Macroscope of Retailers

An Empirical Analysis of the Relation between Satellite Imagery of Retailers' Parking Lot Car

Counts and their Respective Same-Store Sales and Equity Prices

Ju Tan

ABSTRACT

Investors, economists and policy-makers look to retailers' monthly same-store sales (SSS) reports as an indicator of both retailer-specific performance as well as broader consumer spending sentiment. But, not all retailers report SSS on a monthly basis and the reported figures may undergo revisions as well. In this report, we propose using satellite imagery of retailer parking lot car counts (PLCC) as an empirical means to gauge retailer SSS and study whether we can predict retailer stock returns with changes in PLCC. From our analysis, we show there exists a statistically significant relation between PLCC and SSS for certain individual retailers, specific industries of retailers and retailers as an aggregate; however, we are unable to identify a statistically significant relation between changes in PLCC and retailer stocks returns with the current model employed at lagged-intervals of one-week, one-month and one-quarter.

Note: Throughout the paper, I will refer to Parking Lot Car Counts with the acronym (**PLCC**) and Same-Store Sales as (**SSS**).

OUTLINE

I.   INTRODUCTION

This report studies satellite imagery of retailer parking lot car counts (PLCC) to investigate whether there is an empirical method to get more timely and direct assessments of retailer performance. At the moment, while everyday people have come to expect timely and accurate weather reports, financial investors do not have an equivalent when it comes to retailer performance and consumer sentiment. That is, the investment community largely relies on monthly SSS reports or quarterly earnings reports from retailers' to gauge retailer performance and consumer spending trends[1]. Further, these reports aggregate a large set of subsidiary retailer performance metrics to form an opaque singular top-level figure. To clarify the analogy, it would be the equivalent of having only weather forecasts at the state-level (vs. zip-code) and monthly weather reports. We would not find the aforementioned forecasting acceptable, so why do we accept the equivalent for retailer performance and consumer sentiments reporting and forecasting?

I hypothesized that by building a model relying on daily satellite imagery of retailers' PLCC we could develop a 'weather-report' equivalent for retailer performance. We termed this 'weather-report' equivalent: Macroscope of Retailers. Something that is macroscopic refers to a physical object that is observable with the naked eye – in this case it refers to cars parked in retailer parking lots[2]. As part of our macroscopic study of retailers, we focused on two empirical analyses: i) the relation between Same-Store Sales (SSS) figures and PLCC and ii) the relation between retailer stock returns and changes in PLCC.

---

[1] Credit Card data is another alternative source to gauge consumer spending trends.
[2] (n.d.). Retrieved March 01, 2016, from http://www.merriam-webster.com/dictionary/macroscopic

II.   AKNOWLEDGEMENTS

III.   DATA

LIST OF RETAILERS COVERED

For this research, we focus on the below list of 50 retailers:

No.	Retailer Ticker	Retailer Name	No. Cont.	Retailer Ticker Cont.	Retailer Name Cont.
1	AAP	Advanced Auto Parts	26	LL	Lumbers Liquidators
2	BBBY	Bed Bath & Beyond	27	LOW	Lowe's
3	BBY	Best Buy	28	M	Macy's, Inc.
4	BGFV	Big 5 Sporting Goods Corporation	29	MNRO	Monro Muffler Brake, Inc.
5	BIG	Big Lots, Inc.	30	PBY	The Pep Boys
6	BKS	Barnes & Noble, Inc.	31	PETM	PetSmart
7	BWLD	Buffalo Wild Wings, Inc.	32	PIR	Pier 1 Imports, Inc.
8	CAB	Cabela's	33	PNRA	Panera Bread
9	CMG	Chipotle Mexican Grill, Inc.	34	RAD	Rite Aid Corporation
10	CONN	Conns Electronics	35	ROST	Ross Stores
11	COST	Costco	36	SBUX	Starbucks Corporation
12	CVS	CVS Caremark Corporation	37	SCVL	Shoe Carnival, Inc.
13	DDS	Dillard's, Inc.	38	SHLD	Sears
14	DG	Dollar General	39	SHW	The Sherwin-Williams Company
15	DKS	Dicks Sporting Goods	40	SMRT	Stein Mart, Inc.
16	DLTR	Dollar Tree, Inc.	41	SPLS	Staples
17	DSW	Designer Shoe Warehouse	42	SSI	Stage Stores Inc.
18	ETH	Ethan Allen	43	TGT	Target
19	HD	Home Depot	44	TJX	TJ Maxx
20	HKFI	Hancock Fabrics	45	TSCO	Tractor Supply
21	JCP	JC Penny	46	TUES	Tuesday Morning Corporation
22	JWN	Nordstrom, Inc.	47	ULTA	ULTA Beauty
23	KIRK	Kirkland's	48	WFM	Whole Foods Market, Inc.
24	KR	The Kroger Co.	49	WMT	Walmart
25	KSS	Kohl's	50	WSM	Williams-Sonoma, Inc.

RETAILER PARKING LOT CAR COUNTS (PLCC)

Below is an example of the data-format for a single retailer's (i.e. BBBY) PLCC.

logical.filled.data	normalized.car.count	fiscal.quarter	time.days	fiscal.year	fitted.car.count.full	fitted.car.count.trend.only	fitted.car.count.no.weekly	ticker
observed	12.6	NA	1/1/2009	NA	23.7	28	25.6	BBBY
observed	43.2	NA	1/2/2009	NA	26.8	28	25.5	BBBY
modeled	28.7	NA	1/3/2009	NA	31.5	28.1	25.4	BBBY
observed	16.8	NA	1/4/2009	NA	23.4	28.1	25.2	BBBY
observed	26.6	NA	1/5/2009	NA	23.7	28.1	25	BBBY
modeled	19.3	NA	1/6/2009	NA	23.7	28.1	24.9	BBBY
modeled	22	NA	1/7/2009	NA	22.5	28.1	24.7	BBBY
modeled	13.3	NA	1/8/2009	NA	22.5	28.1	24.6	BBBY
observed	20.4	NA	1/9/2009	NA	25.7	28.1	24.5	BBBY
observed	26.5	NA	1/10/2009	NA	30.4	28.1	24.4	BBBY
modeled	16.8	NA	1/11/2009	NA	22.5	28.1	24.3	BBBY

Note: Of the numerous variables above, our analyses focus on the "normalized.car.count", "time.days" and "ticker" values. Orbital has a proprietary model for how they normalize and fill in modeled vs. observed car counts in respective PLCC figures (see next-section for more details on normalization process).

- **normalized.car.count:** for each retailer, the data includes a normalized car count figure that tracks the number of cars in the retailer's parking lots across the country. For days that a direct observation is not possible, a modeled figure is generated and provided.

- **time.days:** this is the calendar date for when the PLCC figures apply to.

- **ticker:** this is the ticker of the retailer that the PLCC figures pertain to.

RETAILER SAME-STORE SALES (SSS)

Below is an example of the data-format for a single retailer's (i.e. BBBY) same-store sales.

hd	ticker	actual_date	fiscal_quarter	YoY.same.store.sales	total.net.sales	total.brick.and.mortar.sales	total.num.stores	total.YoY.perc.change.net.sales	total.YoY.perc.change.brick.and.mortar.sales	total.YoY.perc.change.num.stores	segment.net.sales	segment.brick.and.mortar.sales	segment.num.stores	segment.YoY.perc.change.net.sales	segment.YoY.perc.change.brick.and.mortar.sales	segment.YoY.perc.change.num.stores
1	BBBY	2/28/2009	2008-Q4-BBBY	-4.3	$ 1,923,270.00	NA	1039	NA	NA	NA	1923270	NA	1039	NA	NA	NA
2	BBBY	5/30/2009	2009-Q1-BBBY	-1.6	$ 1,694,340.00	NA	1046	NA	NA	NA	1694340	1674863	1046	NA	NA	NA
3	BBBY	8/29/2009	2009-Q2-BBBY	-0.6	$ 1,914,910.00	NA	1058	NA	NA	NA	1914910	1893273	1058	NA	NA	NA
4	BBBY	11/28/2009	2009-Q3-BBBY	7.3	$ 1,975,460.00	NA	1085	NA	NA	NA	1975460	1954063	1085	NA	NA	NA
5	BBBY	2/27/2010	2009-Q4-BBBY	11.5	$ 2,244,080.00	NA	1102	16.68	NA	6.06	2244080	2220461	1102	16.68	NA	6.06
6	BBBY	5/29/2010	2010-Q1-BBBY	8.4	$ 1,923,050.00	NA	1106	13.5	NA	5.74	1923050	1902989	1106	13.5	13.62	5.74
7	BBBY	8/28/2010	2010-Q2-BBBY	7.4	$ 2,136,730.00	NA	1113	11.58	NA	5.2	2136730	2114444	1113	11.58	11.68	5.2
8	BBBY	11/27/2010	2010-Q3-BBBY	7	$ 2,193,760.00	NA	1129	11.05	NA	4.06	2193760	2171721	1129	11.05	11.14	4.06
9	BBBY	2/26/2011	2010-Q4-BBBY	8.5	$ 2,504,970.00	NA	1141	11.63	NA	3.54	2504970	2480642	1141	11.63	11.72	3.54
10	BBBY	5/28/2011	2011-Q1-BBBY	7	$ 2,109,950.00	NA	1144	9.72	NA	3.44	2109950	2089377	1144	9.72	9.79	3.44
11	BBBY	8/27/2011	2011-Q2-BBBY	5.6	$ 2,314,060.00	NA	1157	8.3	NA	3.95	2314060	2291205	1157	8.3	8.36	3.95
12	BBBY	11/26/2011	2011-Q3-BBBY	4.1	$ 2,343,560.00	NA	1173	6.83	NA	3.9	2343560	2320958	1173	6.83	6.87	3.9
13	BBBY	2/25/2012	2011-Q4-BBBY	6.8	$ 2,732,310.00	NA	1175	9.08	NA	2.98	2732310	2707361	1175	9.08	9.14	2.98
14	BBBY	5/26/2012	2012-Q1-BBBY	3	$ 2,218,290.00	NA	1182	5.13	NA	3.32	2218290	2175335	1182	5.13	4.11	3.32
15	BBBY	8/25/2012	2012-Q2-BBBY		$ 2,593,020.00	NA	1451	12.06	NA	25.41	2593020	2545300	1451	12.06	11.09	25.41
16	BBBY	11/24/2012	2012-Q3-BBBY	1.7	$ 2,701,800.00	NA	1468	15.29	NA	25.15	2701800	2654609	1468	15.29	14.38	25.15
17	BBBY	3/2/2013	2012-Q4-BBBY	2.5	$ 3,401,480.00	NA	1474	24.49	NA	25.45	3401480	3349389	1474	24.49	23.71	25.45
18	BBBY	6/1/2013	2013-Q1-BBBY	3.4	$ 2,612,140.00	NA	1481	17.75	NA	25.3	2612140	2533013	1481	17.75	16.44	25.3
19	BBBY	8/31/2013	2013-Q2-BBBY	3.7	$ 2,823,670.00	NA	1487	8.9	NA	2.48	2823670	2735765	1487	8.9	7.48	2.48
20	BBBY	11/30/2013	2013-Q3-BBBY	1.3	$ 2,864,840.00	NA	1494	6.03	NA	1.77	2864840	2777910	1494	6.03	4.64	1.77
21	BBBY	3/1/2014	2013-Q4-BBBY	1.7	$ 3,203,310.00	NA	1500	-5.83	NA	1.76	3203310	3107353	1500	-5.83	-7.23	1.76
22	BBBY	5/31/2014	2014-Q1-BBBY	0.4	$ 2,656,700.00	NA	1505	1.71	NA	1.62	2656700	2541966	1505	1.71	0.35	1.62
23	BBBY	8/30/2014	2014-Q2-BBBY	3.4	$ 2,944,900.00	NA	1511	4.29	NA	1.61	2944900	2817438	1511	4.29	2.99	1.61
24	BBBY	11/29/2014	2014-Q3-BBBY	1.7	$ 2,942,980.00	NA	1515	2.73	NA	1.41	2942980	2816932	1515	2.73	1.4	1.41
25	BBBY	2/28/2015	2014-Q4-BBBY	3.7	$ 3,336,590.00	NA	1518	4.16	NA	1.2	3336590	3197453	1518	4.16	2.9	1.2
26	BBBY	5/30/2015	2015-Q1-BBBY	2.2	$ 2,738,500.00	NA	1519	3.08	NA	0.93	2738500	NA	1519	3.08	NA	0.93
27	BBBY	8/29/2015	2015-Q2-BBBY	0.7	$ 2,995,470.00	NA	1526	1.72	NA	0.99	2995470	NA	1526	1.72	NA	0.99

Note: fiscal quarters are mapped to calendar dates for each retailer based on their financial reporting guidelines.

- **ticker:** this is the ticker of the retailer that the figures pertain to.

- **actual_date:** retailers report their SSS figures on a quarterly fiscal basis, but when comparing to the PLCC figures we need to use their calendar dates. Thus, actual_date captures the end-of-the-quarter date that the SSS fiscal figure maps to.

- **YoY.same.store.sales:** The % change in year-over-year SSS figures; this helps give us a seasonally adjusted comparison of how store sales are trending.

RETAILER EQUITY PRICES

Retailer equity prices were retrieved from Yahoo Finance via a Python script with the pandas extension package. Data from 1-2009 to 12-2015 for all 50-retailers were downloaded on a daily adjusted-close basis that includes dividends.

