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Abstract

This article empirically investigates the prices and returns of the stocks of U.S. agriculture related firms for momentum anomaly. The study utilizes the decile portfolios sorting and the Fama and MacBeth cross section regression empirical methods. The main dataset is a merger of the balance sheet and income statement of firms' data from Standard & Poor's COMPUSTAT with the stock prices of traded U.S. agriculture related firms from the Center for research in Security Prices (CRSP). The study finds some positive abnormal returns for the stocks of the firms, albeit the returns' are most economic and statistic significances for Micro stocks. The sort results on macroeconomic conditions appear to have minimum effects, and only for the Global financial crises period. The regressions results indicate that most momentum and size effects are driven by Micro category. The stock prices and returns of the stocks of U.S. agriculture related firms appear to concur with the efficient market hypothesis but for the Micro caps category.

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

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Momentum Anomaly in Agriculture Financial Economics

With the underlying assumption that economic agents have rational expectations of future returns, the efficient market hypothesis says that it is not possible to consistently earn a risk adjusted positive excess return over the market average because all available information are efficiently built in the market price of any stock (Fama, 1970). There is an important trend of empirical literature that supports the efficient market hypothesis by providing the evidence of positive relation between risk and average returns to stocks, starting with the Capital Asset Pricing Model (CAPM) (e.g., Sharpe, 1964; Lintner, 1965; Black, 1972; Fama and MacBeth, 1973). As various anomalous patterns of investment strategies that violate this efficient market hypothesis are uncovered, the CAPM is augmented with other factors to account for the discrepancies. An early uncovered instance of anomalous pattern is the "size effect". Banz (1981) tunes the Fama and MacBeth (1973) cross sectional regression methodology to uncover an evidence of negative relation between average returns to stocks and market capitalization of the stocks while controlling for risk, which is labeled as the "size effect". A second instance of anomalous pattern is the "value effect". Rosenberg et al. (1984), Fama and French (1992) and Lakonishok et al. (1994) are three studies among others that bring evidence of predictable returns over multiple years for portfolios long in high book-to-market (B/M) stocks and short in low B/M stocks. A third important anomalous pattern is the "momentum effect" first reported by Jegadeesh and Titman (1993). The study of Jegadeesh and Titman (1993) notices that recent past winners (portfolios formed on the last year of past returns) out-perform recent past losers. To account for the size and value effects, the study of Fama and French (1993) argues that size and value are missing

factors from the CAPM, thereby introducing the Fama French three factor model, whereas the factors size and value add to the factor risk of CAPM. To account for the momentum effect, Carhart (1997) augments the Fama and French three factor model with a forth momentum factor.

Multiple articles attempt to explain these anomalies with specific markets characteristics, thereby providing some insightful scrutiny of those markets and the characteristics of their respective industrial organizations. Black (1993) and MacKinlay (1995) account the presence of anomalous patterns as the results of data dredging (data snooping) bias. Chan, Hamao, and Lakonishok (1991) test the robustness of the results obtained from the multiple factor models by utilizing datasets from the financial markets of countries other than the U.S.

Speculating on the effect of a holdout sample, Barber and Lyon (1997) focus on the stocks of financial institutions, which data segment has been left out by Fama and French (1992, 1993).They conclude that financial firms exhibit a size and value premium similar to the size and value premium documented for nonfinancial firms. This article tests the robustness of the anomalous patterns by focusing on the specific sample of the stocks of U.S. agriculture related firms. The stocks of the U.S. agriculture related firms provide an interesting application for testing the efficient market hypothesis because agricultural products are important components of the commodity markets, along with crude oil and precious metals. Speculating on the effect of time period choice, Davis (1994) evaluates the data dredging bias using a time period different than the time period used by Fama and French (1992, 1993). This article tests the robustness of the anomalous patterns by dissecting the stocks of U.S. agriculture related firms dataset by characteristically

pertinent time periods. One attractive feature of the agriculture sector is the intensive application of technological innovations, from the time of heavily oil dependent mechanized agriculture of the 1970s to the advent of food for fuel era of the 2000s whereas the agriculture sector participate in the energy supply via the production of ethanol, the application of heavy computing and Global Positioning System (GPS) to precision agriculture, and the applications of genetic engineering to agricultural production. Another motivation for scrutinizing the stocks of U.S. agriculture related firms is the perceived intense vertical integration and growing global competition.

This article examines whether the anomalous patterns documented for the stocks of U.S. corporate firms in general are also present in agriculture related firms. The study adapts the sort method utilized by Jegadeesh and Titman (1993), combined with the portfolio categorization by size of Fama and French (2008) to the macroeconomic justified dissection of time periods. Computed the stocks' returns with the Fama and French (1993) three factor model, the anomalous patterns are also investigated with a tuned Fama and MacBeth (1973) cross sectional regression methodology that accounts for size, value, momentum, and agriculture related explanatory variables.

Utilizing the momentum investment strategy, we find some positive abnormal returns for the stocks of the firms. However, the economic and statistic significances of these abnormal returns vary across market capitalization categories and macroeconomic conditions. Our results suggest that more studies of the stock prices and returns of the stocks of U.S. agriculture related firms with regards to financial anomalies are justified to test further the efficient market hypothesis.

Methods

To study the anomalous patterns related to the "momentum effect" observed by Jegadeesh and Titman (1993), this article utilizes two methods. The first method is a "sort" method, which combines a variation of the "J-month/K-month sort" strategy introduced by Jegadeesh and Titman (1993), the "size strategy" utilized by Fama and French (2008), and a variation of the "time strategy" hinted by Davis (1994). The second method applies the two-step Fama and MacBeth regressions of returns to each "size category", with "financial anomaly", time period dummy, and agriculture industry explanatory variables.

The Fama and French three factor model

The studies of Fama and French (1992, 1993) suggest using the following regression to measure the abnormal performance (*ai)*:

$$Rit - Rft = ai + bi\ (Rmt - Rft) + si(\mathrm{SMB}t) + hi(\mathrm{HML}t) + eit \quad (1)$$

The quantity (*eit)* is the error term of the regression on firm *(i)* at time *(t).* SMB is the difference between the returns to portfolios of small- and large-capitalization firms, holding constant the B/M ratios for these stocks. HML is the difference between the returns to portfolios of high and low B/M ratio firms, holding constant the market capitalization for these stocks. The coefficients (*bi),* (*si)* and (*hi)* are the respective exposure to market risk (as in the CAPM model), the size risk (small market capitalization minus big market capitalization) and the value risk (High B/M ratio firms minus Low B/M ratio firms). The "sort" method utilizes the regressions of the Fama and

French three factor model to measure the abnormal performances, which measurement is rather a necessary first step than a main method.

