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Ryan LaFond

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Ryan LaFond
Sloan School of Management
Massachusetts Institute of Technology
617-253-7084
rzlafond@mit.edu

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Abstract

This paper investigates the subsequent return implications of accruals within a sample of large, developed, international equity markets and assesses whether similar institutional features account for the accrual anomaly across countries. I investigate the returns implications of accruals in 17 countries over the 1989 to 2003 time period. In general, the results of country-specific analysis indicate that the accrual anomaly is a global phenomenon. After decomposing total accruals, I find, in general, that accrual mispricing is largest for working capital accruals, specifically current asset accruals. However, the results of further analysis suggest that there is no dominant factor that explains the accrual anomaly internationally. Overall, the results indicate that the accrual anomaly is present in international markets yet the factor(s) driving the accrual anomaly appear to vary across markets.

Is the Accrual Anomaly a Global Anomaly?

I. Introduction

Sloan (1996) documents significant abnormal returns related to accruals in the U.S., the accrual anomaly. This paper investigates whether the accrual anomaly is present in a sample of large, developed, international equity markets, and assesses whether similar factors account for the accrual anomaly across countries. The accrual anomaly is a particularly interesting anomaly to examine internationally for at least two reasons. First, the trading signal that generates the anomalous returns, accruals, is independent of the market, as accruals are determined within the accounting system. The measurement of accruals differs across countries due to variation in the accounting standards that define the recognition and measurement of assets and liabilities (Hung, 2001).[1] To the extent that the application of accrual accounting varies by country, the returns implications of accruals also potentially vary by country. Second, since the accrual component of earnings differs due to cross-country differences in accounting, an international study of the accrual anomaly provides insights into whether it is due to specific measurement methods or to the general use of accrual accounting. If the accrual anomaly is driven by the use of accrual accounting, as opposed to specific measurement methods defined by different accounting regimes (such as U.S. GAAP), it should be present in all countries where accrual accounting is the basis for financial reporting.

I investigate the returns implications of accruals in 17 countries (Australia, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, the U.K., and the U.S.) between 1989

[1] In this study I define accruals as operating accruals, the difference between earnings and cash flow from operations. My definition of operating accruals excludes hidden reserves or other types of accruals that are recorded to meet non-financial reporting objectives, e.g., tax reporting.

and 2003.[2] The results of monthly calendar time portfolio regressions document that hedge portfolios formed on total accruals result in significant abnormal returns in 15 of the 17 countries: Denmark and Norway are the only countries where the hedge portfolio abnormal returns are insignificant. Based on these findings, I conclude that the accrual anomaly is a global returns phenomenon.

Recent studies have extended the results of Sloan by examining the returns implications of the accrual components in the U.S. Chan et al. (2004), Hribar (2000), and Thomas and Zhang (2002) find that Sloan's results are primarily due to the inventory and accounts receivable accruals. I find substantial variation in the existence of accounts receivable and inventory accrual mispricing across sample countries. I fail to find an association between specific accounting methods for accounts receivable and inventory and mispricing of these accrual components, suggesting that accrual mispricing is not driven by differences in accounting measurement methods.

Prior U.S. literature finds that certain factors are related to differential accrual mispricing (Xie, 2001; Barth and Hutton, 2004; Collins et al., 2003; Liu and Qi, 2004). By comparing the influence of managerial discretion, analyst following, and ownership structure on the accrual anomaly, I investigate whether similar factors influence the accrual anomaly internationally. I find substantial variation in the degree to which the above factors are associated with accrual mispricing internationally.

In nine of the 17 countries, the accrual anomaly is most prevalent in the sample of firms whose accruals are most influenced by managerial discretion, where managerial discretion is proxied by the degree of earnings smoothing. However, in two countries

[2] The selection of countries and time period included in the current study is driven by the requirement that sufficient sample sizes exist within a country to conduct my returns analysis.

(Denmark and Italy) the accrual anomaly is concentrated in the sample of firms whose accruals are least influenced by managerial discretion. Furthermore, in five countries (Belgium, Hong Kong, Japan, U.K. and the U.S.) there is accrual mispricing in both the low and high managerial discretion portfolios. Using analyst following as a proxy for firms' information environment, I find that in seven countries the accrual mispricing is largest in the sample of firms with the lowest analyst following. In six of the 17 countries the accrual anomaly is concentrated in the sample of firms having the highest analyst following. Finally, an examination of the association between ownership structure and the accrual anomaly indicates that there is no systematic association between the accrual anomaly and ownership structure across countries. Specifically, across sample countries, portfolios of firms with both high and low ownership concentration exhibit anomalous returns.

Having documented differences in the association between the above factors and accrual mispricing internationally, my last analysis examines the cross-country correlations in accrual hedge portfolio returns. If the accrual anomaly is driven by a systematic risk factor(s) present in international equity markets, and the sample of countries are part of a globally integrated equity market, then the accrual returns should be highly correlated across markets. In addition, if accruals capture common returns-relevant information across markets, the hedge portfolio returns should exhibit relatively high cross-country correlations.[3] Inconsistent with accruals capturing common returns-relevant information across markets, I find that the accrual hedge portfolio returns are

[3] If these markets are perfectly integrated and the returns implications of accruals are due to a systematic risk factor captured by accruals, one would expect the cross country correlations to be equal to one. Thus, this analysis is a joint test of the level of integration across these markets and the risk based explanation for the accrual anomaly.

uncorrelated across markets. These results are consistent with my finding that the factors influencing the accrual anomaly vary substantially across markets, leading to low cross-country correlations in the accrual hedge portfolios.

Overall, these results indicate that the accrual anomaly exists in markets around the globe, and in markets that encompass a variety of institutional features (code and common law, high and low investor rights). Moreover, the accrual anomaly is present in countries with both high and low accrual intensive accounting systems. These analyses suggest that the accrual anomaly results from the use of accrual accounting in general and that the accrual anomaly cannot be explained by any one factor, i.e., allowing specific accounting methods such as LIFO, managerial discretion, firms' information environment, or ownership structure. In combination, my results indicate that the accrual anomaly is present in international markets, but there is no systematic explanation for the mispricing of accruals internationally.

The current study makes several contributions to the extant literature. First, the within-country analyses that examine the returns implications of accruals within each of the seventeen countries contribute to the literature that investigates the presence of market anomalies (e.g., book-to-market anomaly or price momentum anomaly) in international equity markets (See Hawawini and Keim (2000) for a recent review). I add to this literature by providing evidence that the accrual anomaly is present in non-U.S. markets. This finding is important because it provides out-of-sample evidence related to the existence of the accrual anomaly, indicating the accrual anomaly is not due to potential biases in U.S. data (e.g. sample selection or survivorship bias).

My results indicate that accruals are predictive of subsequent returns across different accounting regimes. This finding provides empirical evidence regarding the market implications of accounting information internationally. I document that the accrual anomaly is not related to differences in legal regimes (code vs. common law) nor is it associated with the level of investor protection. This finding suggests that the accrual anomaly is truly a global anomaly and not due to country-specific institutional features that prior research has shown to be related to certain properties of accounting measurement (Alford et al., 1993; Ball et al., 2000). In addition, by controlling for value-glamour returns effects (book-to-market ratio) throughout my analysis, I provide evidence that the accrual anomaly internationally is distinct from the previously documented book-to-market effect in returns (Fama and French, 1998). The study contributes to the literature by documenting that different factors influence the degree of accrual mispricing across countries. This evidence, combined with the lack of cross-country correlations in the accrual returns, indicates the accrual anomaly is not due to a common systematic factor(s) across markets.

The paper proceeds as follows. Section II provides the motivation and an overview of the prior literature. Section III presents the sample and descriptive statistics. Section IV presents the results of the returns analysis. Section V summarizes the results of sensitivity analysis, and Section VI concludes the paper.

II. Motivation and Prior Literature

Sloan (1996) documents the returns implications of accruals within the U.S., finding that firms with large negative (positive) accruals have positive (negative) subsequent returns, i.e., the accrual anomaly. Numerous studies have confirmed the

implications of current period accruals for subsequent period returns within the U.S. (Beneish and Vargus, 2002; Bradshaw et al., 2001; Barth and Hutton, 2004; Chan et al., 2004; Collins and Hribar, 2000; Collins et al., 2003; Desi et al., 2004; Pincus et al., 2005; Richardson et al., 2005; Thomas and Zhang, 2002). Sloan (1996) suggests that the accrual anomaly is due to investors' failure to understand the differential persistence of accruals relative to cash flows for future earnings.

Current research, however, calls into question a persistence-based explanation for the accrual anomaly. Chambers (2004) finds that larger differences between firm-specific estimates of accrual and cash flow persistence are not associated with greater accrual mispricing. Zach (2004) finds that extreme accruals tend to be "sticky" in that they do not reverse in the subsequent period as is predicted by the persistence-based explanation. In addition, Zach finds that extreme accruals that do not reverse result in the greatest mispricing, suggesting that sticky accruals play a prominent role in the accrual anomaly. Dechow et al. (2005) examine the persistence and pricing of the cash flow components of earnings, decomposing cash flows into three components: cash retained by the firm, cash distributed to debt, and cash distributed to equity. They find systematic differences between the persistence of the cash components and investors' estimates of persistence of the cash components, which indicates that misperceptions of persistence extend beyond the accrual component of earnings.

Lehavy and Sloan (2004) propose an alternative explanation for the accrual anomaly based on Merton's (1987) work. Merton develops an asset pricing model under incomplete information where investors' hold only those stocks with which they are familiar. Consistent with the predictions of Merton's model, Lehavy and Sloan find that

extreme accruals are correlated with events (e.g. changes in investment and accessing external capital markets) that most likely increase investor recognition of these firms, thereby providing a potential explanation for the accrual anomaly. On the other hand, Khan (2005) explores a risk-based explanation for the accrual anomaly, finding that within the U.S., a four-factor asset pricing model captures the anomalous returns related to accruals, consistent with the returns to the accrual anomaly compensating for risk.

Beaver (2002) conjectures that the accrual anomaly is a value-glamour anomaly in disguise. Desai et al. (2004) investigate the association between the accrual anomaly and the value-glamour anomaly in the U.S., finding that the association between the two pricing anomalies depends on how the value-glamour effects are measured. Specifically, they show that if value-glamour is defined as cash flow from operations to price, value-glamour effects appear to explain (capture) the returns implications of accruals.[4] However, if more traditional proxies for value-glamour effects (such as book-to-market or earning-to-price) are used, the accrual anomaly appears distinct from the value-glamour effects in returns.[5] Thus, while such current research debates the underlying phenomena driving the accrual anomaly, researchers continue to document the empirical fact that current period's accruals have implications for future period's returns.

International Research

[4] Kraft et al. (2004b) report evidence inconsistent with Desai et al. (2004) in that they find the returns in both the high and low accrual deciles are driven by firms with low cash flow from operations casting doubt on a value-glamour explanation for the accrual anomaly.

[5] Fama and French (1998) and Griffin (2002) document the existence of a book-to-market (value-glamour) effect in returns internationally. Throughout my analysis I control for the book-to-market effect in returns and thus provide evidence regarding whether the accrual anomaly internationally is distinct from the book-to-market effect in returns internationally.

Other market anomalies have been documented in both the U.S. and other equity markets. For example, both international and U.S. finance research documents the existence of value-glamour effects in returns (Lakonishok et al., 1994; Fama and French, 1992, 1993, 1996, and 1998). Prior finance literature finds anomalous returns in markets other than the U.S. with varying institutional features (i.e. legal regimes and investor rights).[6] Specifically, Chan et al. (1991), Capaul et al. (1993), and Fama and French (1998) find glamour-value and size anomalies in international markets, and Rouwenhorst (1998) and Griffin et al. (2002) find returns momentum effects in a large number of non-U.S. equity markets.

