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Accrual Anomaly in Agriculture Financial Economics

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Abstract

Does the accrual anomaly documented for the entire U.S. stock market minus the financial institutions persist in the U.S. agricultural industries? We investigate the performance of the stocks of the U.S. farm and farm-related firms (firms), and the stocks of its subcategories, such as the U.S. food supply chain firms. Using the long-short risk-free trading strategy of Sloan (1996), our results are consistent with the literature at large with economically and statistically significant positive abnormal returns for the stocks of firms traded in the U.S. market minus the financial institutions. We find that the stocks of the U.S. farm and farm-related firms present negative and statistically significant coefficients on accruals, which indicates that firms with higher accruals tend to have lower returns. We find that the subcategory of the non-food supply chain firms affects the returns of the stocks of the entire U.S. farm and farm-related firms. For the stocks of U.S. food supply chain firms, which correspond to the subcategory investigated by Trejo-Pech et. al. (2009), our results indicate that portfolio 10 (high accruals) has a more negative abnormal return than portfolio 1, though the performance of our long-short hedge portfolio is not statistically significant. With the long-short portfolio strategy, we do not have enough evidence to support or disprove the existence or absence of accrual anomaly for the entire U.S. farm and farm-related firms. Thus, we find mixed results for the stocks of the U.S. farm and farm-related firms.

Key words: stock returns, financial assets in agriculture, accrual anomaly

JEL classification: Q14, G11

Accrual Anomaly in Agriculture Financial Economics

The efficient-market hypothesis says that the market (also referred to as the financial markets) is efficiently informed, which means that no investor could consistently achieve positive returns in excess of the average risk-adjusted market returns (be consistently in the money) with only the information available (e.g., Malkiel, 1987). The efficient-market hypothesis is one of the important economic assumptions (such as the law of one price) that helps rationalize the market clearing conditions. When an empirical study stands as a counter-example of this financial economics rationale, it is qualified as an anomaly (e.g., Lamont and Thaler, 2003). Renewed attention is given to the anomaly issues because some academics (e.g., Simkovic, 2009) and prominent experts (e.g., Volcker, 2011) blame the severe financial crisis of 2007-2010 on the failure of the efficient-market hypothesis. The contemporary literature (e.g., Simkovic, 2009) suggests that large financial institutions reduce the informational efficiency of the market and impede the capability of other market participants to evaluate the correct price by distorting the conventional disclosures and creating private information. There are several empirical studies that stand as counter-examples of the efficient-market hypothesis. Sloan (1996) adds to these financial economics counter-examples through his study on the accrual anomaly problem, a condition in which stock prices reflect naïve expectations about fundamental valuation, such as earnings.

Using the data of the U.S. market, defined here as the entire U.S. economy minus financial institutions such as banks and insurance providers, the study by Sloan (1996) finds that the cash component of earnings is more trustworthy in stock price evaluation. The study also finds that stock prices delay the reflection of the entire information contained in the accruals (the difference between accounting earnings and cash flow) and cash flow (earnings minus accruals) components of current earnings, until the information reaches the future earnings. This is to say that investors are fixated on earnings (defined in the study by Sloan (1996) as "the fixation hypothesis") as they do not give enough attention to cash. Subsequent studies with various methodologies and datasets find similar results with varying interpretations. For example, Bradshaw, Richardson and Sloan (2001) indicate that sell-side analysts, workers of brokerage firms charged with the evaluation of companies for investment criteria such as

future earnings growth, do not anticipate the lower persistence of the accruals component of earnings. These analysts fixate on earnings.

On the one hand, Lev and Nissim (2006) show that some institutional investors (such as banks, insurance companies, retirement funds, hedge funds and mutual funds with pooled money) trade on the accrual anomaly by avoiding firms with extreme accruals due to fear of illiquidity and volatility, but the magnitude of their traded assets is not large enough to arbitrage away the positive abnormal returns. In this vein, the study of Ali, Chen, Yao and Yu (2008) shows that some U.S. market trading mutual funds strategically benefit with positive abnormal returns by the implementation of the accrual anomaly. The study of Chan, Chan, Jegadeesh, and Lakonishok (2006; in short Chan et. al. 2006) finds that the stocks of the firms with large ownership by institutional investors are priced more accurately. This is an indication that institutional investors recognize the persistence of accruals. On the other hand, the study by Green, Hand, and Soliman (2010) argues that the accrual anomaly may have been arbitraged away as sophisticated investors attempted to exploit Sloan's results. This is more than just a speculative conjecture, as the accrual anomaly has been a favorite strategy of large quantitative investors.

Another direction of research, such as in Chan, et. al. (2006), is to slice the stock returns of firms by industry categorization. Following the Fama and French (1997) 32 industry groupings, Chan, et. al. (2006) find that the accrual strategy is more efficient in industries that have high working capital accrual needs (such as toys, recreational products and construction) and is less efficient in businesses that have low working capital accrual needs (such as restaurants, hotel, utilities, and transportation.) The study of Trejo-Pech, C.J., Weldon, R.N., House, L.A., and Gunderson, M.A. (2009; in short Trejo-Pech et. al. 2009) introduces the accrual anomaly problem in the U.S. agricultural literature. Their study investigates a subgroup of the U.S. agricultural industries and finds that previous results for the stocks of the U.S. market, and its various industry components, do not hold for the stocks of food supply chain segment of agribusiness. This significant result opens the opportunity for new interesting inquiries because the Trejo-Pech, et. al. (2009) study concludes that the fixation hypothesis of Sloan (1996) and the other related literature does not fully explain the accrual anomaly problem.

Combining the ideas of Chan, et. al. (2006) and Trejo-Pech, et. al. (2009), we focus the study of accrual anomaly to the stocks of the U.S. agricultural industries, which include the food supply chain part of agribusiness. The purpose of this study is to investigate whether the discrepancy documented by Trejo-Pech, et. al. (2009) for the stocks of the food supply chain component of agribusiness applies to the stocks of other components of the U.S. agricultural industries and to the stocks of the U.S. agricultural industries as a whole. These investigations help assess the peculiarities of agriculture stock performances.

This study approaches the accrual anomaly inquiry in the stocks of U.S. agriculture from two viewpoints. First, we apply the contribution of Trejo-Pech, et. al. (2009) about the agricultural processing and marketing (referred to as food processing and beverage) and the agricultural wholesale and retail trade (referred to as food wholesale, retail and service) to all six agricultural industries as defined by the U.S. Department of Agriculture (USDA) classification[1]. In appendix 1, we describe our subgrouping of the six agricultural industries using the North American Industry Classification System (NAICS). Second, we extend the methodology of Sloan (1996) and Trejo-Pech, et. al. (2009) by using the Fama and French three-factor model augmented with the additional Carhart (1997) momentum factor. This four-factor model[2] accounts for the momentum effect on stock returns. The UMD (up-minus-down) momentum factor is the monthly premium on the stocks which are up (winners) minus the stocks which are down (losers.)

