent accruals. The sample consists of 62,019 firm-year observations over the period 1988–2009 (details in Appendix A). Firm-level variables are defined in Appendix B. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: $ARET_{t+1} = \gamma_0 + \gamma_1 SIZE_t^{dec} + \gamma_2 BM_t^{dec} + \gamma_3 TACC_t^{dec} + \upsilon_{t+1}$

Country	*Intercept*	$SIZE^{dec}$	BM^{dec}	$TACC^{dec}$
Austria	-0.04	0.053	0.026	-0.036
Belgium	0.013	0.047*	0.009	-0.12***
Denmark	0.054	0.017	0.014	-0.16***
Finland	-0.023	0.009	0.039	-0.034
France	-0.03	0.096**	0.041	-0.122***
Germany	-0.049	0.08**	0.087**	-0.118***
Greece	-0.112	0.13	0.04	-0.025
Ireland	-0.051	0.057	0.044	-0.024
Italy	-0.006	0.033	0.008	-0.061***
Netherlands	0.052*	0.018	-0.037	-0.096***
Norway	-0.063**	0.094***	0.058**	-0.097***
Portugal	0.041	-0.011	-0.057	-0.038
Spain	0.028	0.018	0.022	-0.108***
Sweden	-0.007	0.074**	0.014	-0.123***
Switzerland	-0.026	0.077**	0.042*	-0.097***
United Kingdom	-0.033	0.089*	0.052	-0.125***
Country - Average	**-0.016**	**0.055*** **	**0.025*** **	**-0.087*** **
All Countries	**-0.029**	**0.075****	**0.041***	**-0.1*** **

Table 2 (continued)

Panel B: $ARET_{t+1} = \gamma_0 + \gamma_1 SIZE_t^{dec} + \gamma_2 BM_t^{dec} + \gamma_3 PACC_t^{dec} + \upsilon_{t+1}$				
Country	*Intercept*	$SIZE^{dec}$	BM^{dec}	$PACC^{dec}$
Austria	-0.046	0.055	0.022	-0.022
Belgium	0.007	0.041*	0.019	-0.112***
Denmark	0.031	0.011	0.025	-0.12***
Finland	-0.035	0.007	0.038	-0.006
France	-0.043	0.097**	0.049	-0.108***
Germany	-0.061	0.076**	0.09**	-0.095***
Greece	-0.148	0.131	0.048	0.037
Ireland	-0.018	0.056	0.04	-0.084**
Italy	-0.012	0.033	0.014	-0.055**
Netherlands	0.032	0.021	-0.035	-0.061*
Norway	-0.067**	0.089**	0.057**	-0.085***
Portugal	0.014	-0.026	-0.055	0.028
Spain	0.01	0.02	0.033	-0.086***
Sweden	-0.013	0.071*	0.012	-0.106***
Switzerland	-0.013	0.071**	0.012	-0.106***
United Kingdom	-0.048	0.088*	0.054	-0.094***
Country - Average	**-0.026****	**0.053*****	**0.026*****	**-0.067*****
All Countries	**-0.042**	**0.078****	**0.045****	**-0.08*****

Table 3
Raw Returns of Portfolios on Accrual Measures

Table 3 presents one-year ahead raw returns for country-specific portfolios, country-average portfolios and portfolios when countries are considered all-together. Country-specific portfolios are formed as follows: each year (six months after the financial year-end) firms are sorted on each accrual measure and allocated into five equal-sized portfolios (quintiles) based on these ranks. Then, I report time-series averages of one-year ahead raw returns for the lowest portfolio, the highest portfolio and the hedge (i.e., consisting of a long position in the lowest quintile and a short position in the highest quintile) portfolio (resulted t-statistics are based on the time-series variation of raw returns). A "country-average" portfolio is formed as a portfolio that puts an equal weight on each country-specific portfolio (resulted t-statistics are based on the variation of country-specific raw returns). The "all-countries" portfolios are formed with the same procedure used for country-specific portfolios with firms from all countries (results are reported for lowest, highest and hedge accrual portfolio). Panel A presents results for traditional accruals, while Panel B for percent accruals. The sample consists of 62,019 firm-year observations over the period 1988–2009 (details in Appendix A). Firm-level variables are defined in Appendix B. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Raw Returns of Portfolios on Traditional Accruals