Pincus et al. (2005) investigate the returns implications of total accruals internationally, finding evidence of accrual mispricing in Australia, Canada, the U.K., and the U.S.[7] Pincus et al. (2005) contend that the cross-country variation in the existence of the accrual anomaly is due to differences in institutional features across countries. They believe that the accrual anomaly is present in common law countries with weaker protection of shareholder rights, more accrual-intensive accounting systems, and less concentrated ownership structures. However, for institutional features (e.g., legal origin and investor rights) to explain variation in the existence of the accrual anomaly, one must be able to specify how the accrual anomaly is found in the international markets. That is, if value-glamour and momentum anomalies have been

[6] See Hawawini and Keim (2000) for a recent review of the international anomaly literature.

[7] Pincus et al. (2005) use the Mishkin (1983) test to assess whether the accrual anomaly exists in international markets. Prior research notes several methodological concerns related to the Mishkin test, thus I conduct my analysis using alternative statistical techniques. However, to better assess whether my findings differ from Pincus et al., due to differences in research design or sample selection I conduct the Mishkin test for all of my sample countries. The results of the Mishkin test reject rational expectations in Australia, Canada, France, Hong Kong, Japan, Norway, Spain, the U.K. and the U.S., indicating that both differences in sample selection and research design are important in assessing the existence of the accrual anomaly internationally.

found around the globe, across legal regimes, in both high and low investor rights countries, why would these institutional features explain cross-country variation in the accrual anomaly?

One potential reason for variation in the existence of the accrual anomaly across countries is variation in the application of accrual accounting measurement rules across countries. Ashbaugh (2001) and Hung (2001) report that countries differ significantly in the measurement of assets and liabilities, which affects the accrual intensity of their accounting systems, where accrual intensity is defined by the number of accrual-related accounting standards.[8] These differences indicate that if the accrual anomaly is the result of specific measurement methods, such as the accounting for intangibles, the accrual anomaly may vary depending upon the intensity of countries' accrual accounting systems.

Other international research has focused on differences in the associations between accounting information and prices and returns across markets (Alford et al., 1993; Ali and Hwang, 2000; Ball et al., 2000; Hung, 2001). Differences in the value relevance of earnings and book values across markets may have implications for the accrual anomaly as they may indicate the lack of informativeness of a country's accounting system. Specifically, if a country's accounting system captures less return-relevant information, it may be an indication that accruals within that country do not have implications for subsequent returns. In addition to differences in value relevance across

[8] Hung's accrual intensity index comprises 11 accrual related accounting standards, where countries are ranked based on the existence (use) of specific accrual standards. Specifically, Hung's index is based on (1) Goodwill accounting, (2) Equity method accounting, (3) Deprecation and accelerated depreciation, (4) Accounting for purchased intangibles, (5) Accounting for internally developed intangibles, (6) Accounting for research and development cost, (7) Interest capitalization, (8) Lease capitalization, (9) Allowance of the percentage of completion method, (10) Pension accounting, and (11) Accounting for other post retirement benefits.

countries, both Ali and Hwang (2000) and Jacobson and Aaker (1993) document differences across countries in the extent to which prices lead accounting information.

Finally, researchers have focused on the differential roles that accounting information plays in corporate governance across countries. Ball et al. (2000) document differences in earnings conservatism and timeliness across countries, contending that these differences are driven by differences in the ways that firms mitigate information asymmetries between managers and external stakeholders. Common law countries, in general, tend to operate on shareholder-based governance systems that rely more heavily on public disclosures of information to mitigate information asymmetries between managers and external stakeholders. Code law countries, on the other hand, tend to rely more on an insider-oriented system of governance, characterized by private communication between managers and important stakeholders (Ball et al., 2000). One implication of this research is that there may be substantial variation across countries in the amount of public information available to investors and in the amount of information captured by accounting. To the extent that conservatism, timeliness, value relevance, and prices leading accounting information are important to the existence of the accrual anomaly, there is the potential for cross-country variation in its existence.

All countries examined in the current study use accrual accounting (see Appendix B for an overview of countries' accounting systems); however, the application and measurement rules behind their accounting systems vary. Furthermore, to some extent, these countries' application and measurement rules are correlated with various institutional features (Ball et al., 2000). For example, Hung (2001) finds that legal origin and investor protection are correlated with the degree of separation between tax and

financial accounting. However, the findings of prior finance literature suggest that institutional features do not mitigate anomalous returns. If the accrual anomaly is only present in a certain set of countries, this would be consistent with the accrual anomaly resulting from differences in measurement methods or the application of measurement methods across countries. Alternatively, if the accrual anomaly is present in numerous countries with varying institutional features, this would suggest that it is most likely driven by some underlying economic risk or systematic behavioral bias exhibited by investors around the globe resulting from the use of accrual accounting.

In summary, prior literature has identified anomalous returns in markets other than the U.S. that are characterized by various institutional features as well as differences in the properties of countries' accounting information (accrual intensity, conservatism, timeliness, and value relevance) and the primary purpose of countries' accounting information (tax versus financial reporting).[9] In light of these findings and lack of strong evidence related to the accrual anomaly internationally, I predict that the accrual anomaly results from the use of accrual accounting in general and thus will be present in international markets.

Factors Influencing the Accrual Anomaly

Documenting the existence of the accrual anomaly internationally does not necessarily imply that the accrual anomaly is driven by the same underlying factors as it is in the U.S. By examining the association between accrual mispricing and factors found

[9] Since there is no theory to draw on as to how these differences interacts with the accrual anomaly I conduct all of my analysis within each of the 17 countries. By conducting within-country analysis I do not presuppose that these factors influence the accrual anomaly in a similar fashion across countries. Throughout my analysis inferences are drawn based on the results of the analysis for each individual country.

in prior literature to attenuate or amplify accrual mispricing, I provide evidence regarding the relative similarities of the accrual anomaly in various countries.

Xie (2001) extends Sloan's findings by documenting that in the U.S., the discretionary portion of accruals is responsible for the majority of the subsequent returns implications of accruals. Accruals are generally more susceptible to managerial discretion than cash flows, thus one potential reason for the accrual anomaly is discretionary managerial behavior. Leuz et al. (2003) find that earnings management exists across the globe and is more prevalent in countries with weak institutional features, such as low shareholder protection.

Leuz et al. (2003) develop a measure of earnings management internationally based on the smoothness of earnings. Specifically, they measure earnings smoothness as the standard deviation of net income divided by the standard deviation of cash flow from operations.[10] The smaller this ratio, the greater the degree to which management has used accruals to smooth earnings. Related to the work of Xie, smoother earnings represent a greater degree of managerial discretion in applying accrual accounting. To the extent that managerial discretion is driving the accrual anomaly, firms with smoother earning are expected to exhibit larger anomalous returns related to accruals.

> **Prediction 1:** Increased managerial discretion in applying accrual accounting (greater income smoothing) is associated with greater accrual mispricing internationally.

While earnings smoothness has been used to capture managerial discretion internationally and thus provides insights into the similarities in the phenomenon underlying the accrual anomaly across countries, it also has implications for the

[10] I use smoothness to capture relative differences in managerial discretion internationally, since Meuwissen et al. (2004) find alternative measures of managerial discretion such as abnormal accruals do not perform as well in the international setting as they do in the U.S.

persistence-based explanation for the accrual anomaly. Zarowin (2002) and Ashbaugh and LaFond (2004) find that the accruals of U.S. and international firms with greater smoothness are also more persistent. This indicates that if investor misperception of accrual persistence is driving the accrual anomaly rather than managerial discretion, then the accrual anomaly should be concentrated in firms with the least smooth earnings, as their accruals are less persistent.

Prior literature that focuses on returns anomalies as a whole finds that the anomalous returns are concentrated in the sample of firms with the most opaque information environments (e.g. Fama, 1998). Barth and Hutton (2004) examine the association between Stickel's (1991) analyst forecast revision anomaly and the accrual anomaly.[11] They find that a trading strategy combining these two anomalies results in significantly larger abnormal returns than either of the two strategies individually. Liu and Qi (2004) find that within the U.S., the subsequent return implications of accruals are largest in the sample of firms having high analyst forecast errors and low institutional ownership. These results suggest that firms with less informative information environments exhibit the greatest accruals mispricing. However, Ali et al. (2000) find that the accrual anomaly does not vary with analyst following, indicating that accrual mispricing is potentially unaffected by firms' information environments.

Prior literature uses analyst following to proxy for differences in firms' information environments internationally (Bushman et al., 2005). Greater analyst following is associated with the existence of informed market participants, increased information search, and greater investor interest in the firm. To the extent that the

[11] Stickel (1991) documents abnormal returns associated with analyst forecast revisions. Specifically, he finds that positive (negative) forecast revisions are associated with future positive (negative) abnormal returns.

accrual anomaly internationally is similar to that in the U.S., increased analyst following should mitigate it.

> **Prediction 2:** More opaque information environments (lower analyst following) are associated with greater accrual mispricing internationally.

Finally, prior literature in the U.S. finds that the accrual anomaly varies with ownership structure. Collins et al. (2003) find that firms with high institutional ownership (more sophisticated owners) exhibit less accrual mispricing. Lev and Nissim (2004) also find that institutional investors appear to trade on the accrual anomaly. However, institutional investors' influence on the anomaly is mitigated by the fact that those stocks with the most extreme accruals have characteristics that prevent institutions from trading away the anomaly. Beneish and Vargus (2002) find that a strategy combining accruals and insider trading results in greater returns than does a strategy that includes only the accrual anomaly. This indicates that insiders potentially time their trades to take advantage of the accrual anomaly. Core et al. (2005) test this conjecture more directly and find that insiders' time their stock repurchases to take advantage of accruals related mispricing. Overall, prior U.S. literature documents variation in the degree of accrual mispricing conditional on firms' ownership structure.

> **Prediction 3:** Ownership structure is associated with accrual mispricing internationally.

In summary, I predict that the accrual anomaly is present in international markets and varies based on factors shown by prior U.S. literature to influence the degree of accrual mispricing. The next section discusses the sample selection and presents the country-specific samples and descriptive statistics for the accrual measures.

III. Sample and Descriptive Statistics

Table 1 presents the number of firm-year observations for the 17 sample countries: Australia, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, the U.K., and the U.S. I select these 17 countries because they represent developed capital markets and have sufficient time series data to conduct the returns analysis. Both accounting and market data are provided by Datastream Advanced (a collaboration of market statistics from Datastream and accounting data from WorldScope) for the non-U.S. sample and by CSRP and Compustat for the U.S. sample, over the 1989-2003 time period. I require firm-year observations to have monthly returns, as well as the necessary income statement and balance sheet data to calculate accruals. I eliminate all financial firms, SIC codes 6000-6999, due to differences in the nature of accruals for financial firms (e.g., financial firms lack significant levels of inventory).

Panel A of Table 1 reveals that Singapore has the fewest observations of any sample year, with only 29 firms meeting the data requirements in 1989. In contrast, the U.S. has the largest number of observations of any sample year, with 4,449 firms meeting the data requirements in 1998. Belgium has the fewest firm-year observations over the entire sample period (996 firm-year observations), while the U.S. has the largest number of firm-year observations (51,381), followed by Japan (21,417), the U.K. (16,510), and France (6,764). The number of firm-year observations within the sample countries is larger than those in prior studies examining the accrual anomaly internationally (e.g. Pincus et al. (2005)) due to the longer sample period and broader coverage of firms by Datastream Advanced.[12]

[12] I choose Datastream Advanced as my data source because it provides the broadest coverage of firms over the longest time period. The financial data required to calculate accruals reduces the number of firm-year

Panel B of Table 1 displays the percentage of firm-year observations across industry groups within each of the 17 countries. In 16 of the 17 countries, the manufacturing industry represents the largest industry group. There is some clustering of observations in the agriculture and natural resource industry in Australia and Canada. While there are differences in industry representation across the sample countries, in the subsequent analysis, I pool observations across industry groups, consistent with prior research, e.g. Sloan (1996) and Pincus et al. (2004).