The sort method

Jegadeesh and Titman (1993) study the efficiency of the stock market by the examination of "the J-month/K-month sort" strategies that form portfolios based on stock components' past returns, adopting a long position (buy) on past winners and a short position (sell) on past losers. The Fama and French three factor model is used in this stage of "the J-month/K-month sort" strategies. Following their sort methodology, this article keeps their variable notation, with J in month as a basis for stocks selection and K in month as the holding period. The J-month/K-month strategy selects stocks on the basis of returns over the past J months and holds them for K months. The J-month/K-month method considers the start of each month "t = 1 to J" to rank the securities in ascending order on the basis of their returns in the past J months. The rankings are used to form ten decile equally weighted portfolios. In Table 4 of this study, for Panel A through Panel E, the decile "1" portfolio is the lowest (losers) and the decile "10" is the highest (winners). Jegadeesh and Titman (1993) apply this schema based on stock selections per quarter (J = 3, 6, 9, 12) with varying holding periods per quarter (K = 3, 6, 9, 12) to form a total of 16 strategies. Their method provides a robust evidence of the "momentum effect" prediction that past winners continue to win and past losers continue to lose. Adjusting the Jegadeesh and Titman (1993) to the stocks of U.S. agriculture related firms, this article utilizes one strategy with J = 10 and K = 2. Needing only one strategy, this article restricts the strategy to be within one fiscal year (J + K = 12), with a long period of

selection (J = 10) to discern the true winners and losers, and a short holding period (K = 2) enough to observe if the strategy predicts positive returns.

To account for the "size effect" in the empirical anomaly findings that are apparent in stock return data, Fama and French (2008) use the sort method with the size categories adopted by professional investors, referred in the financial markets as the NYSE breakpoints. The underlying rational is that the sum of tiny stocks amount to a tiny share of the total market capitalization while their number is a very large share of the total number of observations. Following Fama and French (2008) and the NYSE breakpoints used by professional investors, this article slices the equal weight portfolios in five categories. The Micro stocks (respectively Small stocks) category is made of stocks with market capitalization below the 20^{th} NYSE percentile (respectively the 50^{th} NYSE percentile). The other three categories are the Big stocks category with market capitalization above the 50% NYSE percentile, the All but Micro category with market capitalization above the 20^{th} NYSE percentile, and the All category accounting for stocks of all sizes of market capitalization.

Following Davis (1994), this article accounts for the possible effect of time period choice by considering the following time periods and major macroeconomic events:

(1) Entire sample period, 1973-2011. This article's sample starts from 1973 to account for the introduction of NASDAQ in 1973, in addition to NYSE and Amex; and ends with the currently 2011 available data of the COMPUSTAT and CRSP datasets. In comparison, the respective sample time period of some of the cited studies are 1936-1975 for Banz (1981); 1965-1989 for Jegadeesh and

Titman (1993); 1962-1993 for Carhart (1997); 1973-1994 for Barber and Lyon (1997); and 1963-2005 for Fama and French (2008).

(2) OPEC Oil Crises period, 1973-1979. The two OPEC oil crises of 1973 and 1979 are causes of crude oil availability crunch and energy price increases in 1973-1979. This article considers the possible effect of energy price increases on an intensively mechanized agriculture production function.

(3) Commodity price depression, 1980-2000. Catania et al. (1997, 2000, 2010) report that the prices of raw materials such as agricultural products, crude oil and gold were depressed due to unfavorable volatility and interests rates. Moy (1985) analyses the unemployment trends of developed countries during the Early 1980s Recession (1980-1983 for the U.S. economy), which is attributed to a contraction monetary policy implemented by the U.S. Federal Reserve System to control inflation. Sullivan and Sheffrin (2003) describe the Early 1990s Recession (1988-1993 for the U.S. economy), which is attributed to the stock collapse of the "Black Monday of October 1987" and the beginning of the Gulf War.

(4) Commodity price boom, 2001-2008. The 2000s commodities boom is attributed to the rise of global population and the rise of raw material demands by the global economy. The combined decline of food crop production and rise of biofuel crop production start the Food for Fuel Crisis in 2006; e.g. Catania et al. (2010). Lowenstein (2004) describes the Dot-Com Bust of 2000-2001 (a.k.a Information Technology Bubble and Bust), which witnesses some spectacularly sudden large loss of market capitalization as exemplified by the "Amazon stocks" that went from $107 to $7 per share in one day.

(5) Global Financial Crises, 2007-2011. Baily and Elliott (2009) provide a detailed narrative of the U.S. Financial and Economic Crisis of 2007-2009. Williams (2012) describes the global effects of the European sovereign debts crises.

This article considers one "J-month/K-month" sort strategy. Combined with 5 size categories and 5 time periods, the sort method considers 25 "sort" strategies. The sort method gives a clear view of average return variations across strategies.

The Fama and MacBeth regressions method

The Fama and MacBeth (1973) study introduces a two-step regression procedure as follows. In the first step, a cross-sectional regression is performed. In the second step, the final coefficient estimates are obtained as the average of the first step coefficient estimates.

In this article, the Fama and MacBeth regressions of returns are performed for each of the 5 size categories along the entire sample period 1973-2011. The control variables for anomalous returns are MOM, Log size, and Log BE/ME. The control variables for possible period effects are dummy period variables in years. Dummy variables based on SIC/NAICS codes control for agriculture industry subsamples. The Fama and MacBeth regressions method gives a quantified interpretation of average return variations across control variables.

Data

To study the characteristics of industrial organization and macroeconomic conditions of U.S. agriculture related traded firms, this article scrutinizes their stock prices and returns

for financial momentum anomaly. The main dataset is a merger of the balance sheet and income statement of firms' data from Standard & Poor's COMPUSTAT with the stock prices of traded U.S. agriculture related firms from the Center for research in Security Prices (CRSP). The NASDAQ all series begins December 14, 1972 and index levels of CRSP market indices are set to 100 on December 29, 1972. Therefore, the first ranking of firms in this study starts in 1973. The article considers only firms that trade ordinary common stock shares (with share codes 10 or 11) on NYSE, AMEX, or NASDAQ and that have the data items necessary to calculate all necessary values of the methods and strategies. Financial firms (e.g., banks and insurance companies), defined as firms with SIC codes in the range 6000 to 6999 are excluded. The 1973-2011 samples of agriculture related firms are from the six-group classification used by the U.S. Department of Agriculture (USDA)'s Economic Research Service (ERS) for farm and farm-related employment:

1. Farm production,
2. Agricultural services, forestry, and fishing,
3. Agricultural input industries,
4. Agricultural processing and marketing industries,
5. Wholesale and retail trade of agricultural products, and
6. Indirect agribusiness.