Method

The literature (e.g., Marshall, et al., 2010) documents that the accrual accounting better informs managers and stakeholders about the finance of the firm. Earnings information is better conveyed on an accrual basis rather than a cash basis. In most jurisdictions, such as in the Generally

[1] "Farm and farm-related industries are identified as industries having generally 50 percent or more of their national work force employed in providing goods and services necessary to satisfy the final demand for agricultural products. An exception to this criterion is indirect agribusinesses, in which percentages range between 32 and 50 percent. Industries are aggregated into related groups: farm production; agricultural services, forestry, and fishing; agricultural input industries; agricultural processing and marketing industries; wholesale and retail trade of agricultural products; and indirect agribusiness."
http://www.ers.usda.gov/Data/FarmandRelatedEmployment/NAICS-Industries.htm

[2] This four factor model is developed by Mark Carhart as a student of Eugene Fama.

Accepted Accounting Principles (GAAP), the preferred standard is the accrual accounting. An issue is to discern the prospective contributions of each component of earnings, accruals or cash, on firm stock performance. Against the efficient market hypothesis, Sloan (1996) and a large amount of subsequent literature find that stock prices for the entire U.S. economy minus financial institutions anomalously fail to reflect the current information contained in the accruals and cash flow components of current earnings. The explanation of Sloan (1996), labeled the fixation hypothesis, states that investors have naïve expectations about fundamental values. This naïve expectation causes an inaccurate appreciation of the accruals component of current earnings.

We compute the performance of ten portfolios formed by sorting the U.S. farms and farm-related firms of the U.S. agriculture industries on increasing magnitude of accruals. Then, we use the risk-free trading strategy of Sloan (1996), which takes a long position on firms with low accruals and a short position on firms with high accruals, to discern possible abnormal returns. With the expectation that the future value of a security such as a stock, commodity, or currency, will rise, to take a long position is to buy the asset. With the expectation that the future value of a security will fall, to take a short position is almost the opposite of taking a long position. A short position is the sale of a borrowed asset with the expectation that the asset will fall in value. The investor borrows shares of the asset from a broker and immediately sells those shares on the open market at a perceived high price. In the future, the investor must return the borrowed asset shares by buying back from the open market. The short position allows the investor to make profit if the asset falls in price because she buys it for less than she sold it.

The measure of cash flow is the earnings before extraordinary items and discontinued operations (earnings) minus the net cash flow from operating activities (cash). Following the prior studies (Sloan, 1996; Chan, et. al., 2006; and Trejo-Pech, et. al., 2009), we measure accruals as the change in successive balance sheet accounts and the difference between net income and reported cash from operations. The measure of accruals is calculated with the following key variables: annual change in current assets, change in cash and cash equivalents, change in current liabilities, change in long-term debt included in current liabilities, change in income taxes payable, and annual depreciation and amortization expense (cf. the COMPUSTAT data item numbers below). To account for size differences across the sample firms, we scale the accruals by the average of the beginning and end-of-year book values of total assets.

The measure of accrual is in equation (1) with the subsequent variable descriptions:

(1) Accruals = Earnings – Cash Flow

(2) Accruals = (ΔCA – ΔCash) – (ΔCL – ΔSTD – ΔITP) – Dep

ΔCA = annual change in current assets (change in COMPUSTAT data item #4, i.e., Δ#4)

ΔCash = change in cash and cash equivalents (Δ#1)

ΔCL = change in current liabilities (Δ#5)

ΔSTD = change in long-term debt included in current liabilities (Δ#34)

ΔITP = change in income taxes payable (Δ#71)

Dep = annual depreciation and amortization expense (#14).

The three commonly used methods to adjust returns for risk are the market model, or capital Asset Pricing Model (CAPM), the Fama and French three factor model, and the Fama and French three-factor model augmented with the Carhart momentum factor, or the Carhart four-factor model. Sloan (1996) uses the CAPM model. Trejo-Pech, et. al. (2009) use the Fama and French three-factor model. In this study, we introduce the Carhart four-factor model.

The models are described in the following equations.

The market model or Capital Asset pricing Model (CAPM):

(3) $$EXR_t = \alpha^J + \beta_{mkt} EXMKT_t + \varepsilon_t$$

The intercept in this model is referred to as the "Jensen's alpha".

The Fama French three-factor model:

(4) $$EXR_t = \alpha^{FF} + \beta_{mkt} EXMKT_t + \beta_{HML} HML_t + \beta_{SMB} SMB_t + \varepsilon_t$$

The intercept in this model is referred to as the "three-factor alpha".

The Fama French three-factor model augmented with the Carhart momentum, or the Carhart four-factor model:

(5) $$EXR_t = \alpha^C + \beta_{mkt} EXMKT_t + \beta_{HML} HML_t + \beta_{SMB} SMB_t + \beta_{UMD} UMD_t + \varepsilon_t$$

The intercept in this model is referred to as the "four-factor alpha".

(EXR) is the monthly return to the asset of concern in excess of the monthly T-bill rate. We typically use these three models to adjust for risk. In each case, we do the regression of the excess returns of the asset on some factors that attempt to control for market-wide risk factors.

The risk factors are the return on the market minus the risk free rate (EXMKT), the monthly premium of the book-to-market factor (HML), the monthly premium of the size factor (SMB), and the monthly premium on up (winners) minus down (losers) UMD factor from Fama-French (1993) and Carhart (1997).

SMB is a zero-investment portfolio that is long on small capitalization (small cap) stocks and short on big capitalization big cap stocks. The general view is that small cap refers to stocks with a relatively small market capitalization. However, the notion of size is relative among brokerage firms. In general, a firm with a market capitalization between $300 million and $2 billion is considered as a small cap firm. Similarly, HML is a zero-investment portfolio that is long on high book-to-market (B/M) stocks and short on low B/M stocks. B/M ratio is simply a tool to compare the book value of a firm to its market value. The book value (B) is the accounting (historical) value. The market value (M) is time dependent, as it is defined in the stock market through the market capitalization of the firm. UMD is a zero-cost portfolio that is made up of long previous 12-month return winners and short previous12-month return loser stocks.

We introduced the Carhart four-factor model because momentum investing may be a factor of abnormal return. Momentum is a system of buying stocks or other securities that have had high returns over the past three to twelve months, and selling those that have had poor returns over the same period. It has been reported that this strategy yields average returns of 1% per month for the following 3–12 months as shown by Jegadeesh and Titman (2001).