Table 2 presents descriptive statistics for the accounting variables used in the empirical analysis, where all variables of interest are scaled by average total assets. NIBE is equal to net income before extraordinary items. I use the balance sheet method to calculate accruals because most firms domiciled in my sample countries are not required to provide a statement of cash flows over the analysis period.[13] ACC is total accruals, defined as the change in current assets minus the change in current liabilities minus the change in cash plus the change in current debt in current liabilities minus depreciation and amortization expense. WC_ACC is working capital accruals, defined as ACC plus

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observations relative to other international studies that employ only summary accounting variables extracted from Datastream, e.g., book values. For example, Griffin (2002) reports samples of 631 Canadian and 1234 UK firms in his study that requires firms to have book values on Datastream. My Canadian and UK samples are comprised of 346 and 1139 firms, respectively, for the same 1995 time period. Pincus et al. (2005) report 3123 and 6472 firm year observation over the 1993-2001 time period for Canada and the U.K., respectively, where my sample sizes for the Canada and the U.K. are 4259 and 10922, respectively, over the same time period.

[13] As documented by Hribar and Collins (2002) the balance sheet method of calculating accruals can lead to errors in accrual estimation in case such as mergers or divestitures. Cash flow statements are not required in the majority of my sample countries (see Appendix B) and thus the balance sheet method of calculating accruals is the only option available for most of my sample firms. In Appendix C, I present the results after eliminating firm-year observations associated with mergers and acquisitions. Eliminating these observations does not change the inferences drawn form the analysis and is discussed in section five of the paper.

depreciation and amortization expense. LT_ACC is long term accruals, defined as the negative of depreciation and amortization.

Table 2 reveals that there is substantial variation in the NIBE values across countries. The median NIBE value is highest in the Netherlands (0.06) and lowest in Japan (0.01). Turning to total accruals, the mean value of ACC is negative in all countries due primarily to depreciation and amortization expenses. German and Canadian firms, on average, report the most negative ACC values (mean -0.06), whereas firms in Hong Kong and Japan report the largest ACC values (mean -0.03). In general, the magnitudes and distributions of WC_ACC are similar across the sample of countries, with median values ranging from 0.00 to 0.01. The descriptive statistics on LT_ACC suggest that the magnitudes of ACC are driven for the most part by long-term accruals. The next section describes the methodologies used to measure the return implications of accruals internationally.

IV. Returns Analysis

Returns Methodology

Prior research uses the Mishkin (1983) test to examine whether the returns implications of accruals are due to investors' mispricing (overweighting) of the accrual component of earnings (e.g. Sloan, 1996). The first step in the Mishkin test involves estimating a cross-sectional forecasting regression, which typically results in the accrual component of earnings being less persistent than the cash flow component. However, Francis and Smith (2004) show that firm-specific estimates of cash flow and accrual persistence, as opposed to cross-sectional estimates, indicate that accruals are as persistent as cash flows. If one believes that persistence is better measured as a firm-

specific attribute, not cross-sectional, then the first stage of the Mishkin test is misspecified, casting further doubt as to whether the results from the Mishkin test provide insights into potential reasons for the accrual anomaly.[14]

Kothari et al. (2005) demonstrate that inferences drawn from Mishkin's test of rational expectations are sensitive to the treatment of extreme observations. The calculation of long horizon returns (annual) generates more extreme values relative to short horizon returns (monthly).[15,16] Miller and Scholes (1969) discuss the skewness effect in long horizon returns: limited liability laws result in the lower tail of the returns distribution being truncated at -100 percent; however, there is no limit on the upper tail, resulting in skewed distributions. In addition, the skewness of the returns distributions increases with the returns accumulation period. Given the sensitivity of the Mishkin test to extreme observations, I employ alternative statistical techniques to assess the returns implications of accruals internationally.

An important consideration in investigating the accrual anomaly internationally is the measurement of long horizon returns (i.e. the return accumulation period) and the establishment of what the normal return should be (i.e., the benchmark return, risk adjustments). Several studies specifically address the measurement issues related to long horizon returns and contrast various methods and corrections for dealing with

[14] In addition current research, e.g. Chambers (2004), Dechow et al. (2005), Lehavy and Sloan (2004), and Zach (2004) provide alternative explanations for the accrual anomaly which do not rely on the Mishkin tests, i.e. differential persistence.

[15] Kraft et al. (2004b) further question the robustness of Sloan inferences using the Mishkin test by examining the inferences drawn from the Mishkin test over different time periods and industries, finding that Sloan's results are sensitive to the time period and sample examined.

[16] An additional advantage of the portfolio test used in the current study over the Mishkin test is that it does not require accounting data and complete market data in year t+1 and thus is not subject to the critics of Kraft et al. (2004a), who contend that these additional data requirement may result in biased samples.

measurement problems associated with them. Lyon et al. (1999) discuss two approaches for long horizon returns measurement that allow for well-specified statistical tests. Specifically, they suggest calculating long horizon returns using buy-and-hold abnormal returns based on specific reference portfolios or calendar time portfolio analysis. Lyon et al. (1999) document that buy-and-hold abnormal returns result in well-specified tests when the sample of firms examined are constructed from random samples. However, Mitchell and Stafford (2000) find that buy-and-hold abnormal returns do not result in well-specified test statistics for non-random samples. This finding is particularly relevant for the current study, since by design, the analysis looks at the extreme accrual portfolios that are not random samples.

Fama (1998) and Mitchell and Stafford (2000) discuss and provide empirical evidence that the calendar time approach to measuring long horizon returns is favored over the buy-and-hold approach.[17] While the calendar time approach does not allow the researcher to mimic the returns earned by an investor, Lyon et al. (2000) note that it does allow the researcher to assess whether the sample firms earn "persistent abnormal returns." Moreover, Loughran and Ritter (2000) argue that calendar time portfolio regressions suffer from low power. Thus, my subsequent analysis using calendar time portfolio regressions potentially suffers from low power.

[17] Fama (1998) and Mitchell and Stafford (2000) demonstrate that calendar-time approach to calculating abnormal monthly returns is preferred because cross-correlations of event-firm abnormal returns are automatically accounted for in the portfolio variance, average monthly abnormal returns are less susceptible to problems with the model of expected return, and the distribution of monthly return is better approximated by the normal distribution.

I use monthly calendar time portfolio regressions to examine the accrual anomaly internationally.[18] Fama and French (1998) develop a two-factor version of their three-factor model (Fama and French, 1993) in the international setting. Griffin (2003) finds that country-specific factors provide better explanatory power than international (global) factors in asset pricing regressions. Based on the finding of Griffin (2003), I form country specific benchmark factors and use these to price the country-specific accrual portfolios.[19] Elton, Gruber, Das, and Hlavka (1993) argue that the factors included in the model of expected returns can be viewed as performance benchmarks to control for systematic effects on returns. Since prior literature has found both size and book-to-market effects in returns, I control for these effects in the model to determine the unique systematic returns due to accruals. Given the findings of Fama and French (1998), Griffin (2003), and Ashbaugh and LaFond (2005), I construct country-specific benchmark factors to control for the documented systematic returns effects due to size and the book-to-market ratio.

All returns data relate to the July, 1990 to December, 2003 time period, encompassing the financial reporting periods of January, 1989 to December, 2002. I conduct the returns tests using the prior years' accounting information, forming portfolios at the beginning of the seventh month following firms' fiscal year end. I allow for a six-

[18] It should be noted that the abnormal returns from the calendar time portfolio regressions do not represent the returns an investor could have earned by pursuing an accrual based trading strategy. Instead, I interpret the abnormal returns as the subsequent return implications of accruals and assess whether these returns are statistically different from other return effects documents by prior research. Similar to Sloan in the U.S., I define the accrual anomaly as the subsequent return implications of accruals rather than by the ability of an investor to exploit subsequent return implications of accruals.

[19] Ashbaugh and LaFond (2005) find evidence similar to Griffin that a book-to-market factor does improve pricing. They document, however, that the pricing implications of the book–to-market factor varies across countries due to the international differences in accounting measurement rules.

month lag for the information used to calculate accruals to become known to the market because, over my analysis period, all countries except Germany require firms to report financial information within six months of the fiscal year end.[20] I conduct all returns analyses using monthly returns and the prior year's accrual information for the following twelve months.

Each month I form two portfolios based on the prior year's reported accruals. I take long (short) positions in the firms falling in the most negative (positive) quintile of the monthly accrual distributions.[21] The monthly return to the hedge portfolio is then regressed on the country-specific three-factor asset-pricing model:

$$R_{-x\_acc,t} - R_{+x\_acc,t} = \alpha + b(RMRF)_t + h(HML)_t + s(SMB)_t + \varepsilon_t \quad (1)$$

$R_{-x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms that report the most negative accrual component, *-x_acc,* in the prior fiscal year for month *t*, where most negative is the first quintile of accruals ranked from smallest to largest values. $R_{+x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms having reported the most positive accrual component, +x_*acc,* in the prior fiscal year for month *t*, where most positive is the fifth quintile of accruals ranked from smallest to largest values. *x_acc* takes on one of the following values, ACC, WC_ACC, CA_ACC, AR or INV. CA_ACC is equal to the change in current assets minus the change in cash, INV is equal to the change in inventory, AR is equal to the change in accounts receivable, and all other variables are as previously defined. RMRF is the excess return on the country-

[20] For example, for a firm with a December fiscal year end, I begin trading in July of the following year. Fama and French (1998) and Pincus et al. (2004) make an identical assumption, that being that the prior fiscal years results are available to the market beginning the seventh month following the fiscal year end. All countries except Germany require firms to report financial information within 6 months of the fiscal year end. In untabled analysis I lag accruals nine months for Germany, i.e., I take positions in the beginning of the tenth month following the fiscal year end, this does not change any of the inference drawn from the analysis.

[21] Bris et al. (2004) examine differences in short selling restrictions around the globe. In 12 of the 17 countries short selling has been allowed since at least 1990. In Sweden short selling has been formally allowed since 1991, in Norway and Spain short selling was allowed in 1992 and in Hong Kong short selling was allowed in 1996. Singapore is the only sample country where short selling in not formally allowed. However, Bris et al. find significant differences between what is formally allowed and what is actually practiced across countries. Singapore is one example where significant differences between the law and practice exist due to an active offshore lending market that enables short selling in Singapore.

specific market portfolio for month *t*.[22] SMB is the country-specific return difference between small and large firms for month *t*. HML is the country-specific return difference between high and low book-to-market firms for month *t*.

In terms of equation (1), a positive and significant coefficient on the intercept, α, provides evidence of systematic abnormal returns related to an accruals based hedge portfolio after controlling for other known risk factors.

Results

Table 3 presents the results of three-factor abnormal returns analysis.[23] I find significant (at the 0.10 level or better) abnormal returns (intercepts from equation 1) to the hedge portfolio in all countries except Denmark and Norway.[24] The results presented in the first column of Table 3 indicate that the total accrual hedge portfolios result in significant abnormal returns in 15 of the 17 countries examined, providing evidence consistent with the accrual anomaly being a global returns phenomena. The abnormal returns in Table 3 represent the monthly abnormal return expressed as a percent, for example in the U.S. over this time period there is a 12% (1.00 X 12) annual abnormal return.

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[22] Fama and French (1998) define excess returns internationally as the firm return minus the U.S. risk free rate. Griffin (2003) tests whether the using the U.S. risk free rate or the country specific risk free rate result in different inferences, finding that the use of domestic risk free rates results in little differences in point estimates.

[23] My main analysis uses country specific three-factor models to control for the association between value-glamour and accruals. In untabled analysis I use a country specific one-factor (CAPM) model including only the RMRF factor, the results from this analysis are similar to tabled results with one exception, Sweden where the intercept is no longer significant.

