

## **Internet Appendix for “Measuring the added value of stock recommendations”**

## Contents

I. Swedish legal framework on tipping of recommendations.....	3
Appendix Table 1: Net Buying around Recommendation Revision Dates – Robustness.....	5
Appendix Table 2: Daily Portfolio Profits of Recommending Brokers’ Clients – Alternative Recommendation Revision Definitions.....	6
Appendix Table 3: Daily Portfolio Profits of Recommending Brokers’ Clients – Alternative Valuation Horizons.....	7
Appendix Table 4: Daily Portfolio Profits of Recommending Brokers’ Clients – Revisions and Initiations.....	8
Appendix Table 5: Abnormal Buy and Sell Volume for Recommending Brokers – Robustness.....	9
Appendix Table 6: Abel Noser and Stockholm Stock Exchange samples: Broker market share comparisons.....	10
Appendix Table 7: Average commission rates paid for purchases and sales during upgrades and downgrades.....	11
Appendix Table 8: Commission rates around recommendation revision dates – Regression analysis.....	12
Appendix Table 9: Commission rates before and after recommendation revision dates – Regression analysis.....	13
Appendix Table 10: Commission revenue and profit splits around recommendation revision dates: alternative specifications.....	14
Appendix Figure 1: Abnormal Profits and Returns around Recommendation Revision Dates – Clustering of Recommendations.....	15
Appendix Figure 2: Abnormal Profits and Returns around Recommendation Revision Dates – Earnings Announcement Dates.....	16
Appendix Figure 3: Average number of large and small purchases and sales executed by recommending brokers around recommendation revision dates.....	17
Appendix Figure 4: Abel Noser and Stockholm Stock Exchange samples: Firm size distribution comparison.....	18
Appendix Figure 5: Distribution of commission rates around recommendation revision dates.....	19

## **I. Swedish legal framework on tipping of recommendations**

The Swedish Financial Services Authority (FSA) acknowledges that there are no guidelines (and there were none during our sample period) with respect to the timing of the release of investment recommendations: nowhere do they explicitly require that stock recommendations be released at the same time to all customers. However, under European Commission Directive 2003/125/EC of the European Union there is a requirement that the date at which the recommendation was first released for distribution be indicated clearly and prominently in the research report. In legal and regulatory circles, insider trading laws are frequently cited as a limitation on tipping. Insider trading laws make it illegal for a person to use, pass on to others, or enter into transactions while in possession of material, non-public information. However, the Swedish FSA takes the view that tipping about impending stock recommendations cannot be regarded as passing insider information, since the information on which recommendations are based is public. In the few cases in the EU in which financial analysts or their employers have been punished for leaking information it has not been for insider trading violations but for offenses related to conflicts of interest or market misconduct. In a relevant case in the UK in 2007, the British FSA fined Roberto Casoni for disclosing his views on Banca Italease to certain clients ahead of initiation of coverage. The British FSA considered that it is improper market conduct for an analyst to selectively disseminate valuations (including drafts), recommendations or target prices to clients ahead of publication of that research. By selectively disseminating such information to clients ahead of publication, an analyst allows those clients the opportunity to pre-empt the conclusions of the published research and thereby potentially influence their investment decisions ahead of the rest of the market. Applicable laws, regulations and administrative provisions tend to be similar to those of the UK and other European countries under the Lamfalussy model. However, there have been no comparable cases in Sweden, and we understand from the Swedish FSA that it does not necessarily interpret conflict of interest rules as applicable to tipping. In 2006 the European Union enacted Commission Directive 2006/73/EC, implementable in Sweden in 2007. This Directive imposes clearer boundaries on early dissemination of

recommendations to selected customers. However, this Directive came into force in 2007, after the end of our sample period.

### Appendix Table 1: Net Buying around Recommendation Revision Dates – Robustness

Each coefficient in this table shows the mean net purchases executed by the clients of recommending brokers on the recommended stock in a number of week-long periods around the recommendation revision date, expressed in millions of Swedish kronor (SEK). These average net purchases are displayed for buy and sell recommendations in event time, from four weeks before to four weeks after the recommendation revision date. Coefficient estimates and standard errors are obtained from two OLS regressions of weekly net purchases on indicator variables, one per event week–broker type pair. Regressions are conducted separately for upgrades and downgrades. The first row in each panel (Upgrades to buy or strong buy and Downgrades to sell or strong sell) repeats the results of Table 2 in the main paper. The two following rows report separate results for recommendations that were revised within or outside a +/-5 calendar-day window of an earnings announcement day (EAD). The bottom row in each panel shows results for placebo recommendation upgrades to buy or strong buy (downgrades to sell or strong sell), centered on the day of maximum return (minimum return for downgrades) for a stock in the 12-month period centered surrounding the day a broker has issued an actual recommendation on the stock, but outside its +/-20-day recommendation window. The number of observations for each broker in each regression is denoted by  $n_C$ . The sample period is January 1997 to June 2006. USD 1 corresponds to about SEK 8 during the sample period. Standard errors are clustered at the broker level with reported  $t$ -statistics in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