We use the Fama-MacBeth (1973) regressions of stock returns on accruals as a further evidence of the relation between accruals and future stock returns.

Data

We improve the previous investigations by employing the firm-level data of all components of the U.S. agriculture Industries. We take into account the National Association of Securities Dealers Automated Quotation (NASDQ) series and the index levels of the Center for Research in Security Prices (CRSP)[3] market indices starting in 1972. To avoid the period of the current major financial crisis, the last ranking of accruals for this study is in December 2006. The studied

[3] The CRSP Survivor-Bias-Free US Mutual Fund Database was initially developed by Mark M. Carhart of Goldman Sachs Asset Management for his 1995 dissertation (Chicago Booth) entitled, "Survivor Bias and Persistence in Mutual Fund Performance," to fill a need for lacking survivor-bias-free data coverage. http://www.crsp.com/products/mutual_funds.htm

categories are: (1) Farm production and agricultural services, forestry, and fishing; (2) Agricultural input Industries; (3) Agricultural processing and marketing and agricultural wholesale and retail trade (Trejo-Pech, et al., 2009); (4) Indirect agribusiness; (5) the combination of all agriculture Industries; and, (6) the U.S. markets. We use the North American Industry Classification System (NAICS) to identify and categorize the U.S. farms and farm-related firms of these categories. We merge the balance sheet and income statement data from the Standard & Poor's COMPUSTAT database with the farms and farm related firms stock prices from the Center for Research in Security Prices (CRSP). For each studied category, the firms are ranked into 10 decile portfolios by magnitude of accruals at the end of each fiscal year. Thus, the largest sample includes U.S. firms (excluding financial institutions) with common stocks and with fiscal years ending in December. The choice of firms with fiscal year ending in December is to ensure that the returns on the decile portfolios are aligned in calendar-time from 1972 to 2006. As in Chan, et. al. (2006) and Trejo-Pech, et. al. (2009) we delete the entry of any observation when there is some missing data either from the balance sheet and income statement data from the Standard & Poor's COMPUSTAT database or from the farms and farm-related firms stock prices born of the Center for Research in Security Prices (CRSP) repository.

Following Sloan (1996), the annual returns are cumulative monthly returns, computed as buy-and-hold returns (BHR) for the 12-month evaluation period. In this study, the annual market return is the cumulative CRSP monthly return on the equal-weight NYSE/AMEX/Nasdaq index. The annual risk-free rate is the annual T-bill yield from the Federal reserve bank of New York.

Results

We report the characteristics of the portfolios of U.S. firms (entire U.S. market minus financial institutions) and U.S. farms and farm-related firms formed annually, sorted by accruals. We present the performance from the time-series means of equal-weighted portfolio abnormal stock returns for ten portfolios of firms formed annually by assigning firms to decile based on magnitude of accruals for samples of the U.S. firms.

Table 1 and Table 2 are summary statistics of our increasingly ordered ranked portfolios as a result of our decile based sorting procedure. In Table 1, we present the portfolios from the U.S. firms, which are from the U.S. market minus financial institutions. In Table 2, we present the corresponding portfolios for the U.S. farms and farm-related firms.

In Table 1, we report the mean (median) of selected characteristics for ten portfolios of firms formed annually by assigning firms to decile based on accruals for a sample of 7,575 U.S. firms with December fiscal year-ends (U.S. market less financial institutions) from 1972 to 2006.

[Table 1 about here]

Median values are reported in italics. In Panel A, we report the components of earnings for U.S. firms from the U.S. market minus financial institutions. Magnitude of Earnings represents the absolute value of Earnings where Earnings are income from continuing operations divided by average total assets. Accruals are the change in non-cash current assets, minus the change in current liabilities (exclusive of short-term debt and taxes payable), minus depreciation expense, all divided by average total assets. The total value of each of these quantities, such as the total net accruals amount by itself, is useful for a simple firm, but this value is not readily comparable to the total net accruals of other firms or with past total net accruals of the same firm. Each of these balance sheet elements is scaled by total assets in these equations to put these items into a context that will make the analysis meaningful.

Cash flows are the difference between earnings and accruals (as defined above). In Panel B, we report the components of accruals for U.S. firms from the U.S. market minus financial institutions. Current asset is the change in non-cash current assets divided by average total assets. Also in panel B Current liability is the negative value (minus sign) of the change in current liabilities (exclusive of short-term debt and taxes payable) divided by average total assets. Depreciation is the negative value of depreciation expense divided by average total assets.

For the firms from the U.S. market minus financial institutions, in Panel A, portfolio 1 has the lowest accruals mean of (-0.207) and portfolio 10 is with the highest accruals median of 0.140. For the firms from the U.S. market minus financial institutions, in Panel B, the portfolio 1 is has the lowest current assets mean of (-0.066) and the portfolio 10 is with the highest current assets median of 0.208.

In Table 2, we present the corresponding values of Table 1 for the U.S. farms and farm-related firms. We report the mean and median values of selected characteristics for ten portfolios

of firms formed annually by assigning firms to decile based on accruals for a sample of 1,258 U.S. farms and farm-related firms with December fiscal year-ends from 1972 to 2006.

[Table 2 about here]

The Median values are reported in italics. In Panel A, we present the components of earnings for U.S. farms and farm-related firms. Magnitude of Earnings represents the absolute value of earnings where Earnings are income from continuing operations divided by average total assets. Accruals are the change in non-cash current assets, minus the change in current liabilities (exclusive of short-term debt and taxes payable), minus depreciation expense, all divided by average total assets. Cash flows are the difference between earnings and accruals (as defined above). In Panel B, we report the components of accruals for U.S. farms and farm-related firms. Current asset is the change in non-cash current assets divided by average total assets. Current liability is the negative value (minus sign) of the change in current liabilities (exclusive of short-term debt and taxes payable) divided by average total assets. Depreciation is the negative value of depreciation expense divided by average total assets.

For the firms from the U.S. farms and farm-related firms, in Panel A, the portfolio 1 is with the lowest accruals mean of (-0.179) and the portfolio 10 is with the highest accruals median of 0.111. For the firms from the U.S. farms and farm-related firms, in Panel B, the portfolio 1 is has the lowest current assets mean of (-0.052) and the portfolio 10 is with the highest current assets median of 0.151.