In Table 1, each category is represented by its corresponding number (e.g., 1 for farm production) while the "All" category for all U.S. agriculture related firms with traded stocks. Table 1 reports the descriptive statistics of firms by industry classification. As clearly indicated in table 1, there are only few U.S. firms under the categories (1) farm

production and (2) agricultural services, forestry, and fishing that have publicly traded. Since the study does not account for the contribution of each category, these few observations are not excluded. The (3) agricultural input industries, (4) agricultural processing and marketing industries, and (6) indirect agribusiness categories are the most publicly traded, with respectively 37.48%, 28.45% and 22.06% of the observations.

Table 2 reports the firm-month observations for each fiscal year from 1973 to 2011. Table 2, Panel A reports the distribution of firms by Total assets (in millions of $). Table 2, Panel B is a nomenclature of the ticker symbols. The descriptive statistics in Table 2 Panel A of this study show the Total Assets ($ million) of the traded U.S. agriculture related firms from 1973 to 2011, with a standard deviation of 558.11 in 1973 and a standard deviation of 17,882.05 in 2011. In 1973, the smallest traded U.S. agriculture related firm is the Park Chemical Company (ticker symbol PAK) with a total asset of $ 2.96 million; while the largest traded company is Du Pont De Nemours and Company (ticker symbol DD) with a total assets of $4,832.20 million. In contrasts, the 2011 smallest traded U.S. agriculture related firm is the Celsion Corporation (ticker symbol CSLN) with a total asset of $ 1.85 million while the largest is Pfizer Incorporated (ticker symbol PFE) with a total asset of $ 188, 002.00 million.

Table 3 reports the descriptive statistics on selected firm characteristics. The variables are defined as they are used in the "sort" method and the Fama and MacBeth regressions method:

1. LSIZE = Natural logarithm of Market capitalization, noted Log size in Table 5 of the Fama and MacBeth regressions,

2. Market capitalization = Stock price per share times Number of shares outstanding,
3. BE/ME = Book-to-market = Book value of equity at end of previous fiscal year divided by Market value of equity for last month of previous fiscal year, and noted Log BE/ME in Table 5 of the Fama and MacBeth regressions,
4. MOM = Momentum = Cumulated continuously compounded stock return for past J months, where J = Number of prior months used to create momentum portfolios,
5. MRET = Monthly return= Stock monthly return from CRSP.

Size groups (Micro, Small, Big) are determined using NYSE breakpoints. N is the number of firm-months (N = Number of firm-month observations).

Results

The results of the sort method and the results of the Fama and MacBeth regressions method are complementary. Table 4 reports the results of the sort method. Table 5 reports the results of the Fama and MacBeth regressions method.

The results of the sort method

In Table 4, the Equally-weighted returns of momentum portfolios are reported. Momentum portfolios are based on J (=10) month lagged return and held for K (=2) months, whereas J is the Number of prior months used to create momentum portfolios, K is the Holding period in months after portfolio creation. Table 4, Panel A, B, C, D and E report the sorting results for the portfolios of All, Micro, Small, Big, and All but micro categories, respectively. At the bottom of each Table 4's Panel A through E, the portfolios denoted (10-1) speculate the anomalous pattern of "momentum effect" that

recent past winners (portfolios formed on the last year of past returns) out-perform recent past losers, which is translated in holding a long position on past winners and short position on past losers. Abnormal Equal Weight returns are negative but not statistically significant for the category "All", for each period. Strong negative returns are observed for the Micro category for period 2007-2011. This result appears to say that the 'momentum effect" dissipated during the financial crisis. The results are weak for Big category across all time periods.

The results of the Fama and MacBeth regressions method

Table 5's Panel A through E report the Fama and MacBeth regressions of returns for each size category, from the All size category (Panel A) through the All but micro category (Panel E). The results are consistent with the literature at large, with economically and statistically significant abnormal returns due to the "momentum effect" for all categories, with the strongest results on the Micro capitalization stocks. There are also some economically and statistically significant abnormal returns in the stocks of U.S. agriculture related firms when controlling for the "Book-to-market of equity" effect, with the strongest results driven by the Micro capitalization category. While controlling for macroeconomic events through time period dummies, the stocks of U.S. agriculture related firms appear to be unaffected.

Conclusion

The study finds some positive abnormal returns for the stocks of the firms, albeit the returns' are most economic and statistic significances for Micro stocks. The sort results on macroeconomic conditions appear to have minimum effects, and only for the Global

financial crises period. Abnormal Equal Weight returns are negative but not statistically significant for the category “All”, for each period. Strong negative returns are observed for the Micro category for period 2007-2011. This result appears to say that the “momentum effect” dissipated during the financial crisis. The results are weak for Big category across all time periods. The regressions results indicate that most momentum and size effects are driven by Micro category. The results are consistent with the literature at large, with economically and statistically significant abnormal returns due to the “momentum effect” for all categories, with the strongest results on the Micro capitalization stocks. There are also some economically and statistically significant abnormal returns in the stocks of U.S. agriculture related firms when controlling for the “Book-to-market of equity” effect, within the Micro capitalization category. The stocks of U.S. agriculture related firms appear to be unaffected by macroeconomic shocks. The stock prices and returns of the stocks of U.S. agriculture related firms appear to concur with the efficient market hypothesis but for the Micro caps category.

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Table 1: Sample composition by industry classification and year
Firms= Number of firms

Obs. = Number of firm-month observations
Percentages are percentages of observations.