[24] My inferences are based on the significance of the abnormal returns within a country. I do not attempt to differentiate between countries based on the magnitude of the abnormal returns due differences in the magnitude of the accrual trading signal across countries, (i.e. the extreme accrual portfolios are based on the distribution of accruals within a country). In addition differences in transaction cost, taxes, and other market specific factors likely influence the magnitude of abnormal returns. Finally, research investigating the accrual anomaly is silent as to the magnitude of the abnormal returns (i.e. how large they should be) and instead simply states that if the accrual anomaly is present, the abnormal returns to the hedge portfolio will be significant.

The results presented in column one of Table 3 suggest that the subsequent return implications of total accruals are not confined to certain subsets of countries or institutional features. For example, the returns implications of total accruals are not confined to countries with common law legal origins or those that have more accrual-intensive accounting systems. Hung (2001) develops an accrual index based on the accrual intensity of countries' accounting systems where accrual intensity is defined by the number of accrual-related measurement methods allowed within a country (see Appendix A). Hung's accrual index ranks Norway near the top (0.82) and Denmark in the middle (0.55)--the two countries that do not exhibit significant abnormal returns--suggesting that the intensity of accrual usage within a country is not associated with the existence of the accrual anomaly. Furthermore, Switzerland and Germany rank near the bottom of Hung's accrual index (0.32 and 0.41, respectively), lower than Denmark, yet exhibit results consistent with the existence of an accrual anomaly. Examining the association between the existence of the accrual anomaly and the accounting measurement methods presented in Appendix B indicates that there are no features that are unique to Denmark and Norway that could explain the lack of anomalous returns in these two countries.

Pincus et al. (2005) contend that the accrual anomaly only exists in common law countries with accrual-intensive accounting systems, weaker shareholder protection, and less concentrated ownership structures.[25] Contrary to Pincus et al., I find that the accrual

[25] While the statistical evidence presented in Pincus et al. (2005) indicates that shareholder rights is negatively associated with the existence of the accrual anomaly, the high correlation between investor rights and the other variables such as legal origin and the subsequent mutlicollinearity is potentially behind this result. The four countries for which Pincus et al. contend the accrual anomaly is present in, Australia, Canada, the U.K., and the U.S., have the highest investor rights. Thus, the common law country with high accrual intensity and low investor rights having the accrual anomaly does not exist.

anomaly is present in countries that span legal environment classifications and investor protection levels (see Appendix A for classifications). Specifically, I find the accrual anomaly in all six common law countries and in nine of the 11 code law countries. With respect to investor rights, I find the accrual anomaly in countries with every level of investor rights. Consistent with the findings of prior finance literature, institutional-based explanations for variation in the existence of the accrual anomaly appear to be inconsistent with the evidence in column one.

The second column of Table 3 presents the hedge portfolio analysis for the WC_ACC hedge portfolios. I find significant abnormal returns related to WC_ACC in Australia, Canada, Denmark, France, Hong Kong, Italy, Singapore, Spain, Switzerland, the U.K., and the U.S.[26] Column three of Table 3 presents results forming the hedge portfolios on the current asset portion of accruals. I find evidence of abnormal returns to CA_ACC hedge portfolios in all countries except Belgium, Japan, Norway, Singapore, Spain, and Sweden.

Column four of Table 3 presents the results of the accounts receivable hedge portfolio analysis. In Canada, Denmark, France, Italy, the Netherlands, Switzerland, the U.K., and the U.S. the abnormal returns are significant. A comparison of the abnormal returns in column four with those reported in column one, the total accrual hedge portfolios, indicates Australia, Belgium, Germany, Hong Kong, Japan, Singapore, Spain, and Sweden exhibit abnormal returns for the total accrual hedge portfolio but not for the

[26] As documented by Hribar (2000) ranking on the individual accrual components results in different firms being included in the extreme portfolios than rankings on total accruals, thus the results reported for accrual component analysis differ due to the inclusion of different firms in the extreme accrual component portfolios.

accounts receivable hedge portfolio. These results suggest that the role that accounts receivable plays in the accrual anomaly varies across countries.

The last column of Table 3 reports the results for the inventory hedge portfolios. In 13 of the 17 countries there are significant abnormal returns related to the inventory hedge portfolios. Belgium, the Netherlands, and Singapore are the only countries that exhibit abnormal returns to total accrual hedge portfolios yet do not exhibit abnormal returns to inventory hedge portfolios. In contrast, in Denmark the abnormal returns for the inventory hedge portfolio are significant, yet the total accrual hedge portfolio returns are not. Consistent with prior U.S. research, the abnormal returns to the U.S. inventory hedge portfolio (0.97), are comparable to the abnormal returns to the U.S. total accrual hedge portfolio (1.00), indicating the importance of inventory accruals to the accrual anomaly in the U.S. Overall, the results for the inventory hedge portfolio analysis suggest that, similar to the U.S., inventory accruals are associated with greater accruals mispricing in international markets.

The results reported in columns four and five of Table 3 allow for the most direct examination of how differences in accounting measurements methods influence the accrual anomaly. A review of sample countries' accounts receivable and inventory measurement methods (presented in Appendix B) highlights that the returns implications are not confined to a particular measurement method. One prominent difference is the allowance of LIFO accounting across countries. However, abnormal inventory hedge portfolio returns are present in countries that do and do not allow LIFO accounting. The next section draws cross-country comparisons regarding the accrual anomaly by

examining factors that have been shown to mitigate or accentuate accrual mispricing in the U.S.[27]

Cross-country comparisons

Anomalies, such as the accrual anomaly, by definition are unexplainable systematic events. Current research continues to disagree about the underling factor(s) causing the accrual anomaly. The purpose of this section is to assess the relative similarities/differences in the accrual anomaly across countries by investigating factors found by prior U.S. research to influence the magnitude of the accrual related returns. I assess the relative similarities/differences in the accrual anomaly across countries based on the existence of significant abnormal returns related to various accrual hedge portfolios.

To assess the influence of smoothness, analyst following, and ownership structure on the accrual anomaly internationally, I first form two groups each month within each country, based on the levels of these factors in the prior year. Within each of the two groups, I sort firms into quintiles based on the ACC values reported for the prior fiscal year. I then form ACC hedge portfolios within the two groups by taking the returns difference between the most negative and most positive accrual portfolios within each.

The Effects of Managerial Discretion

Xie (2001) finds that within the U.S. the accrual mispricing is largest for the discretionary portion of accruals, suggesting that one potential reason for the accrual anomaly is managerial discretion. Leuz et al. (2003) document significant differences in

[27] In untabled analysis I also examine the abnormal returns LT_ACC and CL_ACC accrual hedge portfolios. I find that Germany, Hong Kong, Norway and the U.S. have significant abnormal returns related to LT_ACC. The results for the CL_ACC indicate that only Singapore exhibits significant positive abnormal returns to CL_ACC hedge portfolios. However, the results indicate that in Denmark, Germany, and the U.S., the CL_ACC hedge portfolios results in significant negative abnormal returns.

earnings smoothness across countries, contending that these differences are due to managers' discretionary application of accrual accounting to hide wealth extracting activities.[28] I use earnings smoothness to proxy for the level of managerial discretion.

SMOOTH is defined as the standard deviation of net income before extraordinary items divided by the standard deviation of cash flow from operations, where both variables are scaled by average total assets. I calculate the standard deviations using rolling time intervals requiring a minimum of three and a maximum of five years of data. The intuition behind the SMOOTH measure is that the standard deviation of cash flows is the "true" volatility of firms' fundamentals. Thus, absent earnings smoothing through accruals, SMOOTH should be equal to one. When comparing the standard deviation of earnings to the standard deviation of cash flows, firms with lower values represent firms where managers have used their discretion to smooth earnings. In general, the descriptive statistics on SMOOTH (not tabulated) are similar to those reported in Leuz et al. (2003), with U.S. and Canadian firms having the least smoothed earnings and firms in Italy, the Netherlands, and Spain reporting the most smoothed earnings.

The analysis implicitly assumes that within a country managers in the MORE (highest smooth group) SMOOTH group have used their discretion over accruals relatively more than the managers in the LESS (lowest smooth group) SMOOTH group. If the accrual anomaly is due to managerial discretion, the anomalous returns related to accruals should be concentrated in the MORE SMOOTH group, consistent with prediction 1.

[28] The SMOOTH measure is intended to reflect differences in the relative level of managerial discretion exercised over accruals. The measure is silent as to whether this discretion was used manipulate the reported earnings number to extract wealth from other stakeholders or if managers engaged in earnings smoothing as a signaling mechanism.

Panel A of Table 4 reports the results of the three-factor regressions for the hedge portfolio analysis in the MORE and LESS SMOOTH groups. The results of the hedge portfolio analysis indicate that the role of managerial discretion in the accrual anomaly varies across countries. In Belgium, Hong Kong, Japan, the U.K., and the U.S., both the MORE and LESS SMOOTH portfolios exhibit significant abnormal returns.[29] In Australia, Canada, France, Germany, the Netherlands, Singapore, Spain, Sweden, and Switzerland, only the MORE SMOOTH hedge portfolio abnormal returns are significant at 0.10 level or better. These results suggest that within these countries the accrual anomaly is concentrated in firms where managers have exercised relatively more discretion in applying accrual accounting. This is in contrast to Denmark and Italy where only the LESS SMOOTH hedge portfolios have significant abnormal returns. In general, the results presented in Panel A indicate that managerial discretion, as measured by smoothing, is differentially associated with the accrual anomaly internationally, which is inconsistent with prediction 1.

The Effects of Information Environments

Prior U.S. research indicates that firms' information environments mitigate the returns to the accrual anomaly. Analyst following is defined as the number of analysts reporting an earnings forecast for the firm on IBES. All firm-year observations not associated with an earnings forecast on IBES are assumed to have zero analyst following. Overall, the average firm year observation across the sample is associated with six analysts. If the accrual anomaly internationally is similar to that in the U.S., the

[29] While the abnormal returns in the U.S. are larger for the MORE SMOOTH portfolio (0.88 vs. 0.77), the portfolio where managers have exercised relatively more discretion in applying accrual accounting, SMOOTH does not appear to influence the accrual anomaly as much as the discretionary accruals decomposition found in Xie (2001). This is most likely due to the fact that smoother earnings associated with more persistent accruals (Zarowin 2002; Ashbaugh and LaFond 2004).

anomalous returns should be concentrated in the LOW (lowest analyst following group) group internationally, consistent with prediction 2.

Panel B of Table 4 presents the results of the three-factor regressions for the LOW and HIGH analyst following hedge portfolios. The U.S. results are consistent with the findings of prior U.S. studies (Barth and Hutton, 2004; Liu and Qi, 2004) in that the abnormal returns to the total accrual hedge portfolios are concentrated in the LOW analyst following (most opaque information environment) group (1.22 vs. 0.63).

In Australia, Hong Kong, the U.K., and the U.S., both the LOW and HIGH analyst following hedge portfolios exhibit significant abnormal returns relative to the three-factor model. However, with the exception of Hong Kong, the returns to the LOW analyst following hedge portfolio are relatively larger. In Canada, Denmark, Singapore, and Spain only the LOW analyst following hedge portfolio returns are significant. This finding suggests that within these countries the returns to the accrual anomaly are concentrated in the subset of firms having relatively less informative information environments. However, in Belgium, France, Germany, Italy, Japan, and Switzerland, the abnormal returns to total accrual hedge portfolios are only significant for the HIGH analyst following hedge portfolios. Overall, the results presented in Panel B indicate that firms' information environment differentially influences the accrual anomaly across countries, inconsistent with prediction 2.