		Event period								$n_C$
Specification		( $\tau$ -20; $\tau$ -16)	( $\tau$ -15; $\tau$ -11)	( $\tau$ -10; $\tau$ -6)	( $\tau$ -5; $\tau$ -1)	( $\tau$ ; $\tau$ +5)	( $\tau$ +6; $\tau$ +10)	( $\tau$ +11; $\tau$ +15)	( $\tau$ +16; $\tau$ +20)	
<b>Upgrades to buy or strong buy</b>	Recommending - All	0.23 (0.28)	0.94 (0.93)	2.00 (1.74)*	5.65 (4.51)***	7.09 (4.34)***	3.10 (3.47)***	3.61 (4.32)***	2.47 (2.56)**	2,507
	EAD: inside +/-5-day window	-0.10 (-0.06)	-2.37 (-0.96)	-0.18 (-0.12)	4.99 (2.47)**	9.73 (2.24)**	3.79 (2.44)**	3.26 (1.93)*	3.94 (1.41)	637
	EAD: outside +/-5-day window	0.34 (0.40)	2.07 (1.95)*	2.74 (1.99)*	5.87 (4.26)***	6.19 (4.36)***	2.86 (2.81)***	3.72 (4.33)***	1.96 (2.17)**	1,870
	Max. 12-m return	-0.12 (-0.22)	0.10 (0.20)	-0.05 (-0.07)	-0.52 (-0.45)	0.62 (0.41)	0.04 (0.07)	0.70 (0.91)	-0.12 (-0.25)	2,507
<b>Downgrades to sell or strong sell</b>	Recommending - All	1.62 (1.04)	-2.53 (-1.60)	-1.61 (-1.93)*	-7.18 (-4.41)***	-3.00 (-1.91)*	-2.27 (-2.28)**	-0.27 (-0.20)	-0.96 (-0.63)	1,730
	EAD: inside +/-5-day window	5.60 (1.24)	-2.77 (-0.92)	-0.32 (-0.21)	-5.98 (-3.13)***	-4.54 (-2.90)***	-3.08 (-2.05)**	0.64 (0.36)	0.04 (0.02)	389
	EAD: outside +/-5-day window	0.46 (0.35)	-2.46 (-1.46)	-1.99 (-1.80)*	-7.53 (-3.93)***	-2.56 (-1.49)	-2.04 (-1.93)*	-0.53 (-0.34)	-1.26 (-0.74)	1,341
	Min. 12-m return	0.23 (0.64)	0.10 (0.23)	-0.27 (-0.90)	-0.45 (-1.08)	0.45 (0.60)	0.14 (0.50)	-0.22 (-0.98)	-0.67 (-1.12)	1,730

## Appendix Table 2: Daily Portfolio Profits of Recommending Brokers' Clients – Alternative Recommendation Revision Definitions

This table shows the aggregate daily, and per recommendation, abnormal profits of recommending brokers' clients around recommendation revision dates. Aggregate daily profits are measured using all trades channeled through the recommending broker over three different windows around recommendation revision dates:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ . Per recommendation profits are calculated by aggregating daily profits over the entire sample period and dividing that number by the number of recommendation revisions that generated them (the resulting figure represents a per window, not per day, profit). Results are presented for eight different types of recommendation revisions based on four alternative recommendation classifications: 1) positive revision and positive level and negative revision and negative level (the upgrades to buy or strong buy and downgrades to sell and strong sell used in the paper), 2) positive revision and positive or neutral level and negative revision and negative or neutral level (same as the previous two categories but including upgrades to hold in the first group and downgrades to hold in the second), 3) positive revision and negative revision (regardless of the level of the new recommendation), and 4) positive level and negative level (revisions to buy or strong buy and revisions to sell or strong sell, regardless of the direction of the revision). Profits are expressed in Swedish kronor (SEK). USD 1 corresponds to about SEK 8 during the sample period, January 1997 to June 2006. Standard errors are robust to heteroscedasticity and autocorrelation as described by Newey-West (1987), where  $t$ -statistics are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

Window					Window			
Recs.	( $\tau$ -5; $\tau$ +5)	( $\tau$ -10; $\tau$ +10)	( $\tau$ -20; $\tau$ +20)	Recs.	( $\tau$ -5; $\tau$ +5)	( $\tau$ -10; $\tau$ +10)	( $\tau$ -20; $\tau$ +20)	
Positive Revision and Positive Level					Negative Revision and Negative Level			
Per Day	2507	466,971 (2.70)***	477,771 (2.30)**	535,652 (1.94)*	1730	37,565 (0.28)	-106,567 (-0.45)	-152,170 (-0.42)
Per Recommendation		442,011	453,377	510,226		51,224	-145,559	-208,816
Positive Revision and Positive or Neutral Level					Negative Revision and Negative or Neutral Level			
Per Day	2995	411,487 (2.32)**	526,352 (2.18)**	499,946 (1.41)	2740	78,568 (0.46)	52,982 (0.19)	-18,924 (-0.04)
Per Recommendation		326,030	418,094	398,622		68,045	46,001	-16,493
Positive Revision					Negative Revision			
Per Day	3096	303,123 (1.60)	405,315 (1.62)	368,819 (1.06)	3327	30,687 (0.16)	-25,343 (-0.09)	-270,980 (-0.56)
Per Recommendation		232,335	311,448	284,477		21,888	-18,122	-194,499
Positive Level					Negative Level			
Per Day	2991	413,106 (2.21)**	424,476 (1.74)*	289,006 (0.89)	1782	-31,988 (-0.19)	-194,800 (-0.66)	-235,869 (-0.56)
Per Recommendation		327,750	337,622	230,741		-42,597	-260,062	-316,080

### Appendix Table 3: Daily Portfolio Profits of Recommending Brokers' Clients – Alternative Valuation Horizons

This table shows the aggregate daily abnormal profits of recommending brokers' clients around recommendation revision dates. Aggregate daily profits are measured using all trades channeled through the recommending broker over three different windows around recommendation revision dates:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ ,  $(\tau - 5; \tau + 5)$ , and three different valuation horizons:  $T = 10$ ,  $T = 20$  and  $T = 40$  trading days. Profits are expressed in Swedish kronor (SEK). USD 1 corresponds to about SEK 8 during the sample period, January 1997 to June 2006. Standard errors are robust to heteroscedasticity and autocorrelation as described by Newey-West (1987), where  $t$ -statistics are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Recs.	Upgrades to buy or strong buy			Recs.	Downgrades to sell or strong sell		
		$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$		$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$
All Recommendations T = 10	2507	322,442 (2.57)***	375,001 (2.24)**	–	1730	46,291 (0.41)	74,084 (0.49)	–
All Recommendations T = 20	2507	466,971 (2.70)***	477,771 (2.30)**	535,652 (1.94)*	1730	37,565 (0.28)	-106,567 (-0.45)	-152,170 (-0.42)
All Recommendations T = 40	2507	508,825 (2.17)**	250,949 (0.86)	407,630 (1.07)	1730	-109,861 (-0.63)	-306,686 (-1.02)	-383,506 (-0.84)