Date	AAP	BBBY	BBY	BGFV	BIG	BKS	BWLD	CAB	CMG	CONN	COST	CVS	DDS
1/2/2009	33.347	26.490	24.325	4.737	14.120	8.684	26.630	6.120	64.140	9.380	44.240	26.651	3.870
1/5/2009	32.898	25.530	25.146	5.091	14.790	9.851	26.400	6.210	62.550	10.210	43.361	27.032	4.441
1/6/2009	32.947	26.000	26.194	5.659	14.946	10.203	26.000	6.270	60.380	10.230	42.664	26.624	4.504
1/7/2009	31.638	25.550	24.769	5.124	14.732	9.738	24.620	6.190	58.510	9.750	41.562	26.660	4.214
1/8/2009	31.746	26.720	24.853	6.112	14.518	10.957	25.060	6.210	57.260	11.630	42.001	26.615	4.404
1/9/2009	31.042	25.930	23.537	5.692	13.702	10.781	23.870	5.940	53.410	11.030	40.749	23.304	3.870
1/12/2009	30.114	25.730	23.101	5.832	13.410	10.350	23.090	5.740	54.280	11.360	40.989	22.614	3.471
1/13/2009	30.398	25.170	22.657	5.783	13.614	10.288	23.260	5.820	52.260	11.690	40.583	24.211	3.706
1/14/2009	29.431	25.000	21.894	5.140	12.954	9.761	22.270	5.440	49.970	11.000	39.497	23.494	3.426
1/15/2009	29.880	25.850	22.749	5.519	13.896	9.744	23.280	5.680	51.480	10.990	40.193	23.730	3.734
1/16/2009	30.984	25.940	24.593	5.610	14.178	10.135	24.530	5.780	53.050	12.160	40.467	24.338	3.734
1/20/2009	29.460	25.270	22.824	4.910	13.313	9.698	23.090	5.240	49.600	12.000	39.157	23.757	3.435
1/21/2009	30.749	25.250	22.891	4.992	13.731	10.192	23.750	5.830	50.300	12.300	39.721	23.972	3.625
1/22/2009	31.951	25.550	22.833	4.860	13.712	10.106	24.630	5.420	49.120	12.420	39.347	24.873	3.480
1/23/2009	32.078	25.530	23.176	4.835	13.653	10.152	24.580	5.720	48.950	12.010	38.949	25.227	3.679
1/26/2009	32.009	25.070	23.654	5.099	13.556	10.214	24.950	5.920	48.590	11.750	39.265	25.409	3.960
1/27/2009	32.263	24.420	23.688	4.802	13.099	10.169	24.970	5.940	48.090	12.060	39.721	25.100	3.915
1/28/2009	33.601	25.540	25.364	5.140	13.653	10.367	25.160	6.250	50.380	12.590	39.646	25.555	4.187
1/29/2009	32.595	24.360	24.442	4.827	13.061	9.857	23.070	5.880	48.960	11.830	38.518	24.900	3.996
1/30/2009	31.970	23.230	23.486	4.333	13.070	9.307	22.460	5.610	47.760	12.160	37.341	24.454	3.942
2/2/2009	32.273	22.530	22.875	4.794	12.623	9.171	21.770	5.670	48.100	12.230	37.565	24.372	4.214
2/3/2009	33.142	23.840	23.939	4.975	13.566	9.302	22.660	6.040	49.110	12.110	38.245	24.936	4.033
2/4/2009	32.605	23.130	23.478	4.704	13.187	8.888	22.020	5.970	49.170	11.520	35.641	25.000	3.960
2/5/2009	32.185	23.700	24.601	5.478	13.352	9.415	22.010	6.130	51.530	13.000	36.346	25.982	4.096
2/6/2009	32.849	24.000	25.012	5.865	13.848	9.857	22.670	6.320	51.310	13.950	37.490	26.419	4.259
2/9/2009	33.455	24.090	25.263	5.651	14.781	9.914	22.820	6.450	50.380	13.890	37.457	26.092	4.268

Note: We only included a subset of the data for all 50-retailers in the above figure.

NORMALIZATION PROCESS

A number of normalization efforts are undertaken to prepare raw satellite imagery data for use as PLCC figures.

Intraday Effects

Satellites do not pass over every single parking lot of a retailer every day at the exact same time; the team at Orbital had to develop models to properly normalize the PLCC figures to ensure apple-to-apple comparisons for each day and generate estimates to fill-in for those days when observations were not available.

Geo-Fencing

To extract a proper estimate of the PLCC figures in parking lots that are shared amongst various retailers, the team at Orbital developed a method of expanding the immediate geo-fenced parking lot area in front of a retailer into a larger area-of-interest approach that improves the accuracy of assessment.

Stores Sampled

At the moment, the existing satellite libraries used do not provide 100% coverage of all the retailer's parking lots. For instance, the PLCC figure may comprise of normalized figures based on 50% coverage of a retailer's lots across the country. Overtime, as more lot coverage is brought online, these additional observations are incorporated into the PLCC figures in a normalized fashion.

IV.   RELATION BETWEEN SSS & PLCC

Mapping of Retailer SSS to PLCC

As mentioned previously, one of the challenges encountered when looking to compare the PLCC from satellite imagery to retailers' SSS figures is the consideration for fiscal quarter-ends vs. calendar dates. That is, while the satellite imagery data tracks the car counts on a regular calendar based time-stamp, the data we are comparing to for retailers' same-store sales are based on the respective retailer's fiscal quarter-end. For the purpose of our panel analysis, I have chosen to normalize all time-stamps as calendar dates.

Panel Analysis of SSS to PLCC

Methodology

At an aggregate level, we use a panel analysis to examine the relation between parking lot car counts and retailer same store sales[3]. The two-dimensions of fixed effects that we account for are firm and time fixed-effects. Overall, we use the panel analysis methodology to see if changes in car counts are correlated with statistically significant changes in retailers' sales while accounting for retailer specific effects (i.e. firm fixed-effects) and time-effects.

Firm Fixed-Effects

Retailers may have specific fixed-effects that affect the relation between their PLCC and SSS figures. For instance, Home Depot may have a more efficient check-out process that translates to a higher velocity of cars in parking lots converting into sales when compared to Lowes. If this were true, then the firm fixed-effect would properly weigh each retailer's operational idiosyncrasy.

---

[3] For individual retailers and industry buckets, we use a linear-regression approach.

Time Fixed-Effects

Over-time, there are general macro-economic trends that impact the sales of retailers and the time fixed-effect accounts for these macro fluctuations in the relation between PLCC and SSS figures across the retailers. One example could be macro-economic inflation or increase in consumer confidence that might make the sales-figures in 2015 higher than those in 2009 for the same-level of car-counts (i.e. customers are paying more for the same-items or the same number of customers are purchasing more on each trip).

Data Set

For PLCC figures, Orbital has provided data on a daily-basis from 2009 to 2015 for a majority of the 50-retailers. All inclusive, there are greater than 100,000 PLCC observations.

For SSS figures, they are reported on a quarterly basis and contain 7-years of data from 2009 to 2015 for 50-retailers. The data comprises of 28-quarters (7-years); however, in order to calculate the YoY change in SSS values, I could not use the first 4-quarters of data. Thus, there are 24-quarters for most of the 50-retailers, equating to ~1,200 observations[4].

---

[4] The actual panel analysis report shows ~1,100 observations due to some retailers not having either a complete SSS or PLCC figures spanning 24-quarters or due to mapping-issues between the two sources leading to omissions.

Definition of Variables

S = YoY Change in Retailer's Same-Store Sales (%)

C = YoY Change in Retailer's PLCC (%)

i = retailer

t = quarter

b = retailer industry bucket

α^i = firm fixed-effect

γ_t = time fixed-effect

δ^b = retailer industry bucket fixed-effect

Regression & Panel Analysis Equations

(1) Individual Retailer Level

$$S_t^i = \beta C_t^i + \varepsilon_t^i$$

(2) Aggregate of Retailers (including Firm & Time Fixed-Effects)

$$S_t^i = \alpha^i + \gamma_t + \beta C_t^i + \varepsilon_t^i$$

(3) Individual Industry Bucket Level

$$S_t^b = \beta C_t^b + \varepsilon_t^b$$

(4) Aggregate of Retailer by Bucket (including Bucket & Time Fixed-Effects)

$$S_t^b = \gamma_t + \delta^b + \beta C_t^b + \varepsilon_t^b$$

Example - Individual Retailer Regression: Bed, Bath and Beyond (BBBY)

I first combined the PLCC data-file for BBBY with the SSS data-file and paired up the YoY changes by quarter. The reason why I used YoY changes is because the retail industry is by-nature a seasonal business where a significant portion of its revenue is generated in the 4th quarter of each year. Thus, given the lumpiness of the industry's sales, a YoY comparison would better showcase any uptick or downturn in PLCC on a seasonally adjusted basis. Below is the resulting data for BBBY that was fed into Stata.

Figure A: Combined BBBY file with PLCC & Same-Store Figures

r	t	c	s
BBBY	5	0.189	0.073
BBBY	6	0.044	0.115
BBBY	7	0.048	0.084
BBBY	8	0.034	0.074
BBBY	9	0.002	0.07
BBBY	10	0.014	0.085
BBBY	11	0.027	0.07
BBBY	12	-0.021	0.056
BBBY	13	0.061	0.041
BBBY	14	-0.005	0.068
BBBY	15	-0.041	0.03
BBBY	16	0.052	0.035
BBBY	17	0.002	0.017
BBBY	18	-0.010	0.025
BBBY	19	-0.058	0.034
BBBY	20	-0.037	0.037
BBBY	21	-0.088	0.013
BBBY	22	0.002	0.017
BBBY	23	0.051	0.004
BBBY	24	-0.054	0.034
BBBY	25	0.019	0.017
BBBY	26	-0.079	0.037
BBBY	27	-0.058	0.022
BBBY	28	-0.266	0.007

r = *retailer*

t = *time (in calendar quarters)*

s = *YoY change in same-store sales (%)*

c = *YoY change in PLCC (%)*

note: the reason why t starts at 5 is because in-order to compute the YoY car-counts we had to remove the initial 4 quarters of data.

.

Figure B: Results of Regression of Sales(s) on PLCC(c) for BBBY

```
. reg s c

      Source |       SS           df       MS              Number of obs =       24
-------------+------------------------------              F(  1,    22) =     6.50
       Model |  .004489648         1  .004489648           Prob > F      =   0.0182
    Residual |  .015187977        22  .000690363           R-squared     =   0.2282
-------------+------------------------------              Adj R-squared =   0.1931
       Total |  .019677625        23  .000855549           Root MSE      =   .02627


           s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
           c |   .1740477   .0682497     2.55   0.018     .0325065    .315589
       _cons |   .0456223   .0053856     8.47   0.000     .0344534   .0567913
```

The regression of SSS on PLCC for BBBY shows:

BBBY: $s = 0.046 + .174c$

$R^2 = 0.228$

Figure C: Regression of BBBY's Same Store Sales vs. PLCC with 95%-Confidence Band
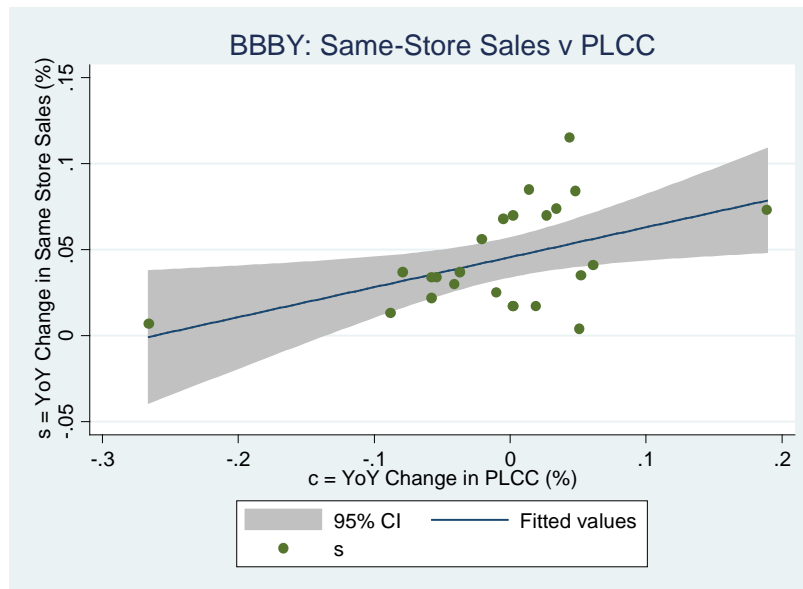
In the above regression of BBBY's YoY SSS vs. YoY PLCC values, it's interesting to note that the statistical relationship does not intercept at 0. That is, even when YoY PLCC values are around 0, the YoY SSS values are slightly positive as captured by the constant. One possible reason for this is YoY inflation, which drives-up the price of purchases. While the time fixed-effect attempts to address such trending issues, it may not capture the entire effect. Another interesting relation to observe is that for this particular retailer, an increase in YoY PLCC values appear to lead to situations of both increasing and decreasing YoY SSS values while the fit of the relationship appears tighter for quarters when the PLCC figures are negative. That is, it appears that PLCC is a better predictor of SSS for BBBY during quarters when sales are declining. It'll be interesting to see if this relationship holds for other retailers as well. And if it did, it could be beneficial for retail analysts since retailers more often stop reporting monthly SSS values during times when their businesses are struggling which is the exact moment when investors would like to have more transparency and information on short-term retailer performance.

One example that comes to mind was Macy's decision to stop reporting SSS figures in January 2008, claiming that calendar shifts caused unusual SSS reporting which led to volatility in their stock-prices (Barbaro, 2008). In the Macy example, their reported sales "rose 13.4% in November 2007, but fell 7.9% in December… [which when] the latter figure came out, Macy's stock fell more than 6% in two days… Executives at Macy's found this agonizing… and said it contributed to their decision to stop reporting monthly store sales after January 2008." But for a retail analyst, the months after a retail struggles the most is exactly when they would be most interested to get more data. Thus, PLCC data might be a potential alternative source to gain coverage during these "dark months."

Regression Report for All 50-Retailers

Figure D: Regression Table for All 5-Retailers

No.	Retailer Ticker	Retailer Name	R^2	B	SE	t-value	p-value
1	AAP	Advanced Auto Parts	0.001	-0.022	0.434	-0.120	0.906
2	BBBY	Bed Bath & Beyond	0.228	0.174	0.068	2.550	0.018
3	BBY	Best Buy	0.001	-0.015	0.090	-0.165	0.871
4	BGFV	Big 5 Sporting Goods Corporation	0.039	-0.084	0.127	-0.947	0.354
5	BIG	Big Lots, Inc.	0.038	0.078	0.084	0.926	0.365
6	BKS	Barnes & Noble, Inc.	0.106	0.180	0.111	1.613	0.121
7	BWLD	Buffalo Wild Wings, Inc.	0.031	0.061	0.096	0.840	0.410
8	CAB	Cabela's	0.012	0.065	0.146	0.521	0.608
9	CMG	Chipotle Mexican Grill, Inc.	0.085	0.198	0.195	1.432	0.166
10	CONN	Conns Electronics	0.201	0.429	0.182	2.355	0.028
11	COST	Costco	0.203	0.239	0.101	2.365	0.027
12	CVS	CVS Caremark Corporation	0.044	0.063	0.091	1.005	0.326
13	DDS	Dillard's, Inc.	0.000	-0.009	0.092	-0.094	0.926
14	DG	Dollar General	0.268	0.127	0.045	2.839	0.010
15	DKS	Dicks Sporting Goods	0.050	0.085	0.079	1.072	0.295
16	DLTR	Dollar Tree, Inc.	0.153	0.122	0.061	1.993	0.059
17	DSW	Designer Shoe Warehouse	0.131	0.235	0.129	1.822	0.082
18	ETH	Ethan Allen	0.412	0.759	0.205	3.927	0.001
19	HD	Home Depot	0.004	-0.037	0.126	-0.294	0.772
20	HKFI	Hancock Fabrics	0.007	0.019	0.047	0.399	0.694
21	JCP	JC Penny	0.001	-0.054	0.336	-0.161	0.873
22	JWN	Nordstrom, Inc.	0.033	0.047	0.054	0.864	0.397
23	KIRK	Kirkland's	0.005	0.042	0.129	0.325	0.748
24	KR	The Kroger Co.	0.079	-0.048	0.035	-1.376	0.183
25	KSS	Kohl's	0.106	0.118	0.073	1.613	0.121
26	LL	Lumbers Liquidators	0.018	0.088	0.173	0.643	0.527
27	LOW	Lowe's	0.089	-0.146	0.099	-1.469	0.156
28	M	Macy's, Inc.	0.031	0.055	0.066	0.832	0.414
29	MNRO	Monro Muffler Brake, Inc.	0.062	0.093	0.084	1.205	0.241
30	PBY	The Pep Boys	0.025	-0.038	0.051	-0.746	0.463
31	PETM	PetSmart	0.052	0.083	0.132	1.097	0.285
32	PIR	Pier 1 Imports, Inc.	0.072	0.164	0.126	1.306	0.205
33	PNRA	Panera Bread	0.253	0.194	0.118	2.728	0.012
34	RAD	Rite Aid Corporation	0.015	-0.030	0.052	-0.580	0.570
35	ROST	Ross Stores	0.039	0.065	0.070	0.940	0.357
36	SBUX	Starbucks Corporation	0.182	0.162	0.083	2.214	0.038
37	SCVL	Shoe Carnival, Inc.	0.123	0.367	0.209	1.760	0.092
38	SHLD	Sears	0.436	0.222	0.054	4.120	0.000
39	SHW	The Sherwin-Williams Company	0.004	-0.061	0.241	-0.292	0.773
40	SMRT	Stein Mart, Inc.	0.023	-0.045	0.062	-0.723	0.477
41	SPLS	Staples	0.091	0.112	0.075	1.487	0.151
42	SSI	Stage Stores Inc.	0.005	-0.022	0.065	-0.335	0.741
43	TGT	Target	0.002	-0.013	0.062	-0.209	0.836
44	TJX	TJ Maxx	0.009	0.037	0.084	0.440	0.664
45	TSCO	Tractor Supply	0.163	0.221	0.182	2.068	0.051
46	TUES	Tuesday Morning Corporation	0.015	0.038	0.074	0.579	0.568
47	ULTA	ULTA Beauty	0.032	0.040	0.048	0.847	0.406
48	WFM	Whole Foods Market, Inc.	0.006	0.047	0.122	0.361	0.721
49	WMT	Walmart	0.000	-0.001	0.050	-0.026	0.979
50	WSM	Williams-Sonoma, Inc.	0.000	-0.002	0.036	-0.055	0.957
		Average	0.080	0.088	0.111	0.870	0.401

On average, for individual retailers there does not appear to be a statistically strong

relation between SSS and PLCC. The overall average R^2 value of 0.080 across all the retailers

does not showcase a statistical explanatory ability for SSS using PLCC values. However, below

is a list of the top-retailers where the relation holds-up best.

