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Do Professional Investors Behave Differently than Amateurs After the Weekend?

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By

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Abstract

This paper compares the trading patterns of amateurs to that of professional investors during the days following the weekend. The comparison is based on all the daily transactions of a sample of both amateurs and professionally managed investors in a major brokerage house in Israel between 1994-1998. We find that weekends influence both amateurs and professional investors, however they affect professionals and amateurs in opposite directions. The results are consistent with previous hypotheses about the effects of the weekend on individuals and institutions in the US and with the way these differences may explain the weekend effect in returns in the US and in other markets. The results are also consistent with the absence of a weekend effect in returns in Israel during the period examined, since the conflicting effects of the weekend on individuals and professionally managed investors may have canceled each other.

On Weekend Effects: Do Professional Investors Behave Differently than Amateurs?

I. Introduction

Some explanations of the Weekend effect rely on the differential behavior of amateurs vs. professional investors.[1] These explanations suggest that small investors tend to transact more on Mondays and moreover, and that small investors are more likely to sell rather than buy after the weekend.[2] According to these theories, the selling pressure by individuals, who are more likely to trade in smaller stocks, may lead to the Weekend Effect. These authors propose that small investors are busy at work during the week and consider trading decisions mainly during the weekend and consequently they are more likely to trade (either buy or sell) on Mondays. Professional and institutional investors sometimes use the beginning of the week in planning for the rest of the week and this causes reduced activity. Small investors, according to these theories, are more likely to sell rather than buy on Mondays since even when the decision of the individual investor is to buy, because of liquidity considerations this decision will be preceded with a sell.[3]

In this paper we examine the extent to which buy/sell decisions by amateurs and professionals are affected by the weekend, and whether these effects are the same for these two types of investors. In particular, we test if there is an overall tendency of amateur investors to trade more following the weekend, and whether this tendency is

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[1] The weekend effect appears in multitude of versions. Originally, see, e.g., French,1980, it refers to the tendency of average returns following the weekend to be negative.
[2] This hypothesis was first introduced by Osborne, 1962, and later elaborated on by Lakonishok and Maberly, 1990, Miller, 1988, and Ritter, 1988.
[3] See, e.g., Lakonishok and Maberly, 1990.

stronger for sell transactions than for buy transactions. This will shed some light on the above theories explanations of the weekend effect.

Our main tool of analysis is a proprietary data set from a large brokerage house in Israel, detailing all the transactions of amateurs and professional investors trading through this brokerage house during the period 1994-1998.

The differential effects of weekends on individuals and institutions have been examined before by Abraham and Ikenberry, 1994, Brockman and Michayluk, 1998, Chan, Leung, and Wang, 2003, Kamara, 1997, and Lakonishok and Maberly, 1990. In these papers however, the behavior of professionals was not observed directly but was inferred from the behavior of large stocks (which presumably are held more often by professionals or large institutions managed by professionals). [4] Chan, Leung, and Wang, 2003, show that during the period 1981-1998, the mean Monday returns of stock portfolios (traded on NASDAQ, NYSE, and AMEX) with a higher percentage of institutional investors are significantly higher than that of stock portfolios with a lower percentage of institutional investors. They also find that the average Monday returns of stock portfolios with high institutional holdings are positive during the 1990-1998 period and that the Monday effect disappears after 1989. Based on this and other observations of returns' trends in the period they study, Chan, Leung, and Wang argue that the Weekend Effect could be due to the trading activities of less sophisticated individual investors. Their results conflict somewhat with the findings of Sias and Starks, 1995, who found no evidence for a weekend effect for the period 1977-1991 [5]. Chan, Leung, and Wang, 2003,

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[4] An interesting direct comparison between institutions and individuals, although not directly related to the weekend effect is provided by Nofsinger, 2000, who finds differences between the reaction of individuals and institutions to public news.
[5] They found however a Monday effect conditional on previous Friday return and size.

suggest that the difference may be attributable to the different periods covered, and the increase in the number of institutional traders in the period following Sias and Starks' 1995 study.