**Appendix Table 4: Daily Portfolio Profits of Recommending Brokers' Clients – Revisions and Initiations**

This table shows the aggregate daily abnormal profits of recommending brokers' clients around recommendation revision and initiation dates. Aggregate daily profits are measured using all trades channeled through the recommending broker over three different windows around recommendation revision and initiation dates:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ . Initiations are defined as the first recommendation on a given stock issued by an analyst and its employer (brokerage house). We exclude from this definitions recommendations that appear in the sample when an analyst or broker first appear in the database. Positive (negative) initiations are defined as buy (sell) or strong buy (sell) initiations, whereas strong positive (negative) initiations are defined as strong buy (sell) initiations. Profits are expressed in Swedish kronor (SEK). USD 1 corresponds to about SEK 8 during the sample period, January 1997 to June 2006. Standard errors are robust to heteroscedasticity and autocorrelation as described by Newey-West (1987), where  $t$ -statistics are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Upgrades to buy or strong buy and Positive Initiations				Downgrades to sell or strong sell and Negative Initiations			
	Recs.	$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$	Recs.	$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$
Revisions	2507	466,971 (2.70)***	477,771 (2.30)**	535,652 (1.94)*	1730	37,565 (0.28)	-106,567 (-0.45)	-152,170 (-0.42)
Revisions plus Initiations (Strong)	2760	462,904 (2.34)**	376,078 (1.51)	503,019 (1.32)	1786	38,626 (0.28)	-97,984 (-0.41)	-130,349 (-0.36)
Revisions plus Initiations (All)	3191	420,075 (2.06)**	279,585 (1.09)	445,004 (1.17)	1963	33,817 (0.24)	-91,025 (-0.38)	-198,329 (-0.51)



### Appendix Table 5: Abnormal Buy and Sell Volume for Recommending Brokers – Robustness

This table shows recommending broker clients' average abnormal buy and sell volume in the recommended stock over three different windows around the recommendation date:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ . The first row shows abnormal buy volume (for upgrades to buy or strong buy) and abnormal sell volume (for downgrades to sell or strong sell) estimated using the regression specified in Equation (6) in the paper. The second row shows abnormal buy and sell volume estimates computed as the difference between the observed buy (sell) volume and the normal level of buy (sell) volume on days away from the recommendation window (i.e., without controlling for common variation in trading). The reported figures are averages of 2,507 observations for upgrades, and 1,730 observations for downgrades. Abnormal buy and sell volume is expressed in Swedish kronor (SEK). USD 1 corresponds to about SEK 8 during the sample period, January 1997 to June 2006. Standard errors are robust to heteroscedasticity and autocorrelation as described by Newey-West (1987), where  $t$ -statistics are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Upgrades to buy or strong buy				Downgrades to sell or strong sell			
	Recs.	$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$	Recs.	$(\tau-5; \tau+5)$	$(\tau-10; \tau+10)$	$(\tau-20; \tau+20)$
Controlling for common variation in trading	2507	43,633,183 (5.80)***	50,513,568 (5.01)***	55,769,184 (3.79)***	1730	28,372,091 (2.41)**	29,567,349 (2.20)**	24,274,341 (1.39)
Not controlling for common variation in trading	2507	52,455,938 (6.07)***	57,475,294 (5.40)***	54,429,130 (4.20)***	1730	29,518,012 (3.75)***	28,045,419 (3.32)***	29,424,160 (2.95)***

# Appendix Table 6: Abel Noser and Stockholm Stock Exchange samples: Broker market share comparisons

This table shows the top 20 brokers based on their total number of executed trades on the Stockholm Stock Exchange (SSE) between January 2002 and June 2006. For each of these brokers the table presents their country of origin, market share (in %), and ranking based on number of trades executed. It also shows the top 20 brokers in the matched Abel Noser data set used for estimating commissions and their percentage of trades in this data set. The matched Abel Noser data set contains data from 85,803 transactions from 33 distinct brokers whereas the full Stockholm Stock Exchange data set contains more than 256 million transactions from 127 brokers.

Ranking - Full SSE sample	Broker ranking in full SSE sample	Origin	Share of trades, %	Broker ranking in Abel Noser matched sample	Origin	Share of trades, %	Ranking - Full SSE sample
1	Skandinaviska Enskilda Banken	SWE	9.61%	Goldman Sachs International	US	12.84%	17
2	Avanza AB	SWE	8.51%	Carnegie Investment Bank	SWE	11.93%	8
3	Nordnet Securities	SWE	8.26%	Morgan Stanley International	US	10.64%	7
4	Svenska Handelsbanken	SWE	7.34%	UBS Limited	EUR	5.73%	21
5	Swedbank	SWE	6.86%	Credit Suisse Securities	EUR	5.66%	19
6	Glitnir	EUR	5.91%	ABG Sundal Collier Norge	EUR	5.60%	23
7	Nordea	SWE	5.38%	Skandinaviska Enskilda Banken	SWE	5.31%	1
8	Carnegie Investment Bank	SWE	4.49%	Deutsche Bank	EUR	4.64%	14
9	E*Trade	US	4.09%	Citibank	US	4.42%	27
10	Morgan Stanley International	US	3.59%	Bank of America Securities	US	4.34%	60
11	Kaupthing Bank	EUR	3.49%	Svenska Handelsbanken	SWE	2.35%	4
12	HQ Bankaktiebolag	SWE	3.08%	Instinet Europe Limited	EUR	1.84%	25
13	Neonet	SWE	2.41%	Lehman Brothers International	US	1.41%	15
14	Deutsche Bank	EUR	2.24%	JP Morgan Securities	US	0.99%	37
15	Lehman Brothers International	US	2.15%	ABN Amro Bank	EUR	0.61%	24
16	Danske Bank	EUR	2.00%	Dresdner Kleinwort Securities	EUR	0.59%	33
17	Goldman Sachs International	US	1.82%	Crédit Agricole Cheuvreux	EUR	0.49%	26
18	ABN Amro Bank	EUR	1.80%	E*Trade	US	0.29%	9
19	Credit Suisse Securities	EUR	1.72%	Banque Nationale de Paris	EUR	0.13%	84
20	Skandiabanken	SWE	1.62%	Société Générale	EUR	0.09%	28

**Appendix Table 7: Average commission rates paid for purchases and sales during upgrades to buy or strong buy and downgrades to sell or strong sell**