	Agribusiness industry classifications													
	1		2		3		4		5		6		All	
Fiscal years	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.	Firms	Obs.
1973	0	0	2	19	63	456	120	917	32	234	84	671	301	2,297
1974	7	49	2	24	65	934	178	1,820	43	449	120	1,246	435	4,522
1975	9	103	3	36	90	1,048	189	2,176	46	513	130	1,501	467	5,377
1976	10	115	4	43	91	1,060	185	2,099	46	507	131	1,468	467	5,292
1977	10	120	3	33	93	1,105	190	2,205	45	505	129	1,458	470	5,426
1978	8	96	2	24	97	1,139	179	2,091	47	548	114	1,323	447	5,221
1979	9	93	2	24	99	1,173	172	2,014	47	548	116	1,358	445	5,210
1980	5	60	2	19	100	1,191	164	1,934	48	555	116	1,325	435	5,084
1981	5	60	1	12	103	1,202	156	1,804	50	583	107	1,229	422	4,890
1982	7	74	2	19	116	1,320	141	1,672	50	584	108	1,241	424	4,910
1983	9	96	2	24	121	1,404	142	1,654	50	590	110	1,234	434	5,002
1984	12	119	3	31	133	1,504	131	1,513	52	582	106	1,188	437	4,937
1985	8	71	3	36	140	1,597	127	1,451	59	633	109	1,184	446	4,972
1986	7	77	4	43	136	1,577	117	1,359	57	658	106	1,188	427	4,902
1987	6	65	3	24	139	1,613	130	1,454	62	689	109	1,184	449	5,029
1988	8	77	1	7	158	1,753	127	1,422	63	716	105	1,159	462	5,134
1989	9	90	0	0	150	1,705	130	1,495	60	682	100	1,105	449	5,077
1990	13	141	0	0	162	1,885	135	1,579	55	641	89	1,020	454	5,266
1991	12	130	0	0	169	1,912	130	1,518	55	630	91	1,039	457	5,229
1992	10	115	0	0	185	2,090	133	1,533	54	621	98	1,075	480	5,434
1993	9	103	0	0	226	2,467	135	1,545	48	570	115	1,239	533	5,924
1994	9	103	0	0	231	2,621	137	1,569	52	599	129	1,421	558	6,313
1995	10	115	0	0	229	2,620	150	1,685	59	663	138	1,519	586	6,602
1996	8	96	0	0	238	2,756	166	1,891	62	714	147	1,676	621	7,133
1997	9	94	0	0	271	3,018	163	1,887	61	679	140	1,606	644	7,284
1998	7	83	0	0	284	3,201	160	1,822	57	632	138	1,536	646	7,274
1999	7	74	0	0	267	2,983	160	1,805	53	588	129	1,449	616	6,899
2000	6	72	0	0	240	2,759	152	1,723	43	506	127	1,438	568	6,498
2001	8	91	0	0	238	2,705	136	1,553	42	484	126	1,407	550	6,240
2002	10	110	0	0	265	3,010	132	1,544	44	511	119	1,378	570	6,553
2003	11	123	0	0	255	2,964	133	1,560	46	542	113	1,324	558	6,513
2004	8	96	0	0	253	2,919	132	1,538	44	523	107	1,253	544	6,329
2005	8	96	0	0	271	3,072	120	1,420	43	511	104	1,207	546	6,306
2006	8	96	0	0	281	3,231	114	1,342	47	537	102	1,185	552	6,391
2007	6	72	0	0	294	3,329	120	1,356	45	525	96	1,107	561	6,389
2008	6	72	0	0	285	3,258	113	1,336	52	601	100	1,168	556	6,435
2009	7	79	0	0	271	3,082	120	1,393	61	667	96	1,128	555	6,349
2010	7	84	0	0	266	3,122	115	1,352	66	767	96	1,115	550	6,440
2011	7	74	0	0	190	2,200	81	957	52	609	41	482	371	4,322
All	48	3,484	8	418	813	82,985	534	62,988	202	22,696	515	48,834	2,120	221,405
	1.57%		0.19%		37.48%		28.45%		10.25%		22.06%		100.00%	

Table 2: Total assets per year

Panel A. Statistics on Total assets

		Total assets ($millions)					Ticker symbol	
Fiscal year	Firm-month observations	Mean	Standard deviation	Median	Min	Max	Min ticker	Max ticker
1973	2,297	277.55	558.11	77.67	2.96	4,832.20	PAK	DD
1974	4,522	278.23	623.68	64.60	1.75	5,980.30	KPHR	DD
1975	5,377	266.21	639.68	59.30	0.94	6,425.00	LFSC	DD
1976	5,292	293.63	713.78	67.27	0.84	7,027.08	LFSC	DD
1977	5,426	317.57	777.97	69.40	0.40	7,675.23	FAFB	DOW
1978	5,221	372.22	896.98	78.61	0.82	8,789.12	LFSC	DOW
1979	5,210	419.55	1,018.69	92.98	0.47	10,251.60	MNSY	DOW
1980	5,084	481.06	1,152.46	106.11	1.09	11,538.00	TIMM	DOW
1981	4,890	514.26	1,176.00	113.41	0.37	12,496.00	WILD	DOW
1982	4,910	601.93	1,702.35	112.56	0.26	24,343.00	WILD	DD
1983	5,002	626.42	1,730.02	118.96	0.38	24,432.00	GASO	DD
1984	4,937	638.26	1,743.99	115.34	0.62	24,098.00	AQUA	DD
1985	4,972	669.34	1,865.67	96.41	0.26	25,140.00	MMIN	DD
1986	4,902	739.68	2,069.00	97.15	0.08	26,733.00	SPTS	DD
1987	5,029	820.22	2,252.96	101.46	0.62	28,209.00	SPCT	DD
1988	5,134	818.91	2,329.46	109.71	0.34	30,719.00	FRMI	DD
1989	5,077	991.88	2,954.89	128.13	0.26	34,715.00	INGC	DD
1990	5,266	1,110.16	3,228.28	134.11	0.76	38,128.00	GYNX	DD
1991	5,229	1,228.42	3,369.32	145.06	0.13	36,117.00	APAC	DD
1992	5,434	1,307.13	3,555.94	150.51	0.70	38,870.00	GCGC	DD
1993	5,924	1,262.22	3,465.34	149.66	1.00	37,053.00	EPN	DD
1994	6,313	1,228.71	3,483.40	137.05	0.11	36,892.00	HBI	DD
1995	6,602	1,245.15	3,587.43	134.04	1.11	37,312.00	HBI	DD
1996	7,133	1,329.34	3,693.97	146.69	0.68	37,987.00	FITT	DD
1997	7,284	1,378.74	3,805.02	150.23	0.89	42,942.00	INVI	DD
1998	7,274	1,453.70	4,032.92	149.57	1.59	38,536.00	PRLN	DD
1999	6,899	1,571.31	4,386.54	180.40	1.55	40,777.00	CORX	DD
2000	6,498	1,704.19	4,758.58	203.87	1.68	42,109.00	BTX	IP
2001	6,240	1,877.84	5,289.50	229.65	1.72	40,319.00	OXIS	DD
2002	6,553	2,018.07	5,599.47	253.47	1.25	46,356.00	ILGN	PFE
2003	6,513	2,528.35	7,865.31	295.52	2.92	116,775.00	CVM	PFE
2004	6,329	2,985.99	9,350.13	351.70	4.73	123,684.00	IG	PFE
2005	6,306	3,092.61	9,793.73	368.53	3.09	117,565.00	CVM	PFE
2006	6,391	3,070.34	9,456.89	395.42	5.14	114,837.00	IG	PFE
2007	6,389	3,464.33	11,061.94	373.46	4.12	138,014.00	OTD	PG
2008	6,435	3,548.72	11,062.16	435.35	2.49	143,992.00	IMM	PG
2009	6,349	3,728.10	13,518.75	455.67	0.71	212,949.00	CORX	PFE
2010	6,440	3,939.43	13,807.09	447.70	2.53	195,014.00	CSLN	PFE
2011	4,322	5,829.66	17,882.05	740.67	1.85	188,002.00	CSLN	PFE
1973-2011	221,405	1,620.24	6,522.47	157.83	0.08	212,949.00	DARA	PFE

Table 2 (continued)