Country	Low	High	Hedge
Austria	0.043	0.051	-0.008
Belgium	0.106**	0.016	0.09***
Denmark	0.136*	0.041	0.095***
Finland	0.137*	0.103	0.034
France	0.103**	0.022	0.081***
Germany	0.07	-0.029	0.099***
Greece	0.137	0.109	0.028
Ireland	0.098	0.079	0.019
Italy	0.03	0.003	0.027
Netherlands	0.12**	0.06	0.06*
Norway	0.174**	0.028	0.146***
Portugal	0.101	0.041	0.06*
Spain	0.136*	0.055	0.081**
Sweden	0.124*	0.06	0.064
Switzerland	0.132**	0.076	0.056**
United Kingdom	0.09*	0.005	0.085***
Country - Average	**0.109*** **	**0.045*** **	**0.064*** **
All Countries	**0.112****	**0.031**	**0.081****

Table 3 (continued)

Panel A: Raw Returns of Portfolios on Percent Accruals			
Country	**Low**	**High**	**Hedge**
Austria	0.065	0.064	0.001
Belgium	0.148***	0.027	0.121***
Denmark	0.15**	0.071	0.079**
Finland	0.143**	0.113	0.03
France	0.114**	0.023	0.091***
Germany	0.068	-0.02	0.088***
Greece	0.151	0.149	0.002
Ireland	0.141*	0.076	0.065
Italy	0.042	0.001	0.041*
Netherlands	0.109*	0.056	0.053**
Norway	0.17**	0.04	0.13***
Portugal	0.072	0.052	0.02
Spain	0.141**	0.071	0.07*
Sweden	0.165**	0.063	0.102***
Switzerland	0.143**	0.069	0.074***
United Kingdom	0.108**	0.022	0.086***
Country - Average	**0.121*** **	**0.055*** **	**0.066*** **
All Countries	**0.124****	**0.031**	**0.094*****

Table 4
Abnormal Returns of Portfolios on Accrual Measures

Table 4 presents one-year ahead abnormal returns for country-specific portfolios, country-average portfolios and portfolios when countries are considered all-together. Country-specific portfolios are formed as follows: each year (six months after the financial year-end) firms are sorted on each accrual measure and allocated into five equal-sized portfolios (quintiles) based on these ranks. Then, I report time-series averages of one-year ahead abnormal returns for the lowest portfolio, the highest portfolio and the hedge (i.e., consisting of a long position in the lowest quintile and a short position in the highest quintile) portfolio (resulted t-statistics are based on the time-series variation of abnormal returns). A "country-average" portfolio is formed as a portfolio that puts an equal weight on each country-specific portfolio (resulted t-statistics are based on the variation of country-specific abnormal returns). The "all-countries" portfolios are formed with the same procedure used for country-specific portfolios with firms from all countries (results are reported for lowest, highest and hedge accrual portfolio). Panel A presents results for traditional accruals, while Panel B for percent accruals. The sample consists of 62,019 firm-year observations over the period 1988–2009 (details in Appendix A). Firm-level variables are defined in Appendix B. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Abnormal Returns of Portfolios on Traditional Accruals

Country	Low	High	Hedge
Austria	-0.047	-0.046*	-0.001
Belgium	0.014	-0.068***	0.082**
Denmark	0.025	-0.077***	0.102***
Finland	-0.012	-0.043**	0.031
France	-0.009	-0.098***	0.089***
Germany	-0.002	-0.094***	0.092***
Greece	0.024	-0.035	0.059
Ireland	-0.011	-0.047**	0.036
Italy	-0.006	-0.043**	0.037
Netherlands	0.021	-0.064***	0.085***
Norway	-0.012	-0.087***	0.075**
Portugal	-0.035	-0.053**	0.018
Spain	0.025	-0.052***	0.077***
Sweden	-0.007	-0.081***	0.074**
Switzerland	0.013	-0.063***	0.076**
United Kingdom	0.001	-0.096***	0.097***
Country - Average	**-0.001**	**-0.065*** **	**0.064*** **
All Countries	**0.001**	**-0.077*** **	**0.078*** **