The Effects of Ownership Structure

Panel C of Table 4 further probes the accrual anomaly internationally by examining how closely held ownership influences the accrual anomaly. Collins et al. (2003) find that within the U.S., ownership by institutional investors mitigates the returns

to the accrual anomaly. However, Core et al. (2005) find that managers time their trades and stock repurchases to exploit the returns implications of accruals. Finally, Pincus et al. (2005) contend that concentrated share ownership mitigates the accrual anomaly internationally.

While the results in the U.S. are mixed on whether institutional and insider ownership mitigates accrual mispricing, international firms often have the relatively distinct feature of concentrated ownership (La Porta et al., 1999). Prior research uses the percentage of closely-held shares as a measure of insider ownership internationally (Himmelberg et al., 2002; Lins and Warnock, 2004). Worldscope defines closely-held ownership as ownership by insiders (consisting of officers, directors, and their immediate families), shares held in trust, shares held by other companies (except shares held in a fiduciary capacity by banks or other financial institutions), shares owned by pensions or benefit plans, or shares held by individuals who own more than 5% of the shares outstanding.[30] The average firm-year observation across the sample of countries has closely-held ownership of 48%.

Panel C of Table 4 reports the results of the three-factor model for the LOWCLOSE and HIGHCLOSE hedge portfolios, where the LOWCLOSE (HIGHCLOSE) groups represent the sample of firms having the lowest (highest) closely-held ownership. In Australia, France, Hong Kong, Switzerland, and the U.K., both the LOWCLOSE and HIGHCLOSE %CLHLD hedge portfolios exhibit significant abnormal returns relative to the three-factor model. In Belgium, Germany, Japan, and Singapore,

[30] I do not include the U.S. in this analyst since I do not have access to closely held ownership data for the U.S. In addition the sample sizes used in this analysis are smaller than the previous analysis due to requiring %CLHLD. I require that firms have %CLHLD on Worldscope and do not assume that missing observations are associated with no closely held ownership due to the fact that Worldscope reports values of less than 1% for some firms.

only the LOWCLOSE %CLHLD hedge portfolio returns are significant. While in Canada, Denmark, the Netherlands, and Sweden, only the HIGHCLOSE %CLHLD hedge portfolio abnormal returns are significant. These results indicate that ownership structure does not appear to consistently affect the returns to the accrual anomaly internationally and do not support prediction 3.

Table 5 summarizes the results presented in Tables 3 and 4. Across the sample of countries, the evidence is generally inconsistent with predictions based on prior U.S. research. I find significant returns related to accruals in the majority of my sample countries as indicated by columns one through five. The variation in results summarized in columns six, seven, and eight indicates that the underlying factor(s) that influence the degree of accrual mispricing vary by country.

Cross-country correlations

The previous analyses indicate that accruals have implications for subsequent returns in international markets and documents that the return implications of accruals are not specific to a particular institutional feature(s). To provide insights into whether the returns implications of accruals are related globally, I investigate the cross-country correlations of the accrual hedge portfolios. Griffin et al. (2003) note that if profits to an international trading strategy result from systematic risk factors present in globally integrated capital markets, these profits should be correlated across markets. Keim and Hawawini (2000) present evidence on the cross-country correlations of size and book-to-market hedge portfolios, noting that the premiums to these portfolios are relatively uncorrelated across markets (the maximum cross-country correlation reported in their analysis is 0.29, the cross-country correlation of the book-to-market portfolios between

the U.K. and U.S.). If the accrual anomaly is due to a systematic risk factor(s), and the sample countries are part of a globally integrated capital market, the cross-country correlations of the accrual hedge portfolios should all be equal to one.

Table 6 presents the cross-country spearman correlations for the country-specific market returns and accrual hedge portfolios. The spearman correlations are calculated using the monthly time series of country-specific market returns and ACC hedge portfolio returns for the 162 months included in the analysis. The upper right portion of the table presents the correlations between the country-specific value-weighted market returns. All of the correlations in the upper half of Table 6 are significant at the 0.01 level, consistent with some degree of global integration. The correlations range from a high of 0.78 (Germany and France) to a low of 0.27 (Belgium and Japan, and Italy and Japan).

The lower left half of Table 6 presents the correlations between the country-specific accrual hedge portfolio returns. Only 24 of 136 correlations are significant at the 0.10 level or better. Of those 24, five of the correlations are negative, opposite of what is expected if the accrual anomaly is due to a common systematic factor across countries. The largest cross-country correlation is between the U.K. and U.S. ACC hedge portfolio returns (0.23), significant at the 0.01 level. Over 86 percent of the correlations are inconsistent with the returns to accrual anomaly being due to a global risk factor. In addition, the lack of significant cross-country correlations is inconsistent with accruals representing common returns-relevant information across countries.

Overall, the results of the cross-country correlation analysis indicate that while the sample countries' markets appear to be somewhat globally integrated, the accrual

anomaly is most likely not due to a global systematic risk factor(s). The majority of the cross-country accrual hedge portfolio correlations are insignificant, inconsistent with the accrual anomaly resulting from a global systematic risk factor.[31] Overall, the accrual anomaly is present in international markets; however, the underlying factors appear to vary across countries as indicated by the cross-country correlation results and the variation in influence of factors such as managerial discretion, analyst following, and ownership structure.

V. Additional Analysis

Hribar and Collins (2002) document deficiencies in the balance sheet method of calculating accruals due to acquisitions. In the international setting, many firms during the analysis period were not required to prepare cash flow statements. As such, the balance sheet method is the only method that can be used to estimate accruals in the majority of my sample countries (see Appendix B). To address concerns related to this limitation, I eliminate firm-year observations associated with a merger or acquisition from the sample.[32] Appendix C presents the results for the total accruals hedge portfolio analysis after eliminating firm-year observations associated with mergers and acquisitions. Eliminating these observations does not change the inferences drawn from the main analysis, in that I continue to find evidence consistent with the existence of accrual anomaly internationally.

[31] This result can be interpreted as being consistent with Mashruwala et al. (2004) in that they find that one reason for the accrual anomaly not being traded away in the U.S. is that the anomalous returns are concentrated in firms with high idiosyncratic, firm specific risk.

[32] Mergers and acquisitions for the non-U.S. sample are identified using Worldscope, where firms reporting a value for net assets from acquisitions are deleted, for the U.S. I identify mergers and acquisitions using Compustat footnote 1.

Finally, the extensive data requirements for the SMOOTH and %CLHLD analysis, in particular, result in a relatively small number of firms being used to calculate the accrual hedge portfolios in some countries. To mitigate potential concerns related to small sample sizes, I repeat the entire analysis requiring at least four firms in each of the accrual portfolios, i.e. at least eight firms are used to calculate the hedge portfolio. The results of this sensitivity analyses do not change the inferences drawn from the tabled results.

VI. Conclusion

The purpose of this paper is to investigate the existence of the accrual anomaly in international equity markets. I find significant abnormal returns to total accrual hedge portfolios in 15 of the 17 countries examined. Based on these results, I conclude that the accrual anomaly does exist in non-U.S. markets and it is a global phenomenon. I next examine whether the accrual anomaly appears to be driven by a common underlying factor(s) internationally. I find that the factors influencing the accrual anomaly differ substantially across markets due to (1) the effect of managerial discretion, (2) analyst following, and (3) ownership structure. All of these factors contribute to extremely low cross-country correlations in accrual returns, casting doubt on whether accrual-related returns are due to a global systematic risk factor or common information captured by accruals across countries.

I do not attempt to differentiate between rational and irrational explanations for the accrual anomaly; however, the results of the current study have implications for theories related to its existence. First, by documenting that the accrual anomaly is present in a broad sample of countries where firms report in accordance with diverse accounting

standards, I suggest that the accrual anomaly is a result of the use of accrual accounting in general and not due to specific accrual measurement methods. Second, documenting the accrual anomaly internationally provides evidence that it is truly a global returns phenomenon and indicates that explanations for the accrual anomaly must apply to markets other than the U.S. Finally, documenting that the accrual returns are uncorrelated across markets indicates that the underlying reason for the accrual anomaly likely varies across countries and is not due to a common underlying factor(s).

References

Alford, A., Jones, J., Leftwich, R., Zmijewski, M. 1993. The relative informativeness of accounting disclosures in different countries. Journal of Accounting Research 31 (Supplement), 183-223.

Ali, A., and Hwang, L. 2000. Country-specific factors related to financial reporting and the value relevance of accounting data. Journal of Accounting Research 38(1), 1-21.

Ali, A., Hwang, L., and Trombley, M. 2000. Accruals and Future Stock Returns: Test of the Naïve Investor Hypothesis. Journal of Accounting, Auditing and Finance, 15(2): 161-181.

Ashbaugh, H. 2001. Non-US Firms' Accounting Standard Choices. Journal of Accounting and Public Policy 20: 129-153.

Ashbaugh, H. and LaFond, R. 2004. The Capital Market Implications of Non-U.S. Firms' Accruals. Working paper, University of Wisconsin-Madison.

Ashbaugh, H. and LaFond, R. 2005. The Implications of Cross-Country Differences in Accounting for the Book-to-Market Effect in Returns. Working paper, University of Wisconsin-Madison.

Ashbaugh, H. Gassen, J., and LaFond, R. 2005. Does Stock Price Synchronicity Reflect Information or Noise? The International Evidence. Working paper, University of Wisconsin-Madison.

Ball, R., Kothari, S.P., Robin, A. 2000. The Effect of Institutional Factors on Properties of Accounting Earnings. Journal of Accounting and Economics 29(1), 1-51.

Barth, M., Cram, D. and Nelson, K. 2001. Accruals and the Prediction of Future Cash Flows. The Accounting Review. Vol. 76 (1), 27-59.

Barth, M., and Hutton, A. 2004. Analyst Earnings Forecast Revisions and the Pricing of Accruals. Review of Accounting Studies 9, 59-96.

Barber, B. and Lyon, J. 1997. Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. Journal of Financial Economics 43: 341–372.

Beaver, W. 2002. Perspectives on Recent Capital Market Research. The Accounting Review 77 (2), 453-74.

Beneish, M., and Vargus, M. 2002. Insider Trading, Earnings Euality, and Accrual Mispricing. The Accounting Review 77 (4), 755-791.

Bushman, R., Poitroski, J., and Smith, A. 2004. Insider Trading Restrictions and Analysts' Incentives to Follow Firms. Forthcoming Journal of Finance.

Bris, A., Goetzmann, W., and Zhu, N. 2004. Efficiency and the Bear: Short Sales and Markets around the World. Working Paper, Yale School of Management and University of California Davis.

Capaul, C., Rowely, I., and Sharpe, W., 1993, International Value and Growth Stock Returns, Financial Analysts Journal, 49, 27-36.

Chambers, D. 2004. Earnings Persistence and the Accrual Anomaly: Naïve Fixation or Investor Bias? Working paper, University of Kentucky.

Chan, K., Chan, L., Jegadeesh, N., Lakonishok, J. 2004. Earnings Quality and Stock Returns: The Evidence from Accruals. Forthcoming Journal of Business.

Chan, K. Hamao, Y., and Lakonishok, J. 1991, Fundamentals and Stock Returns in Japan, Journal of Finance, 46, 1739-1764.

Collins, D., and Hribar, P. 2000. Earnings-Based and Accrual-Based Market Anomalies: One Effect or Two? Journal of Accounting & Economics, Vol. 29, February, 101-124.

Collins, D., Gong, G., and Hribar, P. 2003. Investor Sophistication and the Mispricing of Accruals. Review of Accounting Studies, Fall, 251-276.

Core, J., Guay, W., Richardson, S., and Verdi, R. 2004. Stock Market Anomalies: Corroborating evidence from repurchases and insider trading. Working paper, University of Pennsylvania.

Dechow, P., Richardson, S., and Sloan, R. 2005. The Persistence and Pricing of the Cash Component of Earnings. Working Paper, University of Michigan and University of Pennsylvania.