Panel B. Names and classifications of firms listed in Panel A

Ticker symbol	Firm name	Industry classification
APAC	AMERICAN PLASTICS & CHEM INC	Agricultural input industries (3)
AQUA	AQUACULTURE PRODUCTION TECH LTD	Farm production (1)
BTX	BIOTIME INC	Agricultural input industries (3)
CORX	CORTEX PHARMACEUTICALS INC	Agricultural input industries (3)
CSLN	CELSION CORP	Agricultural input industries (3)
CVM	CEL SCI CORP	Agricultural input industries (3)
DARA	DARA BIOSCIENCES INC	Agricultural input industries (3)
DD	DU PONT E I DE NEMOURS & CO	Agricultural input industries (3)
DOW	DOW CHEMICAL CO	Agricultural input industries (3)
EPN	EPIGEN INC	Agricultural input industries (3)
FAFB	FASHION FABRICS INC	Agricultural services, forestry, and fishing (2)
FITT	FOOD INTEGRATED TECHS INC	Agricultural processing and marketing (4)
FRMI	FRONTIER MINING & OIL CORP	Agricultural wholesale and retail trade (5)
GASO	AMERICAN AGRI FUELS CORP	Agricultural input industries (3)
GCGC	GOLDEN CYCLE GOLD CORP	Agricultural input industries (3)
GYNX	GYNEX INC	Agricultural input industries (3)
HBI	HOUSTON BIOTECHNOLOGY INC	Agricultural input industries (3)
IG	IGI INC	Agricultural input industries (3)
ILGN	INTERLEUKIN GENETICS INC	Agricultural input industries (3)
IMM	IMMTECH PHARMACEUTICALS INC	Agricultural input industries (3)
INGC	INTERNATIONAL NUTRITION & GEN CP	Farm production (1)
INV	INVITRO INTERNATIONAL	Agricultural input industries (3)
IP	INTERNATIONAL PAPER CO	Agricultural wholesale and retail trade (5)
KPHR	KEY PHARMACEUTICALS INC	Agricultural input industries (3)
LFSC	LIFE SCIENCES INC	Agricultural input industries (3)
MMIN	MIDNITE MINES INC	Agricultural wholesale and retail trade (5)
MNSY	MARINE NUTRITIONAL SYS INC	Farm production (1)
OTD	O2DIESEL CORP	Agricultural input industries (3)
OXIS	OXIS INTERNATIONAL INC	Agricultural input industries (3)
PAK	PARK CHEMICAL CO	Agricultural input industries (3)
PFE	PFIZER INC	Agricultural input industries (3)
PG	PROCTER & GAMBLE CO	Agricultural input industries (3)
PRLN	PARACELSIAN INC	Agricultural input industries (3)
SPTC	SPECTRA PHARMACEUTICAL SVCS	Agricultural input industries (3)
SPTS	SPORTS RESTAURANT INC	Indirect agribusiness (6)
TIMM	TIMBERLINE MINERALS INC	Agricultural wholesale and retail trade (5)
WILD	WILDLIFE VACCINES INC	Agricultural input industries (3)

Table 3: Summary statistics on selected firm characteristics

LSIZE = Natural logarithm of Market capitalization, where
Market capitalization = Stock price per share times Number of shares outstanding

BE/ME = Book-to-market = Book value of equity at end of previous fiscal year divided by Market value of equity for last month of previous fiscal year

MOM = Momentum = Cumulated continuously compounded stock return for past J months,
where J = Number of prior months used to create momentum portfolios

MRET = Monthly return= Stock monthly return from CRSP

Size groups (Micro, Small, Big) are determined using NYSE breakpoints.

N = Number of firm-month observations

Table 3 (continued)

		1973-2011				1973-1979				1980-2000				2001-2008				2007-2011			
		N	ean	M edian	S tandard deviation	N	ean	M edian	S tandard deviation	N	ean	M edian	S tandard deviation	N	ean	M edian	S tandard deviation	N	ean	M edian	S tandard deviation
	All																				
	L	2		1	2	3		1	1	1		1	2	5		1	2	2		1	2
SIZE		21,405	1.98	1.88	.33	3,345	0.42	0.18	.96	19,793	1.78	1.67	.23	1,156	3.01	2.92	.14	9,935	3.30	3.19	.08
	B	2		0	1	3		1	1	1		0	2	5		0	2	2		0	8
E/ME		21,405	.61	.56	.08	3,345	.42	.10	.42	19,793	.92	.56	.93	1,156	.60	.41	24.71	9,935	.89	.42	.12
	M	2		0	0	3		0	0	1		0	0	5		0	0	2		0	0
OM		21,405	.08	.03	.45	3,345	.09	.04	.35	19,793	.08	.03	.45	1,156	.06	.02	.45	9,935	.08	.02	.56
	M	2		0	0	3		0	0	1		0	0	5		0	0	2		0	0
RET		21,405	.01	.00	.16	3,345	.02	.00	.14	19,793	.01	.00	.16	1,156	.01	.00	.17	9,935	.01	.00	.18
	Micro																				
	L	1		1	1	1		9	0	6		1	1	2		1	1	1		1	1
SIZE		13,823	0.32	0.40	.47	8,302	.00	.11	.98	4,093	0.17	0.34	.32	3,325	1.28	1.40	.23	4,744	1.67	1.79	.15
	B	1		0	3	1		1	1	6		0	3	2		0	1	1		0	4
E/ME		13,823	.17	.75	.03	8,302	.79	.42	.69	4,093	.09	.71	.16	3,325	.93	.55	.42	4,744	.89	.51	.55
	M	1		0	0	1		0	0	6		0	0	2		0	0	1		-	0
OM		13,823	.10	.01	.56	8,302	.12	.05	.40	4,093	.09	.01	.55	3,325	.08	.00	.58	4,744	.08	0.03	.71
	M	1		0	0	1		0	0	6		0	0	2		0	0	1		-	0
RET		13,823	.02	.00	.19	8,302	.02	.00	.16	4,093	.01	.00	.18	3,325	.01	.00	.20	4,744	.01	0.01	.22
	S mall																				
	L	5		1	1	6		1	0	2		1	0	1		1	0	7		1	0
SIZE		1,983	2.64	2.73	.06	,856	1.05	1.06	.55	7,052	2.52	2.55	.75	3,428	3.28	3.38	.82	,617	3.78	3.78	.67
	B	5		0	1	6		1	0	2		0	2	1		0	1	7		0	1
E/ME		1,983	.76	.52	.67	,856	.19	.07	.83	7,052	.74	.51	.10	3,428	.58	.41	.00	,617	.63	.42	.33
	M	5		0	0	6		0	0	2		0	0	1		0	0	7		0	0
OM		1,983	.07	.04	.35	,856	.09	.05	.30	7,052	.07	.04	.33	3,428	.04	.02	.37	,617	.08	.04	.42
	M	5		0	0	6		0	0	2		0	0	1		0	0	7		0	0
RET		1,983	.01	.01	.14	,856	.02	.01	.12	7,052	.01	.01	.13	3,428	.01	.00	.15	,617	.01	.01	.15
	Big																				
	L	5		1	1	8		1	1	2		1	1	1		1	1	7		1	1
SIZE		5,599	4.78	4.69	.50	,187	3.09	2.86	.16	8,648	4.68	4.52	.25	4,403	5.56	5.34	.30	,574	5.97	5.75	.19
	B	5		0	2	8		0	0	2		0	3	1		0	4	7		0	1
E/ME		5,599	.31	.39	15.55	,187	.79	.63	.68	8,648	.72	.42	.04	4,403	0.75	.29	23.41	,574	.15	.31	4.78
	M	5		0	0	8		0	0	2		0	0	1		0	0	7		0	0
OM		5,599	.06	.05	.24	,187	.04	.02	.25	8,648	.08	.07	.23	4,403	.03	.04	.24	,574	.06	.05	.29
	M	5		0	0	8		0	0	2		0	0	1		0	0	7		0	0
RET		5,599	.01	.01	.10	,187	.01	.00	.10	8,648	.01	.01	.10	4,403	.00	.01	.10	,574	.01	.01	.11
	All but micro																				
	L	1		1	1	1		1	1	5		1	1	2		1	1	1		1	1
SIZE		07,582	3.74	3.61	.69	5,043	2.16	1.88	.38	5,700	3.63	3.43	.50	7,831	4.46	4.21	.58	5,191	4.88	4.64	.46
	B	1		0	1	1		0	0	5		0	2	2		0	3	1		0	1
E/ME		07,582	.08	.44	54.97	5,043	.97	.77	.78	5,700	.73	.46	.63	7,831	.84	.34	04.63	5,191	.89	.37	0.48
	M	1		0	0	1		0	0	5		0	0	2		0	0	1		0	0
OM		07,582	.07	.05	.30	5,043	.06	.03	.28	5,700	.08	.06	.28	7,831	.04	.03	.31	5,191	.07	.05	.36
	M	1		0	0	1		0	0	5		0	0	2		0	0	1		0	0
RET		07,582	.01	.01	.12	5,043	.01	.00	.11	5,700	.01	.01	.12	7,831	.01	.01	.13	5,191	.01	.01	.13