Table 4 (continued)

Panel B: Abnormal Returns of Portfolios on Percent Accruals			
Country	**Low**	**High**	**Hedge**
Austria	-0.011	-0.007	-0.004
Belgium	0.048**	-0.053**	0.101***
Denmark	0.059***	-0.038	0.097**
Finland	0.01	-0.02	0.03
France	2E-04	-0.07***	0.07***
Germany	-0.006	-0.068***	0.062***
Greece	-0.017	0.006	-0.023
Ireland	0.024	-0.036	0.06*
Italy	0.006	-0.039**	0.045*
Netherlands	0.019	-0.043***	0.062**
Norway	-0.002	-0.066***	0.064**
Portugal	-0.054	-0.026	-0.028
Spain	0.037**	-0.048***	0.085***
Sweden	0.03	-0.056***	0.086***
Switzerland	0.018	-0.049***	0.067***
United Kingdom	0.026	-0.049***	0.075***
Country - Average	**0.012***	**-0.041*****	**0.053*****
All Countries	**0.014**	**-0.048*****	**0.062*****

Table 5
Summary Statistics on Country-Level Characteristics

Table 5 reports univariate statistics on (mean, median standard deviation, minimum, maximum) and pair wise correlations among (Pearson above diagonal, Spearman below diagonal) selected country-characteristics. *IDV* is the individualism index. *ACCESS* is the access-to equity market index and *IMP* is the importance-of-equity market index. *LEG* is an index associated with legal origin and *ANTISELF* is the anti-self dealing index. *ACCI* is an index associated with the permission to use accrual accounting and *EOP* is an index associated with earnings opacity. *OWCR* is the ownership concentration ratio and *LIQ* is the stock-market liquidity index. Panel A presents univariate statistics, while Panel B pair wise correlations. Country-level characteristics are defined in Appendix C. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Univariate Statistics on Country-Level Characteristics

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
IDV	65.063	69.5	16.068	27	89
ACCESS	5.598	5.725	0.635	4.41	6.43
IMP	0.529	0.325	0.408	0.07	1.44
LEG	0.563	1	0.512	0	1
ANTISELF	0.422	0.4	0.204	0.20	0.95
ACCI	0.613	0.57	0.152	0.32	0.82
EOP	-0.166	-0.175	0.051	-0.246	-0.083
OWCR	0.441	0.43	0.124	0.19	0.67
LIQ	62.863	41.35	49.825	6.71	206.27

Panel B: Pair-wise Correlations among Country-Level Characteristics - Pearson (above diagonal) and Spearman (below diagonal)

Variable	*IDV*	*ACCESS*	*IMP*	*LEG*	*ANTISELF*	*ACCI*	*EOP*	*OWCR*	*LIQ*
IDV	_	0.571**	0.438*	0.327	0.393	0.232	-0.186	-0.617**	0.133
ACCESS	0.436*	_	0.723***	0.415	0.074	0.096	0.127	-0.675***	0.458*
IMP	0.38	0.827***	_	0.326	0.193	-0.063	0.188	-0.681***	0.81***
LEG	0.027	0.396	0.274	_	0.164	-0.071	0.032	-0.484*	0.074
ANTISELF	0.318	-0.012	0.169	0.239	_	0.55**	-0.469*	-0.502**	-0.2
ACCI	0.316	0.105	0.214	-0.042	0.393	_	-0.48*	-0.399	-0.23
EOP	-0.361	0.126	0.107	0.041	-0.502**	-0.491*	_	0.267	0.386
OWCR	-0.423	-0.698***	-0.718***	-0.452*	-0.287	-0.482*	0.203	_	-0.31
LIQ	0.1	0.571**	0.678***	-0.068	-0.344	-0.086	0.476*	-0.361	_

Table 6
Regression of Country-Specific Hedge Abnormal Returns from Accrual Measures on Country-Level Characteristics

