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Principal trading costs

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Many management firms use principal trading for block trades and portfolio reshuffling. The execution price in such trades is equal to the reference price plus a premium. Quantitative analysis and assessment of this premium are necessary to ensure optimal execution.

Principal trading versus agency trading

In December 1998 regulations requiring equity trades to pass through an exchange were lifted, making it possible for securities companies to buy and sell directly from customers—i.e., principal trades. In traditional agency trades, in contrast, the securities firm relays the customer's order to an exchange. Principal trades enable securities companies to serve as flexible trading partners for their customers and satisfy a wider range of investor needs.

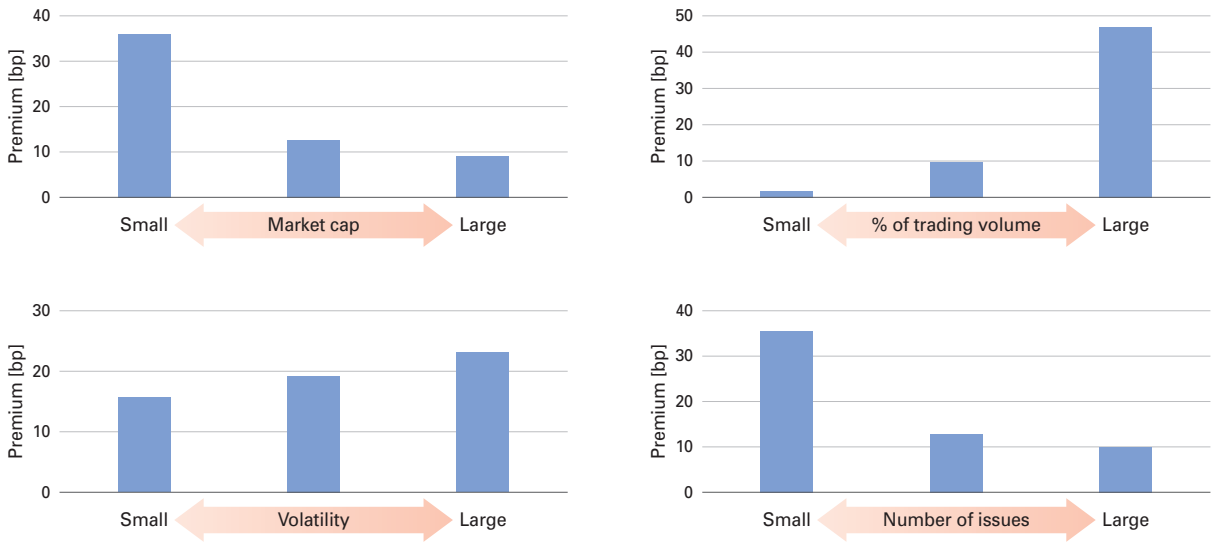
When making a large trade, for example, institutional investors would traditionally buy or sell in small increments over a period of time to prevent a significant impact on the market. Because this method takes time, however, it entails the risk that the price will move away from initial estimates. Investors seeking to avoid this risk can use principal trades to complete the transaction all at once.

Principal trading costs

When an institutional investor makes a principal trade, it first notifies the securities company of the name of the issue, the number of shares to be traded, and the reference price, which serves as the basis for the execution price. The most recent traded price is commonly used as the reference price, although in the case of so-called lunchtime trades,[1] the closing price for the morning session becomes the reference price. The securities company then presents an execution price, which consists of the reference price plus estimated inventory adjustment costs and profit margin. "Inventory adjustment" refers to the trades required to keep position risk under a certain threshold.[2]

The spread between the execution price and the reference price represents the cost of a principal trade and is here referred to as the premium. Because the premium is not

Exhibit 1. Premium and trade terms



as transparent as the commissions involved in agency trades, an understanding of how it is determined is critical to determining whether a given principal trade is advantageous compared with an agency trade.

Factors determining premium

The inventory adjustment cost is determined by several factors: the cost of the market impact, the timing cost due to price fluctuations before the trade is executed, and the ease of hedging required to cap timing costs.

Exhibit 1 presents the results of a study of premiums based on actual principal trading data.[3] We examined the correlation of premium with average market cap,[4] percentage of daily trading volume,[5] volatility,[6] and the number of issues involved in the trade. The data confirm that premium tends to rise for small market caps or a high percentage of daily trading volume (because winding down the position has a larger impact on the market) and when volatility is high (because there is a greater risk of price fluctuation before the trade can be wound down). Premium tends to decline as the number of issues increases, a phenomenon probably related to the ease of using market index futures to hedge the trade.[7]

Situations in which principal trading is advantageous

To determine the benefits of principal trades, we compared premium with the estimated execution cost of an agency trade in the same security. The agency trade execution cost model used past trading data to model the change in market prices given a trade of an arbitrary number of shares in an arbitrary issue.

Exhibit 2 compares the costs involved in agency trades and principal trades for ratios of daily trading volume exhibiting statistically significant correlations. In general, principal trade premium was lower than the estimated agency trade execution costs. In particular, the price spread rose to 38bp when the trade involved at least 10% of daily trading volume. And in fact the price advantage of principal trades would be even greater because the estimated execution cost for agency trades did not include commissions.

Using principal trades effectively

This study confirms that principal trades can be an effective tool for reducing execution costs, particularly in the case of large trades. But it should be remembered that these are average results—in practice it is always preferable to estimate the premium for individual trades. Firms should follow the PDCA (Plan, Do, Check, Act) cycle of execution by estimating the potential benefits of a principal trade, deciding whether to make the trade, and then checking the premium after-the-fact to allow further improvements in the future. This approach will enhance the quality of execution and lead to optimal execution of trades.

Exhibit 2. Benefits of principal trades, by % of daily trading volume

% of daily trading volume	Estimated execution cost (agency) (1)	Premium (principal) (2)	Spread (1)-(2)
< 0.1%	12bps	1bps	11bps
0.1–1%	17bps	9bps	7bps
1–10%	39bps	32bps	7bps
10% or more	149bps	111bps	38bps

Note

1) The Tokyo Stock Exchange has a midday break from 11:00 to 12:30. Many principal trades are executed during the break because prices are static.

2) There are two types of inventory adjustments, one in which the position created by the principal trade is unwound completely and one in which the risk of the firm's entire position in the issue—including the position created by the principal trade—is capped at a certain threshold. Which method is selected depends on the overall inventory level.

3) Trades made by users of the NRI Trading Alpha Advance service between July 2005 and June 2006 were examined.

4) Average market cap of each issue weighted by transaction value.

5) Transaction volume as a percentage of average daily trading volume for each issue weighted by transaction value.

6) Average daily volatility of each issue weighted by transaction value.

7) Incidentally, multiple regression analysis with trade terms as independent variables and premium as the dependent variable confirmed that these results were statistically significant.

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