Table 4: Equally-weighted returns of momentum portfolios

Momentum portfolios are based on J (=10) month lagged return and held for K (=2) months.
J = Number of prior months used to create momentum portfolios
K= Holding period in months after portfolio creation
N = 458 months = (38 years x 12) + 2 months; from 19731130 to 20111231(only 2 months for 1973)

Panel A. All

	1973-2011 (N = 458)			1973-1979 (N=74)			1980-2000(N=252)			2001-2008 (N = 96)			2007-2011 (N = 60)		
Momentum Portfolio	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value
Lowest 1	0.022	4.57	<.0001	0.028	2.07	0.0419	0.015	2.82	0.0052	0.023	2.07	0.0415	0.034	1.73	0.0883
	0.012	3.45	0.0006	0.018	1.87	0.0649	0.009	2.6	0.0098	0.002	0.26	0.7978	0.011	0.77	0.4461
3	0.013	4.57	<.0001	0.016	1.84	0.0704	0.012	3.9	0.0001	0.004	0.72	0.4705	0.009	0.81	0.4192
4	0.013	5.02	<.0001	0.014	1.73	0.0875	0.013	4.49	<.0001	0.005	0.84	0.4004	0.012	1.19	0.238
5	0.014	5.64	<.0001	0.015	1.79	0.0779	0.015	5.25	<.0001	0.007	1.36	0.1776	0.006	0.66	0.5115
6	0.013	5.75	<.0001	0.016	2.08	0.0414	0.014	4.99	<.0001	0.008	1.59	0.1146	0.009	1.1	0.276
7	0.014	6.08	<.0001	0.015	2.01	0.0487	0.015	5.42	<.0001	0.007	1.56	0.1232	0.009	1.15	0.2552
8	0.015	6.37	<.0001	0.016	2.12	0.0376	0.017	5.87	<.0001	0.008	1.61	0.1097	0.006	0.79	0.4315
9	0.015	5.6	<.0001	0.013	1.8	0.0759	0.017	4.59	<.0001	0.011	2.14	0.0348	0.008	1.04	0.3023
Highest 10	0.019	5.02	<.0001	0.017	2.05	0.0435	0.022	4.06	<.0001	0.012	1.93	0.0567	0.005	0.45	0.6546
10 - 1	-0.004	-0.85	0.3941	-0.011	-1.15	0.2552	0.008	1.52	0.1305	-0.011	-1.21	0.2288	**-0.030**	**-1.88**	**0.0645**

Table 4 (continued)

Panel B. Micro

	1973-2011 (N = 458)			1973-1979 (N = 74)			1980-2000(N = 252)			2001-2008 (N = 96)			2007-2011 (N = 60)		
Momentum Portfolio	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value
Lowest 1	0.014	3.45	0.0006	0.041	2.56	0.0127	0.017	2.64	0.0088	0.034	2.65	0.0094	0.041	1.88	0.0655
	0.014	4.44	<.0001	0.023	2.11	0.0382	0.009	1.95	0.0522	0.011	1.21	0.2289	0.019	1.02	0.3102
3	0.013	4.78	<.0001	0.022	2.27	0.0264	0.006	1.63	0.1046	0.001	0.08	0.9354	0.003	0.25	0.8004
4	0.013	5.18	<.0001	0.017	1.89	0.0628	0.011	3.35	0.0009	0.006	0.95	0.3426	0.008	0.72	0.475
5	0.012	5.27	<.0001	0.017	1.85	0.0689	0.012	3.95	0.0001	0.006	1.1	0.276	0.007	0.78	0.4411
6	0.014	6.2	<.0001	0.019	1.99	0.0504	0.015	4.87	<.0001	0.006	1.13	0.2599	0.006	0.71	0.4822
7	0.013	5.63	<.0001	0.018	2.14	0.0356	0.014	4.51	<.0001	0.011	1.98	0.0508	0.007	0.76	0.4484
8	0.013	6.16	<.0001	0.019	2.25	0.0274	0.019	4.68	<.0001	0.014	2.19	0.031	0.004	0.48	0.63
9	0.011	4.58	<.0001	0.018	2.09	0.0397	0.020	4.01	<.0001	0.019	2.88	0.005	0.011	1.08	0.2827
Highest 10	0.014	4.42	<.0001	0.020	2.4	0.019	0.025	4.08	<.0001	0.019	2.62	0.0103	0.003	0.24	0.8103
10-1	-0.001	-0.18	0.8553	-0.020	-1.6	0.1145	0.008	1.23	0.2184	-0.015	-1.33	0.1863	**-0.038**	**-2.14**	**0.0367**