Table 3 and Table 4 report our computation results of the abnormal returns of portfolios. We compute and compare the performance of ten portfolios formed by sorting the firms on increasing magnitude of accruals for each main component of the U.S. firm and the U.S. agriculture industries. Then, we use the risk-free trading strategy of Sloan (1996), which takes a long position on firms with low accruals and a short position on firms with high accruals, to discern possible abnormal returns. We achieve the long-short strategy (the hedge portfolio) when we long the portfolio 1 and short the portfolio 10, as ranked in Table 1 and Table 2. We present the results for each sorted portfolio 1 through 10 and the results for the long-short portfolio. In Table 3, we use Jensen's alpha resulting from the CAPM model as a method to adjust returns for risk to discern possible abnormal returns, as in Sloan (1996). In Table 4, we use the four-factor alpha resulting from the four factor model as a method to adjust returns for risk.

Table 3 presents the Time-series means of equal-weighted portfolio abnormal stock returns for ten portfolios of firms formed annually by assigning firms to decile based on magnitude of accruals for samples of U.S. firms with December fiscal year-ends from 1972 to 2006, as sorted in Table 1, panel A.

[Table 3 about here]

Jensen Alpha is the estimated value of α from the CAPM model in equation (6)

(6) $$\left(R_{p,t} - R_{f,t}\right) = \alpha_p + \beta_p\left(R_{m,t} - R_{f,t}\right) + \varepsilon_{p,t}$$

Equation (6) is the same as equation (3) but we expressed each component in terms of returns instead of excess returns:

(7) $$EXR_t = \left(R_{p,t} - R_{f,t}\right)$$

(8) $$EXMKT_t = \left(R_{m,t} - R_{f,t}\right)$$

These components are computed as follows. $R_{p,t}$ is the raw buy-and-hold return (BHR) to portfolio p (p varies from 1 to 10) in year t (t varies from 1972 to 2006), including dividends and distributions. $R_{f,t}$is the annual T-bill yield in year t, and $R_{m,t}$ is the market return, estimated by cumulating CRSP monthly returns on the equally-weighted NYSE/AMEX/NASDAQ index. The 12-month return accumulation period begins in April of year t.

The BHR for firm i in year t is calculated as

(9) $$BHR_{i,t} = \prod_{j=April(t)}^{March(t+1)}(1 + r_{i,j}) - 1$$

In equation (9), $r_{i,j}$ is the CRSP monthly return on firm i's stock, including dividends and distributions over month j. The Market Premium is the excess return to the market, $R_{m,t} - R_{f,t}$. The Table 3 reports the mean values over the 35 years of our period of study. This Table corresponds to Table (6) of Sloan's study (1996) However, our table differs from the table in the Sloan (1996) study with regard to the estimates of the market return and the time periods. Sloan (1996) uses the equally-weighted NYSE/AMEX index whereas we use the NYSE/AMEX/NASDAQ index.

Consistent with the results of Sloan (1996), in Table 3, Panel A, we find economically and statistically significant abnormal returns, though the magnitude is lower at 65 basis points per year for the stocks of firms traded in the U.S. market minus the financial institutions with the Jensen's alpha. In Table 3, Panel B, for U.S. farms and farm-related firms with Jensen alpha, we

do have a negative abnormal return for the long-short portfolio (the hedge portfolio) but the result is not statistically significant at the conventional levels. Although this result is understandable, its implication is rather weak. For Table 3, panel C, we observe the hedge portfolio for the U.S. food supply chain firms with the Jensen's alpha, which correspond to the dataset used by Trejo-Pech, et. al. (2009). Our results indicate that portfolio 10 (high accruals) has a more negative abnormal return than portfolio 1. However, the difference of long-short hedge portfolio is not statistically significant in our results. Note that Trejo-Pech, et. al. (2009) do not report in their results whether the difference is statistically significant or not. The results in Table 3, Panel D, are for the U.S. farms and farm-related firms minus food supply chain firms with Jensen alpha. This part of the U.S. agricultural industries related data is not included in the Trejo-Pech, et. al. (2009) study. For the U.S. farms and farm-related firms minus food supply chain firms with Jensen alpha, the results are not statistically significant at the conventional level. However, the negative abnormal return of the long-short portfolio suggests that the not-significant anomaly in Panel B is driven by the non-food supply chain firms.

Table 4 presents the average monthly four-factor abnormal returns. Panel A addresses the U.S. market minus the financial institutions, and Panel B addresses the U.S. farms and farm-related firms.

[Table 4 about here]

In Table 4, the results are from comparing ten portfolios formed by sorting the firms on magnitude of accruals. The firms are sorted each December and alphas are estimated by regressing excess returns on the three Fama -French (1993) factors along with Carhart (1997) momentum factor over the 12-month accumulation period. Portfolio 1 (Portfolio 10) includes the 10% of firms with the lowest (highest) magnitude of accruals. We take a long position in Portfolio 1 and a short position in Portfolio 10 to form the long-short hedging portfolio. The results in both panel A and B using the 4-factor model indicate positive abnormal returns. However, our results are not statistically significant. This means that there is not enough evidence to support or disprove the existence or absence of an accrual anomaly for the U.S. market and the U.S. farms and farm-related firms.

To investigate further for average monthly four-factor abnormal returns for the U.S. agriculture industries, we use the USDA sub-categorization to further slice the U.S. farms and farm-related firms' data into three smaller categories in Table 5. We have in Panel A the results for the U.S. agricultural inputs firms. We have in Panel B the results for the U.S. food supply chain firms, which is the industry section investigated by the study of Trejo-Pech, et. al. (2009). We report in Panel C the results for the U.S. indirect agribusiness firms.

[Table 5 about here]

Table 5 presents the results from comparing ten portfolios formed by sorting the firms on magnitude of accruals. The firms are sorted each December and the abnormal returns are estimated by regressing excess returns on the three Fama -French (1993) factors along with the Carhart (1997) momentum factor over the 12-month accumulation period. Portfolio 1 (respectively Portfolio 10) includes the 10% of firms with the lowest (respectively highest) magnitude of accruals. The long-short portfolio is obtained by taking a long position in Portfolio 1 and a short position in Portfolio 10. Our results show that for each category, higher accruals are associated with lower returns, which is consistent with the literature at large.

In Table 6, we report the results of the Fama MacBeth (1973) regressions of stock returns on accruals as further evidence of the relation between accruals and future stock returns.