This table presents average commission rates, in basis points (bp), paid by clients of recommending, informed, and uninformed brokers. These averages are obtained from a sample of 85,803 stock market transactions obtained from Abel Noser for the time period January 2002 to June 2006. These transactions are classified into three time windows centered on the recommendation date:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ . The sorting is done separately for purchases executed around upgrades to buy or strong buy and sales executed around downgrades to sell or strong sell. The  $p$ -values of a test of differences in paid commissions between all transactions and those executed in each of these time windows is reported in square brackets for each of these three groups of brokers. The last two lines in each panel also report differences in average commission between recommending brokers and informed brokers and separately between recommending brokers in uninformed brokers in each window. They also report the statistical significance of this difference ( $p$ -values).  $p$ -values are based on robust standard errors clustered at the broker level. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

			+/-5	+/-10	+/-20
<b>Upgrades to buy or strong buy</b>	All (bp) 13.7	Recommending (bp)	17.6 [0.02]**	15.5 [0.29]	14.5 [0.63]
		Informed (bp)	14.8 [0.53]	14.5 [0.90]	14.2 [0.73]
		Uninformed (bp)	10.8 [0.13]	10.4 [0.08]*	10.3 [0.07]*
		Difference Rec. minus Informed	2.8 [0.08]*	1.0 [0.59]	0.3 [0.82]
		Difference Rec. minus Uninformed	6.8 [<0.01]***	5.1 [0.02]**	4.2 [0.06]*
<b>Downgrades to sell or strong sell</b>	All (bp) 13.6	Recommending (bp)	14.0 [0.72]	14.2 [0.73]	14.4 [0.72]
		Informed (bp)	12.6 [0.29]	13.5 [0.85]	13.1 [0.53]
		Uninformed (bp)	14.1 [0.78]	14.3 [0.59]	14.7 [0.44]
		Difference Rec. minus Informed	1.4 [0.32]	0.7 [0.68]	1.3 [0.52]
		Difference Rec. minus Uninformed	-0.1 [0.99]	-0.1 [0.94]	-0.3 [0.92]

**Appendix Table 8: Commission rates around recommendation revision dates – Regression analysis**

This table presents results from an OLS-regression where the dependent variable is trading commission rates measured in basis points (bp). The sample consists of 85,803 stock market transactions obtained from Abel Noser for the time period January 2002 to June 2006. We match those transactions to 2,991 recommendations issued by 16 brokers trading in 52 firms in our sample for this time period. We match transactions only where the broker making the recommendation is the same as the one executing the transaction. Following this criterion, and using three different time windows centered on the recommendation revision date:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ , we obtain 1,107, 626, and 308 matched transactions, respectively. We create a set of indicator variables for purchases executed around upgrades to buy or strong buy and sales executed around downgrades to sell or strong sell in each of these windows. Column (I) to (III) display results using upgrade and downgrade time-window dummies only. Columns (IV) to (VI) display the results adding controls for trade size, measured as the log of transaction value, big firm indicator variables (for the 10% largest firms), and a set of broker fixed effects. Robust *t*-statistics (in parenthesis) are computed using standard errors clustered at the broker level. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

	I	II	III	IV	V	VI
Upgrade, 5-d ( $I > 0$ )	3.913 (2.76)***			4.954 (1.77)*		
Downgrade, 5-d ( $I > 0$ )	0.374 (0.34)			-3.117 (-2.07)**		
Upgrade, 10-d ( $I > 0$ )		1.830 (1.23)			0.830 (0.33)	
Downgrade, 10-d ( $I > 0$ )		0.516 (0.34)			-2.034 (-1.23)	
Upgrade, 20-d ( $I > 0$ )			0.830 (0.59)			-0.286 (-0.14)
Downgrade, 20-d ( $I > 0$ )			0.774 (0.33)			0.244 (0.11)
Trade size				0.236 (1.24)	0.238 (1.25)	0.238 (1.26)
Big firms ( $I > 0$ )				-0.988 (-1.73)*	-1.003 (-1.76)*	-1.007 (-1.77)*
Constant	13.672 (9.35)***	13.672 (9.35)***	13.672 (9.31)***	n/a	n/a	n/a
Broker fixed effects	No	No	No	Yes	Yes	Yes
Observations	85,803	85,803	85,803	85,803	85,803	85,803
R-squared	0.000	0.000	0.000	0.237	0.237	0.237

### Appendix Table 9: Commission rates before and after recommendation revision dates – Regression analysis

This table repeats the analysis in Table 8 in this appendix, but estimates separate coefficients for commission rates depending on whether the trades were conducted before or after the recommendation date. The dependent variable is trading commissions measured in basis points (bp). We match those transactions to 2,991 recommendations issued by 16 brokers trading in 52 firms in our sample for this time period. We match transactions only where the broker making the recommendation is the same as the one executing the transaction. Following this criterion, and using three different time windows centered on the recommendation revision date:  $(\tau - 20; \tau + 20)$ ,  $(\tau - 10; \tau + 10)$ , and  $(\tau - 5; \tau + 5)$ ., we obtain 1,107, 626, and 308 matched transactions, respectively. We create a set of indicator variables for purchases executed before and after upgrades to buy or strong buy and sales executed before and after downgrades to sell or strong sell in each of these windows. Column (I) to (III) display results using upgrade and downgrade time-window dummies only. Columns (IV) to (VI) display the results adding controls for trade size, measured as the log of transaction value, big firm indicator variables (for the 10% largest firms), and a set of broker fixed effects. Robust *t*-statistics (in parenthesis) are computed using standard errors clustered at the broker level. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

