IPO Flipping in Australia: Cross-Sectional Explanations

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Abstract

The paper investigates the trading behaviour of all investors (initial subscribers and those who acquire shares in the aftermarket) in 419 Australian IPOs listed between December 1995 and December 2000. We access electronic share register records for each company to investigate whether initial subscribers flip their allocations during the first three, ten and 35 days of trading, and relate this flipping behaviour to firm characteristics. We find that flipping only accounts for a small proportion of aftermarket trading volume, with day trades comprising more than 50% of trading volume. We also show that IPO subscribers often reacquire a substantial proportion of shares that they have previously flipped. We find strong support for the representative heuristic (i.e., flipping is highest when previous IPOs with similar characteristics are highly underpriced) as a determinant to flipping behaviour. In accordance with the representative heuristic we infer that flipping behaviour is driven by investors who subscribe with an intention to flip IPOs they expect to be highly underpriced. Support is also found for underpricing and ex ante risk as determinants of flipping, while mild support is found for underwriter quality as a determinant of flipping. We also find that the flipping behaviour of large (informed) investors is unrelated to IPO long-run returns, while uninformed investors consistently flip more of the IPOs that have better long-run returns.

JEL classification: G12, G14, G24

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1. Introduction

1.1 Research Question

In recent years there has been increased attention to studying the aftermarket for initial public offers (IPOs). However, most of this research has investigated U.S. IPOs with the primary focus of these studies being the aftermarket stabilisation activities of underwriters, the costs of flipping to the underwriter, and attempts by underwriters to discourage flipping. Positive aspects of flipping have also been identified in this literature. This paper examines flipping in an Australian context. Flipping is defined as the selling of IPO allocations by IPO investors within the first three, ten and 35 days of listing. This paper examines the determinants of flipping behaviour in cross section, by relating observed levels of flipping to issuer, shareholder, underwriter and market characteristics.

Little is known about the behaviour of IPO investors in the immediate aftermarket. This paper also provides a descriptive analysis of aftermarket trading volume, documenting its composition and highlighting the role of flipping.

1.2 Motivation

The motivation for this paper stems from two sources; different institutional arrangements that exist between Australia and the US, and the availability of an Australian database that allows unprecedented access to the trading behaviour of investors in the aftermarket. In the US underwriters frequently stabilise the aftermarket and IPO investors are discouraged from flipping through loss of priority in allocation and penalties (revocation of selling commissions) imposed on co-managers if their shares are flipped. The observed level of flipping in the US is thus constrained by strong influences and incentives that cause investors to hold shares in the initial aftermarket. Australian arrangements are very different. Stabilisation activity by an underwriter is not legal for most of the IPOs in our sample, and the underwriter’s role does not extend to the aftermarket. Investors in Australian IPOs have a free choice whether to sell their IPO allocations, and accordingly our observed measures of flipping are not constrained as they are in the US.

Our second motivation relates to access to data on trading activity for IPO investors. These data come from Australian Stock Exchange Limited’s (ASX) Clearing House Electronic Sub-register System (CHESS). CHESS records provide a unique data source allowing flipping behaviour to be studied across a broad cross section of firms, industries and underwriters. CHESS records also allow us to investigate the trading of all

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* We gratefully acknowledge support for the research from Australian Stock Exchange Limited. The provision of CHESS data by ASX required that we maintain the confidentiality of these data and required that the data not be made available to other researchers without ASX permission. We have complied with both conditions. We thank Joe Tang and William Huang for programming assistance. We claim all errors as our own.
CHESS-registered holders in an IPO, not just the subscribers to an IPO. In addition, we are able to improve on prior research by examining the significance of aftermarket purchasing by IPO investors (reverse flipping). This has been ignored by extant literature. Finally, we are also able to test several unique hypotheses used to explain flipping behaviour, which are adapted from the realms of behavioural finance and IPO research and are applied to the IPO aftermarket. We study a large sample of IPOs (419) for a four-year period (December 1995 to December 2000) where inclusion is not dependent on having access to the records of a particular set of underwriters.