Figure E: Top-10 Individual Retailer Regressions Sorted by R^2

No.	Retailer Ticker	Retailer Name	R^2	B	SE	t-value	p-value
38	SHLD	Sears	0.436	0.222	0.054	4.120	0.000
18	ETH	Ethan Allen	0.412	0.759	0.205	3.927	0.001
14	DG	Dollar General	0.268	0.127	0.045	2.839	0.010
33	PNRA	Panera Bread	0.253	0.194	0.118	2.728	0.012
2	BBBY	Bed Bath & Beyond	0.228	0.174	0.068	2.550	0.018
11	COST	Costco	0.203	0.239	0.101	2.365	0.027
10	CONN	Conns Electronics	0.201	0.429	0.182	2.355	0.028
36	SBUX	Starbucks Corporation	0.182	0.162	0.083	2.214	0.038
45	TSCO	Tractor Supply	0.163	0.221	0.182	2.068	0.051
16	DLTR	Dollar Tree, Inc.	0.153	0.122	0.061	1.993	0.059
		Average	0.250	0.265	0.110	2.716	0.024

Sears appears to have the greatest statistical explanatory ability for YoY SSS figures

from its respective YoY PLCC figures. Most of the top-10 retailers above have a t-value that is

greater than 2 which is the 95% threshold. In addition, the average Beta value of 0.265 indicates

the elasticity of the relationship. That is, on average, every 1% increase in PLCC increases sales

by 0.265%. This is quite significant and interesting since it provides an estimate of store

conversion-rates and average cart-sizes. Ethan Allen holds the largest Beta in the above summary

– a value of 0.759.

Possible hypotheses for why certain retailers' PLCC values transfer better into SSS results are:

i. **Better Geo-Fencing**: Certain retailers have clearly designated parking lots where the current geo-fencing process may be doing a better job of identifying the majority of their customers via cars counts. For instance: Sears, Ethan Allen, Bed Bath & Beyond, Costco and Conns Electronics are some examples from the above top-10.

ii. **Customers**: Certain retailers have more stable conversation rates and average-cart-sizes overtime such that measured PLCC values translate consistently into the same SSS figures. We could use this to explain Starbucks, which likely has a more consistent conversion rate (i.e. the proportion of customers who go into Starbucks consistently convert into actual sales and their average cart sizes don't vary much when they do purchase items).

iii. **Calendar Shifts**: The SSS figures were based on the translation from retailer fiscal dates into calendar dates. Perhaps this isn't a perfect 1:1 mapping. This is largely due to the retail industry following a somewhat different schedule than most. The national retail federation follows a 4-5-4 calendar where every 5 to 6 years, there's an extra week added to the fiscal calendar (4-5-4 Calendar - An Explanation of the 53-Week Year). This might throw-off some of the retailers' SSS values when comparing to PLCC.

Panel Analysis of Retailers

The next analysis I did was conduct a panel analysis of the retailers as an aggregate. That is, instead of running regressions on the individual retailers, I aggregated all 50-retailers into a single data-table and ran a panel analysis between the YoY SSS values and YoY PLCC values, accounting for firm and time fixed-effects.

The R^2 value was much higher for the aggregate panel analysis than for the average individual retailer (0.336 vs. 0.080). Further, the R^2 value for the aggregate panel analysis was even stronger than the average R^2 value for the top-10 individual retailers (0.336 vs. 0.250). The stronger statistical relation at the aggregate-level vs. individual-level is likely because of the retailer fixed effect which increases the degrees of freedom since the panel regression is allowed to pick a different intercept for each retailer which explains more of the cross-sectional variation in sales growth. Also, the t-value was also much more significant than for the top-10 individual retailer regressions (8.340 vs. 2.716). And, the Beta also increased with the panel analysis (0.188 vs. 0.088).

Results

$$S = 0.005 + 0.188*C$$

$$R^2 = 0.336$$

$$SE = 0.023$$

$$n = 1169$$

$$t\text{-}value = 8.34$$

$$p\text{-}value = 0.000$$
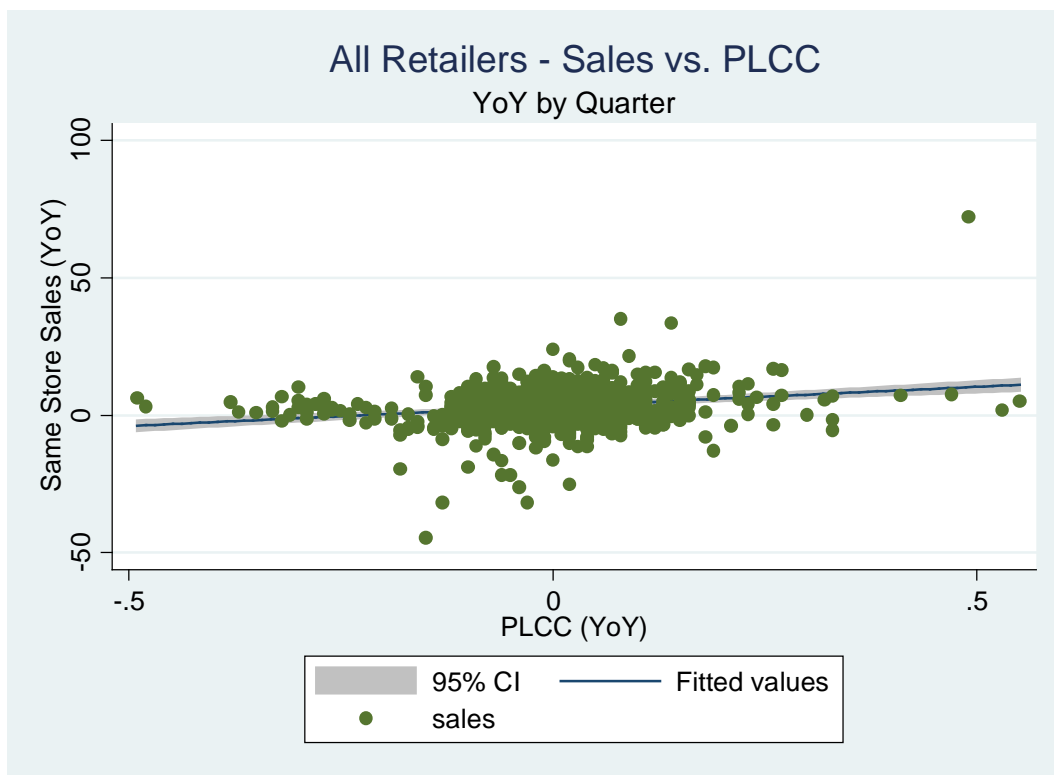
note: *the panel analysis accounts for both firm and time fixed-effects*

INDUSTRY BUCKET ANALYSIS

Segmenting Retailers into Industry Classifications

Beyond looking at the data as either individual retailers or in aggregate, I wanted to also see how SSS related to PLCC when retailers were classified into industry "buckets." Specifically, of the retailers we analyzed, we sorted them into 11 industry buckets based on a Standard Industry Classification code called NAICS that's developed by the Bureau of Labor Statistics. We then ran two forms of panel analyses: 1) on the individual buckets accounting for time fixed-effects and 2) on the aggregate of 11-buckets, accounting for bucket and time fixed-effects.

North American Industry Classification System (NAICS)

The North American Classification System (NAICS) was introduced in 1997 and uses a "production-oriented conceptual framework to group establishments into industries based on the activity in which they engage" (BLS, 2014).

Figure F: Mapping of Retailers by NAICS Codes into Industry Buckets

Industry Retailer Bucket	NAICS Code	Retailers
Automotive Parts, Accessories, and Tire Stores	441	MNRO, PBY
Furniture & Home Furnishing Stores	442	BBBY, ETH, LL, PIR, WSM
Electronic & Appliance Stores	443	BBY, CONN
Building Material & Garden Equipment & Supplies Dealers	444	HD, LOW, SHW
Food & Beverage Stores	445	KR, WFM
Health & Personal Care Stores	446	CVS, RAD, ULTA
Clothing & Clothing Accessories Stores	448	DSW, HKFI, JWN, SCVL, SSI
Sporting Goods, Hobby, Musical Instruments, and Book Stores	451	BGFV, CAB, DKS
General Merchandise Stores	452	BIG, BKS, COST, DDS, DG, DLTR, JCP, KSS, M, ROST, SHLD, SMRT, TGT, TJX, WMT
Miscellaneous Store Retailers	453	KIRK, SPLS, PETM, TSCO, TUES
Restaurants	722	BWLD, CMG, PNRA, SBUX

Figure G: Summary of Results for Panel Analyses of Individual Industry Buckets

Industry Retailer Bucket	NAICS Code	R^2	Beta	SE	t-value	p-value
Automotive Parts, Accessories, and Tire Stores	441	0.673	-0.014	0.062	-0.22	0.828
Furniture & Home Furnishing Stores	442	0.323	0.203	0.073	2.79	0.006
Electronic & Appliance Stores	443	0.652	0.729	0.177	4.11	0.000
Building Material & Garden Equipment & Supplies Dealers	444	0.617	0.232	0.125	1.85	0.070
Food & Beverage Stores	445	0.459	0.059	0.151	0.39	0.699
Health & Personal Care Stores	446	0.246	0.376	0.107	3.51	0.001
Clothing & Clothing Accessories Stores	448	0.160	0.178	0.089	2.00	0.049
Sporting Goods, Hobby, Musical Instruments, and Book Stores	451	0.431	0.044	0.089	0.50	0.621
General Merchandise Stores	452	0.124	0.251	0.054	4.63	0.000
Miscellaneous Store Retailers	453	0.100	0.077	0.079	0.98	0.328
Restaurants	722	0.253	0.117	0.109	1.07	0.288
	Average	**0.367**	**0.205**	**0.101**	**1.97**	**0.263**

Looking at the results from the above summary table for panel analyses at the industry bucket-level we notice that a number of industry buckets have significant t-values of above 2, including 442, 443, 446, 448 and 452.

A subset of these industry-buckets are provided below:

Figure H: Top-5 Industry Retailer Buckets Panel Analyses by R^2

Industry Retailer Bucket	NAICS Code	R^2	Beta	SE	t-value	p-value
Electronic & Appliance Stores	443	0.652	0.729	0.177	4.11	0.000
Furniture & Home Furnishing Stores	442	0.323	0.203	0.073	2.79	0.006
Health & Personal Care Stores	446	0.246	0.376	0.107	3.51	0.001
Clothing & Clothing Accessories Stores	448	0.160	0.178	0.089	2.00	0.049
General Merchandise Stores	452	0.124	0.251	0.054	4.63	0.000
	Average	0.301	0.347	0.100	3.408	0.011

Overall, it appears that electronic & appliance stores have the highest statistical explanatory relation between the PLCC-values and SSS-values with a R^2 of 0.652, followed by retailers in the Furniture & Home Furnishing Stores bucket (0.323), Health & Personal Care Stores (0.246), Clothing and Accessories Store (0.160) and General Merchandise Stores (0.124).

Also, the Beta values are quite significant with an average of 0.347 for the top-5 industries, which means that on average for every 1% increase in car-counts, same-store sales increase by 0.347%. At the top of the ranking is electronic & appliance stores with a Beta of 0.729 while clothing stores have the lowest in the top-5 with a value of 0.178.

Some of the industries that appear in the top-5 table above make sense. At the same, it's strange that other industries are not on the list. For instance, on one-hand, the high R^2 value for electronics and appliances stores makes sense. That NAIC bucket currently includes the

PLCC coverage of only two retailers: Best Buy and Conns Electronic. Both retailers are big-box stores that most likely have easy-to-identify parking-lots with a majority of their customers parking in the appropriate lots, which may lead to high PLCC accuracy and correlation with SSS.

On the other hand, Restaurants and Food/Beverage Stores would be two industry buckets that I'd intuitively believe should have a strong correlation between PLCC figures and SSS; however, the panel analyses with the current data-set revealed both to hold insignificant t-values with the former bucket with a t-value of 1.07 and the latter with a t-value of 0.39. One rationale for these low t-values could be that their parking lots are smaller or shared amongst other retailers in the mall and thus the current geo-fencing method is not a great measurement of their overall PLCC values. For instance, Panera Bread is one of the retailers within the restaurant industry bucket and from common observation Panera often shares a parking lot with others since they often reside in a strip-mall.

Within the Food & Beverage Store, the current data table only tracks two retailers: KR (Kroger) and WFM (Whole Foods). When comparing their industry bucket results with their individual retailer regressions, the latter tells a similar story with insignificant t-values for both retailers. This could simply be a result of incomplete store-coverage with the current satellite imagery or a high volatility between PLCC figures and SSS figures – that is, customers change their purchase amounts frequently and it's difficult to peg the average cart size or conversation rates of customers for these retailers.

