

# Managing institutional execution costs

There is much debate about execution costs and how broker commissions are framed. **CAROLE COMERTON-FORDE, ALEX FRINO** and **TEDDY OETOMO** explain how to manage these costs.

**A** large volume of research has attempted to quantify institutional execution costs and document the factors which influence these costs. This research has consistently reported that execution costs have a significant impact on fund performance and that stock size, trade size, brokerage commissions and portfolio style affect costs.

Surprisingly, no research has considered the role that brokers play in managing these costs. This lack of research is perplexing given that delivering low execution costs is one of the primary services offered by brokers. Fund managers rank 'execution' as the second most important factor they consider when allocating commissions to brokers (2001 Reuters Survey). Further, institutions pay significant commissions to brokers for this service.

In the United States, organisations such as the Plexus Group offer post-trade analytic services which allow investment managers to benchmark their execution performance against their competitors. However, in Australia this benchmarking service does not exist. The only publicly available assessment of execution performance is in the form of surveys such as those offered by Reuters, East Coles and Greenwich Associates.

This article addresses the lack of

research in this area by examining the extent to which broker ability influences institutional execution costs. Using a unique set of data, we examine the relationship between institutional execution costs, and the ranking of broker execution and research ability provided by the Reuters and East Coles Surveys.

Our results demonstrate that institutional investors can significantly reduce their execution costs by directing their trades to the top ranked broker in a given industry. Trades executed via brokers who are reported to exhibit better execution ability incur lower liquidity costs. Trades executed via brokers reported to display stronger research ability exhibit larger permanent price impact. This suggests that these trades convey greater information content.

This article provides insight into the importance of broker selection in affecting the magnitude of execution costs incurred by institutional investors. It also provides an empirical assessment of the Reuters and East Coles broker rating surveys.

## INSTITUTIONAL TRADE DATA

The data used in this article was provided by an active institutional investor that is ranked among the top 10 investment managers in Australia and it is based on the value of total

Carol Comerton-Forde,  
Alex Frino and Teddy  
Oetomo  
Finance Discipline,  
School of Business,  
Faculty of Economics  
and Business,  
The University of Sydney

funds under management. The sample consists of 42,229 institutional trades (18,773 purchases and 23,526 sales), made by 41 different actively managed portfolios on the Australian Stock Exchange (ASX), via 45 different brokers from 15 May, 2001 to 15 May, 2002. The institutional trade data is merged with stock information provided by the Securities Industry Research Centre of Asia-Pacific (SIRCA).

Institutional orders are often broken up into smaller trades and executed over substantial periods of time in order to minimise the cost of execution. Given that the data used in our analysis comprises individual trades rather than orders, we adopt a standard methodology for packaging these trades to proxy for larger orders.

Table 1 describes the characteristics of the orders analysed. There are 28,371 institutional orders examined. The average size of these orders is large with an average volume of 91,989 shares for purchases and 85,170 shares for sales. These represent nominal values of approximately AUD 364,434 and AUD 322,409, respectively. Table 1 demonstrates that institutional orders are typically spread out across several days. The average duration for completing an order is 1.45 days for purchases and 1.55 days for sales.

## MAGNITUDE OF EXECUTION COSTS

The opening (closing) price on the day the package starts (ends) is used as the pre (post) execution benchmark. Four measures of execution costs are used: Total, Temporary, Permanent and Industry. Temporary measures the return between the post-execution benchmark and the average traded price of the package. Permanent measures the return between the post- and the pre-execution benchmark. This represents the information content of the trade package. Total represents the sum of Temporary and Permanent. Industry measures the return between the average trade price of the package and the volume weighted average price of the security during the life of the package. This measure is used widely in the industry to capture broker execution ability. Each measure is then

multiplied by 1 for purchases and -1 for sales. All four measures are adjusted for market returns.

Table 2 reports the average execution costs. Institutional purchases (sales) are executed at 0.23 (0.14) basis points higher (lower) than the pre-execution benchmark. These results are slightly lower than the magnitude of execution costs documented by studies emanating from the United States (US). Using data provided by the Plexus Group in the US, a recent study estimates the average execution costs of US institutional investors to be around 36 basis points.

The results indicate that purchases induce price continuation whereas sales are followed by price reversals. Prices continue to rise by an average of 22 basis points and reverse by an average of 3 basis points following purchases and sales, respectively. This asymmetry is likely to be driven by short-selling restrictions and the higher likelihood of purchases to be informed vis-à-vis sales.