Our study provides more powerful tests of the above hypotheses since it relies on direct observations of daily trading data of amateurs and professionals instead of proxies for their behavior. In addition, the Weekend Effect is not the same in all markets. For example, Wang, Li, and Erickson, 1997, show that the Monday effect is more severe in the NASDAQ market than in the NYSE during the 1962-1993 period. Thus, analysis of the relationship between the weekend effect and the difference in behavior between amateurs and professionals in markets outside the US adds to the generality of the theories on the weekend effect.

The paper is organized as follows: In Section II we describe the data. In Section III, the weekend effect is analyzed. Section IV concludes.

II. The Data

The data consist of records of all investment transactions of 2428 managed and 7429 independent clients of one of the largest banks in Israel (banks in Israel also act as brokerage houses) during the period January 1, 1994-December 31, 1998. Independent clients manage their own portfolios, but process their transactions through the bank. Managed clients solicit the assistance of professional portfolio and money managers (PMMs) who also act as brokers. Most of these PMMs are not members of the Tel Aviv Stock Exchange (TASE), so they execute their transactions through an exchange member,

(usually a large bank or another financial institution). When a client chooses to have her portfolio managed by a PMM, she opens an account at the bank and authorizes the PMM to manage it.

Our database consists of all the transactions of clients, both independent and managed that had accounts on January 1st 1994. These are investors who maintained their portfolios in the bank from 1994 through the end of 1998. In Table 1 we present the composition of clients through the period studies. We count as clients in any given year only those who transacted at least once during that year. Since the sample consists of only those investors who were clients in 1994, the number of traders declined over the years as some clients left the bank. The relative number of amateurs increased, implying that the rate of attrition was higher for managed than for independent accounts. [6] We take this into consideration in our analysis. The number of amateurs is larger than the number of professionals. However, since the professionals traded almost 5 times more frequently than the amateurs, there were no significant differences between the groups in terms of total volume and total number of transactions.[7]

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[6] In addition, there is some "survivor bias" since those who transacted in the years following 1994, were those satisfied with the bank, but there is no reason to believe this has an effect on the behavioral issues investigated in this paper.

[7] Since transaction costs are about the same for both types of clients (see Shapira and Venezia, 2001), the huge difference in frequency of transactions indicates an intrinsic difference in the behavior of both types of investors.

III. The weekend effect

III.1. The Effect of Weekends on the Relative Activities of Amateurs vs. professionals

We first explore how the relative activities of amateurs vis a vis professionals differ on Sundays from the other days of the week.[8] We start our analysis with the investigation of the relative activities of the two groups since such variables are central in the above literature explaining the weekend effect. We then analyze the components of the relative activities. The first variables we analyze are: ABRI (Amateurs' Buy Relative Intensity), and ASRI (Amateurs' Sell Relative Intensity). ABRI, is the proportion of buy transactions performed by amateurs during any day, t, out of the total number of buy transactions performed during that day (by amateurs and professionals). ASRI is defined likewise for sell transactions.[9] Equivalently we also define AVBRI and AVSRI, where dollar volumes replace the number of transactions.[10] We distinguish between dollar volumes and number of transactions variables since it has been previously found that amateurs and professionals differ in the average volume and the average frequency of their trades (Shapira and Venezia, 2001). The number of transactions may be more indicative of decisions of whether or not to transact, while volume measures can be affected by prices, which in turn may be influenced by decisions and by weekend effect. Note that while the magnitudes of the above variables depend on the number of clients the bank had of each type, short-term variations in these variables would indicate which

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[8] In Israel Sunday is the first day following the weekend that consists of Friday and Saturday. In what follows we refer to Sunday or Monday interchangeably as designators for the day immediately following the weekend in the relevant market.

[9] In our notation A stands for Amateurs, R for relative, I for intensity, V for volume, B for buy, and S for sell.

[10] The amounts stated were actually in Shekels, the Israeli currency. During the sample period the exchange rate of the Israeli Shekel followed a rising trend from about 2.50 IS/$ to 4.00 IS/$.

factors differentially affect the decisions of amateurs and professionals to engage in trades.