Table 6 presents results from regression of one-year ahead abnormal returns of country-specific hedge quintile portfolios from accrual measures ($HARET_{c,t+1}$) on time-invariant country-level characteristics. Country-level characteristics include: the individualism index (IDV), the access-to equity market index ($ACCESS$),the importance-of-equity market index (IMP), the legal origin index (LEG), the anti-self dealing index ($ANTISELF$), the accrual index ($ACCI$), the earnings opacity index (EOP), the ownership concentration ratio ($OWCR$) and the liquidity index (LIQ). The mean annual level of size (natural logarithm of market capitalization) for each country and the mean annual level of book to market (natural logarithm of book to market ratio) for each country, are included as time-variant control variables in all regressions. Regressions are estimated by ordinary least squares (OLS) with Newey and West (1987) correction-approach for autocorrelation. Panel A present results for traditional accruals, while Panel B for percent accruals. The sample consists of 62,019 firm-year observations over the period 1988–2009 (details in Appendix A). Firm-level variables are defined in Appendix B, while country-level characteristics in Appendix C. Calculation of time-variant abnormal returns on country-specific hedge quintile portfolios from accrual measures is described in Table 4. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Regressions of Country-Specific Hedge Abnormal Returns from Traditional Accruals on Country-Level Characteristics

$$HARET_{c,t+1} = \gamma_0 + \gamma_1 SIZE_{c,t} + \gamma_2 BM_{c,t} + \gamma_3 IDV_c + \gamma_4 ACCESS_c + \gamma_5 IMP_c + \gamma_6 LEG_c + \gamma_7 ANTISELF_c + \gamma_8 ACCI_c + \gamma_9 EOP_c + \gamma_{10} OWCR_c + \gamma_{11} LIQ_c + \upsilon_{c,t+1}$$

Model	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Intercept	0.314**	0.136	0.371***	0.381***	0.371**	0.347**	0.386**	0.391***	0.45***	0.337*
SIZE	-0.027**	-0.02*	-0.027**	-0.026**	-0.025**	-0.025**	-0.026**	-0.023*	-0.034***	-0.041***
BM	0.016	0.024	0.01	0.006	0.007	0.009	0.007	0.014	0.004	0.012
IDV	0.001***									0.001*
ACCESS		0.032**								0.046*
IMP			0.03*							-0.201**
LEG				-0.003						-0.026
ANTISELF					0.003					0.094
ACCI						0.03				-0.068
EQS							0.039			0.067
OWCR								-0.104*		-0.142
LIQ									0.0004**	0.001***
Adj. R^2	0.024	0.025	0.015	0.008	0.008	0.009	0.008	0.015	0.02	0.037

Table 6 (continued)

Panel B: Regressions of Country-Specific Hedge Abnormal Returns from Percent Accruals on Country-Level Characteristics

$$HARET_{c,t+1} = \gamma_0 + \gamma_1 SIZE_{c,t} + \gamma_2 BM_{c,t} + \gamma_3 IDV_c + \gamma_4 ACCESS_c + \gamma_5 IMP_c + \gamma_6 LEG_c + \gamma_7 ANTISELF_c + \gamma_8 ACCI_c + \gamma_9 EOP_c + \gamma_{10} OWCR_c + \gamma_{11} LIQ_c + \upsilon_{c,t+1}$$

Model	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Intercept	0.003	-0.178	0.103	0.071	0.044	0.033	0.054	0.136	0.156	-0.055
SIZE	-0.006	0.003	-0.005	-0.001	-0.0002	-0.001	-0.001	0.001	-0.009	-0.014
BM	0.034**	0.04**	0.022	0.023	0.022	0.025	0.018	0.031*	0.017	0.032*
IDV	0.002***									0.002***
ACCESS		0.039***								0.039*
IMP			0.034**							-0.18***
LEG				0.017						-0.007
ANTISELF					0.058*					0.087
ACCI						0.081*				-0.035
EQS							-0.165			-0.044
OWCR								-0.182***		-0.103
LIQ									0.0002	0.001***
Adj. R^2	0.057	0.026	0.005	0.001	0.003	0.003	0.001	0.022	0.001	0.061

Table 7
Abnormal Returns of Portfolios on Traditional Accruals, conditional on Country-Level Characteristics