1.3 Summary of Main Findings
We find that flipping only accounts for a small proportion of aftermarket trading volume. Day trades comprise more than 50% of trading volume and IPO investors often reacquire a substantial proportion of shares that were previously flipped.

We find strongest support for the representative heuristic as a determinant to flipping behaviour. That is, flipping is highest when previous IPOs with similar characteristics are highly underpriced. In accordance with the representative heuristic we infer that flipping behaviour is driven by investors who subscribe with an intention to flip IPOs they expect to be highly underpriced.

Support is found for underpricing and ex ante risks as determinants of flipping, while there is mild support for the role of underwriter quality as an explanatory of flipping. We also find that the flipping behaviour of large (informed) investors is unrelated to IPO long-run returns, while uninformed investors flip more of the IPOs that subsequently perform better in the market. Uninformed investors simply get it wrong.

2. Review of Prior Literature

2.1 The Context of Previous Flipping Research
Flipping is the practice of immediately liquidating shares in the initial aftermarket. Extant literature has provided relatively little attention to examining flipping. Where flipping has been investigated, the primary focus of these studies has been the stabilisation activities of underwriters. This evidence is exclusively conducted in the US and, due to differences in the institutional features specific to the US IPO market outlined below, the consequences and implications of flipping activity differ from the Australian market.

2.1.1 Stabilisation and Flipping
Underwriters in the US are able to stabilise the initial aftermarket for IPOs in order to suppress the
downward price pressure from flipping that might otherwise occur, particularly in weak offerings.\footnote{The SEC defines stabilisation, or price support as “transactions for the purpose of preventing or retarding a decline in the market price of a security”. SEC Release No. (34 – 38067)}

Under the US institutional framework, IPO aftermarket stabilisation involves one of, or a combination of the elements of the following three methods. Firstly, an underwriter can post a stabilising bid, agreeing to purchase shares in the aftermarket at a price not exceeding the offer price. Secondly, penalty bids can be imposed on syndicate members, revoking their selling concessions for flipped shares. Penalty bids are designed to stabilise the aftermarket by providing an incentive to syndicate members to divert allocations away from flippers. And finally, stabilisation can be achieved through a syndicate short position in the allocation of the offer. This creates aftermarket-buying power for underwriters, offsetting the selling pressure created by flippers.\footnote{In the event that the offering trades above the issue price, underwriters can exercise an over allotment option to cover their short position.}

2.1.2 The Costs of Flipping

In the US, the cost of flipping to underwriters is potentially high. When an offering is poorly received, selling pressure due to flipping requires the underwriter to stabilise the aftermarket, or see the price decline below the offer price.

For IPOs that trade on NASDAQ, underwriters typically become market makers. Large volumes of flipped shares create significant inventory risks for these underwriters. Ellis, Michaely and O’Hara (2000) and Schultz and Zaman (1994) find that underwriters of IPOs that trade below their offer price accumulate inventory in excess of 20% of the shares offered during the initial aftermarket. Ellis et al (2000) also examines the cross sectional variation in lead underwriter inventory, demonstrating increases in inventory accumulation, the poorer the initial aftermarket performance.\footnote{Lack of data has precluded these studies from examining the inventory positions of underwriters after adjusting for the initial short positions. Assuming an initial short position of 15%, equal to the maximum amount of risk which can be reduced by exercising the over allotment option, the perceived inventory risks faced by underwriters is reduced, but is never the less substantial enough for underwriters to dislike flipping.}

Apart from the risk associated with large inventories of flipped shares, underwriters also risk inventory losses arising from reselling flipped shares in a declining market. Ellis et al (2000) do not support this conjecture, demonstrating an insignificant difference in inventory profits between successful and unsuccessful IPOs.\footnote{However, the financial press has demonised flipping. Correra (1992) reports that underwriters are at “war against IPO flippers” noting that it is the “aim of underwriters is to thwart out those} However, the financial press has demonised flipping. Correra (1992) reports that underwriters are at “war against IPO flippers” noting that it is the “aim of underwriters is to thwart out those
nefarious types … who buy a new issue and dump it quickly”. In addition, “flippers are the parasites who
prey off a system that works” (Krigman, Shaw and Womack (1999, p. 1016)).