We first tested whether the above measures differ on Sundays from the other days of the week. To this end we regressed ABRI, AVBRI, ASRI, and AVSRI on DSUN, a dummy variable for Sunday, and on control variables.

The control factors we consider are: the number of shares traded in the whole stock market (Market Volume), Tel-Aviv Stock Market Price Index (Market Price Index), a trend variable (t), Dummy variables for Monday, Tuesday, and Wednesday, and DUP, a dummy variable for the period January 1997-December 1998, a period where the Tel-Aviv Stock Market Price Index generally went up.[11] The first two variables were chosen as they have been shown in the literature to be correlated with investors' activity. Dummy variables were introduced for other week days to test whether Sunday is unique among all weekdays in its effect on relative activities of amateurs vs. professionals. We added a trend variable since by construction the number of clients in our sample declined with time.

The results of the regressions are presented in Table 2. In all these regressions the coefficients of DSUN turned out significantly positive, implying that the relative activity of amateurs compared to professionals is higher on Sundays than on other days of the week.[12] The coefficient of DSUN in the ABRI (ASRI) regression is 0.038 (0.046)

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[11] We do not use Friday or Saturday dummy variables since there is no trading on these days. A Thursday dummy is not added to avoid multicollinearity as the regressions include an intercept.

[12] The significance level of DSUN in the AVSRI regression is 0.13 that makes it statistically insignificant. However we ran also the regressions of the above dependent variables without the other days of the week dummy variables, and with different subsets of the control variables, and in all these regressions the coefficients of DSUN turned out significant, and of the same order of magnitude as those currently presented. We prefer to show the regressions with all the weekdays dummy variables (although they turned out insignificant) to underscore the uniqueness of Sundays.

meaning that on Sundays the percentage of buy (sell) transactions made by amateurs is higher by 3.8% (4.6%) than on the other days of the week. Similar positive effects have also been found for AVBRI and AVSRI, corroborating that after the weekend the intensity of trading activity of amateurs relative to professionals is stronger than in the other days of the week. The dummy variables for DMON, DTUE, and DWED are not significantly different from zero, demonstrating that only Sunday, among weekdays, has a special effect on the relative activities of amateurs vs. professionals. [13]

III.2. The Effect of the Weekend on the Aggregate Activities of Amateurs and Professionals.

The former subsection demonstrates that the relative amounts of trading by professionals and amateurs differ on the day following the weekend. In the ensuing discussion we explore what causes the higher relative intensity of amateurs' trading. Is it due to higher activity of amateurs, lower activity of professionals, or some other differential change in the propensity to transact? A partial answer to this question is provided in Table 3, where we present the average number of transactions during Sundays and during the other days of the week. The figures for professionals and amateurs are presented separately. One observes from this table that on Sundays amateurs increase the number of both their buy and sell trades relative to the other days of the week, whereas professionals do the opposite.[14] For professionals the percentage differences between the average number of

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[13] Except for Tuesday's dummy variable for AVBRI that is significant (p<0.05). The significant and positive coefficients of the variable Market Price Index indicate that increases in contemporaneous stock market prices positively affect the relative activities (both buy and sell) of amateurs vs. professionals. Aggregate stock market activity, represented by the variable "Market Volume" appears to affect only the buy intensity of amateurs relative to professionals. DUP turned out to be mainly insignificant, and was therefore dropped from the list of explanatory variables in the following regressions.

[14] We do not calculate t-statistics since in this table we do not control for other explanatory variables. Significant tests that account for these variables are provided in the forthcoming analysis.

transactions on Sundays and the rest of the week are about the same for buy and sell trades (a 6.38% decrease in buy transactions vs. a 6.79% decrease in sell transactions). For amateurs however, the positive effect of Sundays on sell transactions is much higher than that on buy transactions (18.88% vs. 9.62%). The average of monetary volume per transaction for both professionals and amateurs are about the same on Sundays as on other days of the week.

