Value of Analysts' Investment Recommendations: Evidence from the Irish Stock Market

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ABSTRACT

This paper is the first study investigating the market impact of sell-side analyst investment recommendations in the largely unexplored Irish stock market. We find the market is influenced by analysts' recommendations. The price reaction to sell recommendations is greater than the price reaction to buy recommendations which is consistent with analysts generating an adequate return compensating for the 'costs' associated with issuing a sell recommendation. In addition, in the case of sell recommendations there is evidence of post-recommendation drift which is consistent with initial underreaction to bad news. The high proportion of buy relative to sell recommendations is suggestive that Irish analysts are subject to similar incentive problems as their US counterparts. Interestingly, in this regard, we also find that a significant proportion of hold recommendations may, in fact, be disguised sell recommendations.

INTRODUCTION

A potentially key source of company information to the equity markets is the investment recommendations and earnings forecast revisions of the sell-side analyst. Analysts are arguably the eyes and ears of the market. Brokerage houses invest enormous sums gathering, processing and disseminating information to their insti-

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tutional and retail clients. If the markets are perfectly efficient, analysts will not provide an economic function, as any information will already be reflected in share prices. However, if analysts have an informational advantage in gathering and analysing value-relevant information, or otherwise have access to information not in the public domain, they may indeed add value.

In recent years, however, the role of analysts as impartial intermediaries has been progressively compromised. The literature argues that there are incentives for analysts to bias optimistically their recommendations in order to maintain links with management (Francis and Philbrick, 1993) or to preserve the investment banking relationship (Dugar and Nathan, 1995; Lin and McNichols, 1998).

A number of studies appear to suggest that analysts are able to influence stock prices (e.g. Bjerring et al., 1983; Elton et al., 1986; Stickel, 1995; Womack, 1996; Barber et al., 2001). Womack (1996) is the only study that documents a sustained continuation of price trend in relation to sell-side analysts' recommendations. He finds that this post-recommendation drift is primarily associated with sell recommendations (i.e. negative news).

Very little evidence exists on the investment value of analysts' recommendations in other institutional settings. The only exception is the limited study of Dimson and Fraletti (1986) in the UK, who examine buy recommendations from a single brokerage house only. They find such recommendations generate excess returns which, though statistically significant, are not economically significant after adjusting for reasonable transaction costs.

We contribute to the literature by exploring the market impact of sell-side analysts' investment recommendations in the under-researched Irish equity market. The Irish market is a small market by international standards. The information environment of firms quoted on the Irish Stock Exchange appears, from casual observation at least, to be substantially less rich than their US and UK counterparts. For example, there are far fewer sell-side analysts per quoted company than in either the US or the UK. In addition, individual analysts tend to cover more sectors than their US or UK equivalents. Management forecasts are rarely disclosed publicly to the market. Also, with the development of the Euro, fund managers are diversifying their portfolios internationally and reducing portfolio weights

placed in Irish companies, thereby reducing the incentives for information gathering by the professional investment community and financial press for a large number of Irish companies. In such circumstances, the economic role of the sell-side analyst is an open question.

Our results demonstrate that analysts' recommendation changes communicate valuable information to the Irish equity markets. Stock prices are significantly influenced, not only at the time of the recommendation, but also in subsequent months. The price reaction to sell recommendations is greater than the price reaction to buy recommendations. However, these immediate price reactions appear to be incomplete for sell recommendations showing recommendation drift. This drift, we argue, is potentially consistent with the loss aversion 'disposition effect' hypothesis.

The remainder of the paper proceeds as follows. The next section sets out our data source and methodology and the following section provides descriptive statistics. In the next section the empirical results are presented and the final section summarises and concludes.

DATA AND METHODOLOGY
Sample selection and data source
We analyse the price performance of the written circulars of the four leading Dublin-based brokerage houses, over the eighteen month period 1 July 1998 to 31 December 1999.[1] These are ABN Amro, Davy, Goodbody, and NCB.

Event window
We use monthly returns to calculate the abnormal returns associated with the investment recommendations in the analysis that follows. There are a number of reasons for this:

- We are interested in whether sell-side analysts' recommendations have long-term investment potential.
- Our source for the recommendations is the written circulars issued by the stockbroking houses. The news content of these circulars may have been released selectively to certain clients in the days prior to the official release date. [2]

- Womack (1996) shows that using US data abnormal returns for buy recommendations continue for up to one month after the date of the recommendation change. The corresponding number of months for sell recommendations is six months.