Flipping is also a problem in syndicates. Co-managers, who play an important role in the distribution of the
offering, do not bear the cost of flipping. Thus, these is a strong incentive for co-managers to allocate
shares to flippers, waiving the costly search of placing shares with long-term buy and hold investors. This is
demonstrated by Hanley, Lee and Sequin (1996) who find that flipping is greater among IPOs where
numerous co-managers are allocated a greater proportion of shares to distribute.

Selling concessions are awarded to co-managers in proportion to the amount of shares they sell. Lead
managers who undertake the “lion’s share” of stabilisation activities must resell flipped shares in the
aftermarket. Thus, lead underwriters bear the costs of sales commission, paid to co-managers, for shares
that require a search for buyers in the aftermarket.

2.1.3 The Positive Effects of Flipping

The preceding literature highlights the cost of flipping to underwriters and their vigorous attempts to deter it,
especially in “cold” offerings. However, flipping can also produce positive effects. If none of the securities
sold in an IPO were flipped, there would be limited aftermarket trading. This lack of liquidity may increase
the cost of trading, thus increasing the issuing firms cost of capital (Amihud and Mendelson (1986)). On the
other hand, excessive flipping may increase price volatility, thereby increasing the required cost of capital
(French, Schwert and Stambaugh (1987)). For these reasons, US underwriters seek to limit flipping,
particularly in circumstances that would adversely affect their stabilisation efforts, but not eliminate it.

Flipping can also produce positive effects for underwriters. In well-received offerings, where underwriters
act as market makers in the aftermarket, Ellis et al (2000) demonstrate the economic benefits resulting from
flipping. They find a significant relationship between aftermarket turnover (flipping) and the initial return,
yielding small though increasing trading profits. Fishe (1999) provides an alternative view. He proposes a
model in which profit maximising underwriters respond to flippers before the pricing of the offering.
Specifically, Fishe demonstrates a profitable strategy in weak issues, created by overselling the issue and
undertaking a short position, as opposed to lowering the offer price. As trading begins, flippers suppress

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5 Ellis, Michaely and O’Hara (2000) find that co-managers only acquire 0.07% of the shares offered on listing date,
significantly less than that acquired by lead underwriters.
6 This cost can be recovered by administering penalty bids. Previously, lead underwriters attempts to identify syndicate
managers whose shares were flipped occurred by tracing physical movements in securities, pursuant to lead
underwriters market making activities. This made syndicate monitoring expensive. The new Depository Trust
Company’s IPO tracking systems allows lead underwriters to directly track flipping activity and quickly identify the
offending co manager. However, it remains an empirical question whether this system results in lower levels of
flipping (Krigman, Shaw and Womack (1999)).
7 They further argue that this provides an added incentive to underprice.
aftermarket-trading prices, in weak offerings underwriters gain through covering their short position, thus benefiting from flipping.

### 2.1.4 Flipping in the Australian Context

The Australian institutional environment did not permit any form of stabilisation activity during the period covered by this study (see ss 997 – 998 of the Corporations Law). Thus, the aforementioned consequences of flipping and its interference in the aftermarket are not applicable in an Australian context.

### 2.2 The Disposition Effect

We are interested in the relationship between flipping and firm characteristics, in particular underpricing. We use the disposition effect to explain this relationship.

The disposition effect, described by Shefrin and Statman (1985, p. 778), refers to the tendency to “sell winners too early and ride winners too long”. Early research by Shefrin and Statman and Ferris, Haugen and Makhija (1988) documented this behavioural anomaly by investigating trading volume patterns conditional upon share price levels. Odean (1998) studies individual investor trading accounts provided by a discount brokerage firm. He finds strong evidence of the disposition effect, but shows that selling decisions are also motivated by tax considerations at fiscal year end. Grinblatt and Keloharju (2001) provide further evidence in the Finish stock market. They find that highs and lows compared to previous months affect the propensity to sell. However, they show this effect to be less pronounced for more sophisticated investor classes.

The disposition effect has been attributed to a combination of prospect theory, biases in return expectations and regret theory. The strongest theoretical backing for the disposition effect comes from prospect theory.