Panel Analysis of Industry Buckets Results

Below are the results of a panel analysis on the aggregate SSS and PLCC volumes while accounting for industry buckets and time fixed-effects (vs. using the firm and time fixed-effects).

$$S = -0.040 + 0.214*PLCC$$

$$R^2 = 0.173$$

$$Beta = 0.214$$

$$Std\ Error = 0.023$$

$$t\text{-value} = 9.24$$

$$p\text{-value} = 0.000$$

The results above of the panel analysis show a statistically significant relation between SSS values and PLCC when accounting for industry buckets and time fixed-effects. That is, instead of analyzing the relation between SSS and PLCC at the individual retailer-level but rather by grouping them into industry bucket, we still achieve a statistical explanatory model – though one that has a different R-square value. This latter effect could be due to the removal of the retailer fixed-effect which may be a more explanatory categorization vs industry bucket (i.e. operational idiosyncrasy is more correlated within a firm than across its industry).

See below for a comparison table of the statistics from the two aggregate panel analyses, comparing the results of aggregate panel analysis at the individual retailer level versus at the industry bucket level.

Figure I: Comparing Panel Analysis Results from Individual Retailers vs. Industry Buckets

	Panel Analysis Result Individual Retailers	Panel Analysis Results Industry Bucket
R^2	0.329	0.173
Beta	0.188	0.214
SE	0.023	0.023
t-value	8.32	9.24
p-value	0.000	0.000

Compared to the aggregate panel analysis done earlier for 50-individual-retailers, the R^2 value for this latter panel analysis for 11-industry-bucekts is lower at 0.173 (vs. R^2= 0.329). However, the t-value is higher (9.24 vs. 8.32) - though not much more. One possible reason is that the firm fixed-effect provides more granularities to the panel analysis than the industry fixed-effect, which makes sense since even if two firms are in the same industry their operating models may be different and that would affect the transmission and relation between PLCC and SSS.

Another observation that's interesting is that while the R^2 value is quite difference between the two panel analyses their Beta's are quite similar. This might propose that regardless of firms or industries, a certain level of change in PLCC does consistently translate into SSS stays at the aggregate level. For instance, the Beta for the panel analysis at the individual retailer level was 0.188 while the Beta for panel analysis at industry bucket level is 0.214. We've now seen the Beta relatively consistent across the various types of analyses.

V.   PREDICTING STOCK RETURNS WITH PLCC

Rational for Methodology and Lag Panel Analysis

The next-analysis is about predicting future retailer stock returns with PLCC figures. For this analysis I looked at the lagged relation of log-changes in PLCC to log stock-returns. Specifically, I chose to run the panel analysis on 3 lagged intervals: quarterly, monthly and weekly. The rational was that changes in PLCC figures should translate into stock-prices within those 3 time-intervals. From our previous panel analysis, the results showed that, as an aggregate of 50-retailers or 11-industry buckets, changes in PLCC figures were statistically predictive of changes in SSS values. Here we create a model to see if this transmission mechanism further shows up in retailer stock returns. Again, the goal is to establish a predictive relationship between future stock returns and lagged changes in car-counts. The current methodology employs a panel analysis while accounting for firm fixed-effect.

Overall, with the current data and models employed, we were not able to identify a statistical significant predictive relation between the log change of retailer PLCC figures and corresponding log stock returns for any of the 3 aforementioned lag-bases. One possibility is that they were not the appropriate lag-intervals and the transmission actually occurs at a shorter lag-basis. That is, perhaps the markets are already incorporating some other information into their stock-prices ahead of monthly and quarterly SSS-reports. We did not attempt to data-mine at continuous lag-intervals. Another feedback was that perhaps looking at log changes from the end of one quarter, month or week to the next may not the ideal time-frame. The results for each of the 3 lagged analyses are presented on the following-pages.

Methodology

R = Gross Retailer Stock Return

r = Log Retailer Stock Return

PLCC = Log PLCC Growth

P = Retailer Stock Price

D = Retailer Stock Dividend

$$r_{t+1}^i = a^i + B * PLCC_t^i$$

$$R_{t+1}^i = \frac{P_{t+1} + D_t}{P_t}$$

$$r_{t+1}^i = \log(R_{t+1}^i)$$

$$PLCC_t^i = \log(\frac{PLCC_t}{PLCC_{t-1}})$$

Note: we took the log change of stock prices and car counts between the last day of the quarter, month or week.

Quarterly Lag - Panel Analysis of Retailer Stock Return vs. Change in PLCC

In this analysis, I gathered log quarter-over-quarter retailer equity-prices and compared them to the lagged log change in PLCC figures. Specifically, used the values from the last-day of the quarter and we lagged the PLCC figures by a quarter before running the panel analysis with firm-fixed effects[5].

$$r_{t+1}^i = a^i + B * PLCC_t^i$$

$$r_{t+1}^i = .059^i - .026 * PLCC_t^i$$

n= 1,315

R-squared = 0.031

SE = 0.013

t-value = -1.93

p-value = 0.054

Overall, from our panel analysis with quarterly lag, the t-values appear close to the 95% threshold; however the low R-square of 0.031 shows a low percent of variance explained. Also, the value of the Beta is interesting since it is negative in this regression. One would intuitively think as PLCC values increase so would the stock-return but the above results say that for every 1% increase in PLCC values at quarter t, there is an expected 0.03% decrease in stock-return in quarter t+1. This does not make intuitive sense.

---

[5] **Note:** t = 1 quarter

Monthly Lag - Panel Analysis of Retailer Stock Return vs. Change in PLCC

The monthly lag panel analysis utilized a similar methodology to the quarterly lag method above. The only difference is that I used log change in monthly EQ-prices and PLCC values. That is, we calculated the log stock return by comparing the log of the change of the retailer's equity price on the last-day of trading between month(t) and month(t+1). For the PLCC values, I calculated the monthly log-change of PLCC values. We then lagged the PLCC values by 1-month before running the stock return vs. PLCC panel analysis with firm fixed-effect[6].

$$r_{t+1}^i = a^i + B * PLCC_t^i$$

$$r_{t+1}^i = 0.020^i + .006 * PLCC_t^i$$

n= 4,156

R-squared = 0.010

SE = 0.005

t-value = 1.27

p-value = 0.204

With the monthly analysis, the t-value of 1.27 is lower vs the t-value of the quarterly one. The R-square value was extremely low at 0.010; however, the Beta was positive for the monthly-lag analysis but not by a significant amount. Overall, there does not appear to be much statistical predictive ability between car-counts and stock-returns on a monthly lag basis.

---

[6] **Note**: here t is in increments of 1-month.

Weekly Lag - Panel Analysis of Retailer Stock Return vs. Change in PLCC

For the weekly lag panel analysis, we used the same methodology of log-changes in stock returns and change in PLCC figures as above, except we used log-change of levels on a weekly basis (from Friday to Friday) and lagged the change in car-counts by 1-week[7].

$$r_{t+1}^i = a^i + B * PLCC_t^i$$

$$r_{t+1}^i = -0.004^i - .002 * PLCC_t^i$$

$$n = 15,194$$

$$\text{R-squared} = 0.003$$

$$\text{SE} = 0.002$$

$$\text{t-value} = -1.13$$

$$\text{p-value} = 0.257$$

Similar to our analysis above, there was not much statistical insight from our panel analysis with weekly-lag. The R-square value was extremely low at 0.003 and the t-value was also insignificant at -1.13. Overall, from the analyses on the 3 specified lagged-intervals, I did not identify an appropriate model to capture a transmission effect between stock returns and PLCC. One possible area of exploration in the future is with shorter time-lags, like 1-day or even a few hours. Also, maybe market prices embed other info before the formal monthly and quarterly reports. Also, our current methodology looks at log-changes on the last-day of the quarter, month or week. Perhaps a better time-period to focus on is around when earnings figures are reported each quarter and whether or not we can predict that directional volatility.

---

[7] **Note**: t = 1 week.

VI.   APPENDIX

Panel Analysis Report for Retailers
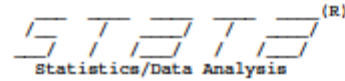
```
                                                                          (R)
                                        _____
                                       /  _____  /
                                      /  / _____   / /
                                     /  / /        /  / /
                                    /  /_/_____/  / /
                                   /_____/ /
                                        Statistics/Data Analysis

                                      User: Ju Tan
                    Project: Stern - Glucksman Securities Market Research(space -22)
. *(4 variables, 1169 observations pasted into data editor)

. xi: regress s c i.r i.t
i.r           _Ir_1-50         (_Ir_1 for r==AAP omitted)
i.t           _It_5-28         (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	1.50181543	73	.020572814
Residual	2.9623963	1095	.002705385
Total	4.46421173	1168	.003822099

```
Number of obs =    1169
F( 73,  1095) =    7.60
Prob > F      =  0.0000
R-squared     =  0.3364
Adj R-squared =  0.2922
Root MSE      =  .05201
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.1884432	.0225982	8.34	0.000	.1441026	.2327838
_Ir_2	-.0051375	.0160128	-0.32	0.748	-.0365568	.0262818
_Ir_3	-.051178	.0159957	-3.20	0.001	-.0825637	-.0197923
_Ir_4	-.0438018	.0163278	-2.68	0.007	-.075839	-.0117645
_Ir_5	-.0402216	.0159928	-2.51	0.012	-.0716016	-.0088416
_Ir_6	-.0520119	.0159937	-3.25	0.001	-.0833938	-.0206301
_Ir_7	-.0049894	.0161801	-0.31	0.758	-.0367369	.0267581
_Ir_8	-.0450276	.0163184	-2.76	0.006	-.0770465	-.0130086
_Ir_9	.0395007	.0162006	2.44	0.015	.0077129	.0712884
_Ir_10	-.0056759	.0160687	-0.35	0.724	-.0372049	.0258531
_Ir_11	.0068037	.0160101	0.42	0.671	-.0246101	.0382176
_Ir_12	-.0205042	.0161496	-1.27	0.204	-.0521919	.0111835
_Ir_13	-.0271629	.0159933	-1.70	0.090	-.0585439	.004218
_Ir_14	-.005451	.0160265	-0.34	0.734	-.0368971	.0259951
_Ir_15	-.0134666	.0159956	-0.84	0.400	-.0448521	.0179189
_Ir_16	-.0027688	.0160093	-0.17	0.863	-.0341811	.0286436
_Ir_17	.0098274	.0160225	0.61	0.540	-.0216109	.0412657
_Ir_18	.013418	.0161958	0.83	0.408	-.0183602	.0451963
_Ir_19	-.0060687	.0159993	-0.38	0.705	-.0374616	.0253241
_Ir_20	-.0477237	.0160382	-2.98	0.003	-.0791928	-.0162545
_Ir_21	-.085776	.0159928	-5.36	0.000	-.117156	-.054396
_Ir_22	.0035012	.0160275	0.22	0.827	-.0279469	.0349493
_Ir_23	-.0449263	.0160727	-2.80	0.005	-.076463	-.0133896
_Ir_24	-.0093619	.016011	-0.58	0.559	-.0407776	.0220537
_Ir_25	-.0365443	.0159974	-2.28	0.023	-.0679334	-.0051553
_Ir_26	-.0203186	.0162416	-1.25	0.211	-.0521869	.0115496
_Ir_27	-.0271322	.0160024	-1.70	0.090	-.0585311	.0042667
_Ir_28	-.0243315	.0160066	-1.52	0.129	-.0557386	.0070755
_Ir_29	-.0336331	.0161435	-2.08	0.037	-.0653088	-.0019573
_Ir_30	-.0556317	.0160378	-3.47	0.001	-.0871	-.0241635
_Ir_31	-.0127462	.0165132	-0.77	0.440	-.0451474	.0196549
_Ir_32	.0225251	.0160025	1.41	0.160	-.0088739	.053924
_Ir_33	-.0042739	.0163214	-0.26	0.793	-.0362987	.0277508
_Ir_34	-.0364992	.0159928	-2.28	0.023	-.0678792	-.0051191
_Ir_35	.0001792	.0160122	0.01	0.991	-.0312389	.0315973
_Ir_36	.0200517	.0163358	1.23	0.220	-.0120013	.0521047
_Ir_37	-.0791064	.0160044	-4.94	0.000	-.1105093	-.0477036
_Ir_38	-.0731107	.0159928	-4.57	0.000	-.1044907	-.0417307
_Ir_39	.0216039	.016162	1.34	0.182	-.0101081	.0533158
_Ir_40	-.0361413	.0159987	-2.26	0.024	-.067533	-.0047496
_Ir_41	-.0689446	.0160069	-4.31	0.000	-.1003524	-.0375369
_Ir_42	-.0458571	.0160082	-2.86	0.004	-.0772673	-.0144468
_Ir_43	-.0300349	.0159995	-1.88	0.061	-.061428	.0013583
_Ir_44	-.0018821	.0160054	-0.12	0.906	-.0332869	.0295226
_Ir_45	.006357	.0161622	0.39	0.694	-.0253553	.0380693
_Ir_46	-.0293622	.0162089	-1.81	0.070	-.0611662	.0024418
_Ir_47	.0398236	.0160389	2.48	0.013	.0083531	.0712941
_Ir_48	.0334007	.0172128	1.94	0.053	-.000373	.0671745
_Ir_49	-.042965	.0159991	-2.69	0.007	-.0743575	-.0115726
_Ir_50	.0091209	.0161249	0.57	0.572	-.0225182	.0407601
_It_6	.0271993	.010725	2.54	0.011	.0061554	.0482432

Industry Bucket Panel Analysis (Time Fixed-Effects)

Automotive Parts, Accessories, and Tire Stores (441)

```
. xi: regress s c i.t
i.t             _It_5-28          (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.048505346	24	.002021056
Residual	.023561654	23	.00102442
Total	.072067	47	.00153334

Number of obs =	48
F(24, 23) =	1.97
Prob > F =	0.0540
R-squared =	0.6731
Adj R-squared =	0.3319
Root MSE =	.03201

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	-.0134952	.0614888	-0.22	0.828	-.1406945	.1137041
_It_6	-.0260506	.0340511	-0.77	0.452	-.0964906	.0443894
_It_7	-.0141046	.0341358	-0.41	0.683	-.0847199	.0565107
_It_8	-.0067247	.0362275	-0.19	0.854	-.081667	.0682176
_It_9	-.0022193	.034321	-0.06	0.949	-.0732177	.0687791
_It_10	.0242004	.0353616	0.68	0.501	-.0489506	.0973514
_It_11	-.0403461	.03649	-1.11	0.280	-.1158315	.0351392
_It_12	-.0528542	.0345477	-1.53	0.140	-.1243217	.0186132
_It_13	-.0426916	.0351553	-1.21	0.237	-.1154158	.0300326
_It_14	-.0073657	.0376842	-0.20	0.847	-.0853213	.0705899
_It_15	-.0978866	.036579	-2.68	0.013	-.173556	-.0222173
_It_16	-.0717706	.0386896	-1.86	0.076	-.1518061	.008265
_It_17	-.086251	.0374109	-2.31	0.030	-.1636414	-.0088606
_It_18	-.1172051	.0351807	-3.33	0.003	-.189982	-.0444282
_It_19	-.0361241	.0350292	-1.03	0.313	-.1085876	.0363393
_It_20	-.0640162	.0348322	-1.84	0.079	-.1360721	.0080397
_It_21	-.0603934	.0365939	-1.65	0.112	-.1360935	.0153068
_It_22	-.0651383	.0341896	-1.91	0.069	-.1358648	.0055882
_It_23	-.0491984	.035168	-1.40	0.175	-.1219489	.0235522
_It_24	-.0450243	.033309	-1.35	0.190	-.1139292	.0238806
_It_25	-.0495438	.0340406	-1.46	0.159	-.1199622	.0208745
_It_26	-.028724	.0373474	-0.77	0.450	-.105983	.048535
_It_27	-.044699	.0342878	-1.30	0.205	-.1156288	.0262307
_It_28	-.0490182	.043663	-1.12	0.273	-.1393419	.0413056
_cons	.0471849	.0268847	1.76	0.093	-.0084305	.1028002
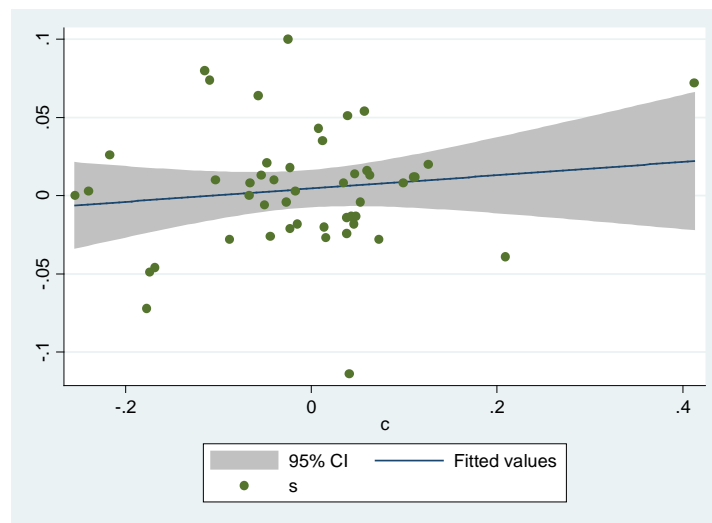
Furniture & Home Furnishing Stores (442)

