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# Bid–ask bounce and the measurement of price behavior around block trades on the Australian Stock Exchange

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## Abstract

This paper analyses the price behavior surrounding block transactions on the Australian Stock Exchange. Previous research documents a price reversal following block sales and a price continuation following block purchases—an ‘asymmetry’ in the price reaction to sales and purchases. This paper reports the results of research which examines whether this asymmetry results from measurement error caused by bid–ask effects. The asymmetry reported in previous literature is first re-documented in this study, using returns based on trade prices. When this analysis is repeated using returns calculated from bid–ask quotes which are purged of bid–ask effects, price continuations follow both purchases and sales. This is consistent with the proposition that the asymmetry in the direction of price behavior following block trades is driven by bid–ask effects.

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## 1. Introduction

This paper analyses the price behavior surrounding block transactions on the Australian Stock Exchange (herein ASX). A number of studies have documented that (i) the

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magnitude of the permanent price impact of block purchases is greater than the price impact of block sales and (ii) there appears to be a price continuation following block purchases, and a price reversal following block sales.<sup>1</sup> These include Holthausen et al. (1987, 1990), Choe et al. (1992), Chan and Lakonishok (1993, 1995, 1997) and Keim and Madhavan (1995, 1996, 1997) in the USA, Gemmill (1996) in the UK and Aitken and Frino (1996a) in Australia. The asymmetry in the *magnitude* of the permanent impact of block trades suggests that purchases are more informative than sales, while the *directional* asymmetry in price behavior following block trades suggests that block sellers pay a liquidity premium, while block buyers do not. The literature goes on to describe this asymmetry as both ‘intriguing’ (Holthausen et al., 1987, p. 90; Chan and Lakonishok, 1993, p. 175) and a ‘key puzzle’ (Chan and Lakonishok, 1993, p. 197), calling for further research to account for the differences between purchases and sales (Chan and Lakonishok, 1993, p. 197). This study seeks to explain the asymmetry in price reaction following block purchases and sales.

Previous literature has put forward several possible explanations for the asymmetric price behavior around block trades. Information effects may be stronger for purchases than sales; brokers may be more willing to accommodate sales rather than purchases; possible short-term imbalances in supply and demand; and the historical price performance of the stock (see Chan and Lakonishok, 1993; Saar, 2001). The primary motivation for this study stems from the possible bias imparted by bid–ask effects on measured returns. Foerster et al. (1990) find that bid–ask bias may be a partial cause of intraday patterns in stock price returns. Lease et al. (1991) also find that bid–ask bounce explains returns surrounding seasoned equity offerings. Bhardwaj and Brooks (1992) demonstrate that part of the turn-of-year effect is associated with bid–ask bias.<sup>2</sup> The research reported in this paper examines whether bid–ask effects can explain the asymmetry in price reaction around block trades.

There are two predominant ways in which bid–ask effects can impact on return calculations surrounding block trades. Porter (1992) and Aitken et al. (1995) find that transactions (especially at the close) are more likely to occur at the ask quote. Since block purchases occur at the ask quote, while block sales occur at the bid quote, a bias in the returns associated with sales occurs because the price is more likely to move from the bid to the ask. This is one possible explanation for the asymmetry based on a bid–ask bias. There is also another possible explanation. Saar (2001) develops an information-based model which predicts that price movements (and quote movements) are likely to be greater for purchases than for sales. Any disproportionate quote movements between purchases and sales, in conjunction with natural bid–ask bounce, can provide an alternative explanation for the asymmetry.

A crucial element in a study of this nature is the accuracy of the data, and the subsequent classification of trades which permits an unambiguous assessment of the impact of purchases and sales. Trade classification based on trade and quote data from

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<sup>1</sup> Interestingly, Chiyachantana et al. (2004) find that block sales have greater permanent price effects in bearish markets.

<sup>2</sup> A recent study by Frino et al. (2003) also examines measurement error for a sample of block trades executed on the NYSE.

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