#### 2.2.1 Prospect Theory

Prospect theory is an implication of Kahneman and Tversky’s (1979) psychological research, demonstrating behavioural biases in human judgement under uncertainty. In a series of laboratory experiments, Kahneman and Tversky showed that subjects, given a hypothetical lottery with similar expected values were more risk averse over gains and risk seeking over losses. In contrast to standard neo-classical utility theory, Kahneman and Tversky formalised their observations as an S-shaped value function. Expected utility, relative to a reference point in which gains and losses are measured, is concave over gains and convex over losses. This represents an aversion to risk in the domain of gains and risk seeking in the domain of losses.

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8 The use of proprietary data allows Odean to refute other plausible explanations for this behaviour, including portfolio rebalancing and higher trading costs associated with low priced securities.
Applying this behavioural heuristic to the IPO aftermarket provides a clear expectation of flipping increasing with the initial return. Crucial to this argument is that, investors are required to calculate gains and losses relative to the offer price, and measure their changes in wealth from the pre market to the aftermarket.

2.2.2 Biases in Return Expectations

The disposition effect can also be caused by an unjustified belief in mean reversion. That is, investors choose to sell ‘winning’ investments and hold ‘losers’ because they believe ‘winners’ will have systematically lower future returns than ‘losers’. Shiller (1990) presents survey evidence consistent with this view. His results reveal that investors believe hot issue markets to be fads. Thus, investors perceive high initial returns to be followed by a reversal in post listing returns. Under these circumstances, strong flipping is expected to occur in highly underpriced IPOs.

2.2.3 Regret Theory

Shefrin and Statman (1985) propose regret aversion as an explanation for the disposition effect. They argue that “regret is an emotional feeling associated with the ex post knowledge that a different decision would have fared better than the one chosen” (p. 781). This predicts a feeling of regret when an investor realises a loss and a feeling of pride when they realise a gain. It is not losses per se, but the realisation of losses, that produces regret. Hence, investors prone to this behavioural bias prefer to flip ‘winning’ IPOs and postpone regret by deferring a loss on losing IPOs. Kaustia (2000) provides strong evidence of regret aversion influencing IPO aftermarket trading volume. Specifically, he shows a significant increase in turnover when negative initial return IPOs trade at the offer price for the first time.

In short, behavioural finance theory uniformly predicts flipping to increase with the initial return.

2.2.4 Flipping Evidence

Numerous studies have found IPO aftermarket trading (a proxy for flipping) consistent with the disposition effect, although the authors have generally not attributed their results to psychological explanations.

Miller and Reilly (1987), Schultz and Zaman (1994) and Reese (1998) document a positive relationship between the initial return and initial aftermarket trading volume. Aggarwal (2000a) obtains data from the SDC tracking system and documents a positive relationship between flipping and the initial return.

Bohemer and Fishe (2000) also find flipping and underpricing to be positively related. Contrary to the expectations of behavioural finance, they argue that underpricing is the cost of providing liquidity in the initial aftermarket. Bohemer and Fishe propose a model focusing on downward sloping demand curves,
representing all investors who received an allocation. Deliberate underpricing by the underwriter ensures post-listing liquidity by inducing low valuation investors to flip to high valuation investors. Hence, flipping and initial returns are endogenously determined.

Hanley and Wilhelm (1995 p. 254) in their analysis of Benveniste and Spindt’s (1989) model argue that institutional investors who are required to participate in less attractive issues might subsequently become more aggressive in their flipping strategies. Krigman, Shaw and Womack (1999) support this argument. Using first day block trades of 10,000 shares as a proxy for institutional flipping, they document a negative relationship between flipping and the initial return. Hence, they argue that flipping is a rational response to overpricing. Chen and Mak (2001) find similar evidence in Hong Kong but provide no explanation to support their results.

2.3 Hot Issue Markets

IPO markets exhibit substantial time series variation in the level of underpricing and the number of new issues, and periods in which there is high underpricing and volumes are referred to as “hot issue” markets.