Panel C. Small

Momentum Portfolio	1973-2011 (N = 458)			1973-1979 (N = 74)			1980-2000(N = 252)			2001-2008 (N = 96)			2007-2011 ((N = 60)		
	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value
Lowest															
1	0.015	3.05	0.0024	0.011	0.9	0.3718	0.010	1.84	0.0674	0.018	1.5	0.138	0.031	1.64	0.1064
	0.016	4.01	<.0001	0.017	1.58	0.1187	0.015	3.55	0.0005	0.007	0.74	0.4602	0.022	1.35	0.1817
3	0.014	4.47	<.0001	0.015	1.63	0.1069	0.016	4.39	<.0001	0.002	0.24	0.8095	0.016	1.33	0.1882
4	0.013	4.39	<.0001	0.019	2.19	0.0317	0.012	3.57	0.0004	0.006	0.88	0.379	0.003	0.35	0.7257
5	0.015	5.25	<.0001	0.021	2.35	0.0215	0.016	4.84	<.0001	0.004	0.61	0.5459	0.011	1.01	0.3167
6	0.014	5.24	<.0001	0.017	2.27	0.0262	0.015	4.66	<.0001	0.008	1.31	0.1942	0.009	1.04	0.3012
7	0.016	6.21	<.0001	0.018	2.57	0.0121	0.018	5.38	<.0001	0.007	1.28	0.2039	0.009	1.05	0.2996
8	0.015	5.33	<.0001	0.015	1.8	0.076	0.016	4.56	<.0001	0.009	1.79	0.0761	0.010	1.21	0.2319
9	0.012	3.93	<.0001	0.013	1.53	0.1303	0.016	3.67	0.0003	0.004	0.61	0.5447	0.000	-0.05	0.9598
Highest															
10	0.014	3.89	0.0001	0.015	1.65	0.1041	0.016	2.97	0.0032	0.009	1.42	0.1576	0.009	0.96	0.3428
10 - 1	-0.001	-0.12	0.907	0.004	0.42	0.6784	0.006	1.05	0.2933	-0.009	-0.89	0.3756	-0.022	-1.36	0.1791

Table 4 (continued)

Panel D. Big

Momentum Portfolio	1973-2011 (N = 458)			1973-1979 (N = 74)			1980-2000(N = 252)			2001-2008 (N = 96)			2007-2011 (N = 60)		
	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value
Lowest															
1	0.011	3.04	0.0025	-0.003	-0.32	0.7462	0.014	3.34	0.001	0.005	0.57	0.5734	0.015	1.15	0.2549
	0.013	4.45	<.0001	0.005	0.56	0.5801	0.016	4.84	<.0001	0.003	0.51	0.6088	0.010	1	0.3191
3	0.014	5.54	<.0001	0.008	1.01	0.3151	0.017	5.5	<.0001	0.006	1.18	0.2403	0.011	1.31	0.194
4	0.012	5.04	<.0001	0.007	0.95	0.3471	0.014	4.77	<.0001	0.006	1.34	0.1829	0.010	1.19	0.2379
5	0.012	5	<.0001	0.006	0.81	0.4234	0.015	4.9	<.0001	0.007	1.43	0.1562	0.008	1.03	0.3066
6	0.012	5.51	<.0001	0.008	1.3	0.1972	0.014	4.93	<.0001	0.005	1.37	0.1749	0.011	1.68	0.099
7	0.011	5.33	<.0001	0.007	1.04	0.3006	0.014	4.95	<.0001	0.005	1.41	0.1604	0.010	1.66	0.1028
8	0.011	5.01	<.0001	0.007	1.11	0.2692	0.015	5.15	<.0001	0.003	0.69	0.491	0.005	0.94	0.3498
9	0.011	5	<.0001	0.009	1.34	0.1849	0.015	4.94	<.0001	0.004	0.95	0.3428	0.005	0.73	0.4657
Highest															
10	0.012	4.62	<.0001	0.008	0.99	0.3278	0.017	4.86	<.0001	0.003	0.69	0.491	0.002	0.27	0.7907
10 - 1	0.001	0.43	0.6677	**0.011**	**1.81**	**0.0738**	0.003	0.84	0.399	-0.002	-0.22	0.8268	-0.013	-1.19	0.2407

Panel E. All but micro

	1973-2011 (N = 458)			1973-1979 (N = 74)			1980-2000(N= 252)			2001-2008 (N = 96)			2007-2011 (N = 60)		
Momentum Portfolio	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value	Mean	*t*-statistics	*p*-value
Lowest															
1	0.014	3.45	0.0006	0.007	0.68	0.4986	0.012	2.8	0.0054	0.012	1.1	0.2726	0.028	1.59	0.1173
	0.014	4.44	<.0001	0.009	0.99	0.3239	0.016	4.58	<.0001	0.003	0.43	0.665	0.014	1.23	0.2249
3	0.013	4.78	<.0001	0.012	1.49	0.1416	0.014	4.58	<.0001	0.004	0.66	0.5093	0.011	1.1	0.276
4	0.013	5.18	<.0001	0.011	1.38	0.1703	0.015	5.05	<.0001	0.004	0.82	0.4119	0.010	1.15	0.2545
5	0.012	5.27	<.0001	0.010	1.34	0.1838	0.014	4.82	<.0001	0.007	1.54	0.1281	0.009	1.06	0.2929
6	0.014	6.2	<.0001	0.013	1.95	0.0551	0.016	5.75	<.0001	0.006	1.37	0.1732	0.010	1.43	0.1587
7	0.013	5.63	<.0001	0.010	1.41	0.1621	0.015	5.2	<.0001	0.005	1.24	0.2179	0.010	1.51	0.1368
8	0.013	6.16	<.0001	0.014	2.24	0.0283	0.016	5.72	<.0001	0.005	1.12	0.2656	0.006	0.91	0.3676
9	0.011	4.58	<.0001	0.009	1.2	0.2349	0.015	4.63	<.0001	0.003	0.7	0.4886	0.005	0.64	0.5246
Highest															
10	0.014	4.42	<.0001	0.013	1.56	0.1226	0.017	3.85	0.0001	0.007	1.17	0.2455	0.005	0.57	0.5706
10 - 1	-0.001	-0.18	0.8553	0.006	0.9	0.3734	0.004	1	0.3171	-0.005	-0.57	0.5689	-0.023	-1.52	0.1335

Table 5: Fama and MacBeth regressions of returns

This table presents the results from Fama and MacBeth regressions of return on momentum and other characteristics. The Fama and MacBeth (1973) two step procedure is as follows: In the first step, for each single time period a cross-sectional regression is performed. Then, in the second step, the final coefficient estimates are obtained as the average of the first step coefficient estimates. The symbols ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. *t*-statistics are in parentheses.