	I	II	III	IV	V	VI
Upgrade, 5-d before	4.904 (3.40)***			6.386 (2.17)**		
Upgrade, 5-d after	-0.098 (-0.03)			-0.742 (-0.37)		
Downgrade, 5-d before	-0.366 (-0.21)			-2.840 (-1.02)		
Downgrade, 5-d after	0.818 (0.64)			-3.284 (-2.35)**		
Upgrade, 10-d before		3.865 (3.40)***			2.987 (1.01)	
Upgrade, 10-d after		-2.033 (-0.94)			-3.228 (-1.48)	
Downgrade, 10-d before		-0.196 (-0.12)			-0.336 (-0.12)	
Downgrade, 10-d after		0.843 (0.37)			-2.810 (-1.61)	
Upgrade, 20-d before			2.072 (1.50)			0.705 (0.27)
Upgrade, 20-d after			-0.956 (-0.49)			-1.720 (-0.81)
Downgrade, 20-d before			-1.737 (-1.12)			-1.132 (-0.66)
Downgrade, 20-d after			1.596 (0.55)			0.699 (0.24)
Trade size				0.235 (1.24)	0.237 (1.25)	0.238 (1.25)
Big firms ( $I > 0$ )				-0.978 (-1.71)*	-0.993 (-1.74)*	-1.006 (-1.77)*
Constant	13.672 (9.35)***	13.672 (9.35)***	13.672 (9.31)***	n/a	n/a	n/a
Broker fixed effects	No	No	No	Yes	Yes	Yes
Observations	85,803	85,803	85,803	85,803	85,803	85,803
R-squared	0.000	0.001	0.000	0.238	0.237	0.237

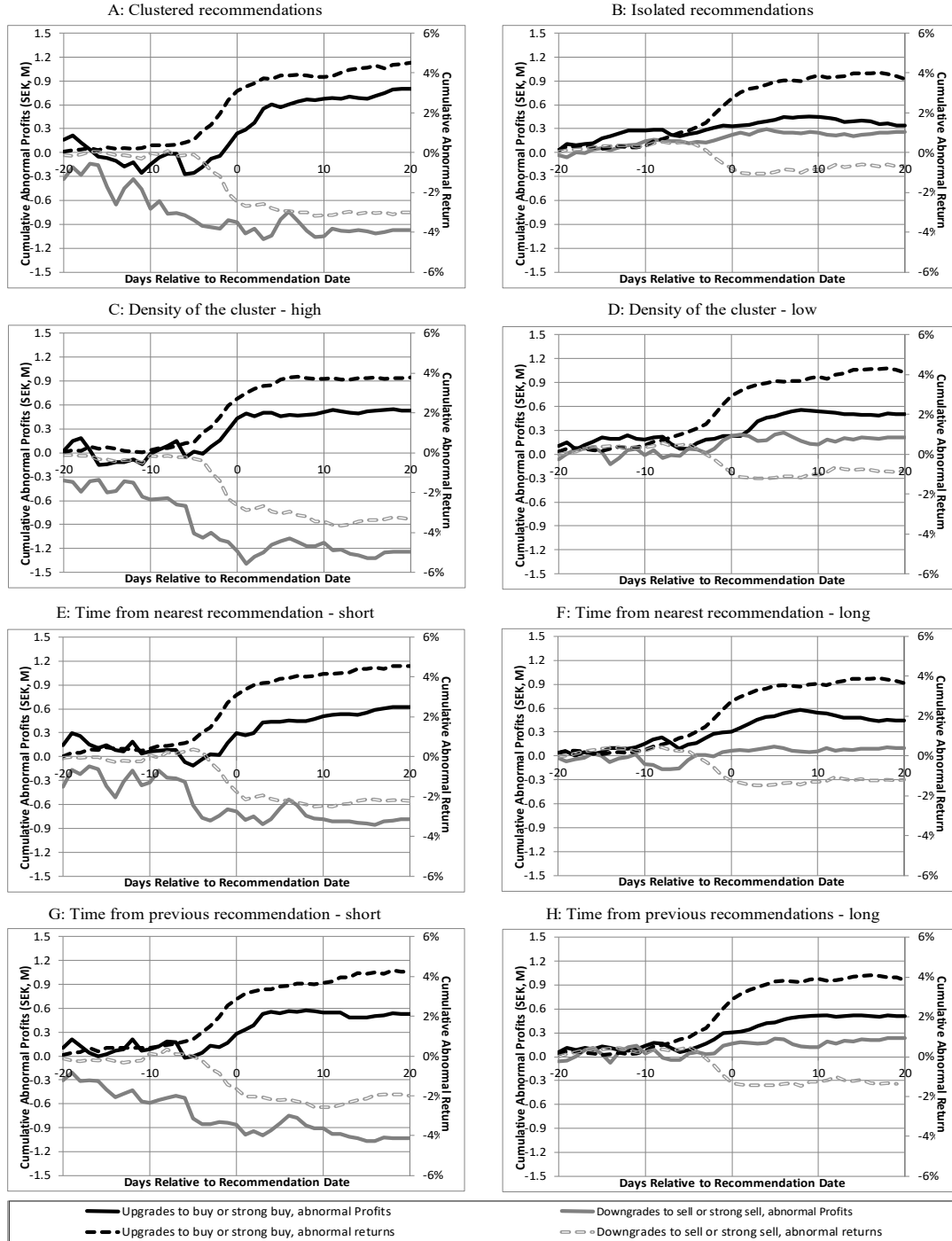
**Appendix Table 10: Commission revenue and profit splits around recommendation revision dates: alternative specifications**

This table reports brokers' estimated abnormal commission revenue and the estimated fraction of total profits captured by brokers, based on a number of different model assumptions. In Panel A commission revenue is estimated using the regressions for abnormal volume in Section 3.4 in the paper on the full sample and under the assumption that the informed trades paid the average commission rate (estimated using 2002 to 2006 commission data, see regressions I to III in Appendix Table 8) in the relevant window. The estimated fraction of total profits captured by brokers is obtained by dividing total commissions by average estimated profits per commission during the full sample period. In Panel B, broker revenue and profit split are estimated in the same way as in Panel A but using only estimated abnormal volume and abnormal profits for the 2002 to 2006 period. In Panel C, broker revenues and profit splits are estimated based on commission rates estimated using the models IV to VI in Appendix Table 9, which incorporates broker fixed effects and additional regressors (the commission rate for brokers that do not appear in the Abel Noser is set at the unconditional mean for the respective window). These estimates are obtained using the full sample for abnormal volume and profits. In Panel D, broker revenues and profit splits are estimated using only estimated abnormal volumes and abnormal profits for the 2002 to 2006 period (and commission rates estimated using the models IV to VI in Appendix Table 9). Robust *t*-statistics (in parenthesis) are computed using standard errors clustered at the broker level. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% level, respectively.