## DETERMINANTS OF EXECUTION COSTS

We undertook regression analysis to examine the factors which influence the magnitude of execution costs. We considered brokerage commissions, stock capitalisation, trade size, time-weighted relative bid-ask spread, package duration and portfolio and broker identity. The last variable has not previously been considered in the literature. Trade complexity is computed as the ratio between the size of the trade package and the average number of shares traded 20 days prior to the start of the trade package. The

stock capitalisation and trade size are classified into six groups: less than 10th percentile, 10th to 25th percentile, 25th to 50th percentile, 50th to 75th percentile, 75th to 90th percentile and greater than 90th percentile with a dummy variable identifying each group. The smallest group serves as the benchmark. Duration represents the number of days required to complete the trade package. Portfolio identity captures the different investment styles implemented across portfolios. Broker identity captures the extent to which execution costs are influenced by the broker executing the trade.

Table 3 reports that, consistent with previous research, execution costs are positively correlated with relative trade size and negatively correlated with stock capitalisation. The correlation between brokerage commissions and execution costs provides mixed evidence – possibly induced by a number of unobserved components of commissions, such as “soft-dollar” services. Trade duration is negatively correlated with the Temporary measure, suggesting that trade packages that are transacted more patiently tend to incur lower execution costs. The positive correlation documented between trade duration and the Total and Permanent measures indicate that more informed trades are harder to execute and therefore require more time to complete.

With the exception of the Temporary and Permanent measure for purchases, bid-ask spreads are found to be positively correlated with execution cost.

TABLE 1. DESCRIPTION OF PACKAGES

	Total	Purchases	Sales
Volume	88,370	91,989	85,170
Value	\$342,131.89	\$364,434.21	\$322,408.85
Duration	1.50	1.45	1.55

TABLE 2. MAGNITUDE OF EXECUTION COSTS

	Total	Temporary	Permanent	Industry
Purchase	0.23*	-0.22*	0.47*	0.06*
Sales	0.14*	0.03*	0.10*	0.01*

\* denotes significant at 1 percent level of significance.

**TABLE 3 REGRESSION ESTIMATES**

	Total		Temporary		Permanent		Industry	
	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales
<b>Adj R-Sq</b>	9.55	5.53	9.51	4.84	4.24	10.69	9.73	3.09
<b>Intercept</b>	0.62	0.97*	0.46	0.38	1.28*	0.56	-0.16	0.3
<b>Brokerage</b>	6.23*10 <sup>-6</sup>	-5.98*10 <sup>-6</sup>	-2.38*10 <sup>-5*</sup>	2.38*10 <sup>-05</sup>	2.99*10 <sup>-5*</sup>	9.87*10 <sup>-7</sup>	3.77*10 <sup>-6</sup>	2.03*10 <sup>-5</sup>
<b>Complexity</b>								
2 (Least)	0.27 *	0.16 *	0.15 *	0.07	0.23 *	0.20 *	0.25 *	0.00
3	0.40 *	0.14 *	0.21 *	0.16 *	0.32 *	0.07	0.31 *	0.04
4	0.37 *	0.06	0.35 *	0.29 *	0.2 *	-0.14	0.34 *	0.12 *
5	0.38 *	0.01	0.44 *	0.36 *	0.2	-0.30 *	0.4 *	0.18 *
6 (Most)	0.39 *	0.03	0.57 *	0.37 *	0.07	-0.45 *	0.47 *	0.27 *
<b>MktCap</b>								
2(Smallest)	-0.18	0.08	-0.33	-0.14	-0.29	0.01	-0.12	-0.08
3	-0.23	-0.53 *	-0.47 *	-0.09	-0.24	-0.71 *	-0.17	-0.09
4	-0.11	-0.8 *	-0.38 *	-0.09	-0.35	-1.14 *	-0.11	-0.11
5	-0.21	-0.69 *	-0.39 *	-0.09	-0.63 *	-1.16 *	-0.11	-0.07
6 (Largest)	-0.18	-0.68 *	-0.27	-0.1	-0.47	-1.3 *	0.04	-0.08
<b>Duration</b>	0.17 *	0.06 *	-0.09 *	-0.06 *	0.1 *	0.21 *	-0.04 *	-0.01 *
<b>BAS</b>	0.03	0.03	-0.68	3.63 *	-6	7.68 *	2.04	0.32
<b>Portfolio ID</b>								
90th - 10th percentile	0.67	0.33	0.32	0.37	0.39	0.3	0.22	0.21
<b>Broker Effects</b>								
90th - 10th percentile	1.26	0.89	1.14	0.86	1.17	0.86	0.63	0.6

\* denotes significant at 1 percent level of significance.