Desai, H., Rajgopal, S., and Venkatachalam, M. 2004. Value-glamour and Accruals Mispricing: One anomaly or Two? The Accounting Review, April.

Elton, E., M. Gruber, S. Das and M. Hlavka. 1993. Efficiency with costly information: A reinterpretation of evidence from managed portfolios. Review of Financial Studies 6: 1-22.

Fama, E., and Macbeth, J. 1973. Risk, Return and Equilibrium: Empirical Tests. Journal of Political Economy 71 (May/June), 607-636.

Fama, E. and K. French. 1992. The Cross-section of Expected Stock Returns. Journal of Finance 46: 427-65.

Fama E. and K. French. 1993. Common Risk factors in the Returns on Stocks and Bonds. Journal of Financial Economics 33: 3-56.

Fama, E., and French, K. 1998. Value versus Growth: The international evidence. Journal of Finance 46: 1975-1999.

Fama, E. 1998. Market Efficiency, Long-term Returns, and Behavioral Finance. Journal of Financial Economics 49: 283-306.

Francis, J. and Smith, M. 2004. A Re-examination of the Persistence of Accruals and Cash Flows. Forthcoming, Journal of Accounting Research

Griffin, J., Ji, S., and Martin, S. 2003. Momentum Investing and Business Cycle Risk: Evidence from Pole to Pole. The Journal of Finance LVIII: 2515-47.

Griffin, J. 2002. Are the Fama and French Factors Global or Country-Specific? The Review of Financial Studies 15, 783-803.

Hawawini, G., and Keim, D.B. 2000. The Cross Section of Common Stock Returns: A Review of the Evidence and Some New Findings. In Security Market Imperfections in Worldwide Equity Markets, edited by Hawawini, G., Keim, D.B., and Ziemba, W.T. Cambridge University Press.

Hribar, P. 2000. The Market Pricing of Components of Accruals. Working Paper, University of Iowa.

Hribar, P., and Collins, D. 2002. Errors in Estimating Accruals: Implications for Empirical Research. Journal of Accounting Research, Fall, 105-134.

Hung, M. 2001. Accounting Standards and Value Relevance of Financial Statements: An International Analysis. Journal of Accounting and Economics 30: 401-420.

Jacobson, R., and Aaker, D. 1993. Myopic management behavior with efficient, but imperfect financial markets: A comparison of information asymmetries in the U.S. and Japan. Journal of Accounting and Economics 16: 383–405.

Khan, M. 2005. Are Accruals Really Mispriced? Evidence from Test of an Intertemporal Capital Asset Pricing Model. Working Paper University of Toronto.

Kraft, A., Leone, A., and Wasley, C. 2004a. Do Investors Naively Overweight Accruals? An Examination of the Time-Sereis and Cross-Sectional Behavior of "Sloan's Accrual Anomaly." Working Paper, University of Rochester.

Kraft, A., Leone, A., and Wasley, C. 2004b. Research Design Issues and Related Inference Problems Underlying Test of the Market Pricing of Accounting Information. Working Paper University of Rochester.

Kothari, S., Sabino, J., and Zach, T. 2005. Implications of survival and data trimming for tests of market efficiency. Journal of Accounting and Economics 39: 129-161.

Lehavy, R. and Sloan, R. 2004. Investor Recognition, Accruals and Stock Returns. Working Paper University of Michigan.

Leuz, C., Nanda, D.J., Wysocki, P. 2003. Earnings Management and Investor Protection: an International Comparison. Journal of Financial Economics, Volume 69, Issue 3: 505-27.

Lev, B. and Nissim, D. 2004. The Persistence of the Accruals anomaly. Working paper Columbia University.

Liu, Q., and Qi, R. 2004. Information and Accruals Strategy: When Does the Market Mis-price Accruals? Working Paper, University of Hong Kong.

Loughran, T and J. Ritter. 2000. Uniformly least powerful tests of market efficiency. Journal of Financial Economics 55: 361-389.

Lyon, J., B. Barber, and C. Tsai. 1999. Improved Methods for Tests of Long-run Abnormal Stock Returns. Journal of Finance 54: 165–201.

Mashruwala, C., Rajgopal, S., and Shevlin, T. 2004. Why is the accruals anomaly not arbitraged away? Working Paper, University of Washington.

Meuwissen, R., Moers, F., Peek, E., and Vanstraelen, A. 2004. An Evaluation of Abnormal Accrual Measurement Models in an International Context. Working Paper, University of Maastricht.

Miller, M, and Scholes, M. 1969. Rates of Return in Relation to Risk: A Re-examination of Some Recent Findings. In Studies in the Theory of Capital Markets. Edited By Michael Jensen. Prager publishers, New York.

Mishkin, F., 1983. A rational expectations approach to macroeconomics: testing policy effectiveness and efficient markets models. University of Chicago Press, Chicago, IL for the National Bureau of Economic Research.

Mitchell, M. L., and Stafford, E. 2000. Managerial Decisions and Long-term Stock Price Performance. Journal of Business 73: 287-320.

Pincus, M., Rajgopal, S., and Venkatachalam, M. 2005. The Accrual Anomaly: International Evidence. Working Paper, University of Iowa.

Richardson, S., Sloan, R., Soliman, M., and Tuna, I. 2005. Accrual Reliability, Earnings Persistence and Stock Prices. Forthcoming Journal of Accounting and Economics.

Rouwenhorst K. International Momentum Strategies , Journal of Finance 53 (1998)

Sloan, R. 1996. Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? The Accounting Review 71, 289-315.

Thomas, J., and Zhang, H. 2002. Inventory Changes and Future Returns. Review of Accounting Studies 7, 163-187.

Xie, H. 2001. The Mispricing of Abnormal Accruals. The Accounting Review 76, 357-373.

Zach, T. 2003. Inside the 'Accrual anomaly. Working Paper, University of Rochester.

Zach, T. 2004. Evaluating the 'Accrual-Fixation' Hypothesis as an Explanation for the Accrual Anomaly. Working Paper, Washington University in St. Louis.

Zarowin, P. 2002. Does Income Smoothing Make Stock Prices More Informative? Working Paper, New York University.

Appendix A
Institutional Features

Country	Common Law=1*	Shareholder Rights Index*	Accrual Index**
Australia	1	4	0.82
Belgium	0	0	0.68
Canada	1	4	0.82
Denmark	0	3	0.55
France	0	2	0.64
Germany	0	1	0.41
Hong Kong	1	4	0.64
Italy	0	0	0.45
Japan	0	3	0.55
Netherlands	0	2	0.73
Norway	0	3	0.82
Singapore	1	3	0.64
Spain	0	2	0.77
Sweden	0	2	0.59
Switzerland	0	1	0.32
U.K.	1	4	0.82
U.S.	1	5	0.86

* Source La Porta et al. (1998) develop the common law classification based on the origins of countries legal systems where common law legal. La Porta et al. (1998) develop an antidirector rights index comprised of countries (1) allowing voting by mail, (2) the requirement of investors to deposit their shares prior to shareholder meetings, (3) if cumulative voting or proportional representation of minority shareholder on the board is allowed, (4) if there are mechanisms in place to for oppressed minority shareholders, (5) the minimum ownership required to call an extraordinary shareholder meeting, and (6) if shareholders have preemptive rights. La Porta et al.'s shareholder rights index ranges from 0 (lowest) to 6 (highest) where countries receive one point for each of the above mechanisms.

**Source Hung (2001). Higher values indicate more accrual intensive accounting systems as indicated by a larger number of accrual based accounting standards.

Appendix B*
Accounting Treatment Matrices

General Overview of Accounting Methods

Country	Cost Convention	Accrual	Statement of funds/cash flows
Australia	HR	R	R
Belgium	HR	R	O
Canada	HC	R	R
Denmark	HC	R	RP
France	HR	R	O
Germany	HC	R	O
Hong Kong	HR	R	RL
Italy	HR	R	O
Japan	HC	R	RP
Netherlands	HR	R	O
Norway	HR	R	RL
Singapore	HR	R	RL
Spain	HC	R	R
Sweden	HR	R	RL
Switzerland	HR(1)	R	O
U.K.	HR	R	RL
U.S.	HC	R	R

HC= historical cost, HR= historical cost with optional revaluation, HR(1)= historical cost with revaluation in restricted circumstances only, R= required, L= legal form generally followed, LS= mixture of legal form and substance, S= substance over form generally followed, O= optional, RL= required for large companies only, RP= required for publicly traded companies only.

Appendix B continued

Property, Plant and Equipment

Country	Revaluation permitted?	Deprecation method	Additional accelerated depreciation permitted?
Australia	YES	A	NO
Belgium	YES	A	YES
Canada	NO	A	NO
Denmark	YES	A	NO
France	LIMITED	A	YES
Germany	NO	DB, S, SY,UP	RD
Hong Kong	YES	A	NO
Italy	LIMITED	S	YES
Japan	NO	DB, S, SY, UP	NO
Netherlands	YES	A	NO
Norway	YES	A	NO
Singapore	YES	A	NO
Spain	NO	DB, S	NO
Sweden	LIMITED	A	NO
Switzerland	NO	A	YES
U.K.	YES	A	NO
U.S.	NO	DB, S, SY, UP	NO

A= any appropriate systematic allocation over the assets' useful life, DB= declining balance method, S= straight-line method, SY= sum-of-the-years'-digits method, UP= units of production method, RD= regional differences.

Appendix B continued

Current Assets

Country	Accounts Receivable	Inventory	LIFO costing permitted?
Australia	F, S	CN	NO
Belgium	A	CN	YES
Canada	A	CM	YES
Denmark	F, S	CN	YES
France	A	CN	CO
Germany	F, S	CM	YES
Hong Kong	A	CN	NO
Italy	A	CM	YES
Japan	F, S	CM	YES
Netherlands	F, S	CM, CV	YES
Norway	F, S	CM	NO
Singapore	F, S	CN	NO
Spain	A	CM	YES
Sweden	A	CN	NO
Switzerland	F, S	CM	NO
U.K.	A	CN	NO
U.S.	A	CM	YES

A= any practical method, F= general formula, S= specific identification, CM= lower of cost or market, CN= lower of cost or net realizable value, CV= current vale, CO= consolidated accounts only

* Reproduced from International Accounting Summaries A Guide for Interpretation and Comparison, Second Edition, 1993, Coopers & Lybrand International

Appendix C
Accrual Anomaly Hedge Portfolio Abnormal Returns
Eliminating Firm Year Observations Associated with Mergers and Acquisitions

$$R_{-acc,t} - R_{+acc,t} = \alpha + b(RMRF)_t + h(HML)_t + s(SMB)_t + \varepsilon_t$$

Australia		Belgium		Canada		Denmark	
1.17	*(0.00)*	0.72	*(0.03)*	0.73	*(0.04)*	-0.50	*(0.55)*
France		**Germany**		**Hong Kong**		**Italy**	
0.93	*(0.00)*	0.34	*(0.09)*	1.57	*(0.00)*	1.16	*(0.00)*
Japan		**Netherlands**		**Norway**		**Singapore**	
0.33	*(0.01)*	0.67	*(0.05)*	0.29	*(0.45)*	0.67	*(0.04)*
Spain		**Sweden**		**Switzerland**		**U.K.**	
1.04	*(0.02)*	0.62	*(0.10)*	0.80	*(0.00)*	0.66	*(0.00)*
U.S.							
0.79	*(0.00)*						

The Table presents the estimated intercept values (*p-values*) of hedge portfolio regressions estimated over the July 1990 to December 2003 time period, eliminating firm year observations associated with merger and acquisition activity. $R_{-x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms that report the most negative total accruals, *-x_acc,* in the prior fiscal year for month *t*, where most negative is the first quintile of accruals ranked from smallest to largest values. $R_{+x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms having reported the most positive total accruals, +x_*acc,* in the prior fiscal year for month *t*, where most positive is the fifth quintile of accruals ranked from smallest to largest values. All variables are as defined in Table 2. RMRF is the excess return on the country-specific market portfolio for month *t*. SMB is the country-specific return difference between small and large firms for month *t*. HML is the country-specific return difference between high and low book-to-market firms for month *t.*