```
. xi: regress s c i.t
i.t            _It_5-28           (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.284541846	24	.01185591
Residual	.597587316	95	.006290393
Total	.882129162	119	.00741285

```
Number of obs =     120
F( 24,    95) =    1.88
Prob > F      =  0.0164
R-squared     =  0.3226
Adj R-squared =  0.1514
Root MSE      =  .07931
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.2024825	.0726343	2.79	0.006	.0582852	.3466799
_It_6	.0895845	.0503391	1.78	0.078	-.0103513	.1895203
_It_7	.2419234	.0503885	4.80	0.000	.1418896	.3419571
_It_8	.0943725	.0521903	1.81	0.074	-.0092382	.1979833
_It_9	.1019691	.0515698	1.98	0.051	-.0004098	.2043481
_It_10	.0995139	.0523662	1.90	0.060	-.0044461	.2034739
_It_11	.0917502	.0520136	1.76	0.081	-.0115098	.1950102
_It_12	.109175	.0522104	2.09	0.039	.0055243	.2128257
_It_13	.100481	.0535526	1.88	0.064	-.0058343	.2067963
_It_14	.1160883	.0524887	2.21	0.029	.0118851	.2202915
_It_15	.0942974	.05293	1.78	0.078	-.010782	.1993769
_It_16	.1008262	.0519829	1.94	0.055	-.002373	.2040254
_It_17	.0828973	.0519149	1.60	0.114	-.0201669	.1859615
_It_18	.0839007	.0525968	1.60	0.114	-.0205171	.1883185
_It_19	.0958808	.0524249	1.83	0.071	-.0081958	.1999575
_It_20	.1314552	.0525489	2.50	0.014	.0271324	.2357781
_It_21	.106719	.0535322	1.99	0.049	.0004441	.2129939
_It_22	.0458362	.0520599	0.88	0.381	-.0575159	.1491882
_It_23	.0532766	.0520638	1.02	0.309	-.0500831	.1566364
_It_24	.0477435	.0516692	0.92	0.358	-.0548328	.1503198
_It_25	.0761859	.0530094	1.44	0.154	-.0290511	.1814228
_It_26	.0715265	.0536087	1.33	0.185	-.0349003	.1779532
_It_27	.0560115	.0528747	1.06	0.292	-.048958	.1609809
_It_28	.1190984	.0629224	1.89	0.061	-.0058183	.2440151
_cons	-.0383817	.0388492	-0.99	0.326	-.1155072	.0387438
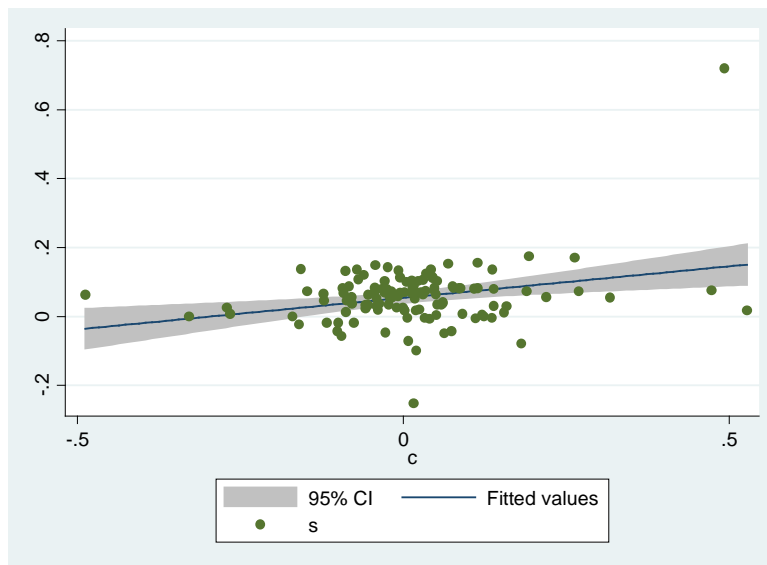
Electronic & Appliance Stores (443)

```
. xi: regress s c i.t
i.t                 _It_5-28              (naturally coded; _It_5 omitted)
```

Source	SS	df	MS		
Model	.435158821	24	.018131618		
Residual	.232338502	23	.010101674		
Total	.667497323	47	.014202071		

```
Number of obs =       48
F( 24,    23) =     1.79
Prob > F      =   0.0827
R-squared     =   0.6519
Adj R-squared =   0.2887
Root MSE      =   .10051
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.7284992	.1771988	4.11	0.000	.3619357	1.095063
_It_6	-.0253988	.1015647	-0.25	0.805	-.2355014	.1847038
_It_7	.0507547	.1032535	0.49	0.628	-.1628415	.2643508
_It_8	.052124	.1011449	0.52	0.611	-.1571102	.2613581
_It_9	-.0093693	.1012588	-0.09	0.927	-.2188391	.2001004
_It_10	.1007369	.101552	0.99	0.332	-.1093393	.3108132
_It_11	.0358617	.1007037	0.36	0.725	-.1724599	.2441833
_It_12	-.0713255	.1007955	-0.71	0.486	-.2798368	.1371859
_It_13	.072661	.1009616	0.72	0.479	-.1361938	.2815159
_It_14	.0843145	.1005085	0.84	0.410	-.1236032	.2922322
_It_15	.093715	.1005227	0.93	0.361	-.114232	.3016621
_It_16	.1137015	.1005759	1.13	0.270	-.0943557	.3217587
_It_17	.117382	.1009286	1.16	0.257	-.0914047	.3261686
_It_18	-.0224267	.102938	-0.22	0.829	-.23537	.1905167
_It_19	.0444283	.1019218	0.44	0.667	-.1664129	.2552695
_It_20	.1448482	.1006008	1.44	0.163	-.0632604	.3529568
_It_21	.2379477	.100662	2.36	0.027	.0297126	.4461829
_It_22	.1884368	.1005399	1.87	0.074	-.0195459	.3964194
_It_23	.089516	.100597	0.89	0.383	-.1185848	.2976168
_It_24	.116097	.1007823	1.15	0.261	-.092387	.3245809
_It_25	.088339	.1009616	0.87	0.391	-.1205159	.2971938
_It_26	.1113229	.101453	1.10	0.284	-.0985485	.3211944
_It_27	.1149334	.1031529	1.11	0.277	-.0984546	.3283214
_It_28	.3784697	.1250621	3.03	0.006	.119759	.6371803
_cons	-.0645902	.0713629	-0.91	0.375	-.2122157	.0830353
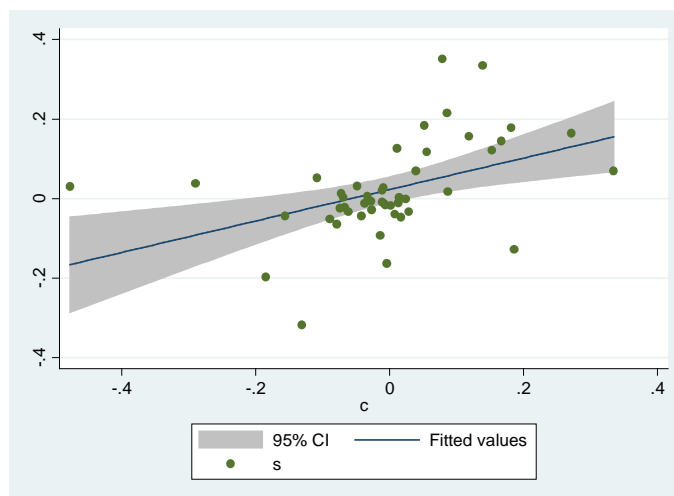
Building Material & Garden Equipment & Supplies Dealers (444)

```
. xi: regress s c i.t
i.t              _It_5-28           (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.106799783	24	.004449991
Residual	.066278829	47	.001410188
Total	.173078612	71	.002437727

```
Number of obs =      72
F( 24,    47) =    3.16
Prob > F      =  0.0004
R-squared     =  0.6171
Adj R-squared =  0.4215
Root MSE      =  .03755
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.2316776	.1250051	1.85	0.070	-.0198002	.4831554
_It_6	.0726131	.0308289	2.36	0.023	.0105934	.1346328
_It_7	.1426406	.0314504	4.54	0.000	.0793705	.2059107
_It_8	.1212592	.0309106	3.92	0.000	.0590751	.1834434
_It_9	.1400015	.0325053	4.31	0.000	.0746093	.2053937
_It_10	.1568912	.0334021	4.70	0.000	.0896947	.2240876
_It_11	.1054853	.032356	3.26	0.002	.0403934	.1705773
_It_12	.1518423	.0335358	4.53	0.000	.0843771	.2193075
_It_13	.1569456	.0313691	5.00	0.000	.0938391	.220052
_It_14	.2005508	.0318856	6.29	0.000	.1364051	.2646964
_It_15	.179717	.0323962	5.55	0.000	.1145444	.2448897
_It_16	.1309866	.0311007	4.21	0.000	.06842	.1935531
_It_17	.1569771	.032561	4.82	0.000	.0914727	.2224814
_It_18	.1332064	.0308849	4.31	0.000	.071074	.1953389
_It_19	.1316044	.0311583	4.22	0.000	.068922	.1942867
_It_20	.2136311	.0332069	6.43	0.000	.1468274	.2804349
_It_21	.1854767	.033175	5.59	0.000	.1187371	.2522162
_It_22	.1556769	.0318068	4.89	0.000	.0916898	.2196639
_It_23	.1480181	.0321119	4.61	0.000	.0834172	.2126189
_It_24	.1741638	.0329111	5.29	0.000	.1079553	.2403724
_It_25	.1665704	.0327327	5.09	0.000	.1007208	.2324201
_It_26	.1698156	.0313172	5.42	0.000	.1068134	.2328177
_It_27	.1341954	.0306904	4.37	0.000	.0724542	.1959366
_It_28	.1788942	.0464067	3.85	0.000	.0855358	.2722525
_cons	-.0998234	.022928	-4.35	0.000	-.1459486	-.0536982
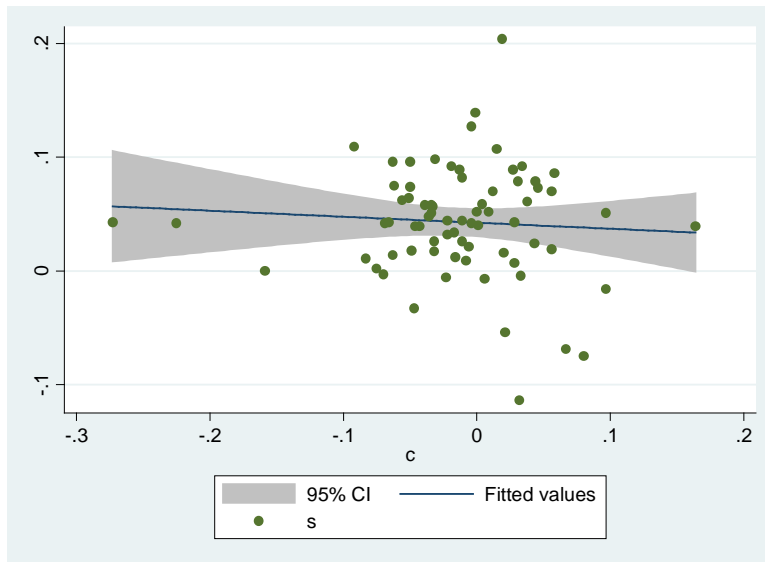
Food & Beverage Stores (445)

```
. xi: regress s c i.t
i.t              _It_5-28            (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.042289723	24	.001762072
Residual	.049946193	23	.002171574
Total	.092235916	47	.001962466