We next investigate the effect of DSUN on the trading activities of the two groups while controlling for other explanatory variables. We consider the following variables: ANB (amateurs' number of buy trades), PNB (professionals' number of buy trades), AVB (amateurs' volume of buy trades), PVB (professionals' volume of buy trades), ANS, PNS, AVS, PVS (similarly defined for sales), TNB, TVB, TNS, TVB (similarly defined for totals, combining amateur and professionals), TNX, and TVX (defined for totals across buy, sale, amateurs and professionals).[15] These activities were each regressed on the control variables and on DSUN.

The results of these regressions, presented in Table 4, confirm the observations made based upon the simple comparisons of the previous table. [16] One notes from Table 4 that on Sundays amateurs increase the number of both their buy and sell transactions, as the coefficients for DSUN for amateurs, for the regression of Ln (ANB), and Ln (ANS) are both significantly positive, 0.079 and 0.167, respectively. For professionals however, the corresponding coefficients in the regressions of Ln(PNB) and Ln(PNS), are significantly negative, -0.122 and -0.124, respectively, suggesting that on Sundays

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[15] We added the following notation: P for professionals, T for the total, combining both amateurs and professionals, N for number of transactions, and X for the sum of buy and sell.
[16] We tried several formulations and the log formulation in general provided the highest R^2s, but the qualitative results were quite similar for all regressions run.

professionals reduce both the number of buy and sell transactions. Note from Table 4 that the regression coefficients of the number of trades for both the professionals and amateurs with respect to DSUN are of the same order of magnitude in absolute values but are of opposite signs. Because of the opposing effects of Sundays on the number of transactions of amateurs and professionals, the effect of Sundays on the total sum of transactions of both professionals and amateurs is inconclusive. This is reflected by the insignificance of the coefficients of Ln(TNB), Ln(TNS), and Ln(TNX). [17]

We next test whether the effect of Sundays is different for sell than for buy transactions. An indication that this is indeed the case for amateurs but not for professionals is obtained by noting that the coefficient of DSUN in the regression of Ln(ANB) is much smaller than that in the regression of Ln(ANS), 0.079 vs. 0.167, whereas the equivalent coefficients for professionals are quite close, −0.122 and −0.124, respectively. To examine whether these observations are statistically significant we consider the behavior of the difference between the numbers of buy and sell transactions of each group. We present in Table 5 the results of regressing differences such as (ANB-ANS) and (PNB-PNS) on DSUN and on the control variables defined above. The coefficient of DSUN in the regression of (ANB-ANS) turned out significantly negative, -0.100, whereas the corresponding coefficient in the regression of (PNB-PNS), turned out insignificant. This indicates that for amateurs the Sunday effect is stronger on sell than on buy decisions, but for professional the effect of Sunday is the same for buy and sell decisions. Similar results were obtained when considering amateurs' and professionals' Buy/Sell imbalance variables, defined as: ABSM = (ANB-ANS)/(ANB+ANS), and:

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[17] As in the case of relative activities, the dummy variables for the other days of the week are not

PBSM = (PNB-PNS)/(PNB+PNS), respectively.[18] The coefficient of DSUN in the ABSM regression is significantly negative, -0.019, whereas the corresponding coefficient in the PBSM regression is not significantly different from zero.

Because the different behavior of amateurs and professionals on Sundays is quite clear, one may wonder if anyone can benefit from it, or put differently, was there also a Sunday effect in returns? This was previously tested for a different period of time by Galai and Levy, 2002, and no Sunday effect in returns was found. We test for this effect in our data, which covers a more recent period.[19] We ran regressions of the returns on the Tel Aviv Stock Exchange Price Index on DSUN, for each year during our sample period, and for the entire period. As the coefficients of DSUN in all these regressions turned out insignificant, our tests, similarly to those of Galai and Levy do not find a significant Sunday effect in returns.[20]

It appears that in line with the conjectures of Kamara, 1997, Lakonishok and Maberly, 1990, Osborne, 1962, and Ritter, 1988, Sundays affect individuals' decisions, inducing increased activity.[21] Moreover as suggested by Connors, 1962, Lakonishok and Maberly, 1990, and Ritter, 1988, Sundays have a stronger effect on amateurs' sell

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significantly different from zero.