<b>Panel A: Full sample, no broker fixed effects or additional controls</b>				
	<i>N</i>	+/-5	+/-10	+/-20
Average abnormal commissions (SEK)				
Upgrades to buy or strong buy	2,507	148,235 (3.86)***	156,404 (3.09)***	161,504 (2.22)**
Downgrades to sell or strong sell	1,730	78,713 (3.13)***	83,702 (3.04)***	69,958 (1.55)
Commissions as a share of total profits				
Upgrades to buy or strong buy	2,507	34%	34%	32%
Downgrades to sell or strong sell	1,730	154%	neg.	neg.
<b>Panel B: 2002-2006 sample, no broker fixed effects or additional controls</b>				
	<i>N</i>	+/-5	+/-10	+/-20
Average abnormal commissions (SEK)				
Upgrades to buy or strong buy	1,750	148,611 (3.15)***	155,735 (2.93)***	180,768 (2.22)**
Downgrades to sell or strong sell	1,241	88,239 (3.17)***	100,024 (2.52)**	131,339 (1.99)*
Commissions as a share of total profits				
Upgrades to buy or strong buy	1,750	84%	57%	46%
Downgrades to sell or strong sell	1,241	99%	neg.	neg.
<b>Panel C: Full sample, broker fixed effects and additional controls</b>				
	<i>N</i>	+/-5	+/-10	+/-20
Average abnormal commissions (SEK)				
Upgrades to buy or strong buy	2,507	153,299 (3.03)***	150,992 (2.53)**	167,686 (2.02)**
Downgrades to sell or strong sell	1,730	55,612 (2.95)***	80,156 (3.22)***	79,664 (1.99)*
Commissions as a share of total profits				
Upgrades to buy or strong buy	2,507	34%	33%	33%
Downgrades to sell or strong sell	1,730	107%	neg.	neg.
<b>Panel D: 2002-2006 sample, broker fixed effects and additional controls</b>				
	<i>N</i>	+/-5	+/-10	+/-20
Average abnormal commissions (SEK)				
Upgrades to buy or strong buy	1,750	154,498 (2.71)***	150,129 (2.42)**	189,830 (2.04)**
Downgrades to sell or strong sell	1,241	62,079 (2.89)***	100,159 (2.55)**	145,768 (2.19)**
Commissions as a share of total profits				
Upgrades to buy or strong buy	1,750	88%	64%	55%
Downgrades to sell or strong sell	1,241	70%	neg.	neg.

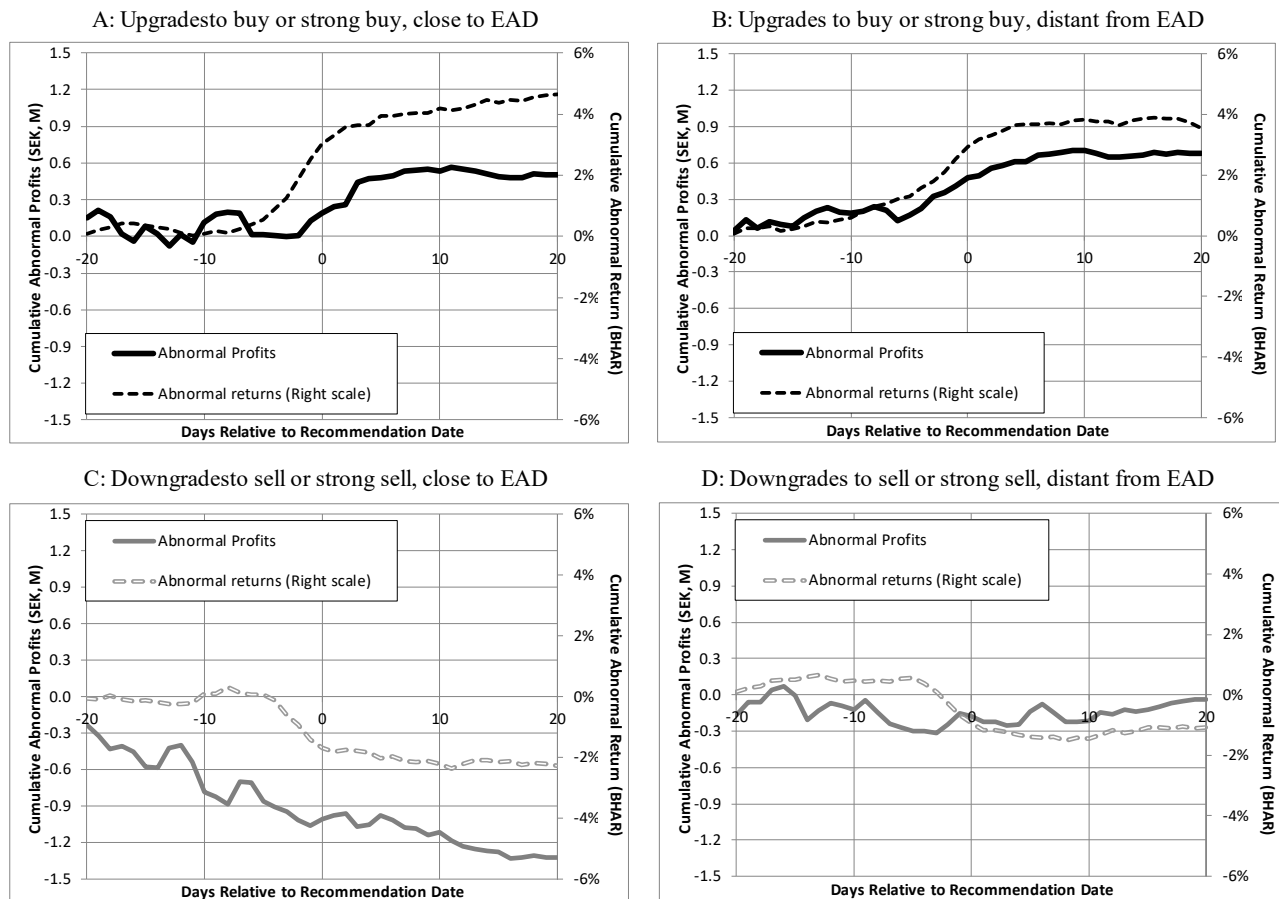
## Appendix Figure 1: Abnormal Profits and Returns around Recommendation Revision Dates – Clustering of Recommendations