```
                                    Number of obs =      48
                                    F( 24,    23) =    0.81
                                    Prob > F      =  0.6928
                                    R-squared     =  0.4585
                                    Adj R-squared = -0.1066
                                    Root MSE      =   .0466
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.0591646	.1509044	0.39	0.699	-.2530049	.3713342
_It_6	.0149588	.0468901	0.32	0.753	-.0820407	.1119583
_It_7	.0476125	.0466551	1.02	0.318	-.0489009	.1441259
_It_8	.0984107	.048254	2.04	0.053	-.0014104	.1982317
_It_9	.0048225	.0466023	0.10	0.918	-.0915818	.1012268
_It_10	.0578933	.0468497	1.24	0.229	-.0390227	.1548092
_It_11	.0962865	.0475904	2.02	0.055	-.0021618	.1947348
_It_12	.1048312	.0467237	2.24	0.035	.0081759	.2014865
_It_13	.0197836	.0473468	0.42	0.680	-.0781606	.1177279
_It_14	.0623103	.0471482	1.32	0.199	-.0352232	.1598438
_It_15	.0604142	.0466121	1.30	0.208	-.0360104	.1568387
_It_16	.0917871	.0467027	1.97	0.062	-.0048248	.188399
_It_17	.0126473	.0484142	0.26	0.796	-.0875051	.1127998
_It_18	.0490673	.0495192	0.99	0.332	-.053371	.1515055
_It_19	.0493927	.0498061	0.99	0.332	-.053639	.1524243
_It_20	.080739	.048845	1.65	0.112	-.0203047	.1817826
_It_21	.0126386	.0475153	0.27	0.793	-.0856543	.1109315
_It_22	.0388463	.046693	0.83	0.414	-.0577455	.135438
_It_23	.0388637	.046842	0.83	0.415	-.0580363	.1357637
_It_24	.0571856	.0496221	1.15	0.261	-.0454655	.1598367
_It_25	.024884	.0485814	0.51	0.613	-.0756142	.1253822
_It_26	.0481711	.0477991	1.01	0.324	-.0507089	.1470511
_It_27	.0388283	.046648	0.83	0.414	-.0576705	.1353271
_It_28	.043196	.0666746	0.65	0.523	-.094731	.181123
_cons	.0050093	.0341329	0.15	0.885	-.0656001	.0756186
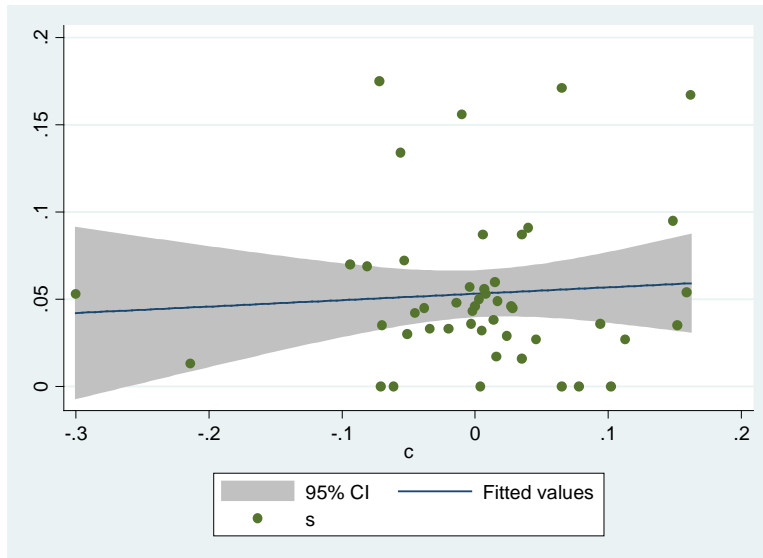
Health & Personal Care Stores (446)

```
. xi: regress s c i.t
i.t                 _It_5-28              (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.032360043	24	.001348335
Residual	.099213904	47	.002110934
Total	.131573947	71	.001853154

```
Number of obs =       72
F( 24,    47) =     0.64
Prob > F      =   0.8814
R-squared     =   0.2459
Adj R-squared =  -0.1391
Root MSE      =   .04594
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.3760749	.1071634	3.51	0.001	.16049	.5916599
_It_6	.0095072	.0375207	0.25	0.801	-.0659747	.084989
_It_7	.0513766	.0384573	1.34	0.188	-.0259894	.1287426
_It_8	.0307722	.0375792	0.82	0.417	-.0448273	.1063718
_It_9	.0483166	.0380977	1.27	0.211	-.028326	.1249593
_It_10	.0172364	.0375384	0.46	0.648	-.0582811	.0927539
_It_11	.0227094	.037514	0.61	0.548	-.052759	.0981779
_It_12	.072639	.0399923	1.82	0.076	-.0078151	.1530931
_It_13	.0330401	.0377266	0.88	0.386	-.042856	.1089362
_It_14	.063177	.0378697	1.67	0.102	-.0130071	.139361
_It_15	.0634678	.0386379	1.64	0.107	-.0142616	.1411972
_It_16	.0241254	.0375139	0.64	0.523	-.0513428	.0995935
_It_17	.0228434	.0375272	0.61	0.546	-.0526516	.0983383
_It_18	.0363083	.0388151	0.94	0.354	-.0417777	.1143943
_It_19	.0316244	.0384106	0.82	0.414	-.0456478	.1088967
_It_20	.0553966	.0389465	1.42	0.162	-.0229537	.133747
_It_21	.0689468	.0405774	1.70	0.096	-.0126844	.150578
_It_22	.0378181	.0381229	0.99	0.326	-.0388752	.1145114
_It_23	.0335843	.0377539	0.89	0.378	-.0423668	.1095354
_It_24	.0398978	.0380609	1.05	0.300	-.0366708	.1164665
_It_25	.0324647	.037818	0.86	0.395	-.0436153	.1085447
_It_26	.0327039	.0376974	0.87	0.390	-.0431334	.1085412
_It_27	.0536844	.0388428	1.38	0.173	-.0244572	.131826
_It_28	.1419538	.0526453	2.70	0.010	.0360451	.2478626
_cons	.0026549	.027055	0.10	0.922	-.0517727	.0570826
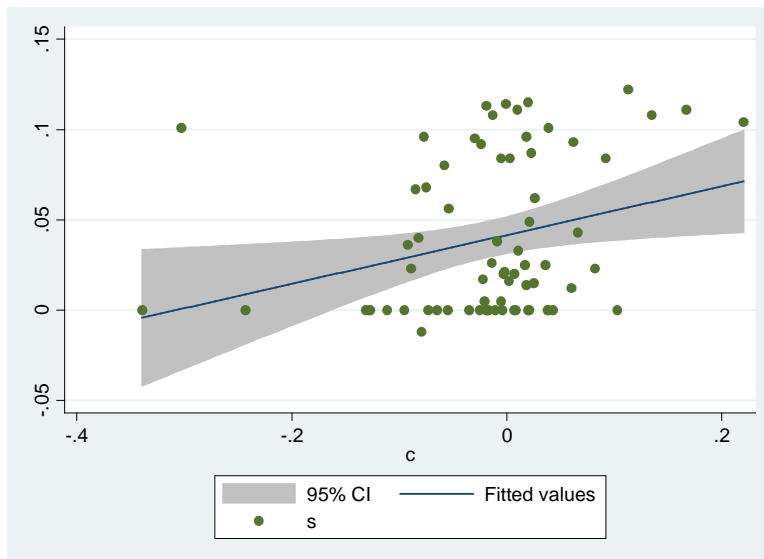
Clothing & Clothing Accessories Stores (448)

```
. xi: regress s c i.t
i.t               _It_5-28            (naturally coded; _It_5 omitted)
```

Source	SS	df	MS		
Model	.075266026	24	.003136084		
Residual	.393876118	95	.004146064		
Total	.469142144	119	.003942371		

```
Number of obs =    120
F( 24,   95) =    0.76
Prob > F     = 0.7797
R-squared    = 0.1604
Adj R-squared = -0.0517
Root MSE     = .06439
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.1774672	.0889505	2.00	0.049	.0008781	.3540563
_It_6	.0400602	.0428042	0.94	0.352	-.0449169	.1250374
_It_7	-.0211938	.0433181	-0.49	0.626	-.1071911	.0648034
_It_8	.0459619	.0416763	1.10	0.273	-.036776	.1286999
_It_9	.0613306	.0445909	1.38	0.172	-.0271935	.1498547
_It_10	.0674548	.0426271	1.58	0.117	-.0171707	.1520803
_It_11	.0489345	.0424826	1.15	0.252	-.035404	.1332731
_It_12	.0574239	.0439563	1.31	0.195	-.0298404	.1446882
_It_13	.0264907	.0413439	0.64	0.523	-.0555873	.1085687
_It_14	.050417	.0421957	1.19	0.235	-.033352	.1341861
_It_15	.0698338	.0433181	1.61	0.110	-.0161635	.155831
_It_16	.048406	.0424323	1.14	0.257	-.0358327	.1326447
_It_17	.0801777	.0432517	1.85	0.067	-.0056878	.1660433
_It_18	.062502	.0449907	1.39	0.168	-.0268159	.15182
_It_19	.0327469	.0437843	0.75	0.456	-.0541759	.1196697
_It_20	.0477716	.0446563	1.07	0.287	-.0408824	.1364257
_It_21	.0318929	.0472962	0.67	0.502	-.062002	.1257879
_It_22	.0224141	.0460132	0.49	0.627	-.0689336	.1137618
_It_23	.0236025	.0433546	0.54	0.587	-.0624672	.1096722
_It_24	.0207918	.0432278	0.48	0.632	-.0650263	.1066098
_It_25	.0465014	.0433852	1.07	0.287	-.039629	.1326318
_It_26	.0521322	.0427661	1.22	0.226	-.0327692	.1370335
_It_27	.0374119	.0445547	0.84	0.403	-.0510403	.1258642
_It_28	.0867875	.0582102	1.49	0.139	-.0287744	.2023493
_cons	-.0243689	.0325997	-0.75	0.457	-.0890875	.0403498
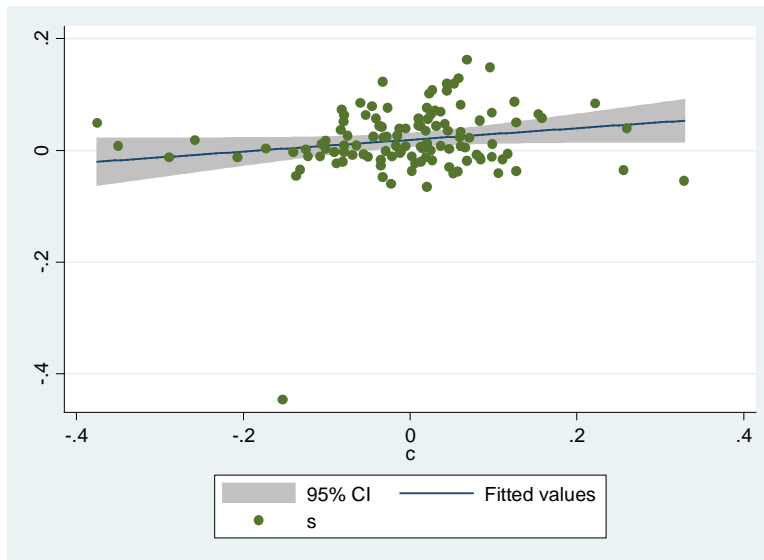
Sporting Goods, Hobby, Musical Instruments, and Book Stores (451)

```
. xi: regress s c i.t
i.t              _It_5-28           (naturally coded; _It_5 omitted)
```

Source	SS	df	MS		
Model	.115519651	24	.004813319		
Residual	.152651455	47	.003247903		
Total	.268171106	71	.003777058		

```
Number of obs =      72
F( 24,    47) =    1.48
Prob > F      =  0.1231
R-squared     =  0.4308
Adj R-squared =  0.1401
Root MSE      =  .05699
```

| s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.0442682	.0889076	0.50	0.621	-.1345909	.2231273
_It_6	-.01023	.0465329	-0.22	0.827	-.1038422	.0833821
_It_7	.0156159	.049046	0.32	0.752	-.0830518	.1142836
_It_8	-.0093209	.0475984	-0.20	0.846	-.1050765	.0864347
_It_9	.0269565	.0466465	0.58	0.566	-.0668842	.1207972
_It_10	.0473394	.0465374	1.02	0.314	-.0462819	.1409606
_It_11	.0272005	.0465332	0.58	0.562	-.0664122	.1208133
_It_12	.0094801	.0466325	0.20	0.840	-.0843323	.1032925
_It_13	.0012686	.0481002	0.03	0.979	-.0954965	.0980337
_It_14	-.0032497	.0473087	-0.07	0.946	-.0984227	.0919232
_It_15	.0265304	.0465884	0.57	0.572	-.0671933	.1202542
_It_16	.0357945	.0472928	0.76	0.453	-.0593463	.1309353
_It_17	.0707102	.0466465	1.52	0.136	-.0231305	.1645508
_It_18	.114039	.046614	2.45	0.018	.0202637	.2078143
_It_19	.0322013	.0466344	0.69	0.493	-.061615	.1260176
_It_20	.0172369	.0466892	0.37	0.714	-.0766898	.1111635
_It_21	-.0396485	.0465774	-0.85	0.399	-.1333501	.0540531
_It_22	-.082157	.0466286	-1.76	0.085	-.1759617	.0116477
_It_23	-.0652951	.0465362	-1.40	0.167	-.1589139	.0283237
_It_24	-.0287518	.0465687	-0.62	0.540	-.122436	.0649324
_It_25	-.0203057	.0467734	-0.43	0.666	-.1144017	.0737903
_It_26	.0153193	.0466507	0.33	0.744	-.0785297	.1091684
_It_27	-.0014105	.0465827	-0.03	0.976	-.0951229	.0923018
_It_28	.0100175	.0527311	0.19	0.850	-.0960638	.1160988
_cons	.0075876	.0329997	0.23	0.819	-.0587992	.0739744
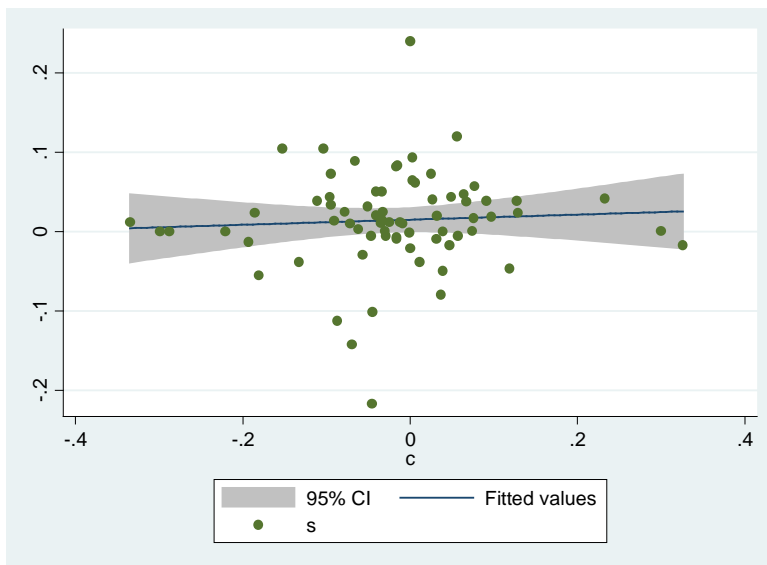
General Merchandize Stores (452)

```
. xi: regress s c i.t
i.t               _It_5-28              (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.094564135	24	.003940172
Residual	.669207794	335	.001997635
Total	.763771929	359	.002127498