Our event period runs from month -6 to +6. This is consistent with many previous studies (e.g. Groth et al., 1979; Dimson and Fraletti, 1986; Elton et al., 1986; Womack, 1996) and is also motivated by the potential for analyst recommendations to be 'price driven' rather than 'information driven'.

Return-generating methodology

To measure medium-term stock price performance we track the performance of a recommendation relative to a benchmark portfolio. For each calendar month we calculate the abnormal return on each stock with a recommendation using a reference (benchmark) portfolio approach. If firms incur a reverse recommendation after the recommendation month we drop them from all further analysis. We match the sample firm return with a portfolio-based return based on two firm characteristics: size and book-to-market.

To devise the appropriate benchmarks we form six portfolios based upon three size groupings and two book-to-market groupings. On 30 September of each year from 1998 to 1999, all portfolio firms are first separately ranked on size (market capitalisation) into three groupings.[3] Each size grouping is then broken into two book-to-market equity groups.

To calculate the abnormal returns of our sample firms, we allocate each sample firm to one of the six matched portfolios formed previously for the appropriate year. Using the most recent market capitalisation, book-to-market ratio for the sample firm, we compare these values to the break points for the matched portfolios of that period. The abnormal returns for each sample firm are then calculated by comparing the returns of the sample firm with that of the matched portfolio on a monthly basis.

The return (R_{it}) on a buy-and-hold investment in sample firm i in month t less the return on a buy-and-hold investment in a portfolio with an appropriate expected return $E(R_{it})$ known as the buy and hold abnormal return (*BHAR*) is given by:

$$BHAR_{it} = \prod_{t=0}^{n}[1+R_{it}] - \prod_{t=0}^{n}[1+E(R_{it})] \tag{1}$$

Returns are calculated as follows:

$$R_{i,t} = (P_t + D_t) / P_{t-1}) - 1 \tag{2}$$

where: $R_{i,t}$ = return on stock i in month t,

$P_{i,t}$ = share price for stock i in month t, and

$D_{i,t}$ = dividend for stock i in month t

We employed the cross-sectional dependence adjustment tech-nique to calculate the t-statistic as employed by Desai et al. (2000).

The standard error for the cross-sectional dependence-adjusted t-statistic is calculated as follows: using monthly abnormal return data from 24 months prior to the recommendation change to 24 months after the recommendation change (total of 49 months), we compute the correlation coefficient, $\rho_{i,j}$ for all pairs of i and j. Then Cov $_{i,j}$ for any period T is given by $\rho_{i,j}\delta_i\delta_j$, where δ_i and δ_j are the standard deviations of abnormal returns for stock i and stock j respectively over time period T. δ_i for T-month abnormal return is given by the standard deviation of monthly abnormal returns multi-plied by the T. For an equally weighted portfolio of n stocks, the dependence-adjusted standard error of portfolio abnormal returns is given by

$$SE_T = \sqrt{VAR_T + \frac{1}{n^2}\sum_{i=1}^{n}\sum_{j=1}^{n} cov_{ij} \Big/ n-1}, \ \forall i \neq j \tag{3}$$

Using this method of calculating the standard error the t-statistic is the portfolio abnormal return up to time period T divided by SE_T.

RECOMMENDATION CHARACTERISTICS

Table 8.1 presents the matrix of 398 recommendations for the four par-ticipating brokerage houses over the eighteen month period, July 1998 to December 1999. There are a total of 251 buy recommendations and 35 sell recommendations yielding a ratio of 7.17:1. The total number

of hold recommendations is 112. However, if we exclude cases where there are similar recommendations made by more than one stock-broking house in the same calendar month there are a total of 195 unique buy recommendations and 33 unique sell recommendations yielding a ratio of 5.91:1. The corresponding number of hold recommendations is 104.

Table 8.1: List of Recommendations

Recommendation	No. of Recommendations	No. of Unique Recommendations
Buy	251	195
Hold	112	104
Sell	35	33
Total	398	332

The comparable ratio of buys to sells for Womack (1996) is 6.3:1. For Ho and Harris (1998, Table 2) the respective ratio is 5.2:1 for brokerage firms in their sample using a three level scale, and 4.1:1 for firms using a five point scale. Stickel's (1995) equivalent figures are a similar ratio of 4.6:1. On this basis Irish brokerage houses appear as reluctant to issue sell recommendations as their US counterparts.[4]

Analysts are less likely to issue sell recommendations for a number of reasons. For instance, sell recommendations may be harmful to a firm's present and potential investment banking relationships (Dugar and Nathan, 1995). Also, top management may limit or cut off the flow of information if a house issues an unfavourable recommendation (Francis and Philbrick, 1993). In addition, issuing sell recommendations can be more risky as they are more visible and less frequent (Womack, 1996). Analysts may also be subject to biases, which lead them to believe their own sales pitches (Ho and Harris, 1998) and/or underreact to negative information and overreact to positive information (Easterwood and Nutt, 1999).