TABLE 1

Panel A: Sample Observations by Year

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Australia	119	140	149	149	153	152	167	197	217	235	245	314	527	964	3728
Belgium	52	50	57	54	55	60	60	63	75	90	98	101	96	85	996
Canada	255	278	309	324	333	348	346	387	405	420	610	627	783	783	6208
Denmark	74	89	94	101	102	108	107	111	137	144	137	130	127	122	1583
France	302	330	354	363	377	378	376	389	520	622	660	715	721	657	6764
Germany	250	273	295	301	326	369	379	376	452	509	605	677	697	615	6124
Hong Kong	46	46	49	65	75	82	103	176	239	270	274	303	441	593	2762
Italy	121	126	128	129	122	120	122	115	126	136	145	181	196	198	1965
Japan	363	504	733	908	909	963	835	1594	1672	1678	2105	2799	3097	3257	21417
Netherlands	101	109	129	128	126	131	131	136	150	173	172	171	159	150	1966
Norway	57	68	67	74	70	80	82	80	145	155	141	139	138	123	1419
Singapore	29	33	40	66	75	80	99	134	151	171	176	195	323	387	1959
Spain	72	74	84	86	91	94	94	93	116	110	112	110	109	101	1346
Sweden	61	61	78	94	106	113	123	126	173	206	213	252	259	263	2128
Switzerland	103	107	109	113	115	121	124	120	145	165	169	171	187	184	1933
U.K.	987	1077	1122	1114	1104	1110	1139	1116	1330	1367	1249	1221	1286	1288	16510
U.S.	2612	2660	2758	2932	3203	3580	3799	4059	4404	4449	4297	4236	4312	4079	51380

This panel represents the sample size by country and year for firms having the necessary accounting and market data to be included in the main analysis. All accounting and market data is provided by CSPR and Compustat for the U.S. sample and DataStream International for all other countries.

TABLE 1 continued

Panel B: Percent of Firm-Year Observations by Industry Classification

	Agriculture and Natural Resources	Manufacturing	Transportation	Wholesale and Retail Trade	Personal and Business Services	Public Services and Non-classifiable
	%	%	%	%	%	%
Australia	33.64	27.23	9.04	13.12	12.12	4.86
Belgium	12.65	51.51	8.03	18.67	9.14	0.00
Canada	30.67	35.31	13.10	9.63	8.38	2.92
Denmark	5.81	54.45	9.54	17.94	7.26	4.99
France	5.13	51.77	5.84	17.74	16.79	2.72
Germany	4.29	57.59	9.47	13.99	11.46	3.18
Hong Kong	4.92	42.98	14.05	23.21	12.06	2.79
Italy	7.33	60.56	20.00	4.17	7.43	0.51
Japan	9.85	55.17	6.15	20.77	6.00	2.06
Netherlands	7.32	51.17	5.90	18.46	14.04	3.10
Norway	12.61	38.20	28.61	6.34	9.16	5.07
Singapore	5.10	47.47	8.47	19.04	12.35	7.55
Spain	16.42	45.69	18.28	12.04	5.35	2.23
Sweden	6.06	47.89	10.71	12.27	16.45	6.63
Switzerland	2.12	57.94	13.14	16.24	10.09	0.47
U.K.	8.52	40.55	7.65	18.84	18.17	6.27
U.S.	6.99	48.59	13.09	13.01	13.44	4.89

This panel represents the industry composition, as a percent of the total within country sample. Industry classifications are based on one digit SIC codes as follows: Agriculture and natural resources (0 and 1); manufacturing (2 and 3); transportation (4); wholesale and retail trade (5); personal and business services (7); public services and non-classifiable (8-9).

TABLE 2

Descriptive Statistics for Earnings, Accruals and Accrual Components

	NIBE				ACC			
Country	q1	mean	median	q3	q1	mean	median	q3
Australia	-0.09	-0.06	0.03	0.07	-0.10	-0.05	-0.04	0.00
Belgium	0.01	0.02	0.03	0.06	-0.09	-0.05	-0.05	-0.01
Canada	-0.04	-0.04	0.02	0.06	-0.10	-0.06	-0.05	-0.01
Denmark	0.01	0.03	0.04	0.07	-0.08	-0.04	-0.04	0.00
France	0.01	0.02	0.03	0.06	-0.09	-0.05	-0.05	0.00
Germany	-0.01	-0.01	0.02	0.05	-0.11	-0.06	-0.05	0.01
Hong Kong	-0.03	0.00	0.03	0.09	-0.08	-0.03	-0.02	0.02
Italy	0.00	0.02	0.02	0.05	-0.08	-0.04	-0.04	0.00
Japan	0.00	0.01	0.01	0.03	-0.05	-0.03	-0.03	0.00
Netherlands	0.02	0.04	0.06	0.09	-0.10	-0.04	-0.05	0.00
Norway	-0.03	-0.01	0.02	0.06	-0.09	-0.05	-0.05	0.00
Singapore	0.00	0.02	0.03	0.07	-0.09	-0.04	-0.03	0.01
Spain	0.02	0.04	0.04	0.07	-0.08	-0.04	-0.04	0.00
Sweden	-0.02	-0.03	0.03	0.08	-0.08	-0.04	-0.04	0.00
Switzerland	0.01	0.03	0.03	0.06	-0.08	-0.05	-0.04	-0.01
U.K.	0.00	0.01	0.05	0.09	-0.09	-0.04	-0.04	0.00
U.S.	-0.02	-0.01	0.03	0.07	-0.09	-0.05	-0.05	-0.01
	WC_ACC				LT_ACC			
Country	q1	mean	median	q3	q1	mean	median	q3
Australia	-0.04	0.00	0.00	0.04	-0.07	-0.05	-0.04	-0.02
Belgium	-0.02	0.02	0.01	0.04	-0.08	-0.06	-0.06	-0.03
Canada	-0.03	0.00	0.00	0.03	-0.08	-0.06	-0.05	-0.03
Denmark	-0.02	0.02	0.01	0.05	-0.07	-0.05	-0.05	-0.03
France	-0.03	0.01	0.01	0.05	-0.07	-0.06	-0.05	-0.03
Germany	-0.04	0.02	0.01	0.06	-0.08	-0.07	-0.06	-0.04
Hong Kong	-0.04	0.00	0.00	0.05	-0.05	-0.03	-0.03	-0.01
Italy	-0.02	0.01	0.01	0.05	-0.06	-0.05	-0.04	-0.03
Japan	-0.02	0.00	0.00	0.03	-0.04	-0.03	-0.03	-0.01
Netherlands	-0.03	0.01	0.01	0.06	-0.07	-0.06	-0.05	-0.04
Norway	-0.03	0.01	0.00	0.04	-0.07	-0.06	-0.05	-0.04
Singapore	-0.04	0.00	0.00	0.05	-0.05	-0.04	-0.03	-0.02
Spain	-0.03	0.01	0.00	0.04	-0.06	-0.05	-0.04	-0.03
Sweden	-0.03	0.01	0.01	0.05	-0.06	-0.05	-0.05	-0.03
Switzerland	-0.02	0.01	0.01	0.04	-0.06	-0.05	-0.05	-0.03
U.K.	-0.04	0.00	0.00	0.04	-0.06	-0.05	-0.04	-0.03
U.S.	-0.03	0.00	0.00	0.04	-0.07	-0.06	-0.05	-0.03

TABLE 2 continued

The statistics are calculated using firm-year observations over 1989-2002 (see Table 1 for country-specific sample sizes). NIBE is equal to net income before extraordinary items. ACC is total accruals defined as the change in current assets minus the change in current liabilities minus the change in cash plus the change in debt in current liabilities minus depreciation and amortization expense. WC_ACC is working capital accruals defined as ACC plus depreciation and amortization expense. LT_ACC is long term accruals defined as the negative of depreciation and amortization. All variables are scaled by average total assets.

TABLE 3
Pricing of Accruals: Hedge Portfolio Analysis

$$R_{-x\_acc,t} - R_{+x\_acc,t} = \alpha + b(RMRF)_t + h(HML)_t + s(SMB)_t + \varepsilon_t$$

	Hedge Portfolio Returns				
	ACC	WC_ACC	CA_ACC	AR	INV
Australia	1.01***	0.59*	1.00***	0.19	0.93***
Belgium	0.74***	0.44	0.51	0.34	0.51
Canada	0.75***	0.63**	1.19***	0.78**	0.83***
Denmark	-0.08	1.17***	1.24**	1.41*	1.03***
France	0.91***	0.85***	0.93***	0.43*	0.71***
Germany	0.32*	0.12	0.72***	0.33	0.37**
Hong Kong	1.42***	1.18***	1.32***	0.56	0.71*
Italy	0.87***	1.03***	0.93**	0.93**	0.77**
Japan	0.32***	0.16	-0.06	0.06	0.23*
Netherlands	0.59**	0.35	0.72***	0.72**	0.33
Norway	0.23	-0.14	-0.05	-0.05	0.38
Singapore	0.69**	0.54*	-0.11	0.19	0.01
Spain	0.96**	1.12**	0.88	0.82	1.16*
Sweden	0.69*	0.11	0.55	0.20	0.72**
Switzerland	0.80***	0.71***	0.85***	0.60**	0.66***
U.K.	0.83***	0.89***	0.73***	0.50***	0.83***
U.S.	1.00***	0.83***	1.16***	0.73***	0.97***

The Table presents the estimated intercept values of hedge portfolio regressions estimated over the July 1990 to December 2003 time period. $R_{-x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms that report the most negative accrual component, *-x_acc,* in the prior fiscal year for month *t*, where most negative is the first quintile of accruals ranked from smallest to largest values. $R_{+x\_acc,t}$ is the equal weighted return for the country-specific portfolio of firms having reported the most positive accrual component, +x_*acc,* in the prior fiscal year for month *t*, where most positive is the fifth quintile of accruals ranked from smallest to largest values. *x_acc* takes on one of the following values, ACC, WC_ACC, CA_ACC, AR or INV. CA_ACC is equal to the change in current assets minus the change in cash, INV is equal to the change in inventory, AR is equal to the change in accounts receivable, and all other variables are as previously defined. RMRF is the excess return on the country-specific market portfolio for month *t*. SMB is the country-specific return difference between small and large firms for month *t*. HML is the country-specific return difference between high and low book-to-market firms for month *t*. ***, **, * indicates significance at the 0.01, 0.05, 0.10 levels two-tailed.

