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# Momentum profits in the Australian equity market: A matched firm approach<sup>☆</sup>

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### ABSTRACT

This paper examines momentum trading strategies within the Australian equity market over the period 1990 to 2007, inclusive. We analyse excess returns employing both Jegadeesh and Titman's (Jegadeesh, N., Titman, S., 1993. "Returns to buying winners and selling losers: implications for stock market efficiency". The Journal of Finance, 48:65–91) zero cost investment portfolio approach and a matched control firm approach. We also allow for short sale restrictions, liquidity constraints and transaction costs in the form of bid-ask spreads. Testing reveals that both the Jegadeesh and Titman (Jegadeesh, N., and Titman, S. (1993). "Returns to buying winners and selling losers: implications for stock market efficiency". The Journal of Finance, 48:65–91.) zero cost investment portfolio approach and the matched control firm approach yield excess profits. While the implementation of short sale restraints increases momentum profitability, the subsequent inclusion of bid-ask spreads results in a reduction in these gains. Further, we find that executing a momentum strategy in Australia results in statistically significant dollar profits.

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## 1. Introduction and literature review

The efficient market hypothesis ("EMH") is a central tenet of modern finance theory and states that a market is efficient when prices "fully reflect all available information" (Fama, 1970: p.1). Although acceptance of the EMH remains widespread (see, for example, Fama, 1998; Schwert, 2003; Malkiel, 2005), there is growing evidence of empirical deviations away from market efficiency. Jegadeesh and Titman (1993) argue that one notable deviation is momentum, where past price movements over a three- to

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twelve-month period predict future movements in the same direction (Jegadeesh and Titman, 1993). Accordingly, the simultaneous purchase of past winners and short sale of past losers earns significant excess returns over a three- to twelve-month performance period.

Jegadeesh and Titman (1993) provide the first empirical evidence of momentum profits. They focus on an equally weighted zero cost momentum portfolio which buys (short sells) the decile of stocks with the strongest (weakest) historical price performance. Specifically, the long (short) position comprises stocks in the top (bottom) performance decile over a formation window of three- to twelve-months. Following this, the momentum portfolio is held for a three- to twelve-month performance period. Jegadeesh and Titman (1993) find that, over the period 1965 to 1989, an equally weighted decile momentum strategy in the United States (“U.S.”) market earns excess profits of 0.95% per month.

The extant empirical literature provides further support for the efficacy of momentum trading strategies across numerous overseas equity markets. Specifically, it documents significant abnormal profits in the U.S. (see, for example, Jegadeesh and Titman, 2001; and Grundy and Martin, 2001), the United Kingdom (“U.K.”) (see, for example, Liu et al., 1999), Europe (see, for example, Rouwenhorst, 1998; Forner and Marhuenda, 2003), as well as a number of developing markets (see, for example, Rouwenhorst, 1999; Griffin et al., 2003).

Conrad and Kaul (1998), Grundy and Martin (2001), and Bacmann et al. (2001) document evidence of significant momentum in the U.S. equity market. Grundy and Martin (2001) observe a risk adjusted abnormal return of 1.34% per month over a 1926 to 1995 sample. Furthermore, Rouwenhorst (1998) determines that a momentum portfolio formed across 12 European countries<sup>1</sup> earns significant abnormal momentum profits of 1.16% per month, while Griffin et al. (2003) document that momentum trading strategies yield significant abnormal returns in 12 of the 17 European countries<sup>2</sup> examined. Further evidence from Europe (Nijman et al., 2002), the U.K. (Liu et al., 1999), Spain (Forner and Marhuenda, 2003), the G-7 countries (Bacmann et al., 2001), and emerging markets (Rouwenhorst, 1999) also supports the findings of Jegadeesh and Titman (1993).

However, evidence of momentum within the Asian region remains inconclusive. Specifically, Hameed and Kusradi (2002) fail to find evidence of momentum across the markets of Hong Kong, Malaysia, Singapore, South Korea, Taiwan, and Thailand. Griffin et al. (2003) examine 12 Asian markets<sup>3</sup> and conclude that none experiences significantly positive abnormal momentum profits. Further, Chui et al. (2000) also report insignificant momentum profits in the Asian region.<sup>4</sup>

Significantly, there is limited and mixed evidence regarding the existence of momentum profits within the Australian equity market. Hurn and Pavlov (2003), Demir et al. (2004), and Marshall and Cahan (2005) all report significant momentum profits in the Australian market, yet Griffin et al. (2003) and Durand et al. (2006) do not find evidence of a momentum effect. Demir et al. (2004) and Marshall and Cahan (2005) document buy-and-hold excess returns of 1.72% and 0.59% per month, respectively.<sup>5</sup>

This study provides further evidence of the profitability of momentum trading strategies within the Australian equity market. Utilising the methodology outlined by Jegadeesh and Titman (1993), our findings reveal that a zero cost investment portfolio approach yields significant excess returns over the period 1990 to 2007, inclusive. These results are consistent with the findings of Demir et al. (2004) and Marshall and Cahan (2005).

We extend the analysis of Jegadeesh and Titman (1993) with the inclusion of three innovations. First, we are the first study to apply the Barber and Lyon (1997) matched sample methodology to measure momentum profits<sup>6</sup>. Barber and Lyon (1997), Kothari and Warner (1997), and Lyon et al. (1999) argue that

<sup>1</sup> Rouwenhorst (1998) study 12 European countries: Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the U.K.

<sup>2</sup> Griffin et al. (2003) study 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the U.K.

<sup>3</sup> Griffin et al. (2003) study 12 Asian countries: China, Hong Kong, India, Indonesia, Japan, Malaysia, Pakistan, Philippines, Singapore, South Korea, Taiwan, and Thailand.

<sup>4</sup> Chui et al. (2000) include eight Asian markets: Hong Kong, Indonesia, Japan, Korea, Malaysia, Singapore, Taiwan, and Thailand.

<sup>5</sup> These profits represent the average buy-and-hold return on Jegadeesh and Titman's (1993) equally weighted decile momentum strategy with six-month formation and performance periods.

<sup>6</sup> Although the extant literature indicates that excess momentum profits remain statistically significant relative to a number of abnormal return metrics it is yet to consider momentum profits using Barber and Lyon's (1997) matched sample methodology. Models against which abnormal returns have been found include: the market portfolio (Demir et al., 2004); the Capital Asset Pricing Model (Jegadeesh and Titman, 1993); a conditional two factor model<sup>[6]</sup> (Grundy and Martin, 2001); the Fama and French (1993) Three Factor Model (Fama and French, 1996); a non-parametric stochastic discount factor (Ahn et al., 2003); and, using statistical arbitrage (Hogan et al., 2004).

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