EVENT PERIOD ABNORMAL RETURN PERFORMANCE
The abnormal return performances attributable to buy, sell and hold recommendations are presented in Tables 8.2, 8.3 and 8.4

respectively with returns calculated from six months prior to the recommendation to six months after the event month. [5, 6]

Table 8.2: Buy Recommendations: Mean Abnormal Returns

Month Relative to Recom- mendation	Abnormal Return (%)	Abnormal Return (*t*-statistic)	BHAR (%)	BHAR (*t*-statistic)
−6	0.78	0.99		
−5	0.26	0.34		
−4	−0.48	−0.61		
−3	−0.51	−0.68		
−2	0.29	0.39		
−1	0.43	0.59		
0	1.68	2.13*	1.68	2.13*
1	−0.03	−0.03	1.32	1.24
2	0.10	0.13	1.33	1.03
3	−0.65	−0.78	0.58	0.38
4	0.17	0.17	1.08	0.58
5	0.15	0.19	1.15	0.57
6	0.61	0.65	2.33	0.89

*Statistically significant at α=0.05

The average abnormal return for new buy recommendations is 1.68 per cent in the month of the recommendation (Table 8.2) and the equivalent average return for sell recommendations is -6.45 per cent (Table 8.3). Both of these returns are statistically significant at α = 0.05. The returns to hold recommendations are insignificant in the recommendation month in line with expectations (Table 8.4).[7 8]

The magnitude of these results is broadly similar to Womack (1996) who found a three day abnormal return of +3 per cent for buys and -4.7 per cent for sells. Our results, however, exceed those of Elton et al. (1986), who find smaller calendar month excess returns of -0.5 per cent for sells, and Stickel (1995), who finds abnormal returns of +0.9 per cent (buys) and -0.8 per cent (sells) for

Table 8.3: Sell Recommendations: Mean Abnormal Returns

Month Relative to Recommendation	Abnormal Return (%)	Abnormal Return (t-statistic)	BHAR (%)	BHAR (t-statistic)
–6	–2.87	–0.95		
–5	–3.36	–1.43		
–4	–0.73	–0.21		
–3	–4.18	–1.26		
–2	–1.94	–0.79		
–1	–7.82	–2.26*		
0	–6.45	–2.08	–6.45	–2.08*
1	–3.72	–1.40	–10.56	–3.07*
2	–2.18	–0.68	–13.05	–3.42*
3	–1.79	–0.54	–14.03	–2.99*
4	2.64	0.83	–11.98	–2.12*
5	1.79	0.68	–9.83	–1.40
6	4.39	1.24	–6.29	–0.80

*Statistically significant at $\alpha = 0.05$

eleven day event windows. Groth et al. (1979) document a calendar month return of 1.8 per cent for buys and -1 per cent for sells.

For sell recommendations we document negative abnormal returns in each of the six months prior to the recommendation (Table 8.3). In month -1 this return is -7.82 per cent and is statistically significant at $\alpha = 0.05$. Womack (1996) and Stickel (1995) also document negative abnormal returns in the period preceding the recommendation change, though only Stickel finds his returns are statistically significant.

Interestingly, for hold recommendations the returns are negative in each of the preceding six months (Table 8.4). In the case of some months these returns are close to being significant at the 90 per cent level. As the pattern is similar to that of sell recommendations (Table 8.3) it may be that in some cases the hold recommendations

Table 8.4: Hold Recommendations: Mean Abnormal Returns

Month Relative to Recommendation	Abnormal Return (%)	Abnormal Return (*t*-statistic)	BHAR (%)	BHAR (*t*-statistic)
−6	−0.97	−0.64		
−5	−1.42	−1.42		
−4	−0.77	−0.77		
−3	−1.56	−1.56		
−2	−1.80	−1.34		
−1	−1.06	−0.71		
0	−0.91	−0.58	−0.91	−0.58
1	−2.26	−1.48	−2.86	−1.15
2	−3.74	−2.41*	−6.17	−1.88
3	−0.59	−0.43	−6.74	−1.83
4	0.17	0.11	−5.63	−1.07
5	−1.54	−1.22	−7.60	−1.64
6	2.88	1.95	−6.32	−1.57

*Statistically significant at $\alpha=0.05$

may be disguised sells! Investors may take time to realise that this is the case and this may explain the -3.74 per cent return (statistically significant at $\alpha = 0.05$) in month 2.