This figure shows cumulative abnormal profits and returns for transactions starting 20 days before the broker releases a buy or strong buy (sell or strong sell) recommendation that positively (negatively) revises an existing recommendation up until 20 days after that recommendation. Buy and hold abnormal returns (BHAR) are measured as the difference between raw buy and hold returns and the market return over the corresponding period. Abnormal profits are measured as described in Figure 2. Results are shown separately for four different definitions of clustering (as described in the text) and for upgrades to buy or strong buy and downgrades to sell or strong sell. Profits are measured in millions of Swedish kronor (SEK, M). USD 1 corresponds to about SEK 8 during the sample period.



## Appendix Figure 2: Abnormal Profits and Returns around Recommendation Revision Dates – Earnings Announcement Dates

This figure shows cumulative abnormal profits and returns for transactions starting 20 days before the broker releases a buy or strong buy (sell or strong sell) recommendation that positively (negatively) revises an existing recommendation up until 20 days after that recommendation. Buy and hold abnormal returns (BHAR) are measured as the difference between raw buy and hold returns and the market return over the corresponding period. Abnormal profits are measured as the difference between raw profits and the profits that investors could have made by investing a similar amount in the market index. Each point in the abnormal profits line is computed as the average, across recommendations, of the cumulative abnormal profits obtained on transactions executed up until the day of the observation. The reference price in the profits computation is the price prevailing 20 trading days after the recommendation revision date. Results are shown separately for recommendations issued close to earnings announcement dates (EADs) and relatively distant from them and for upgrades and downgrades. Revisions are classified into these two categories, close to EADs or distant from EADs, based on their distance (in days) to the closest EAD for the recommended firm. We do the sorting for each firm-year pair and separately for upgrades to buy or strong buy and downgrades to sell or strong sell. The sample contains 834 close to EAD recommendation upgrades, 1,320 distant from EAD recommendation upgrades, 531 close to EAD recommendation downgrades and 948 distant from EAD recommendation downgrades. Firms with missing EADs are not included in the sample. Profits are measured in millions of Swedish kronor (SEK, M). USD 1 corresponds to about SEK 8 during the sample period.

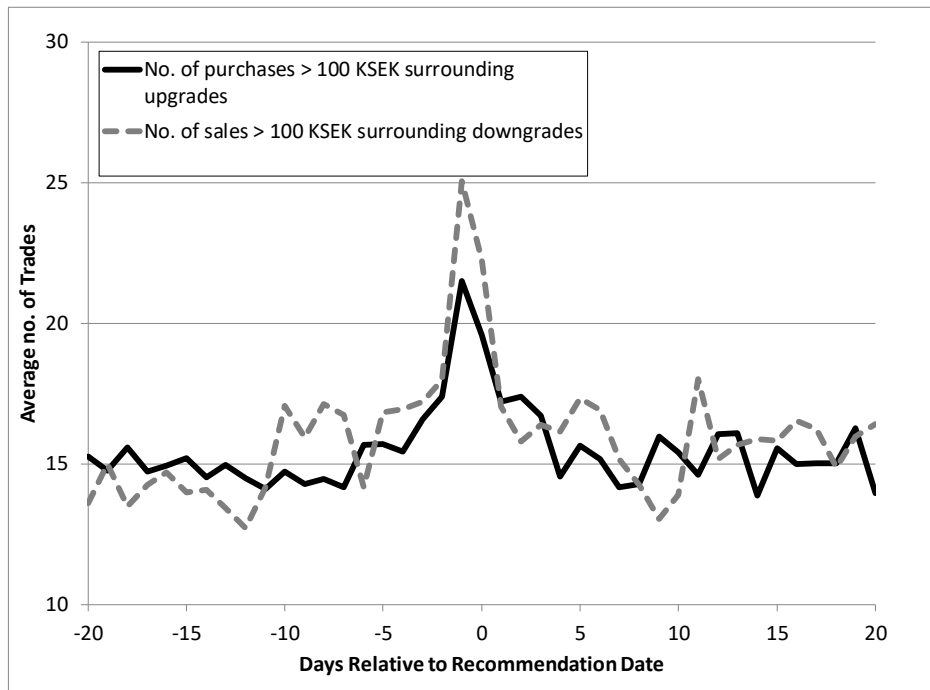




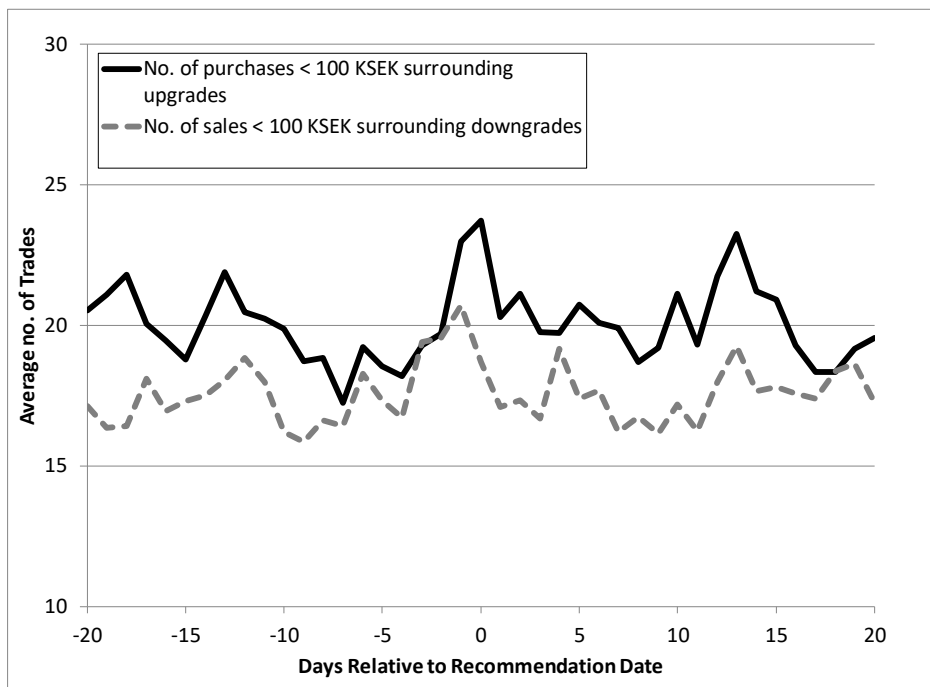
**Appendix Figure 3: Average number of large and small purchases and sales executed by recommending brokers around recommendation revision dates**