[18] M stands for imbalance.

[19] Whereas Galai and Levy do not find a "proper" Sunday effect (i.e., an influence of DSUN on returns) they discover a "conditional Sunday effect", namely: conditional on high returns on the previous trading day, a Thursday in Israel, the returns on Sunday will also be high. Similarly, Bessembinder and Hertzel, 1993, find serial dependence of security returns around non-trading days. We found a positive correlation between the intensity of amateurs' buying on Sundays and the corresponding intensity on the previous trading day. These results interesting in themselves do not affect our analysis.

[20] Since all regressions turned out insignificant, we chose not to present them here. For example, in the regression of market returns on DSUN for all years, the coefficient of DSUN is 0.000104 with a standard deviation of 0.001136, and an insignificant t-statistics of 0.091.

[21] Chen and Singal, 2003 suggest that limits on short sales may cause the Monday effect, but they did not distinguish between amateurs and professionals although these two groups may differ in their capacity to perform such trades. In Israel short sales are allowed but are very limited in popularity.

decisions than on their buy decisions. Weekends however tend to reduce professionals trading activity, and this effect is symmetric for both buy and sell transactions.

The different effects of Sundays on amateurs and on professionals in the present study seem to cancel each other, thereby explaining the absence of Sunday effect in returns, despite the Sunday effect in behavior. [22]

IV. Conclusion

In this paper we have shown that for a sample of amateur and professional investors in a large Israeli bank (acting as a brokerage house), both groups change their investment behavior on weekends. Amateurs increase their trading activities (buy and sell decisions) whereas professionals decrease their number of trades on weekends. In line with previous conjectures, the effect of weekends for amateurs is stronger on sell decisions than on buy decisions. Professionals on the other hand reduce symmetrically both their buy and sell activities. The opposite effects of Sundays on the behavior of professionals and amateurs may partially explain the absence of a Sunday effect in returns.

To the extent that the behavioral investment patterns of individuals and professionals are similar across markets the results from our study can shed light on other markets. We have no a-priori reasons to believe that the behavioral investment patterns of Israeli individual investors differ from those in other markets. The managed investors in our study share similarities with money managers and institutional traders in the US. As shown by Shapira and Venezia, 2001, the professionals in our sample trade much more

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[22] We should note that during the period analyzed, the proportions of stocks held by individuals (out of the total outstanding stocks in the overall stock market) ranged between 58.4% and 62.7% (Bank of Israel Publications, 2002). The numbers are quite close to the proportions of amateurs' activities in our sample.

frequently than amateurs, with similar transaction costs per dollar traded.[23] This seeming excessive trading indicates a possible agency problem similar to that existing in the US between mutual fund managers and their investors. Lakonishok, Shleifer, and Vishny 1992 claim that money managers may trade too frequently so as to justify their pay and to preserve their jobs. Higher frequency of trading may also be attributed to churning, and in our case the professional traders transacting on behalf of their clients, definitely benefited from more trading. Shapira and Venezia and 2001, 2002, also show that as expected of expert investors, the professionals in our sample exhibit some signs of greater sophistication than amateurs; they are better diversified, they exhibit are less prone to the disposition effect, and they choose their investments more eclectically. These behavioral attributes indicate that the results of the current study are likely to extend to other markets

This paper supports by direct tests some previously hypothesized effects of weekends on the buying and selling frequencies of individuals and professionals. Additional tests of theories that provide alternative explanations of the weekend effect should be performed in future research.

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[23] In the current sample professionals trade about 5 times more frequently than amateurs.