In Table 8.2 for new buy recommendations, we find no evidence of 'price following' behaviour in the months preceding the recommendation change. In fact, returns are negative in two of the preceding six months. In the other months, though the returns are positive (including months -1 and -2), they are nowhere close to being statistically significant. Groth et al. (1979), in comparison, find positive and statistically significant returns in the six-month period prior to buy recommendations.

Our negative returns for new sell recommendations (Table 8.3), however, even though consistent with price following behaviour, can be legitimised in other ways that are still consistent with analysts

having an informational advantage. In terms of our results analysts are not 'price followers' for buy recommendations. There is nothing in the literature to suggest that analysts are less able to process negative information about companies than positive information. In contrast, the analyst may face incentives not to issue an unfavourable report even though they possess unfavourable information about a company (Francis and Philbrick, 1993; Francis and Soffer, 1997; Womack, 1996). Thus the negative news circulating about companies prior to the recommendation change may not have been significant enough to justify analysts issuing 'costly' sell recommendations.

For buy recommendations the evidence is that the price reaction is immediate and confined to the recommendation month. The BHAR is not significant after month 0 (Table 8.2). Womack (1996) reports similar results. Elton et al. (1986) find statistically significant abnormal returns for month 0 and the two subsequent months. Bjerring et al. (1983) and Groth et al. (1979) find no statistically significant evidence of subsequent abnormal returns for buys.[9]

For sell recommendations, there is evidence of negative statistically significant returns in subsequent months (Table 8.3). The BHAR for sell recommendations continues to be significant up to month 4 generating an abnormal return of -11.98 per cent (t-statistic = -2.12) in that month. Interestingly, if we recompute the BHAR excluding the month of the recommendation (Table 8.5) the BHAR is significant up to month 3 indicating evidence of significant post-recommendation drift independent of the month 0 return.

Our results in relation to the post-recommendation drift are consistent with Womack (1996) who reports large six month cumulative abnormal returns of between -8.4 per cent and -13.7 per cent depending on the return-generating model benchmark. Elton et al. (1986) record statistically significant returns for up to two months after the sell recommendation, though these are of smaller magnitude than we report.

For hold recommendations the BHAR is not statistically significant. This is what we would have expected (Table 8.4). However, if we exclude the recommendation month and compute an adjusted BHAR starting in the month after the recommendation, the BHAR (Table 8.5) is significantly negative up to month 2, generating an

**Table 8.5: Post-Recommendation Drift: Abnormal Returns
Accumulated from the Month after the Recommendation**

Month Relative to Recommendation Month	Buy	t-Statistic	Sell	t-Statistic	Hold	t-Statistic
BHAR (1,1)	–0.03	–0.03	–3.72	–1.40	–2.26	–1.48
BHAR (1,2)	3.04	1.08	–6.87	–2.31*	–6.39	–2.27**
BHAR (1,3)	3.78	0.97	–8.34	–2.07*	–5.57	–1.41
BHAR (1,4)	5.53	1.27	–5.92	–1.06	–3.35	–0.80
BHAR (1,5)	5.37	1.15	–3.10	–0.41	–3.16	–0.53
BHAR (1,6)	5.51	1.06	1.36	0.16	0.67	0.11

*Statistically significant at $\alpha=0.05$
BHAR(1,1) = abnormal return in the month after the recommendation; BHAR (1,2) = buy and hold abnormal return from the start of month 1 to the end of month 2. Remaining BHARs can be interpreted on a similar basis.

abnormal return of -6.39 per cent (t-statistic = -2.27). Thereafter, though the BHAR is negative up to month 5, it is not statistically significant. Such evidence is again potentially consistent with a significant proportion of the hold recommendations being disguised sell recommendations.

As we report a dichotomy between the duration and magnitude of the post- recommendation drift process for buy and sell recommendations, our results may be consistent with a loss aversion 'disposition' effect hypothesis whereby investors avoid actions that create regret. Regret is the emotional pain that comes when investors realise that a previous buy decision turned out to be a bad one. In such circumstances Shefrin (2000) shows that fearing regret causes investors to be predisposed to riding losers too long. In such circumstances, they will take time to dispose of losers and hence the price impact will not be immediate and will be spread out over time. Are holders of stocks subject to sell recommendations reluctant to respond in a timely manner to the bad news conveyed, compared with investor reaction to good news associated with buy recommendations?