Ibbotson and Jaffe (1975) confirm the existence of cycles in IPO underpricing. They report a statistically significant first order autocorrelation coefficient of 0.744 for monthly average initial returns during the period 1960-1970. The significant serial dependence also extends to second monthly average initial returns. While the correlation is somewhat weaker, it demonstrates the sustainable presence of previous hot issue markets. However, periodically high initial returns are only transitory, highlighted by the negative correlation in first differences of monthly average initial returns. Ritter (1984) also confirms the existence of IPO market cycles, reporting a significant autocorrelation in monthly average initial returns. Ritter documents even stronger serial dependence in monthly IPO volume.

A further peculiar feature of hot issue markets is the disproportionate concentration of firms in particular industries. For example, Ritter (1984) observes a distinct industry effect for natural resource IPOs in the hot issue market of 1980. Initial returns for this sector averaged 48.7%, while for other offerings underpricing was barely perceptible. Loughran and Ritter (1995) report numerous biotechnology and restaurant companies going public at high multiples in 1992, followed by golf club manufacturers and riverboat casinos in 1993.

2.3.1 Hot Issue Markets - Behavioural Influences

Behavioural finance postulates that investors follow illogical investment patterns by relying on heuristics for judgement and prediction. The representative heuristic asserts that individuals assess the likelihood of an event’s occurrence by the similar outcomes of its stereotypes (Kahneman and Tversky (1982)).
Hot issue markets are a prime candidate for the dominance of this heuristic, it is well known that these markets are sustainable (though transitory) and provide high returns for those receiving allocations. Further, the industry clustering provides ideal stereotypes for myopic investors to use in forming their judgements. Investment decisions based on this psychological tendency predict a time specific pattern where flipping is highly correlated with IPO market sentiment and high initial returns. This psychological influence mainly captures those investors who subscribe with intent to flip (i.e., trend chasers). However, flipping during times of high initial returns may also be explained through the disposition effect described above.

The use of the representative heuristic causes trend chasing, as investors believe trends have systematic causes (Hirshleifer (2001)). Shiller (1990) presents survey evidence, specific to IPOs, consistent with this psychological prediction. He demonstrates that over half of the respondents invested in IPOs due to previously observed price increases. However, Shiller does not specify whether increases in price relate to general market movements or initial returns from previous IPOs. In a related vein, DeBondt (1993) detects evidence of the representative heuristic in an experimental setting. He uses a combination of class room experiments and investor surveys to reveal higher estimated stock market values for subjects who are shown a series of price increases, relative to subjects observing price decreasing trends.

2.4 Underwriter Reputation and Flipping

2.4.1 The Role of Underwriters

Underwriters perform an integral part of the IPO process; their involvement extends from undertaking due diligence investigations, the pricing and distribution of securities, providing a ‘standby’ commitment and supplying issuer specific information. The latter function is pertinent to potential IPO investors who face an informational disadvantage (Gilson and Kraakman (1984)).

2.4.2 The Role of Underwriter Reputation in Reducing Asymmetric Information

The role of reputation in reducing asymmetric information costs borne by investors has been studied extensively in the IPO literature.\(^9\)

Carter and Manaster (1990) postulate that the prestige of an underwriter provides a signal about the risk of an issue. They argue that low risk firms who are unable to credibly distinguish themselves from high-risk firms employ a high reputation investment banker to ‘certify’ their low risk to investors. This certification process reduces the incentives for an investor to acquire information, moderating the information asymmetry

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between shareholders. The empirical evidence confirms their predictions. Carter and Manaster’s multivariate analysis finds that underwriter reputation has a significantly negative effect on the magnitude of initial returns, after controlling for ex ante risk (insider shares, the log of the offer price and firm age). More recently, Beatty and Welch (1996) using data from 1992-1994, find a significantly positive relationship between underwriter reputation and initial returns. They argue that this reversal stems from changes in the economic environment.