TABLE 4

Factors Influencing the Accrual Anomaly: Hedge Portfolio Analysis

$$R_{-x\_acc,t} - R_{+x\_acc,t} = \alpha + b(RMRF)_t + h(HML)_t + s(SMB)_t + \varepsilon_t$$

Panel A: Managerial Discretion (Earnings Smoothness)

	Australia		Belgium		Canada		Denmark	
MORE	0.89	*(0.01)*	1.14	*(0.03)*	1.06	*(0.00)*	1.56	*(0.14)*
LESS	0.56	*(0.25)*	1.09	*(0.03)*	0.83	*(0.13)*	1.10	*(0.04)*
	France		Germany		Hong Kong		Italy	
MORE	0.69	*(0.00)*	0.69	*(0.01)*	1.53	*(0.02)*	0.64	*(0.15)*
LESS	0.48	*(0.50)*	0.05	*(0.87)*	1.64	*(0.02)*	1.74	*(0.02)*
	Japan		Netherlands		Norway		Singapore	
MORE	0.32	*(0.06)*	1.20	*(0.00)*	0.17	*(0.78)*	0.94	*(0.02)*
LESS	0.34	*(0.06)*	0.23	*(0.58)*	-0.79	*(0.32)*	0.62	*(0.18)*
	Spain		Sweden		Switzerland		U.K.	
MORE	1.02	*(0.10)*	1.04	*(0.02)*	0.90	*(0.01)*	0.87	*(0.00)*
LESS	0.77	*(0.29)*	0.44	*(0.39)*	0.57	*(0.17)*	1.01	*(0.00)*
	U.S.							
MORE	0.88	*(0.00)*						
LESS	0.77	*(0.00)*						

Table 4 Continued

Panel B: Information (Analyst Following)

	Australia		Belgium		Canada		Denmark	
LOW	1.14	*(0.03)*	0.06	*(0.89)*	1.16	*(0.01)*	1.27	*(0.01)*
HIGH	0.81	*(0.02)*	1.18	*(0.03)*	0.50	*(0.13)*	0.51	*(0.16)*

	France		Germany		Hong Kong		Italy	
LOW	0.48	*(0.13)*	0.00	*(0.98)*	1.23	*(0.04)*	0.58	*(0.22)*
HIGH	1.14	*(0.00)*	0.64	*(0.01)*	1.55	*(0.00)*	0.92	*(0.00)*

	Japan		Netherlands		Norway		Singapore	
LOW	0.18	*(0.35)*	0.64	*(0.13)*	1.03	*(0.13)*	1.17	*(0.01)*
HIGH	0.33	*(0.04)*	0.49	*(0.14)*	-0.16	*(0.74)*	0.43	*(0.26)*

	Spain		Sweden		Switzerland		U.K.	
LOW	1.61	*(0.04)*	0.13	*(0.84)*	0.28	*(0.43)*	1.09	*(0.00)*
HIGH	0.63	*(0.11)*	0.40	*(0.39)*	0.94	*(0.01)*	0.56	*(0.00)*

	U.S.	
LOW	1.23	*(0.00)*
HIGH	0.63	*(0.00)*

Panel C: Ownership Structure (Closely Held Ownership)

	Australia		Belgium		Canada		Denmark	
LOWCLOSE	0.82	*(0.10)*	1.88	*(0.00)*	1.06	*(0.15)*	0.76	*(0.20)*
HIGHCLOSE	1.07	*(0.02)*	0.28	*(0.61)*	1.50	*(0.01)*	0.85	*(0.10)*

	France		Germany		Hong Kong		Italy	
LOWCLOSE	0.86	*(0.05)*	0.50	*(0.08)*	1.51	*(0.00)*	0.83	*(0.30)*
HIGHCLOSE	0.82	*(0.02)*	0.24	*(0.30)*	1.38	*(0.01)*	0.48	*(0.34)*

	Japan		Netherlands		Norway		Singapore	
LOWCLOSE	0.48	*(0.00)*	-0.22	*(0.65)*	-0.49	*(0.44)*	0.81	*(0.07)*
HIGHCLOSE	0.10	*(0.66)*	0.84	*(0.10)*	0.58	*(0.33)*	0.54	*(0.20)*

	Spain		Sweden		Switzerland		U.K.	
LOWCLOSE	0.22	*(0.72)*	0.39	*(0.59)*	1.41	*(0.01)*	0.77	*(0.00)*
HIGHCLOSE	0.90	*(0.27)*	0.96	*(0.10)*	1.00	*(0.04)*	1.04	*(0.00)*

Table 4 Continued

The Table presents the estimated intercept values (*p-values*) of hedge portfolio regressions estimated over the July 1990 to December 2003 time period. Where $R_{-acc,t}$ is the equal weight return of country specific portfolio of firms having reported the most negative total accruals within the relevant group, *-acc,* in the prior fiscal year for month *t*, where most negative is the first quintile of accruals ranked from smallest to largest values. Where $R_{+acc,t}$ is the equal weight return of country specific portfolio of firms having reported the most positive total accruals within the relevant group, *+acc,* in the prior fiscal year for month *t*, where most positive is the fifth quintile of accruals ranked from smallest to largest values. SMOOTH is defined as the standard deviation of NIBE scaled by average total assets divided by the standard deviation of CFO scaled by average total assets. Where standard deviations are calculated over five year rolling time windows requiring a minimum of three and maximum of five years of NIBE and CFO, SMOOTH values are the values reported as of the prior fiscal year. To form discretion portfolios each month firms are sorted into two groups, MORE and LESS, based on the level of SMOOTH for the prior fiscal year. To form information portfolios each month firms are sorted into two groups, LOW and HIGH, based on the level of analyst following for the prior fiscal year. Where analyst following is defined by number of analyst making earnings forecast for the firm as reported by IBES. If firms are not on IBES analyst following is set to zero. %CLHLD is defined as the percent of closely held shares as of the end of the prior fiscal year. To form ownership portfolios each month firms are sorted into two groups, LOWCLOSE and HIGHCLOSE, based on the level of %CLHLD for the prior fiscal year. RMRF is the excess return on the country-specific market portfolio for month *t*. SMB is the country-specific return difference between small and large firms for month *t*. HML is the country-specific return difference between high and low book-to-market firms for month *t*.

TABLE 5

Accrual Anomaly Summary of Results

	ACC	WC_ACC	CA_ACC	AR	INV	DISCRETION	INFORMATION	OWNERSHIP
Australia	YES	YES	YES	NO	YES	MORE	BOTH	BOTH
Belgium	YES	NO	NO	NO	NO	BOTH	HIGH	LOWCLOSE
Canada	YES	YES	YES	YES	YES	MORE	LOW	HIGHCLOSE
Denmark	NO	YES	YES	YES	YES	LESS	LOW	HIGHCLOSE
France	YES	YES	YES	YES	YES	MORE	HIGH	BOTH
Germany	YES	NO	YES	NO	YES	MORE	HIGH	LOWCLOSE
Hong Kong	YES	YES	YES	NO	YES	BOTH	BOTH	BOTH
Italy	YES	YES	YES	YES	YES	LESS	HIGH	NEITHER
Japan	YES	NO	NO	NO	YES	BOTH	HIGH	LOWCLOSE
Netherlands	YES	NO	YES	YES	NO	MORE	NEITHER	HIGHCLOSE
Norway	NO	NO	NO	NO	NO	NEITHER	NEITHER	NEITHER
Singapore	YES	YES	NO	NO	NO	MORE	LOW	LOWCLOSE
Spain	YES	YES	NO	NO	YES	MORE	LOW	NEITHER
Sweden	YES	NO	NO	NO	YES	MORE	NEITHER	HIGHCLOSE
Switzerland	YES	YES	YES	YES	YES	MORE	HIGH	BOTH
U.K.	YES	YES	YES	YES	YES	BOTH	BOTH	BOTH
U.S.	YES	YES	YES	YES	YES	BOTH	BOTH	N/A

The Table presents a summary of the results of reported in Tables 3 and 4. YES in the ACC, WC_ACC, CA_ACC, AR or INV columns indicates that the abnormal return to the hedge portfolio are significant at the 0.10 level or better two-sided, NO otherwise. In the DISCRETION, INFORMATION, and OWNERSHIP columns MORE, LESS, LOW, HIGH, LOWCLOSE, HIGHCLOSE, BOTH or NEITHER represents whether the abnormal return to the total accrual hedge portfolios within the relevant groups are significant at the 0.10 level or better two-sided. For example in Australia the MORE smooth total accrual hedge portfolio abnormal returns are significant at the 0.10 level or better.

TABLE 6

Cross-County ACC Hedge Portfolio Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Australia[1]		**0.42**	**0.48**	**0.38**	**0.42**	**0.46**	**0.49**	**0.36**	**0.41**	**0.50**	**0.43**	**0.43**	**0.45**	**0.45**	**0.47**	**0.47**	**0.42**
Belgium[2]	-0.12		**0.46**	**0.46**	**0.63**	**0.62**	**0.33**	**0.47**	**0.27**	**0.70**	**0.44**	**0.31**	**0.55**	**0.49**	**0.60**	**0.57**	**0.47**
Canada[3]	**0.13**	0.04		**0.43**	**0.57**	**0.56**	**0.44**	**0.41**	**0.38**	**0.59**	**0.47**	**0.39**	**0.50**	**0.55**	**0.53**	**0.59**	**0.71**
Denmark[4]	-0.01	0.04	0.05		**0.51**	**0.54**	**0.35**	**0.44**	**0.28**	**0.53**	**0.45**	**0.31**	**0.46**	**0.50**	**0.50**	**0.51**	**0.40**
France[5]	**0.18**	-0.03	0.11	-0.05		**0.78**	**0.45**	**0.63**	**0.37**	**0.76**	**0.48**	**0.36**	**0.67**	**0.67**	**0.68**	**0.70**	**0.59**
Germany[6]	-0.06	**0.13**	0.12	-0.03	-0.04		**0.47**	**0.60**	**0.32**	**0.76**	**0.50**	**0.39**	**0.67**	**0.68**	**0.67**	**0.67**	**0.58**
Hong Kong[7]	0.09	-0.05	-0.09	0.04	0.10	-0.12		**0.35**	**0.37**	**0.46**	**0.37**	**0.60**	**0.45**	**0.41**	**0.43**	**0.48**	**0.38**
Italy[8]	-0.02	0.04	-0.03	0.03	-0.02	-0.01	-0.04		**0.27**	**0.58**	**0.38**	**0.33**	**0.60**	**0.53**	**0.50**	**0.55**	**0.44**
Japan[9]	-0.07	0.08	0.02	**-0.15**	0.00	-0.06	0.00	0.08		**0.35**	**0.30**	**0.37**	**0.35**	**0.36**	**0.34**	**0.35**	**0.37**
Netherlands[10]	-0.01	0.02	0.05	-0.03	**0.16**	0.10	0.04	-0.02	-0.04		**0.56**	**0.38**	**0.63**	**0.63**	**0.70**	**0.72**	**0.61**
Norway[11]	0.03	0.02	0.04	-0.06	0.11	0.12	-0.04	0.01	**0.16**	-0.08		**0.35**	**0.48**	**0.54**	**0.48**	**0.49**	**0.38**
Singapore[12]	-0.04	**0.16**	0.00	**-0.15**	**-0.14**	0.09	0.06	0.05	-0.09	0.11	-0.04		**0.36**	**0.37**	**0.38**	**0.39**	**0.33**
Spain[13]	0.08	0.06	0.02	0.03	0.04	0.09	-0.02	-0.02	0.00	**0.19**	**0.13**	0.06		**0.65**	**0.60**	**0.61**	**0.51**
Sweden[14]	0.05	-0.02	**0.16**	-0.11	0.12	0.12	-0.02	0.06	0.00	-0.01	**0.19**	**0.13**	0.01		**0.60**	**0.62**	**0.55**
Switzerland[15]	0.07	-0.08	0.11	0.02	**0.17**	0.11	-0.06	**0.16**	0.01	-0.06	**0.16**	-0.03	0.10	**0.13**		**0.65**	**0.54**
U.K.[16]	0.04	-0.04	0.12	0.08	0.05	-0.11	0.07	-0.09	-0.05	**-0.13**	**0.16**	-0.06	-0.06	**0.15**	-0.07		**0.59**
U.S.[17]	0.08	-0.07	**0.13**	0.02	0.06	**-0.17**	-0.06	0.09	-0.06	-0.04	0.01	0.04	-0.04	0.09	0.07	**0.23**	

Bold Text indicates significance at the 0.10 level or better.

The upper half of the table presents the spearman correlations of the country-specific value-weighted market returns. The lower half of the table presents the spearman correlations of the country specific ACC hedge portfolios. Correlations are calculated using the country specific time series of ACC hedge portfolio monthly returns (n=162 for each country) from July 1990 to December 2003. Where ACC hedge portfolio returns are calculated as the return difference between the most negative and most positive ACC portfolios as described in Table 3.