Table 7 presents one-year ahead abnormal returns for portfolios on traditional accruals, conditional on country-level characteristics. The portfolio formation procedure is as follows. Each year (six months after the financial year-end) countries are classified based on the level of each characteristic into 3 groups: low group (bottom 25%), medium group (middle 50%), high group (top 25%). Then, for each of these groups, I report the country-average abnormal return on the lowest accrual quintile-portfolio, the highest accrual quintile-portfolio and the accrual hedge-portfolio, by putting an equal weight on each country-specific accrual portfolio (resulted t-statistics are based on the variation of country-specific abnormal returns). For LEG, I repeat the same procedure by considering only two groups since this index takes two values: 0 for countries with French origin and 1 for a country with English, German and Scandinavian origin. For ACCI, I repeat the same procedure by considering two equal-sized groups, since based on this index I cannot effectively include in the low group the bottom 25% of countries. Panels A, B, C, D, E, F, G, H, and J present results for individualism, access-to-equity market, importance-of-equity market, legal origin, anti-self dealing, permission to use accrual accounting, earnings opacity, ownership concentration and equity market liquidity, respectively. Country-level characteristics in Appendix C. Country-specific abnormal returns for portfolios on traditional accruals are reported in Panel A of Table 4. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Individualism

Groups on Individualism	Portfolios on Traditional Accruals		
	Low	High	Hedge
Low	-0.008	-0.047***	0.038
Medium	-0.002	-0.074***	0.072***
High	0.008	-0.068***	0.076**

Panel B: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Access-to-Equity Market

Groups on Access-to-Equity Market	Portfolios on Traditional Accruals		
	Low	High	Hedge
Low	-0.016	-0.049***	0.033
Medium	0.005	-0.071***	0.076***
High	0.001	-0.071***	0.072**

Panel C: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Importance-of-Equity Market

Groups on Importance-of-Equity Market	Portfolios on Traditional Accruals		
	Low	High	Hedge
Low	-0.016	-0.044***	0.028
Medium	0.006	-0.073***	0.079***
High	-0.001	-0.071***	0.07**

Table 7 (continued)

Panel D: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Legal Origin			
Groups on Legal Origin	**Portfolios on Traditional Accruals**		
	Low	**High**	**Hedge**
French	0.005	-0.059***	0.064***
English-German-Scandinavian	-0.006	-0.07***	0.064***

Panel E: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Anti-Self Dealing			
	Portfolios on Traditional Accruals		
Groups on Anti-Self Dealing	**Low**	**High**	**Hedge**
Low	0.003	-0.052***	0.055*
Medium	-0.007	-0.069***	0.062***
High	0.007	-0.072***	0.079**

Panel F: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Accrual Index			
	Portfolios on Traditional Accruals		
Groups on Accrual Index	**Low**	**High**	**Hedge**
Low	-0.005	-0.057***	0.052***
High	0.003	-0.074***	0.077***

Panel G: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Earnings Opacity			
Groups on Earnings Opacity	**Portfolios on Traditional Accruals**		
	Low	**High**	**Hedge**
Low	-0.002	-0.061***	0.059*
Medium	-0.004***	-0.071***	0.067***
High	0.006	-0.059**	0.065**

Panel H: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Ownership Concentration			
Groups on Ownership Concentration	**Portfolios on Traditional Accruals**		
	Low	**High**	**Hedge**
Low	-0.007*	-0.091***	0.084***
Medium	0.003	-0.062***	0.065***
High	-0.004	-0.048***	0.044*

Panel J: Abnormal Returns of Portfolios on Traditional Accruals, conditional on Equity-Market Liquidity			
Groups on Equity-Market Liquidity	**Portfolios on Traditional Accruals**		
	Low	**High**	**Hedge**
Low	-0.014	-0.062***	0.048*
Medium	-0.002	-0.067***	0.065***
High	0.013	-0.065***	0.078***

Table 8
Abnormal Returns of Portfolios on Percent Accruals, conditional on Country-Level Characteristics