[Table 6 about here]

The dependent variable is the 12-month buy-and-hold return (BHR). The 12-month return accumulation period begins four months after the fiscal year-end. In the first step, a cross-sectional regression is performed for each year. In the second step, the final coefficient estimates are obtained as the average of the first step coefficient estimates. Again, Table 6 corresponds to Table 7, Panel A in Sloan (1996), while taking into account aforementioned differences, namely the different time periods and differences in the estimates the market return, the study of Sloan (1996) using the equally-weighted NYSE/AMEX index while this study uses the NYSE/AMEX/NASDAQ index. We find that, similar to the U.S. market of stocks minus the stocks of financial institutions, the U.S. farms and farm-related firms stocks present negative and statistically significant coefficients on accruals. Thus, this clearly and consistently indicates that the U.S. farms and farm-related firms with higher accruals tend to have lower returns. On

average, a one percent increase in accruals is associated with a decrease of 30 basis points (12 basis points) in the 12-month buy-and-hold returns for the sample of firms in the U.S. market (farms and firm-related firms), at the 1% level. This result is also economically significant.

Conclusion

Does the Accrual Anomaly documented for the entire U.S. stock market minus the financial institutions persist in the U.S. Agriculture Industries? The answer is not a clear yes or no. We find economically and statistically significant abnormal returns consistent with Sloan (1996) for the stocks of firms traded in the U.S. market minus the financial institutions. For our time period, we find that the magnitude is lower at 65 basis points per year, though. This lower magnitude is similar to the results of the study by Green, Hand, and Soliman (2010), which argues that the Accrual Anomaly may have arbitraged away as sophisticated investors attempted to exploit Sloan's results. We find negative abnormal returns of the long-short portfolio driven by the U.S. non-food supply chain firms, although our results are not statistically significant at the conventional level. Using the Sloan (1996) methods, there is not enough evidence to support or disprove the existence or absence of Accrual Anomaly for the U.S. farms and farm-related firms as a whole. To investigate further for average monthly four-factor abnormal returns for the U.S. agriculture industries, we use the USDA sub-categorization to further slice the U.S. farm and farm-related firms' data into three smaller categories (Table 5). Our results show that for each category, higher accruals are associated with lower returns. Using the Fama and MacBeth (1973) econometrics, we find that similar to the stocks of the U.S. market minus the financial institutions, the stocks of the U.S. farms and farm-related firms present negative and statistically significant coefficients on accruals. This is evidence that the stocks of the U.S. farms and farm-related firms with higher accruals tend to have lower returns. On average, a one percent increase in accruals is associated with a decrease of 30 basis points (respectively 12 basis points) in the 12-month buy-and-hold returns for the sample of firms in the U.S. market (respectively farms and firm-related firms), at the 1% level. In sum, we find mixed results for the stocks of the U.S. farms and farm-related firms. Our results suggest that more studies of the stock prices for the U.S. agriculture related firms with regards to the Accrual Anomaly and all other financial anomalies that contradict the efficient market hypothesis are necessary.

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Appendix 1

We use the North American Industry Classification System (NAICS) code to organize the subgrouping of the U.S. agricultural industries. The U.S. Department of Agriculture (USDA) identifies the U.S. farm and farm-related industries as industries with the threshold that at least 50 percent of their national work force provides goods and services necessary to satisfy the final demand for agricultural products. Most U.S. indirect agribusiness industries employ less than 50 percent of their national work force in providing goods and services necessary to satisfy the final demand for agricultural products. To be considered as a part of U.S. farm and farm-related industries, the threshold is 32 percent for indirect agribusiness industries.

We extend the contribution of Trejo-Pech, et. al. (2009) about the agricultural processing and marketing (referred to as food processing and beverage) and the agricultural wholesale and retail trade (referred to as food wholesale, retail and service) to all six agricultural industries as defined by the U.S. Department of Agriculture (USDA) classification[4].

http://www.ers.usda.gov/Data/FarmandRelatedEmployment/NAICS-Industries.htm

The six agricultural industries as defined by the U.S. Department of Agriculture (USDA) classification are: farm production; agricultural services, forestry, and fishing; agricultural inputs; agricultural processing and marketing; agricultural wholesale and retail trade; and, indirect agribusiness.

[4] "Farm and farm-related industries are identified as industries having generally 50 percent or more of their national work force employed in providing goods and services necessary to satisfy the final demand for agricultural products. An exception to this criterion is indirect agribusinesses, in which percentages range between 32 and 50 percent. Industries are aggregated into related groups: farm production; agricultural services, forestry, and fishing; agricultural input industries; agricultural processing and marketing industries; wholesale and retail trade of agricultural products; and indirect agribusiness."
http://www.ers.usda.gov/Data/FarmandRelatedEmployment/NAICS-Industries.htm

Table 1. Mean (median) of selected characteristics for ten portfolios of firms formed annually by assigning firms to deciles based on accruals for a sample of 7,575 U.S. firms with December fiscal year-end (U.S. market less financial institutions) from 1972 to 2006

Median values are reported in italics.
In Panel A:
Magnitude of Earnings represents the absolute value of earnings where *Earnings* = income from continuing operations divided by average total assets
Accruals = the change in non-cash current assets, less the change in current liabilities (exclusive of short-term debt and taxes payable), less depreciation expense, all divided by average total assets
Cash flows = the difference between earnings and accruals (as defined above).
In Panel B:
Current asset = the change in non-cash current assets divided by average total assets,
Current liability = minus the change in current liabilities (exclusive of short-term debt and taxes payable) divided by average total assets
Depreciation = minus depreciation expense divided by average total assets.

Panel A: Components of Earnings- Sample of 7,575U.S. market less financial institutions(1972-2006)

Accruals Portfolio	Accruals	Cash Flows	Magnitude of Earnings
1 (Lowest)	-0.207	0.105	0.234
	-0.186	*0.191*	*0.117*
2	-0.109	0.121	0.146
	-0.109	*0.169*	*0.100*
3	-0.078	0.121	0.134
	-0.078	*0.155*	*0.098*
4	-0.058	0.117	0.134
	-0.058	*0.143*	*0.102*
5	-0.042	0.109	0.131
	-0.042	*0.130*	*0.102*
6	-0.027	0.092	0.137
	-0.027	*0.116*	*0.104*
7	-0.010	0.075	0.141
	-0.011	*0.103*	*0.111*
8	0.012	0.025	0.186
	0.011	*0.089*	*0.120*
9	0.049	0.023	0.164
	0.048	*0.057*	*0.129*
10 (Highest)	0.159	-0.110	0.211
	0.140	*-0.034*	*0.147*

(continued)

Table 1 (continued)

Panel B: Components of Accruals- Sample of7,575 U.S. market less financial institutions(1972-2006)