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Table 1

**Numbers and Percentages of Buyers, Sellers, and Traders (Buyers or Sellers) Through
the Sample Years**

Professionals			
Year	Number of Sellers	Number of Buyers	Number of Traders
1994	2252	2149	2428
1995	905	839	956
1996	620	548	680
1997	450	463	501
1998	396	355	418
Amateurs			
Year	Number of Sellers	Number of Buyers	Number of Traders
1994	5443	5004	7429
1995	2313	1458	2862
1996	1900	1158	2331
1997	1685	1503	2240
1998	1800	1582	2307
Year	Proportion of Amateurs out of all Sellers	Proportion of Amateurs out of all Buyers	Proportion of Amateurs out of all Traders
1994	70.7%	70.0%	75.4%
1995	71.9%	63.5%	75.0%
1996	75.4%	67.9%	77.4%
1997	78.9%	76.4%	81.7%
1998	82.0%	81.7%	84.7%

Note: Buyers (sellers, traders) are defined as clients who made at least one buy (sell, trade) transaction during the year. A trade is either a buy or a sell transaction.

Table 2

Amateurs' relative buy intensities as functions of DSUN, Market Volume of Trade, Ln(time), Ln(Market Price Index), DMON, DTUE, DWED, DUP[a]

$Ln(Dep.\ Var.) = \alpha + \beta_1 \times DSUN + \beta_2 \times Ln(Market\ Volume) + \beta_3 \times Ln(Market\ Price\ Index)$

$+ \beta_4 \times Ln(t) + \beta_5 \times DMON + \beta_6 \times DTUE + \beta_7 \times DWED + \beta_8 \times DUP$

Dependent Variables	Explanatory Variables								
	DSUN	Ln (Market Volume)	Ln(Market Price Index)	Ln(t)	DMON	DTUE	DWED	DUP	R^2
ABRI	0.038^{***}	-0.028^{***}	0.212^{***}	-0.013^{***}	0.0067	0.004	0.002	0.059^{***}	0.237
AVBRI	0.061^{***}	-0.033^{**}	0.230^{***}	-0.002	-0.000	0.004^{**}	0.016	0.025	0.092
ASRI	0.046^{***}	-0.005	0.212^{***}	-0.001	0.007	-0.013	0.003	0.014	0.176
AVSRI	0.027	0.010	0.270^{***}	0.005	-0.000	-0.016	-0.017	0.014	0.113

Notes:

The number of observations is 1223

$^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$
ABRI: Amateurs Buying Relative Intensity (proportion of amateurs buys out of all buys)
AVBRI: Amateurs Volume Buying Relative Intensity (proportion of amateurs buy volume)
ASRI: Amateurs Selling Relative Intensity (proportion of amateurs sells out of all sells)
AVSRI : Amateurs Volume Selling Relative Intensity (proportion of amateurs buy volume)
DSUN, DMON, DTUE, and DWED, are dummy variable for Sunday, Monday, Tuesday, and Wednesday, respectively (each dummy variable equals 1 for the day, and 0 for the other days)

[a] Dummy Variable,1 for 1997-1998, 0 for other periods

Table 3

Number of Transactions on Sundays vs. Other Days of the Week

	Professionals			Amateurs		
	Sundays	Other Days of the Week	Percentage Difference %	Sundays	Other Days of the Week	Percentage Difference %
Average Number of buy transactions	51	55	-6.38	41	37	9.62
Average Number of sell transactions	60	64	-6.79	52	44	18.88
Average Number of transactions	111	119	-6.60	93	82	14.62

Notes:

The percentage differences describe how Sundays differ from the other days of the week.

Volume is measured in IS, Israeli Shekel. During the sample period the exchange rate of this currency followed a rising trend from about 2.50 IS/$ to 4.00 IS/$.

Table 4

Regressions of daily trading activities on DSUN, Market volume, Market Price Index, Time, and dummy variables for Monday, Tuesday, and Wednesday.

$$\text{Ln(Dep. Var.)} = \alpha + \beta_1 \times \text{DSUN} + \beta_2 \times \text{Ln(Market Volume)} + \beta_3 \times \text{Ln(Market Price Index)}$$
$$+ \beta_4 \times \text{Ln(t)} + \beta_5 \times \text{DMON} + \beta_6 \times \text{DTUE} + \beta_7 \times \text{DWED}$$