Number of obs =	360
F(24, 335) =	1.97
Prob > F =	0.0048
R-squared =	0.1238
Adj R-squared =	0.0610
Root MSE =	.04469

| s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.2505119	.0540578	4.63	0.000	.1441765	.3568474
_It_6	.024785	.016435	1.51	0.132	-.0075439	.0571139
_It_7	.051434	.0167103	3.08	0.002	.0185636	.0843044
_It_8	.0263809	.0163897	1.61	0.108	-.0058587	.0586205
_It_9	.0330351	.0167355	1.97	0.049	.0001152	.065955
_It_10	.0427817	.0166601	2.57	0.011	.01001	.0755534
_It_11	.0357302	.0166297	2.15	0.032	.0030185	.068442
_It_12	.0490528	.0172474	2.84	0.005	.0151259	.0829798
_It_13	.0401678	.0164279	2.45	0.015	.0078529	.0724827
_It_14	.0427647	.0166537	2.57	0.011	.0100058	.0755236
_It_15	.0427808	.0170739	2.51	0.013	.0091953	.0763664
_It_16	.0172331	.0164121	1.05	0.294	-.0150506	.0495168
_It_17	.0275658	.0171244	1.61	0.108	-.0061191	.0612507
_It_18	.0197191	.0172335	1.14	0.253	-.0141804	.0536186
_It_19	.0159407	.0174084	0.92	0.360	-.0183028	.0501842
_It_20	.0308744	.0174235	1.77	0.077	-.0033988	.0651477
_It_21	.0417932	.0182125	2.29	0.022	.005968	.0776184
_It_22	.0268838	.0171675	1.57	0.118	-.0068859	.0606535
_It_23	.0191167	.0166958	1.15	0.253	-.0137251	.0519584
_It_24	.0405028	.0172463	2.35	0.019	.0065782	.0744274
_It_25	.0291253	.0169106	1.72	0.086	-.0041391	.0623896
_It_26	.047554	.0167906	2.83	0.005	.0145258	.0805823
_It_27	.0347099	.016948	2.05	0.041	.0013721	.0680478
_It_28	.1017309	.025126	4.05	0.000	.0523063	.1511555
_cons	-.010782	.0120241	-0.90	0.371	-.0344342	.0128702
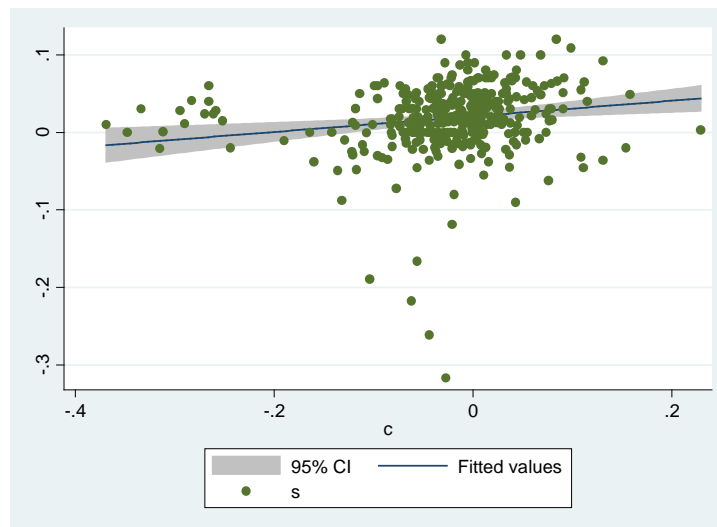
Miscellaneous Store Retailers (453)

```
. xi: regress s c i.t
i.t              _It_5-28              (naturally coded; _It_5 omitted)
```

Source	SS	df	MS
Model	.026943571	24	.001122649
Residual	.242021422	95	.002547594
Total	.268964992	119	.00226021

```
Number of obs =     120
F( 24,    95) =    0.44
Prob > F      =  0.9879
R-squared     =  0.1002
Adj R-squared = -0.1271
Root MSE      =  .05047
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.0773075	.078701	0.98	0.328	-.0789337	.2335488
_It_6	.014043	.0331128	0.42	0.672	-.0516942	.0797802
_It_7	.0342769	.0332901	1.03	0.306	-.0318122	.1003661
_It_8	-.0112014	.0332108	-0.34	0.737	-.0771332	.0547304
_It_9	.003661	.0342759	0.11	0.915	-.0643853	.0717072
_It_10	-.0024652	.0352711	-0.07	0.944	-.0724872	.0675568
_It_11	-.0254437	.0358176	-0.71	0.479	-.0965507	.0456632
_It_12	-.0108477	.0354539	-0.31	0.760	-.0812326	.0595372
_It_13	-.0137346	.0335266	-0.41	0.683	-.0802934	.0528242
_It_14	.0145104	.0345221	0.42	0.675	-.0540247	.0830455
_It_15	.0007039	.0352577	0.02	0.984	-.0692915	.0706993
_It_16	-.007936	.0345042	-0.23	0.819	-.0764355	.0605634
_It_17	.0062221	.0362259	0.17	0.864	-.0656954	.0781396
_It_18	-.0153624	.0362333	-0.42	0.673	-.0872947	.0565698
_It_19	.004275	.0354197	0.12	0.904	-.0660421	.0745921
_It_20	.0165707	.0357323	0.46	0.644	-.0543669	.0875084
_It_21	.0101947	.0381917	0.27	0.790	-.0656254	.0860149
_It_22	-.0194772	.0342989	-0.57	0.571	-.0875691	.0486147
_It_23	.001474	.0353316	0.04	0.967	-.0686681	.071616
_It_24	.0119194	.0352644	0.34	0.736	-.0580893	.081928
_It_25	.0103094	.0344448	0.30	0.765	-.0580721	.0786908
_It_26	.0143947	.0351252	0.41	0.683	-.0553377	.084127
_It_27	-.0076233	.033755	-0.23	0.822	-.0746354	.0593888
_It_28	.0099605	.0481132	0.21	0.836	-.0855563	.1054773
_cons	.0183744	.0269293	0.68	0.497	-.035087	.0718358
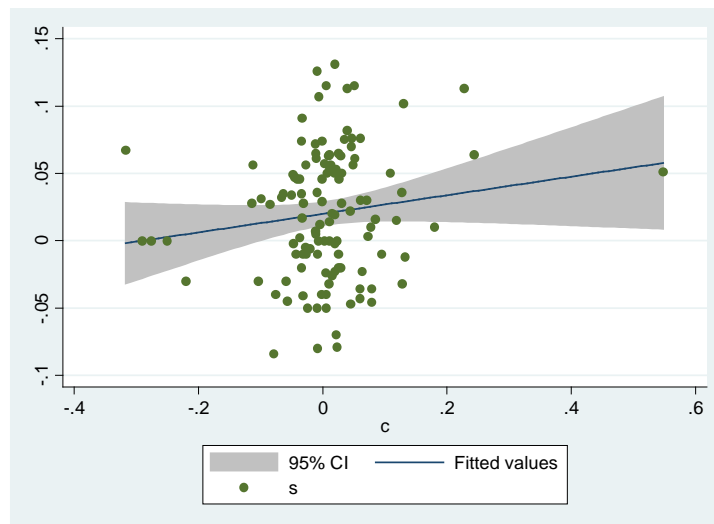
Restaurants (722)

```
. xi: regress s c i.t
i.t              _It_5-28           (naturally coded; _It_5 omitted)
```

Source	SS	df	MS		
Model	.037620208	24	.001567509		
Residual	.111077124	71	.001564467		
Total	.148697332	95	.001565235		

```
Number of obs =      96
F( 24,    71) =    1.00
Prob > F      = 0.4757
R-squared     = 0.2530
Adj R-squared = 0.0005
Root MSE      = .03955
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.1165241	.1087731	1.07	0.288	-.1003632	.3334115
_It_6	.0073994	.0285898	0.26	0.797	-.049607	.0644059
_It_7	.021132	.0292349	0.72	0.472	-.0371607	.0794247
_It_8	.0157309	.0280295	0.56	0.576	-.0401583	.0716201
_It_9	.02825	.0279684	1.01	0.316	-.0275175	.0840175
_It_10	.0286409	.0279748	1.02	0.309	-.0271393	.0844211
_It_11	.0302187	.0280144	1.08	0.284	-.0256404	.0860779
_It_12	.0390783	.0282264	1.38	0.171	-.0172034	.0953601
_It_13	.0417956	.0281279	1.49	0.142	-.0142899	.0978811
_It_14	.0543835	.0279686	1.94	0.056	-.0013844	.1101514
_It_15	.0288935	.0280242	1.03	0.306	-.0269852	.0847722
_It_16	.0342574	.0279774	1.22	0.225	-.0215279	.0900427
_It_17	.0186053	.0284975	0.65	0.516	-.0382171	.0754278
_It_18	-.0034821	.028482	-0.12	0.903	-.0602735	.0533094
_It_19	.0217197	.0288819	0.75	0.455	-.0358691	.0793085
_It_20	.0166249	.0286953	0.58	0.564	-.0405918	.0738417
_It_21	.0390937	.0290962	1.34	0.183	-.0189224	.0971097
_It_22	.0272574	.0279774	0.97	0.333	-.0285279	.0830427
_It_23	.0398326	.0279737	1.42	0.159	-.0159454	.0956106
_It_24	.0468649	.0283347	1.65	0.103	-.0096329	.1033627
_It_25	.040054	.0281645	1.42	0.159	-.0161045	.0962124
_It_26	.0241335	.0279686	0.86	0.391	-.0316344	.0799014
_It_27	.0071679	.0280594	0.26	0.799	-.0487809	.0631166
_It_28	-.0051158	.0418736	-0.12	0.903	-.0886094	.0783777
_cons	.034946	.020053	1.74	0.086	-.0050385	.0749306
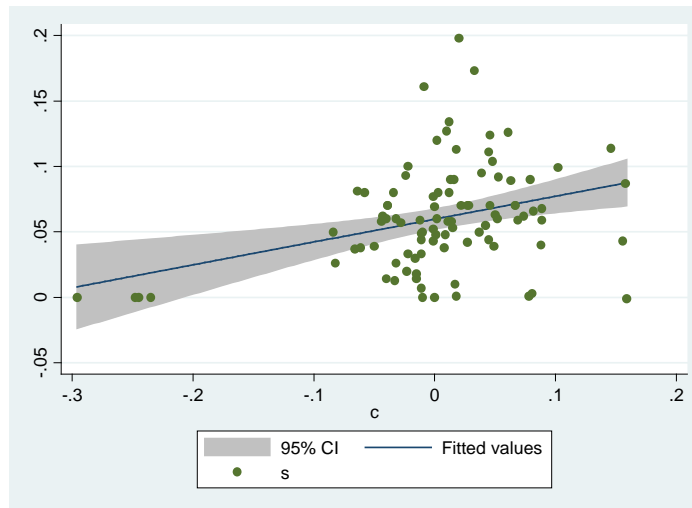
Industry Bucket Panel Analysis (Bucket and Time Fixed-Effects)

```
. xi: regress s c i.t i.b
i.t            _It_5-28           (naturally coded; _It_5 omitted)
i.b            _Ib_441-722        (naturally coded; _Ib_441 omitted)
```
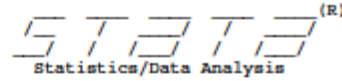
Source	SS	df	MS			
Model	.742652609	34	.021842724			
Residual	3.54405456	1141	.003106095			
Total	4.28670717	1175	.003648261			

```
                                             Number of obs =     1176
                                             F( 34,  1141) =     7.03
                                             Prob > F      =   0.0000
                                             R-squared     =   0.1732
                                             Adj R-squared =   0.1486
                                             Root MSE      =   .05573
```

s	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
c	.2143001	.0232017	9.24	0.000	.1687772	.259823
_It_6	.026861	.0113211	2.37	0.018	.0046484	.0490736
_It_7	.057026	.0113458	5.03	0.000	.0347651	.079287
_It_8	.0395491	.0113625	3.48	0.001	.0172553	.0618429
_It_9	.0448548	.0114827	3.91	0.000	.0223252	.0673844
_It_10	.0568932	.0114744	4.96	0.000	.0343798	.0794065
_It_11	.0436937	.0114697	3.81	0.000	.0211896	.0661978
_It_12	.0517058	.0115663	4.47	0.000	.0290121	.0743995
_It_13	.0446628	.0113543	3.93	0.000	.0223851	.0669404
_It_14	.0618224	.0114371	5.41	0.000	.0393822	.0842626
_It_15	.0554683	.0115467	4.80	0.000	.0328131	.0781235
_It_16	.0449497	.011375	3.95	0.000	.0226314	.067268
_It_17	.0493961	.011563	4.27	0.000	.026709	.0720832
_It_18	.0410779	.0116004	3.54	0.000	.0183175	.0638383
_It_19	.0419248	.011595	3.62	0.000	.0191749	.0646748
_It_20	.0595645	.0116696	5.10	0.000	.0366682	.0824608
_It_21	.0571764	.0118916	4.81	0.000	.0338446	.0805083
_It_22	.0321394	.0115136	2.79	0.005	.0095492	.0547296
_It_23	.0326822	.0114659	2.85	0.004	.0101857	.0551788
_It_24	.0444324	.011554	3.85	0.000	.0217629	.0671019
_It_25	.0430593	.0115495	3.73	0.000	.0203987	.0657199
_It_26	.0536511	.0115411	4.65	0.000	.031007	.0762953
_It_27	.0360781	.0115139	3.13	0.002	.0134873	.0586689
_It_28	.0922392	.0143629	6.42	0.000	.0640585	.1204198
_Ib_442	.0474943	.0095343	4.98	0.000	.0287876	.066201
_Ib_443	.0164419	.0113775	1.45	0.149	-.0058812	.038765
_Ib_444	.0400259	.0103858	3.85	0.000	.0196484	.0604034
_Ib_445	.0464611	.0113797	4.08	0.000	.0241336	.0687887
_Ib_446	.0367749	.0103864	3.54	0.000	.0163964	.0571534
_Ib_448	.0129989	.0095191	1.37	0.172	-.0056781	.0316759
_Ib_451	.0127571	.0103884	1.23	0.220	-.0076253	.0331395
_Ib_452	.0173719	.0085715	2.03	0.043	.0005542	.0341895
_Ib_453	.0131635	.0095236	1.38	0.167	-.0055223	.0318493
_Ib_722	.0535608	.0098568	5.43	0.000	.0342214	.0729002
_cons	-.0402431	.0114332	-3.52	0.000	-.0626756	-.0178105

Panel Analysis Report of Stock Return vs. Change in PLCC (Firm Fixed Effect) – Quarterly Lag

```
                                              (R)
                  5 7 3 7 3
                  Statistics/Data Analysis

                        User: Ju Tan
          Project: Stern - Glucksman Securities Market Research{space -22}
. xi: regress eq plcc i.ticker
i.ticker        _Iticker_1-51      (_Iticker_1 for ticker==AAP omitted)
```

Source	SS	df	MS		
Model	1.65743868	51	.032498798		
Residual	51.7956093	1263	.041009984		
Total	53.453048	1314	.040679641		