Accruals Portfolio	Current Assets	Current Liabilities	Depreciation
1 (Lowest)	-0.066	-0.059	-0.079
	-0.042	*-0.034*	*-0.065*
2	-0.012	-0.028	-0.068
	-0.006	*-0.020*	*-0.062*
3	0.004	-0.022	-0.058
	0.003	*-0.016*	*-0.056*
4	0.012	-0.019	-0.051
	0.009	*-0.014*	*-0.049*
5	0.020	-0.017	-0.045
	0.013	*-0.011*	*-0.043*
6	0.031	-0.016	-0.041
	0.022	*-0.009*	*-0.039*
7	0.045	-0.016	-0.038
	0.037	*-0.011*	*-0.036*
8	0.067	-0.019	-0.037
	0.063	*-0.014*	*-0.034*
9	0.106	-0.022	-0.036
	0.103	*-0.018*	*-0.033*
10 (Highest)	0.238	-0.039	-0.033
	0.208	*-0.035*	*-0.029*

Table 2. Mean and median values of selected characteristics for ten portfolios of firms formed annually by assigning firms to deciles based on accruals for a sample of 1,258U.S. farm and farm-related firms with December fiscal year-end from 1972 to 2006

Median values are reported in italics.
In Panel A:
Magnitude of Earnings represents the absolute value of earnings where *Earnings* = income from continuing operations divided by average total assets
Accruals = the change in non-cash current assets, less the change in current liabilities (exclusive of short-term debt and taxes payable), less depreciation expense, all divided by average total assets
Cash flows = the difference between earnings and accruals (as defined above)
In Panel B:
Current asset = the change in non-cash current assets divided by average total assets,
Current liability = minus the change in current liabilities (exclusive of short-term debt and taxes payable) divided by average total assets
Depreciation = minus depreciation expense divided by average total assets

Panel A: Components of Earnings-Sample of 1,258U.S. farm and farm-related firms(1972-2006)

Accruals Portfolio	Accruals	Cash Flows	Magnitude of Earnings
1 (Lowest)	-0.179	0.007	0.304
	-0.156	*0.165*	*0.127*
2	-0.095	0.090	0.179
	-0.097	*0.169*	*0.113*
3	-0.070	0.084	0.182
	-0.071	*0.156*	*0.123*
4	-0.054	0.094	0.160
	-0.056	*0.148*	*0.118*
5	-0.042	0.090	0.170
	-0.043	*0.143*	*0.136*
6	-0.029	0.057	0.186
	-0.031	*0.127*	*0.141*
7	-0.015	0.037	0.186
	-0.017	*0.109*	*0.144*
8	0.004	0.024	0.187
	0.001	*0.092*	*0.147*
9	0.034	-0.011	0.200
	0.032	*0.060*	*0.145*
10 (Highest)	0.137	-0.127	0.259
	0.111	*-0.017*	*0.167*

(continued)

Table 2 (continued)

Panel B: Components of Accruals–Sample of1,258 U.S. farm and farm-related firms(1972-2006)

Accruals Portfolio	Current Assets	Current Liabilities	Depreciation
1 (Lowest)	-0.052	-0.068	-0.061
	-0.027	*-0.042*	*-0.054*
2	-0.010	-0.025	-0.059
	-0.006	*-0.021*	*-0.057*
3	0.006	-0.022	-0.054
	0.005	*-0.017*	*-0.054*
4	0.013	-0.017	-0.051
	0.010	*-0.014*	*-0.051*
5	0.018	-0.014	-0.045
	0.015	*-0.012*	*-0.045*
6	0.027	-0.013	-0.041
	0.021	*-0.010*	*-0.041*
7	0.035	-0.011	-0.037
	0.031	*-0.009*	*-0.036*
8	0.050	-0.011	-0.035
	0.043	*-0.008*	*-0.033*
9	0.078	-0.011	-0.033
	0.075	*-0.008*	*-0.031*
10 (Highest)	0.187	-0.015	-0.031
	0.151	*-0.021*	*-0.028*

Table 3. Time-series means of equal-weighted portfolio abnormal stock returns for ten portfolios of firms formed annually by assigning firms to deciles based on magnitude of accruals for samples of U.S. firms with December fiscal year-end from 1972 to 2006

The *Jensen Alpha* is the estimated value of α from $(R_{p,t} - R_{f,t}) = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + \varepsilon_{p,t}$ where $R_{p,t}$ is the raw buy-and-hold return (BHR) to portfolio *p* in year *t*, including dividends and distributions. $R_{f,t}$ is the annual T-bill yield in year *t*, and $R_{m,t}$ is the market return, estimated by cumulating CRSP monthly returns on the equally-weighted NYSE/AMEX/NASDAQ index. The 12-month return accumulation period begins in April of year *t*. The BHR for firm *i* in year *t* is calculated as $BHR_{i,t} = \prod_{j=April(t)}^{March(t+1)}(1 + r_{i,j}) - 1$ where $r_{i,j}$ is the CRSP monthly return on firm *i*'s stock, including dividends and distributions over month j.
The *Market Premium* is the excess return to the market $R_{m,t} - R_{f,t}$. The table reports mean values over the 35 years of the study period.
The symbols ***, **, and * indicate a statistical significance level of 1%, 5%, and 10% respectively.
Note: This table is a replication of Sloan (1996) Table 6. Sloan (1996) estimates the market return using the equally-weighted NYSE/AMEX index.
Panel A: Sample of 7,575U.S. market less financial institutions(1972-2006)

	Portfolio deciles based on magnitude of accruals										
	Lowest 1	2	3	4	5	6	7	8	9	Highest 10	Long-short 1-10
Jensen Alpha	0.007	0.007	0.006	0.022*	0.024*	0.029**	0.023	-0.005	-0.003	-0.053	**0.065***
	(0.43)	(0.52)	(0.51)	(1.82)	(2.01)	(2.49)	(1.59)	(-0.42)	(-0.18)	(-1.40)	**(1.81)**
Market Premium	1.041***	0.957***	0.892***	0.878***	0.956***	0.944***	1.050***	1.027***	1.240***	1.648***	-0.553***
	(17.99)	(19.07)	(19.51)	(19.67)	(21.86)	(22.10)	(19.12)	(25.33)	(20.01)	(11.36)	(-4.16)
Number of years	35	35	35	35	35	35	35	35	35	35	35
R-squared	0.907	0.917	0.920	0.921	0.935	0.937	0.917	0.951	0.924	0.796	0.344

Panel B: Sample of 1,258U.S. farm and farm-related firms (1972-2006)