**TABLE 4 BROKERS RANKING BY RESEARCH AND EXECUTION ABILITY (PARTITION BY BROKER)**

	Research Ability				Execution Ability			
	2001 Reuters Survey		2002 East Coles Survey		Temporary		Industry	
	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales
<b>R-Square</b>	13.14	12.89	18.17	13.39	11.75	7.93	8.25	6.49
<b>Intercept</b>	0.38	-0.05	0.42	-0.36	0.73	-0.08	-0.22	-0.04
<b>Brokerage</b>	4.64*10 <sup>-6</sup>	2.93*10 <sup>-5</sup>	5.33*10 <sup>-5</sup>	1.69*10 <sup>-4</sup>	-4.65*10 <sup>-5*</sup>	-7.86*10 <sup>-5</sup>	-7.09*10 <sup>-6</sup>	-5.61*10 <sup>-6</sup>
<b>MktCap</b>								
2 (Smallest)	1.04	0.01	-0.06	-0.02	-1.06	-1.18	0.23	-0.12
3	-0.64	-0.34	-1.22	-0.38	-0.85	-0.86 *	-0.07	-0.02
4	-0.57	-0.38	-1.40	-0.53	-1.21	-0.92 *	-0.13	-0.15
5	-0.61	-0.51	-1.70	-0.62	-1.62 *	-0.80 *	-0.19	-0.13
6 (largest)	-0.45	-0.52	-1.89	-0.69 *	-1.40	-1.04 *	-0.24	-0.27
<b>Complexity</b>								
2 (Smallest)	0.22	0.40	0.19	0.33	0.19	0.15	0.36 *	0.02
3	0.33	0.31	0.53 *	0.48	0.31	0.25	0.50 *	0.05
4	0.27	0.25	0.70 *	0.56	0.45 *	0.33	0.61 *	0.14
5	0.38	0.22	0.93 *	0.56	0.63 *	0.34	0.59 *	0.15
6 (largest)	0.54	0.11	1.09 *	0.47	0.79 *	0.52	0.59 *	0.25
<b>BAS</b>	-0.04	0.00	-0.09	0.06	-0.09	0.03	0.01	-0.06
<b>Duration</b>	0.07	0.20 *	0.02	0.21 *	-0.15 *	0.03	-0.04 *	0.05 *
<b>Portfolio ID</b>								
90th - 10th percentile	1.24	1.17	1.20	1.22	0.71	0.72	0.64	0.48
<b>TopRank</b>	0.45 *	0.48 *	1.41 *	0.64	-0.37 *	-0.44 *	-0.41 *	-0.16 *

\* denotes significant at 1 percent level of significance.

## THE IMPACT OF BROKERS' ABILITY ON EXECUTION COSTS

Brokerage houses typically assign different research and trading teams to different stocks (typically by industry). We undertake regression analysis to examine the impact of brokers' ability on execution costs. The regression model is similar to the one estimated in the previous section. However, the broker identification dummy variables are replaced with a dummy variable that takes the value of 1 if the trade package is executed in a stock from the industry where the broker is ranked first (Top) by 2001 Reuters Survey or East Coles Survey, and 0 otherwise. Additionally, in this section, the regression model is estimated separately for each brokerage houses and the average value of coefficients are reported.

Consistent with the conjectured hypothesis, Table 4 demonstrates that the variable Top is positively correlated with the permanent component of execution costs and negatively correlated with the temporary and industry measures of execution costs. Thus, brokers' purchases (sales) induce greater upward (downward) price movement if executed on stocks from an industry in which the executing broker has a research specialty. This is because these trades are more likely to convey greater information content. Execution costs are significantly lower when trading stocks where the broker exhibits execution specialty. Brokers with better execution ability are expected to receive higher order flow, which in turn, would allow these brokers to obtain better execution.

## CONCLUSION

This article demonstrates that variation in research and execution abilities play an important role in determining the magnitude of execution costs associated with institutional trades. The ability to identify and channel trades to brokers with execution speciality in a particular stock significantly reduces the cost of liquidity incurred. Trade packages executed by brokers with stronger research ability exhibit higher permanent price effects. The results indicate that our quantitative results on broker ability are consistent with the qualitative surveys provided by Reuters and East Coles.

This article also examines the magnitude and determinants of institutional execution costs on the ASX. The results documented are largely consistent with evidence from prior studies. Trade complexity and stock liquidity are significant factors influencing execution costs whereas the findings for bid-ask spread and brokerage commissions are mixed.

## REFERENCES

Chan, L. K. C. and J. Lakonishok, 1995, The Behaviour of Stock Prices around Institutional Trades, *Journal of Finance* 50, 1147-1174.



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