Panel A of this figure shows the average number of purchases (for upgrades to buy or strong buy) and sales (for downgrades to sell or strong sell) executed by the recommending brokers' clients on the recommended stock that exceed SEK 100,000. Similarly, panel B shows the average number of purchases (for upgrades) and sales (for downgrades) executed by the recommending brokers' clients on the recommended stock that are less than SEK 100,000. These averages are shown in event time for a window centered on the recommendation day and including 20 trading days prior and after that date. The sample period is 2002 to 2006. The plot includes 311,834 purchases and 203,957 sales transactions.

**A: Large trades**

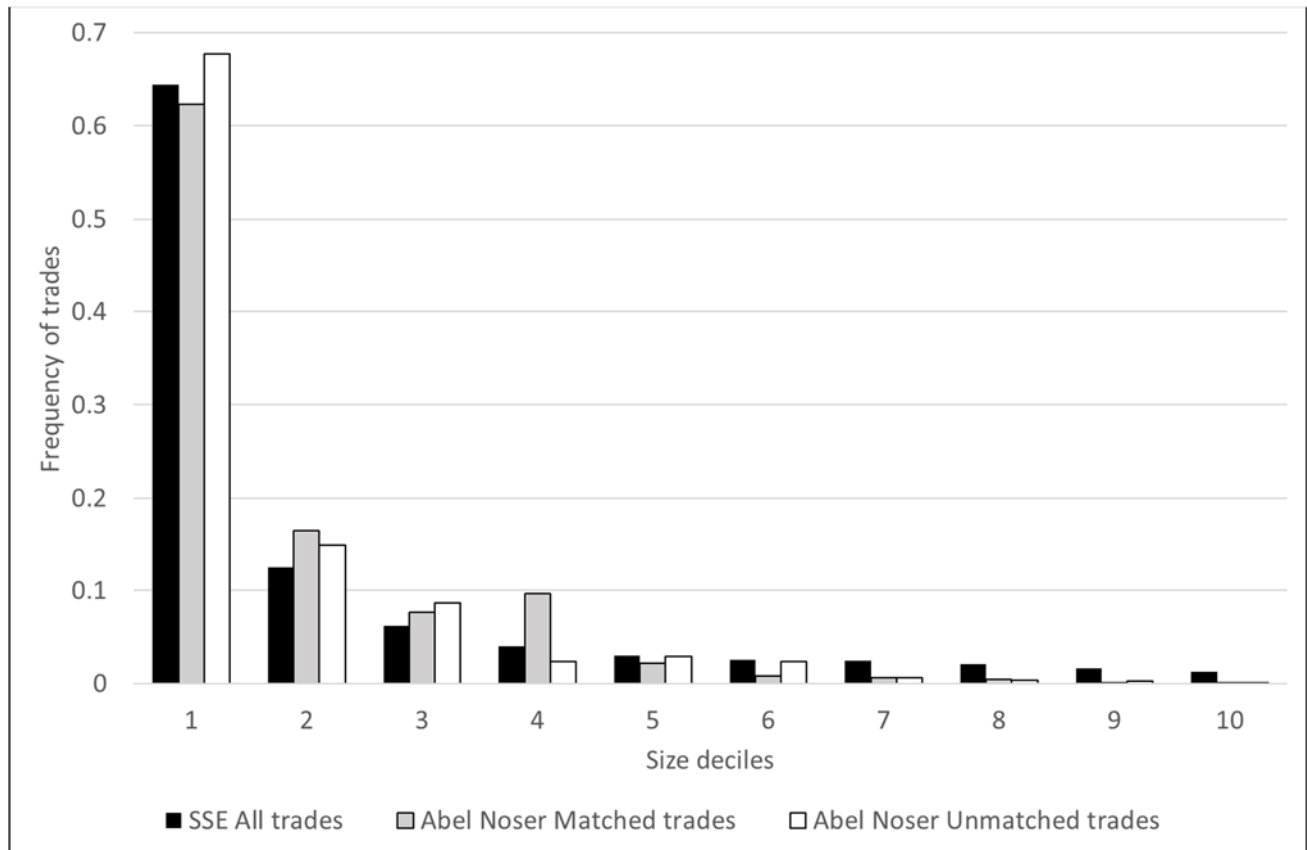


**B: Small trades**



#### Appendix Figure 4: Abel Noser and Stockholm Stock Exchange samples: Firm size distribution comparison

This figure shows the frequency of trades across firm size deciles for the 85,803 stock market transactions from the Abel Noser data set that are matched to our recommendations sample ('Abel Noser Matched trades') and the 164,488 Abel Noser transactions without broker codes that we are not able to match ('Abel Noser Unmatched trades'). It also shows the frequency of trades across firm size deciles for the 256 million transactions in the full Stockholm Stock Exchange data set ('SSE All trades'), regardless of whether they match the Abel Noser data or not. Data is from January 2002 to June 2006.



### Appendix Figure 5: Distribution of commission rates around recommendation revision dates

This figure shows the frequencies of paid commissions, in basis points, in firms for which brokers issue recommendations. The original sample includes 85,803 stock market transactions from January 2002 to June 2006 obtained from Abel Noser. Results are displayed for: a) a subsample of 62,950 transactions executed by 16 brokers appearing in the recommendation sample (“Recommending brokers”); b) a subsample of 1,107 transactions executed by those brokers in a 40-day window centered on the recommendation date; and c) a subsample of 308 transactions executed by those brokers in a 10-day window centered on the recommendation date.