Number of obs = 1315
F(51, 1263) = 0.79
Prob > F = 0.8527
R-squared = 0.0310
Adj R-squared = -0.0081
Root MSE = .20251

eq	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
plcc	-.0255113	.0132381	-1.93	0.054	-.0514823	.0004597
_Iticker_2	-.0012881	.056168	-0.02	0.982	-.1114809	.1089048
_Iticker_3	-.0267208	.0561676	-0.48	0.634	-.1369128	.0834711
_Iticker_4	-.0543875	.0561663	-0.97	0.333	-.164577	.0558021
_Iticker_5	-.0305528	.0561666	-0.54	0.587	-.1407429	.0796374
_Iticker_6	-.0260584	.0561666	-0.46	0.643	-.1362486	.0841318
_Iticker_7	-.0616115	.0561661	-1.10	0.273	-.1718007	.0485776
_Iticker_8	-.0053754	.0573345	-0.09	0.925	-.1178567	.107106
_Iticker_9	.0030598	.0561673	0.05	0.957	-.1071317	.1132513
_Iticker_10	.0325927	.0561666	0.58	0.562	-.0775975	.1427828
_Iticker_11	-.0376656	.0561699	-0.67	0.503	-.1478622	.0725311
_Iticker_12	-.0095581	.0561667	-0.17	0.865	-.1197484	.1006322
_Iticker_13	-.0058322	.0561774	-0.10	0.917	-.1160435	.104379
_Iticker_14	.0476941	.0561693	0.85	0.396	-.0625013	.1578895
_Iticker_15	-.0066457	.0579747	-0.11	0.909	-.120383	.1070917
_Iticker_16	-.0095057	.0561661	-0.17	0.866	-.1196948	.1006834
_Iticker_17	-.0009526	.056168	-0.02	0.986	-.1111455	.1092403
_Iticker_18	.0106349	.0561665	0.19	0.850	-.099555	.1208247
_Iticker_19	-.0207415	.0561733	-0.37	0.712	-.1309448	.0894618
_Iticker_20	.0073841	.0561665	0.13	0.895	-.1028058	.1175739
_Iticker_21	-.0832737	.0561702	-1.48	0.138	-.1934709	.0269236
_Iticker_22	-.084818	.0561686	-1.51	0.131	-.195012	.0253759
_Iticker_23	-.0001245	.0561718	-0.00	0.998	-.1103249	.1100759
_Iticker_24	.0005881	.0561679	0.01	0.992	-.1096045	.1107807
_Iticker_25	-.0074184	.056168	-0.13	0.895	-.1176113	.1027745
_Iticker_26	-.0532458	.0561742	-0.95	0.343	-.1634507	.0569592
_Iticker_27	-.0554298	.0561882	-0.99	0.324	-.1656624	.0548027
_Iticker_28	-.0032594	.0561673	-0.06	0.954	-.1134509	.1069322
_Iticker_29	.0095618	.0561798	0.17	0.865	-.1006542	.1197777
_Iticker_30	-.0058853	.0561677	-0.10	0.917	-.1160776	.1043071
_Iticker_31	-.0178094	.0561699	-0.32	0.751	-.128006	.0923872
_Iticker_32	.0024931	.0579687	0.04	0.966	-.1112324	.1162186
_Iticker_33	.0398345	.056169	0.71	0.478	-.0703603	.1500292
_Iticker_34	-.0117076	.056166	-0.21	0.835	-.1218966	.0984814
_Iticker_35	.0506456	.0561723	0.90	0.367	-.0595557	.1608469
_Iticker_36	.0073901	.0561665	0.13	0.895	-.1027998	.1175801
_Iticker_37	.0330117	.056166	0.59	0.557	-.0771772	.1432006
_Iticker_38	-.0078896	.0561684	-0.14	0.888	-.1180832	.102304
_Iticker_39	-.0767944	.0561678	-1.37	0.172	-.1869869	.0333981
_Iticker_40	.0020225	.0561748	0.04	0.971	-.1081837	.1122286
_Iticker_41	.0097313	.056166	0.17	0.862	-.1004575	.1199201
_Iticker_42	-.0685472	.0561676	-1.22	0.223	-.1787393	.0416449
_Iticker_43	-.0536763	.0561688	-0.96	0.339	-.1638708	.0565182
_Iticker_44	-.0219792	.056166	-0.39	0.696	-.1321681	.0882098
_Iticker_45	.0088813	.0561668	0.16	0.874	-.1013091	.1190717
_Iticker_46	.0285664	.0561663	0.51	0.611	-.0816232	.138756
_Iticker_47	-.0030641	.0561676	-0.05	0.957	-.1132562	.107128
_Iticker_48	.0651845	.0561688	1.16	0.246	-.0450099	.175379
_Iticker_49	-.0049195	.0561691	-0.09	0.930	-.1151145	.1052754
_Iticker_50	-.0464624	.0561701	-0.83	0.408	-.1566594	.0637346
_Iticker_51	.0307253	.0579694	0.53	0.596	-.0830017	.1444522
_cons	.0591545	.0397161	1.49	0.137	-.0187624	.1370713

Panel Analysis Report of Stock Return vs. Change in PLCC (Firm Fixed Effect) – Monthly Lag

Wednesday April 13 23:00:55 2016   Page 1
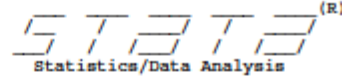
```
                                  _____(R)
                                 /     /     / /
                                /     /     / /
                               /_____/    / /___/
                               Statistics/Data Analysis
```
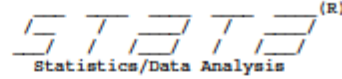
User: Ju Tan
Project: Stern - Glucksman Securities Market Research(space -22)
. xi: regress eq plcc i.ticker
i.ticker   _Iticker_1-51   (_Iticker_1 for ticker==AAP omitted)

Source	SS	df	MS			
				Number of obs =		4156
				F(51, 4104) =		0.82
Model	.592903174	51	.011625552	Prob > F =		0.8179
Residual	58.2915364	4104	.014203591	R-squared =		0.0101
				Adj R-squared =		-0.0022
Total	58.8844395	4155	.014171947	Root MSE =		.11918

eq	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
plcc	.0058756	.0046222	1.27	0.204	-.0031865	.0149376
_Iticker_2	.0016347	.0186126	0.09	0.930	-.0348562	.0381255
_Iticker_3	-.0094305	.0186126	-0.51	0.612	-.0459213	.0270604
_Iticker_4	-.0165446	.0186126	-0.89	0.374	-.0530354	.0199463
_Iticker_5	-.0101581	.0186128	-0.55	0.585	-.0466492	.0263331
_Iticker_6	-.0044167	.0186127	-0.24	0.812	-.0409076	.0320743
_Iticker_7	-.0160321	.0186126	-0.86	0.389	-.0525229	.0204588
_Iticker_8	.0046478	.0187286	0.25	0.804	-.0320705	.041366
_Iticker_9	.0043853	.0187287	0.23	0.815	-.0323331	.0411038
_Iticker_10	.010396	.0186126	0.56	0.577	-.0260948	.0468868
_Iticker_11	-.0104628	.0186133	-0.56	0.574	-.0469549	.0260293
_Iticker_12	-.0019651	.0186126	-0.11	0.916	-.038456	.0345257
_Iticker_13	-.0037485	.0186133	-0.20	0.840	-.0402406	.0327435
_Iticker_14	.0166209	.0186128	0.89	0.372	-.0198702	.053112
_Iticker_15	-.0060151	.0192483	-0.31	0.755	-.0437522	.031722
_Iticker_16	-.0037968	.0186126	-0.20	0.838	-.0402876	.032694
_Iticker_17	.0002149	.0186127	0.01	0.991	-.036276	.0367058
_Iticker_18	.0007593	.0186126	0.04	0.967	-.0357315	.0372501
_Iticker_19	-.0071629	.018613	-0.38	0.700	-.0436544	.0293287
_Iticker_20	.0045263	.0186126	0.24	0.808	-.0319645	.0410171
_Iticker_21	-.0358807	.0186129	-1.93	0.054	-.0723721	.0006107
_Iticker_22	-.0276759	.0186127	-1.49	0.137	-.0641668	.008815
_Iticker_23	.0011401	.0186126	0.06	0.951	-.0353507	.0376309
_Iticker_24	.0018875	.0186126	0.10	0.919	-.0346033	.0383784
_Iticker_25	-.0037682	.0186126	-0.20	0.840	-.0402591	.0327227
_Iticker_26	-.0150538	.0186129	-0.81	0.419	-.0515452	.0214377
_Iticker_27	-.0139026	.0186134	-0.75	0.455	-.0503949	.0225897
_Iticker_28	-.0010259	.0186128	-0.06	0.956	-.037517	.0354653
_Iticker_29	-.0001994	.0186129	-0.01	0.991	-.0366907	.0362919
_Iticker_30	-.0123127	.0186127	-0.66	0.508	-.0488038	.0241784
_Iticker_31	.0008747	.0186128	0.05	0.963	-.0356164	.0373658
_Iticker_32	.0012496	.0191777	0.07	0.948	-.0363491	.0388483
_Iticker_33	.0170171	.0186127	0.91	0.361	-.0194739	.053508
_Iticker_34	-.0034919	.0186126	-0.19	0.851	-.0399827	.0329989
_Iticker_35	.0205511	.0186128	1.10	0.270	-.0159402	.0570424
_Iticker_36	.004912	.0186126	0.26	0.792	-.0315788	.0414028
_Iticker_37	.0123792	.0186127	0.67	0.506	-.0241119	.0488703
_Iticker_38	-.0027256	.0186129	-0.15	0.884	-.0392169	.0337657
_Iticker_39	-.0239661	.0186127	-1.29	0.198	-.0604571	.012525
_Iticker_40	.0025935	.018613	0.14	0.889	-.0338981	.0390851
_Iticker_41	.0101835	.0186126	0.55	0.584	-.0263073	.0466743
_Iticker_42	-.0209483	.0186127	-1.13	0.260	-.0574392	.0155426
_Iticker_43	-.016238	.0186128	-0.87	0.383	-.0527292	.0202533
_Iticker_44	-.0076358	.0186126	-0.41	0.682	-.0441267	.028855
_Iticker_45	.0054046	.0186126	0.29	0.772	-.0310862	.0418954
_Iticker_46	.0095906	.0186127	0.52	0.606	-.0269004	.0460816
_Iticker_47	.0017369	.0186127	0.09	0.926	-.034754	.0382279
_Iticker_48	.0212741	.0186127	1.14	0.253	-.0152168	.0577651
_Iticker_49	.0020056	.0186128	0.11	0.914	-.0344857	.0384968
_Iticker_50	-.0150329	.0186126	-0.81	0.419	-.0515237	.021458
_Iticker_51	.0072232	.0187886	0.38	0.701	-.0296127	.0440592
_cons	.0200521	.0131612	1.52	0.128	-.005751	.0458551

Panel Analysis Report of Stock Return vs. Change in PLCC (Firm Fixed Effect) – Weekly Lag

```
                                            ___  ___  ___  ___  ___ (R)
                                           /__    /   /___   /   /___
                                          ___/   /   /   /  /   /___
                                           Statistics/Data Analysis
```

User: Ju Tan
Project: Stern - Glucksman Securities Market Research{space -22}

```
. xi: regress eq plcc i.ticker
i.ticker         _Iticker_1-51      (_Iticker_1 for ticker==AAP omitted)
```

Source	SS	df	MS
Model	.311728594	51	.006112325
Residual	109.539023	15142	.007234119
Total	109.850751	15193	.007230353

Number of obs = 15194
F(51, 15142) = 0.84
Prob > F = 0.7763
R-squared = 0.0028
Adj R-squared = -0.0005
Root MSE = .08505

eq	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
plcc	-.00222	.0019593	-1.13	0.257	-.0060604	.0016205
_Iticker_2	.000744	.0067098	0.11	0.912	-.012408	.013896
_Iticker_3	-.0023102	.0067507	-0.34	0.732	-.0155425	.010922
_Iticker_4	-.003348	.0066899	-0.50	0.617	-.0164611	.009765
_Iticker_5	-.0021418	.0067613	-0.32	0.751	-.0153947	.0111111
_Iticker_6	-.0009378	.0067455	-0.14	0.889	-.0141598	.0122842
_Iticker_7	-.0037801	.0067249	-0.56	0.574	-.0169618	.0094015
_Iticker_8	.0056341	.0067612	0.83	0.405	-.0076188	.0188869
_Iticker_9	-.0029631	.0084187	-0.35	0.725	-.0194647	.0135385
_Iticker_10	.0026305	.00673	0.39	0.696	-.0105612	.0158221
_Iticker_11	-.0037551	.0094842	-0.40	0.692	-.0223452	.014835
_Iticker_12	.0002876	.0067721	0.04	0.966	-.0129866	.0135617
_Iticker_13	-.000369	.0067351	-0.05	0.956	-.0135707	.0128327
_Iticker_14	.0041266	.0067935	0.61	0.544	-.0091896	.0174427
_Iticker_15	-.0005032	.0069343	-0.07	0.942	-.0140952	.0130888
_Iticker_16	-.0018521	.0067772	-0.27	0.785	-.0151363	.0114321
_Iticker_17	.0014051	.0066948	0.21	0.834	-.0117176	.0145278
_Iticker_18	-.0010509	.0068213	-0.15	0.878	-.0144214	.0123196
_Iticker_19	-.0035258	.0070753	-0.50	0.618	-.0173943	.0103427
_Iticker_20	.0015393	.0066899	0.23	0.818	-.0115738	.0146524
_Iticker_21	-.0144237	.00704	-2.05	0.040	-.028223	-.0006244
_Iticker_22	-.0071321	.0066948	-1.07	0.287	-.0202548	.0059905
_Iticker_23	-.0026439	.0073862	-0.36	0.720	-.0171217	.0118339
_Iticker_24	.0025048	.00704	0.36	0.722	-.0112945	.016304
_Iticker_25	.0001733	.0067249	0.03	0.979	-.0130083	.0133549
_Iticker_26	-.0022735	.0066899	-0.34	0.734	-.0153865	.0108396
_Iticker_27	-.0061214	.0074241	-0.82	0.410	-.0206736	.0084307
_Iticker_28	-.0005644	.0067097	-0.08	0.933	-.0137163	.0125876
_Iticker_29	-.0009565	.0067099	-0.14	0.887	-.0141086	.0121956
_Iticker_30	.0006736	.0084186	0.08	0.936	-.0158279	.0171752
_Iticker_31	-.0017892	.0067935	-0.26	0.792	-.0151053	.0115269
_Iticker_32	.0009171	.0068269	0.13	0.893	-.0124645	.0142986
_Iticker_33	.0011463	.0066899	0.17	0.864	-.0119667	.0142593
_Iticker_34	.0058388	.00673	0.87	0.386	-.0073528	.0190305
_Iticker_35	-.014994	.0067772	-2.21	0.027	-.0282782	-.0017098
_Iticker_36	.0015138	.0066998	0.23	0.821	-.0116186	.0146462
_Iticker_37	.004009	.0067048	0.60	0.550	-.0091331	.0171512
_Iticker_38	.0002306	.0068792	0.03	0.973	-.0132534	.0137146
_Iticker_39	-.0061055	.0067148	-0.91	0.363	-.0192674	.0070564
_Iticker_40	.0004767	.0067249	0.07	0.943	-.0127049	.0136584
_Iticker_41	-.0014637	.0069033	-0.21	0.832	-.014995	.0120675
_Iticker_42	-.0045969	.0066948	-0.69	0.492	-.0177196	.0085258
_Iticker_43	-.0044503	.0075035	-0.59	0.553	-.019158	.0102575
_Iticker_44	-.0014772	.0066948	-0.22	0.825	-.0145999	.0116455
_Iticker_45	.0015653	.0066899	0.23	0.815	-.0115478	.0146784
_Iticker_46	.0024618	.0067935	0.36	0.717	-.0108543	.0157779
_Iticker_47	-.0153571	.0068045	-2.26	0.024	-.0286948	-.0020194
_Iticker_48	.0045701	.0067665	0.68	0.499	-.0086931	.0178333
_Iticker_49	.0012264	.0069218	0.18	0.859	-.0123411	.0147939
_Iticker_50	-.003058	.0066949	-0.46	0.648	-.0161808	.0100647
_Iticker_51	-.0002227	.0078257	-0.03	0.977	-.015562	.0151166
_cons	.0035787	.0047922	0.75	0.455	-.0058146	.0129721