Panel A. Fama and MacBeth regressions of returns for all size

	Dependent variable: MRET			
	(1)	(2)	(3)	(4)
MOM	0.157***	0.158***	0.158***	0.158***
	(51.82)	(51.71)	(51.64)	(51.86)
Log size		-0.000	-0.000	-0.000
		(-0.51)	(-0.52)	(-0.52)
Log BE/ME		0.002***	0.002***	0.002***
		(2.75)	(2.74)	(3.59)
1973-1979			-0.000	-0.000
			(-0.54)	(-0.75)
1980-1983			-0.000	-0.000
			(-0.33)	(-0.38)
1988-1992			-0.000	0.000
			(-0.53)	(0.18)
2000-2003			-0.000	-0.000
			(-0.25)	(-0.56)
Agricultural services, forestry, and fishing				0.000
				(0.09)
Agricultural inputs				0.002
				(0.64)
Agricultural processing and marketing				-0.001
				(-0.50)
Indirect agribusiness				-0.000
				(-0.16)
Agricultural wholesale and retail trade				-0.000
				(-0.13)
Intercept	0.006***	0.009	0.009	0.009
	(2.46)	(1.49)	(1.51)	(1.36)
Observations	221,405	221,405	221,405	221,405
R-squared	0.158	0.178	0.179	0.197
Number of groups	463	463	463	463

Table 5 (continued)

Panel B. *Fama and MacBeth regressions of returns for micro caps*

	Dependent variable: MRET			
	(1)	(2)	(3)	(4)
MOM	0.159***	0.159***	0.159***	0.159***
	(45.03)	(43.21)	(43.18)	(43.25)
Log size		0.001	0.001	0.001
		(1.27)	(1.26)	(1.11)
Log BE/ME		0.002***	0.002***	0.003***
		(2.61)	(2.61)	(3.75)
1973-1979			-0.000	-0.000
			(-0.91)	(-1.16)
1980-1983			-0.000	-0.000
			(-0.63)	(-0.66)
1988-1992			0.000	0.000
			(0.43)	(0.76)
2000-2003			-0.000	-0.000
			(-0.52)	(-0.63)
Agricultural services, forestry, and fishing				-0.001
				(-0.29)
Agricultural inputs				0.002
				(0.53)
Agricultural processing and marketing				-0.003
				(-0.64)
Indirect agribusiness				-0.001
				(-0.26)
Agricultural wholesale and retail trade				-0.002
				(-0.48)
Intercept	0.008***	-0.004	-0.004	-0.002
	(2.89)	(-0.46)	(-0.43)	(-0.17)
Observations	113,823	113,823	113,823	113,823
R-squared	0.159	0.181	0.181	0.203
Number of groups	463	463	463	463

Table 5 (continued)

Panel C. *Fama and MacBeth regressions of returns for small caps*

	Dependent variable: MRET			
	(1)	(2)	(3)	(4)
MOM	0.164***	0.164***	0.164***	0.164***
	(43.93)	(42.28)	(42.22)	(42.71)
Log size		0.000	0.000	0.001
		(0.16)	(0.18)	(0.49)
Log BE/ME		0.001*	0.001*	0.002**
		(1.70)	(1.70)	(2.06)
1973-1979			0.000	0.000
			(0.79)	(0.66)
1980-1983			0.000	0.000
			(0.57)	(0.06)
1988-1992			-0.000	-0.000
			(-0.82)	(-0.27)
2000-2003			-0.000	-0.000
			(-0.01)	(-0.18)
Agricultural services, forestry, and fishing				0.001
				(0.54)
Agricultural inputs				0.002
				(0.73)
Agricultural processing and marketing				0.001
				(0.30)
Indirect agribusiness				-0.000
				(-0.08)
Agricultural wholesale and retail trade				0.002
				(0.52)
Intercept	0.005*	0.004	0.003	-0.004
	(1.96)	(0.20)	(0.19)	(-0.20)
Observations	51,983	51,983	51,983	51,983
R-squared	0.179	0.210	0.212	0.260
Number of groups	463	463	463	463

Table 5 (continued)

Panel D. Fama and MacBeth regressions of returns for big caps

	Dependent variable: MRET			
	(1)	(2)	(3)	(4)
MOM	0.162***	0.163***	0.163***	0.164***
	(40.66)	(42.59)	(42.61)	(44.02)
Log size		-0.000	-0.000	0.000
		(-0.10)	(-0.05)	(0.04)
Log BE/ME		0.001*	0.001*	0.001*
		(1.80)	(1.84)	(1.84)
1973-1979			0.000	0.000
			(0.25)	(0.15)
1980-1983			-0.000	0.000
			(-0.07)	(0.23)
1988-1992			-0.000	-0.000
			(-1.65)	(-0.92)
2000-2003			-0.000	-0.000
			(-0.13)	(-0.95)
Agricultural services, forestry, and fishing				0.000
				(0.01)
Agricultural inputs				-0.000
				(-0.07)
Agricultural processing and marketing				-0.001
				(-0.30)
Indirect agribusiness				-0.000
				(-0.05)
Agricultural wholesale and retail trade				0.000
				(0.13)
Intercept	0.003*	0.005	0.005	0.005
	(1.66)	(0.65)	(0.65)	(0.60)
Observations	55,599	55,599	55,599	55,599
R-squared	0.179	0.216	0.218	0.278
Number of groups	463	463	463	463

Table 5 (continued)

Panel E. Fama and MacBeth regressions of returns for all but micro caps

	Dependent variable: MRET			
	(1)	(2)	(3)	(4)
MOM	0.162***	0.164***	0.164***	0.165***
	(49.10)	(50.58)	(50.56)	(51.93)
Log size		-0.000	-0.000	-0.000
		(-0.43)	(-0.38)	(-0.19)
Log BE/ME		0.001**	0.001**	0.002***
		(2.38)	(2.41)	(2.68)
1973-1979			0.000	0.000
			(0.62)	(0.49)
1980-1983			0.000	0.000
			(0.21)	(0.24)
1988-1992			-0.000	-0.000
			(-1.53)	(-0.74)
2000-2003			-0.000	-0.000
			(-0.10)	(-0.53)
Agricultural services, forestry, and fishing				0.001
				(0.58)
Agricultural inputs				0.002
				(0.62)
Agricultural processing and marketing				0.001
				(0.28)
Indirect agribusiness				0.001
				(0.20)
Agricultural wholesale and retail trade				0.002
				(0.66)
Intercept	0.004*	0.008	0.008	0.005
	(1.89)	(0.98)	(0.96)	(0.62)
Observations	107,582	107,582	107,582	107,582
R-squared	0.173	0.203	0.204	0.241
Number of groups	463	463	463	463