	Portfolio deciles based on magnitude of accruals										
	Lowest 1	2	3	4	5	6	7	8	9	Highest 10	Long-short 1-10
Jensen Alpha	-0.024	-0.018	0.039	0.014	0.015	0.012	0.021	0.035	0.008	-0.019	**-0.002**
	(-0.91)	(-0.68)	(1.18)	(0.57)	(0.77)	(0.53)	(1.14)	(1.23)	(0.29)	(-0.31)	**(-0.04)**
Market Premium	0.912***	0.958***	0.968***	0.791***	0.861***	0.890***	0.770***	0.980***	1.027***	1.472***	-0.533***
	(9.41)	(9.91)	(7.98)	(9.00)	(11.74)	(10.39)	(11.17)	(9.20)	(10.18)	(6.37)	(-2.26)
Number of years	35	35	35	35	35	35	35	35	35	35	35
R-squared	0.728	0.749	0.659	0.710	0.807	0.766	0.791	0.719	0.759	0.551	0.134

(continued)

Table 3 (continued)

Panel C: Sample of 388U.S. food supply chain firms (1972-2006)

	Portfolio deciles based on magnitude of accruals										
	Lowest 1	2	3	4	5	6	7	8	9	Highest 10	Long-short 1-10
Jensen Alpha	-0.010	0.005	0.035	0.037	0.011	0.031	0.034	0.040	0.051	-0.021	0.009
	(-0.32)	(0.16)	(0.70)	(1.16)	(0.44)	(0.97)	(1.45)	(1.15)	(1.38)	(-0.50)	(0.19)
Market Premium	0.825***	0.711***	0.832***	0.862***	0.485***	0.633***	0.661***	0.520***	0.861**	0.681**	0.183
	(7.11)	(6.16)	(4.46)	(7.45)	(5.48)	(5.47)	(7.54)	(4.08)	(6.31)	(4.26)	(0.99)
Number of years	35	35	35	35	35	35	35	35	35	35	35
R-squared	0.605	0.535	0.376	0.627	0.477	0.475	0.633	0.335	0.547	0.354	0.029

Panel D: Sample of 870U.S. farm and farm-related firms less food supply chain firms (1972-2006)

	Portfolio deciles based on magnitude of accruals										
	Lowest 1	2	3	4	5	6	7	8	9	Highest 10	Long-short 1-10
Jensen Alpha	-0.041	-0.009	0.032	-0.000	0.018	0.013	0.000	0.002	0.007	-0.023	-0.011
	(-1.13)	(-0.21)	(0.93)	(-0.01)	(0.68)	(0.37)	(0.01)	(0.09)	(0.15)	(-0.24)	(-0.11)
Market Premium	0.953***	1.087***	0.922***	0.823***	0.894***	0.948***	0.838***	1.043***	1.305**	1.930**	-0.940**
	(7.11)	(6.94)	(7.17)	(7.29)	(9.08)	(7.45)	(7.36)	(10.44)	(7.69)	(5.23)	(-2.57)
Number of years	35	35	35	35	35	35	35	35	35	35	35
R-squared	0.605	0.593	0.609	0.617	0.714	0.627	0.621	0.768	0.642	0.453	0.166

Table 4. Average monthly four-factor abnormal returns

This table presents the results from comparing ten portfolios formed by sorting the firms on magnitude of accruals. The firms are sorted each December and alphas are estimated by regressing excess returns on the three Fama -French (1993) factors along with the Carhart (1997) momentum factor over the 12-month accumulation period. Portfolio 1 (Portfolio 10) includes the 10% of firms with the lowest (highest) magnitude of accruals. The long-short portfolio is obtained by I take a long position in Portfolio 1 and a short position in Portfolio 10.

Panel A: Sample of 7,575U.S. market less financial institutions (1972-2006)

Accruals Portfolio	Alpha	t_{Alpha}	MKTRF	t_{mktrf}	SMB	t_{smb}	HML	t_{hml}	UMD	t_{umd}	R-squared
1(Lowest)	0.004	0.779	0.937	5.969	0.907	4.076	0.096	0.407	-0.155	-0.658	0.935
2	0.002	0.497	0.928	6.763	0.800	3.980	0.128	0.623	-0.047	-0.260	0.928
3	0.002	0.391	0.929	6.478	0.743	3.440	0.128	0.406	-0.115	-0.727	0.932
4	0.003	0.803	0.981	7.203	0.775	3.997	0.197	0.660	-0.114	-0.583	0.948
5	0.003	0.525	0.924	7.112	0.876	4.419	0.224	0.920	-0.081	-0.711	0.943
6	0.003	0.516	1.002	6.590	0.874	3.746	0.253	0.894	-0.057	-0.342	0.936
7	0.004	0.673	1.003	5.658	0.913	3.545	0.327	0.945	-0.069	-0.480	0.912
8	0.001	0.288	1.046	5.508	1.043	3.865	0.318	0.900	-0.116	-0.500	0.919
9	0.001	0.270	0.977	4.409	1.145	3.541	0.150	0.367	-0.210	-0.838	0.894
10(Highest)	-0.002	-0.518	1.034	3.879	1.346	3.340	0.231	0.545	-0.207	-0.260	0.869
Long-short 1 - 10	0.006	0.869	-0.097	-0.346	-0.440	-1.032	-0.135	-0.233	0.052	-0.087	0.553

(continued)

Table 4 (continued)

Panel B: Sample of 1,258U.S. farm and farm-related firms (1972-2006)

Portfolio rank	Alpha	t_{Alpha}	MKTRF	t_{mktrf}	SMB	t_{smb}	HML	t_{hml}	UMD	t_{umd}	R-squared
1(Lowest)	-0.001	-0.100	0.953	3.293	0.890	1.884	0.180	0.285	-0.240	-0.509	0.825
2	0.002	0.081	1.005	3.676	0.658	1.546	0.316	0.480	-0.131	-0.342	0.820
3	0.006	0.583	0.915	3.596	0.702	1.753	0.050	-0.236	-0.220	-0.688	0.812
4	0.004	0.429	1.024	3.774	0.571	1.433	0.282	0.358	-0.084	-0.284	0.826
5	0.003	0.327	0.979	3.400	0.662	1.600	0.189	0.466	-0.218	-0.725	0.805
6	0.002	0.117	0.989	3.482	0.648	1.526	0.336	0.474	-0.155	-0.233	0.812
7	0.005	0.487	0.929	3.536	0.739	1.824	0.198	0.339	-0.061	-0.272	0.784
8	0.006	0.501	1.041	3.418	0.914	2.106	0.477	0.753	-0.108	-0.261	0.821
9	-0.002	-0.266	0.862	2.455	1.178	2.166	0.103	0.109	0.079	0.092	0.773
10(Highest)	-0.004	-0.335	1.018	2.289	1.437	2.053	0.337	0.336	-0.115	-0.326	0.729
Long-short 1 - 10	0.003	0.258	-0.065	-0.220	-0.548	-0.743	-0.157	-0.250	-0.125	-0.176	0.413

Table 5. Average monthly four-factor abnormal returns for U.S. farm and farm-related firms by category

This table presents the results from comparing ten portfolios formed by sorting the firms on magnitude of accruals. The firms are sorted each December and the abnormal returns, alphas are estimated by regressing excess returns on the three Fama -French (1993) factors along with the Carhart (1997) momentum factor over the 12-month accumulation period. Portfolio 1 (Portfolio 10) includes the 10% of firms with the lowest (highest) magnitude of accruals. The long-short portfolio is obtained by taking a long position in Portfolio 1 and a short position in Portfolio 10.