Table 8 presents one-year ahead abnormal returns for portfolios on percent accruals, conditional on country-level characteristics. The portfolio formation procedure is as follows. Each year (six months after the financial year-end) countries are classified based on the level of each characteristic into 3 groups: low group (bottom 25%), medium group (middle 50%), high group (top 25%). Then, for each of these groups, I report the country-average abnormal return on the lowest accrual quintile-portfolio, the highest accrual quintile-portfolio and the accrual hedge-portfolio, by putting an equal weight on each country-specific accrual portfolio (resulted t-statistics are based on the variation of country-specific abnormal returns). For LEG, I repeat the same procedure by considering only two groups since this index takes two values: 0 for countries with French origin and 1 for a country with English, German and Scandinavian origin. For ACCI, I repeat the same procedure by considering two equal-sized groups, since based on this index I cannot effectively include in the low group the bottom 25% of countries. Panels A, B, C, D, E, F, G, H, and J present results for individualism, access-to-equity market, importance-of-equity market, legal origin, anti-self dealing, permission to use accrual accounting, earnings opacity, ownership concentration and equity market liquidity, respectively. Country-level characteristics in Appendix C. Country-specific abnormal returns for portfolios on percent accruals are reported in Panel B of Table 4. ***,**, * represents statistical significance at 1%, 5%, and 10% level, respectively, two-tailed.

Panel A: Abnormal Returns of Portfolios on Percent Accruals, conditional on Individualism

Groups on Individualism	Portfolios on Percent Accruals		
	Low	High	Hedge
Low	-0.011	-0.019	0.008
Medium	0.017	-0.05***	0.067***
High	0.025*	-0.046***	0.071***

Panel B: Abnormal Returns of Portfolios on Percent Accruals, conditional on Access-to-Equity Market

Groups on Access-to-Equity Market	Portfolios on Percent Accruals		
	Low	High	Hedge
Low	-0.006	-0.03**	0.024
Medium	0.015	-0.047***	0.062***
High	0.021**	-0.042**	0.063**

Panel C: Abnormal Returns of Portfolios on Percent Accruals, conditional on Importance-of-Equity Market

Groups on Importance-of Equity-Market	Portfolios on Percent Accruals		
	Low	High	Hedge
Low	-0.019	-0.017	-0.002
Medium	0.022**	-0.053***	0.075***
High	0.021**	-0.044**	0.065**

Table 8 (continued)

Panel D: Abnormal Returns of Portfolios on Percent Accruals, conditional on Legal Origin			
Groups on Legal Origin	**Portfolios on Percent Accruals**		
	Low	**High**	**Hedge**
French	0.006	-0.039***	0.045**
English-German-Scandinavian	0.016**	-0.043***	0.059***

Panel E: Abnormal Returns of Portfolios on Percent Accruals, conditional on Anti-Self Dealing			
	Portfolios on Percent Accruals		
Groups on Anti-Self Dealing	**Low**	**High**	**Hedge**
Low	0.002	-0.023	0.025
Medium	0.003	-0.049***	0.052***
High	0.039**	-0.044***	0.083***

Panel F: Abnormal Returns of Portfolios on Percent Accruals, conditional on Accrual Index			
	Portfolios on Percent Accruals		
Groups on Accrual Index	**Low**	**High**	**Hedge**
Low	0.001	-0.03***	0.031*
High	0.023***	-0.053***	0.076***

Panel G: Abnormal Returns of Portfolios on Percent Accruals, conditional on Earnings Opacity			
Groups on Earnings Opacity	**Portfolios on Percent Accruals**		
	Low	**High**	**Hedge**
Low	0.019	-0.038***	0.058
Medium	0.013*	-0.047***	0.06***
High	0.001	-0.033	0.034

Panel H: Abnormal Returns of Portfolios on Percent Accruals, conditional on Ownership Concentration			
Groups on Ownership Concentration	**Portfolios on Percent Accruals**		
	Low	**High**	**Hedge**
Low	0.014	-0.06***	0.074***
Medium	0.013	-0.041***	0.054***
High	0.007	-0.023	0.03

Panel J: Abnormal Returns of Portfolios on Percent Accruals, conditional on Equity-Market Liquidity			
Groups on Equity-Market Liquidity	**Portfolios on Percent Accruals**		
	Low	**High**	**Hedge**
Low	0.015	-0.041**	0.055*
Medium	0.003	-0.038***	0.041**
High	0.021*	-0.055***	0.076***