Dependent Variables	Explanatory Variables							
	DSUN	Ln (Market Volume)	Ln(Market Price Index)	Ln(t)	DMON	DTUE	DWED	R^2
Ln(ANB)	0.079**	0.436***	1.236***	-0.366***	0.009	0.0079	0.0651	0.551
Ln(PNB)	-0.122***	0.480***	-0.605***	-.343***	-0.057	-0.010	-0.016	0.584
Ln(ANS)	0.167***	0.419***	0.445***	-0.363***	0.027	0.002	0.042	0.547
Ln(PNS)	-0.124***	0.503***	-0.689***	-0.366***	-0.038	-0.032	-0.011	0.567
Ln(TNB)	-0.009	0.143***	0.062***	-0.085***	-0.008	-0.000	-0.003	0.550
Ln(TNS)	0.000	0.130***	-0.052***	-0.085***	-0.009	-0.008	0.001	0.565
Ln(TNX)	-0.002	0.06***	-0.004	-0.040***	-0.005	-0/001	-0.000	0.714
Ln(AVB)	0.064	0.472***	1.925***	-0.255***	-0.062	-0.024	0.018	0.321
Ln(PVB)	-0.124**	0.520***	-0.122	-0.334***	-0.071	0.049	0.014	0.377
Ln(AVS)	0.081	0.524***	1.379***	-0.290***	-0.107	0.004	-0.015	0.284
Ln(PVS)	-0.169***	0.511***	-0.155	-0.322***	-0067	-0.003	0.070	0.351
Ln(TVB)	-0.002	0.037***	0.062***	-0.021***	-0.005	0.001	0.001	0.420
Ln(TVS)	-0.003	0.039***	0.042***	-0.021***	-0.006*	0.000	0.002	0.394
Ln(TVX)	-0.000	0.012***	0.015***	-0.006***	-0.001*	0.000	0.000	0.460

Notes: The number of observations is 1223
***p<0.01, ** p<0.05, * p<0.1
ANB: Amateurs Number of Buy transactions, PNB: Professionals Number of Buy transactions
ANS: Amateurs Number of Sell transactions, PNS: Professionals Number of Sell transactions
AVB Amateurs Volume of Buy transactions, PVB: Professionals Volume of Sell transactions
AVS: Amateurs Volume of Sell transactions, PVS: Professionals Volume of Sell transactions
TNB, TNS: Total Number of Buy and Sell transactions, respectively (Sum of Professionals and Amateurs)
TVB, TVS: Total Volume of Buy and Sell transactions, respectively (Sum of Professionals and Amateurs)
TNX, TVX: Total Number and volume of transactions, respectively (Sum Professionals and Amateurs, Buy and Sell)

Table 5

Regressions of Buy-Sell differences on DSUN, Market Volume, Market Price Index, Time, and dummy variables for Monday, Tuesday, and Wednesday.

$$\text{Ln(Dep. Var.)} = \alpha + \beta_1 \times \text{DSUN} + \beta_2 \times \text{Ln(Market Volume)} + \beta_3 \times \text{Ln(Market Price Index)}$$
$$+ \beta_4 \times \text{Ln(t)} + \beta_5 \times \text{DMON} + \beta_6 \times \text{DTUE} + \beta_7 \times \text{DWED}$$

Dependent Variables	Explanatory Variables							
	DSUN	Ln (Market Volume)	Ln(Market Price Index)	Ln(t)	DMON	DTUE	DWED	R^2
ANB-ANS	-0.100^{**}	0.023	0.810^{***}	-0.003	-0.018	-0.000	-0.036	0.101
PNB-PNS	0.002	-0.024	0.084	0.022	-0.019	0.021	-0.006	0.006
ABSM	-0.019^{**}	0.008	0.123^{***}	-0.001	-0.000	-0.001	-0.009	0.075
PBSM	-0.002	-0.003	0.017	0.000	-0.002	0.000	0.000	0.059

Notes:

The number of observations is 1223

$^{***}p<0.01,$ $^{**}p<0.05,$ $^{*}p<0.1$
Variables are defined as in Table 4, with the addition of:
ABSM: Amateurs Buy-Sell imbalance = (ANB-ANS)/(ANB+ANS)
PBSM: Professionals Buy-Sell imbalance = (PNB-PNS)/(PNB+PNS)