Such results are also consistent with the literature on price momentum strategies whereby the market appears to be slow in incorporating the full impact of information into company valuations (e.g. Jegadeesh and Titman, 1993; Chan et al., 1996). Hong et al. (2000) find price momentum is most pronounced in circumstances when the news is negative.

In aggregate, our results suggest the sell-side analyst has a significant role to play in communicating value relevant information in the Irish market. The price reaction to sell recommendations is greater than the price reaction to buy recommendations. This may be consistent with the potential costs of disseminating rather than gathering information *per se*. As new sell recommendations are less frequent and more visible, an incorrect judgement on a sell recommendation is likely to be more costly to reputation than an incorrect buy recommendation, when other analysts are likely to be making similar recommendations. Thus, if the costs of issuing a sell recommendation are greater, then the analyst's expected return for issuing these should also be greater.

SUMMARY AND CONCLUSIONS

Our research into investment recommendations made by Irish sell-side analysts indicates that share prices are significantly influenced by analysts' recommendations.

There is little evidence of price following behaviour for buy recommendations. However, for sell recommendations we find some evidence of price following behaviour, but we rationalise this as potentially attributable to other causes as well.

The price reaction to sell recommendations is greater than the price reaction to buy recommendations. We argue that this is associated with the potential costs of disseminating rather than gathering information *per se*.

Even though immediate price reactions are large, they appear to be incomplete showing considerable post-recommendation drift in the case of sell recommendations. This result is potentially consistent with loss aversion (Shefrin, 2000).

The disproportionately high number of buy relative to sell recommendations is consistent with analysts' incentives to avoid alienating company management and damaging present and

potentially future investment banking relationships. Our results in relation to hold recommendations reinforce this view.

Analysts incur costs in acquiring, processing, and disseminating information to their clients. Our analysis demonstrates that the issuance of buy and sell recommendations has a substantial impact on prices. Such returns are consistent with Grossman and Stiglitz (1980) who argue that valuable information gathering should generate a clear return.

In conclusion, therefore, sell-side analysts serve an economic role in communicating value relevant information to investors in the Irish equity market but there is also evidence to suggest that investors need to be aware of the conflicting incentives facing analysts in their decision-making processes.

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1 In the analysis that follows we include all buy, sell, and hold recommendations made over the sample period. We do not distinguish between new buy, sell, and hold recommendations versus reiterations of existing recommendations for two reasons. Firstly, the sample size of new buy and, in particular, new sell recommendations would be too small, leading to problems of statistical inference. Secondly, our sample is drawn from the written circulars of the stockbroking houses. It is possible that a recommendation may have changed and have been disseminated orally without the release of a written circular. By working with written circulars we are unable to pick up such events.

2 Prior disclosure is a problem in relation to analysts' investment recommendations where there are incentives to disseminate such releases to clients prior to the market as a whole. There is some such evidence from studies examining the price and trading volume impact of the secondary dissemination of analysts' stock recommendations in the financial press which document price movement prior to 'public' disclosure (e.g. Davies and Canes, 1978; Bauman et al., 1995).

3 We work with the 30 September date as representing the best estimate of when most firms will have disclosed up-to-date book value per share figures, associated with prior December and March financial year end clusterings plus accounts publication delay.

4 Womack (1996), Ho and Harris (1998) and Stickel (1995) do not appear to adjust their sample of recommendations for multiple same-type recommendations made by more than one stockbroking house at the same time.

5 These abnormal returns are calculated based on the number of unique buy, sell and hold recommendations (3rd column of Table 8.1) to avoid obvious cross-sectional dependence problems in the interpretation of the statistical tests.

6　We re-ran our results presented in Tables 8.2, 8.3 and 8.4 using the market model rather than the benchmark portfolio approach with no significant impact on our reported results.

7　Of the extant studies mentioned in the introduction, Barber et al. (2001) is not directly comparable to our study as their approach is based on consensus (average) recommendations for all analysts in their database following a stock, uses frequent portfolio rebalancing and is restricted to the reporting of returns for only one month.

8　We need to be slightly careful in comparing the magnitude of our abnormal returns with other studies due to differences in the time period over which returns are measured and accumulated in these studies.

9　It is difficult to make inferences about the results of Dimson and Fraletti (1986) as no *t*-statistics are reported.

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