Panel A: Sample of 631U.S. agricultural inputs firms (1972-2006)

Portfolio rank	Alpha	t_{Alpha}	MKTRF	t_{mktrf}	SMB	t_{smb}	HML	t_{hml}	UMD	t_{umd}	R-squared
1 (Lowest)	0.001	-0.016	1.103	2.435	0.876	1.245	0.377	0.373	-0.555	-0.819	0.754
2	0.008	0.431	0.957	2.215	0.642	1.019	0.051	-0.270	-0.033	0.007	0.742
3	0.007	0.201	1.076	2.372	0.394	0.656	0.013	-0.172	0.018	-0.234	0.721
4	0.003	0.183	0.998	2.198	0.771	1.193	0.172	-0.040	-0.237	-0.317	0.722
5	0.004	0.221	1.081	2.843	0.563	1.049	0.231	0.304	-0.109	-0.283	0.759
6	0.007	0.423	0.992	2.420	0.881	1.201	0.404	0.167	-0.142	-0.297	0.719
7	0.002	0.005	1.116	2.330	0.758	1.034	0.097	-0.119	-0.157	-0.218	0.702
8	0.006	0.377	1.145	2.660	0.972	1.313	0.352	0.125	-0.060	-0.145	0.723
9	0.001	0.159	1.101	2.483	1.112	1.434	-0.016	-0.101	0.007	-0.104	0.747
10 (Highest)	-0.002	-0.196	1.071	1.585	1.510	1.498	0.227	0.120	-0.278	-0.362	0.653
Long-short 1 - 10	0.003	0.229	0.032	-0.093	-0.634	-0.619	0.149	-0.007	-0.277	-0.329	0.463

(continued)

Table 5 (continued)

Panel B: Sample of 388 U.S. food supply chain firms (1972-2006)

Portfolio rank	Alpha	t_{Alpha}	MKTRF	t_{mktrf}	SMB	t_{smb}	HML	t_{hml}	UMD	t_{umd}	R-squared
1 (Lowest)	-0.004	-0.238	0.894	2.443	0.712	1.257	0.060	0.128	0.167	0.213	0.699
2	0.001	-0.088	0.836	2.211	0.793	1.530	0.425	0.636	0.013	0.008	0.672
3	0.002	0.028	1.090	2.990	0.477	0.837	0.368	0.577	-0.276	-0.493	0.709
4	0.006	0.362	1.090	2.950	0.485	0.973	0.300	0.566	-0.042	-0.176	0.731
5	0.000	0.017	0.881	2.682	0.678	1.077	0.171	0.322	-0.254	-0.453	0.719
6	0.004	0.411	0.862	2.597	0.558	1.146	0.227	0.417	-0.152	-0.397	0.732
7	0.004	0.317	0.934	2.728	0.674	1.304	0.425	0.610	0.058	0.104	0.725
8	0.003	0.262	0.835	2.380	0.709	1.399	0.584	0.888	0.044	-0.090	0.704
9	0.000	-0.161	0.792	1.778	1.073	1.511	0.368	0.217	0.090	0.193	0.604
10 (Highest)	-0.006	-0.214	1.114	1.653	1.263	1.414	0.531	0.426	-0.062	0.101	0.629
Long-short 1 - 10	0.002	0.071	-0.220	-0.202	-0.551	-0.522	-0.471	-0.306	0.229	0.065	0.430

Panel C: Sample of 220U.S. indirect agribusiness firms (1972-2006)

Portfolio rank	Alpha	t_{Alpha}	MKTRF	t_{mktrf}	SMB	t_{smb}	HML	t_{hml}	UMD	t_{umd}	R-squared
1 (Lowest)	-0.008	-0.187	0.707	1.242	1.257	1.252	-0.077	-0.072	-0.439	-0.425	0.599
2	0.006	0.135	0.730	1.334	0.623	0.819	-0.360	-0.349	-0.305	-0.388	0.582
3	0.008	0.182	0.585	1.149	0.638	0.448	-0.063	0.127	-0.442	-0.474	0.539
4	-0.001	-0.032	0.758	1.124	0.825	0.715	0.525	0.272	0.020	0.041	0.502
5	0.002	0.247	0.600	1.133	0.659	0.738	0.144	0.183	-0.138	-0.355	0.562
6	0.010	0.254	0.868	1.197	0.690	0.598	-0.214	-0.242	-0.183	-0.218	0.525
7	0.005	0.097	0.773	1.145	1.079	0.961	0.393	0.228	-0.402	-0.317	0.525
8	-0.001	-0.130	0.832	1.426	0.745	0.641	-0.092	0.101	-0.215	-0.241	0.578
9	-0.004	-0.143	0.998	1.458	0.757	0.867	0.228	-0.076	-0.239	-0.388	0.546
10 (Highest)	-0.006	-0.489	0.787	0.762	1.847	0.998	0.685	0.363	0.232	-0.084	0.484
Long-short 1 - 10	0.003	0.229	0.032	-0.093	-0.634	-0.619	0.149	-0.007	-0.277	-0.329	0.463

Table 6. Fama-MacBeth regressions of future stock returns on accruals (1972-2006)

The dependent variable is the 12-month buy-and-hold return (BHR). The 12-month return accumulation period begins four months after the fiscal year-end. In the first step, a cross-sectional regression is performed for each year. Then, in the second step, the final coefficient estimates are obtained as the average of the first step coefficient estimates.
The symbols ***, **, and * indicate a statistical significance level of 1%, 5%, and 10% respectively.
Note: This table is a replication of Sloan (1996) Table7-Panel A.

	Sample of 7,575U.S. market less financial institutions	*Sample of 1,258U.S. farm and farm-related firms*
	Dependent variable: 12-month BHR	Dependent variable: 12-month BHR
Accruals	-0.30***	-0.12***
	(-13.86)	(-3.23)
Intercept	0.16***	0.17***
	(12.74)	(12.69)
Firm-month observations	616,259	117,828
Number of months	420	420
R-squared	0.006	0.013