Habib and Ljungqvist (2001) address this result by arguing that entrepreneurs only care about underpricing to the extent that it affects their wealth. Accordingly, the quality of certification (choice of underwriter prestige) is dependent upon the number of shares they offer. Habib and Ljungqvist argue that failing to control for this incentive leads to an omitted variable bias. Consistent with the results of Beatty and Welch (1986), their empirical analysis demonstrates a positive relationship between ‘headline’ underpricing and underwriter prestige, caused through high quality underwriters managing speculative IPOs. However, further analysis reveals an inverse incremental association between underwriter prestige and wealth losses, supporting the certification role of an underwriter’s reputation.

2.4.3 Long-Run Performance of IPOs Underwritten by Investment Banks

In the long run, IPOs are notoriously poor performers. Michaely and Shaw (1994), Carter, Dark and Singh (1998) and Jain and Kini (1999) demonstrate better long-run returns to IPOs underwritten by more prestigious underwriters. However, all three studies show such IPOs still underperform their risk-adjusted benchmarks.\(^{10}\)

Chemmanur and Fulghieri (1994) provide theoretical content to the association between underwriter quality and long-run aftermarket performance. They argue that an investment bank’s reputation is acquired from the capital market history of the firms they underwrite. Underwriting good quality firms enhances reputation while underwriting low quality firms tarnishes reputation. Therefore, the ability to screen for firms providing strong, long-term aftermarket performance is pertinent to acquiring reputational capital. In Chemmanur and Fulghieri’s model, the Bayesian updating of underwriter reputation produces a greater loss in reputation for issuing low quality to those investment banks that have established reputations. This provides a strong motivation for highly reputable underwriters to devote costly resources to ensure accurate screening of issuing firms.

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\(^{10}\) These studies do not adjust aftermarket returns for book to market effects, a significant determinant in explaining long-run IPO returns. Carter Dark and Singh (1998) speculate that such adjustments may eliminate the underperformance exhibited by high prestige underwriters.
Dunbar (2000), in a study of changes in investment banking market share finds that the one-year abnormal performance of issuing firms has a positive effect on lead underwriter market share (and by inference, reputation). These results provide strong empirical support for Chemmanur and Fulghieri’s prediction.

The ability of highly reputable underwriters to issue shares in high quality firms produces an expectation from investors that high prestige investment banks will underwrite firms with stronger aftermarket performance. Accordingly, this should elicit greater shareholder loyalty with investors, increasing their investment horizons further than the initial aftermarket, thus reducing the incidence of flipping.

2.4.4 The Underwriter’s Monitoring Role

Apart from an underwriter’s certification role, lead investment banks can alleviate informational asymmetries by monitoring issuing firms. The ‘monitoring hypothesis’ developed by Hansen and Torregrosa (1992) argues that underwriters modify the issuing firm’s corporate governance mechanisms and discipline errant managers in order to reduce agency costs. Using a sample of seasoned equity offerings between 1978-1986, Hansen and Torregrosa document a negative relationship between underwriting fees and both managerial ownership and the magnitude of institutional investment. The former result empirically distinguishes an underwriter’s monitoring role from its certification role. A significant positive relationship between underwriting fees and managerial ownership would be consistent with the certification theory, implying greater certification costs to compensate investors for greater adverse selection costs.

Jain and Kini (1999) study unseasoned equity underwriting expenses, and demonstrate a demand for lead bank monitoring in the IPO market. Their empirical analysis finds superior three-year investing and operating performance for firms marketed by more prestigious underwriters, consistent with the hypothesis that reputable underwriters provide valuable monitoring services.

Given the expectations of the monitoring hypothesis, highly reputable underwriters should provide superior placement services, reducing the incidence of flipping.

2.4.5 Firm Characteristics

Beatty and Ritter (1986) demonstrate underpricing to be an increasing function of ex ante risk. They contend that an investor, who decides to become informed, buys in a call option in the IPO. A call options value increases with the extent of uncertainty. This induces more investors to become informed, aggravating the winners curse and increasing the required level of underpricing.

IPOs with greater ex ante uncertainty about their intrinsic value are more difficult to price. Bernstein (1985 p. 807) argues, “Investors faced with the inherent uncertainty involved in estimating the present value of the
future payment stream, will inevitably look to short-term price changes for the largest part of their return”. Under these circumstances, higher flipping is expected to occur in IPOs with greater uncertainty surrounding their value. This effect is also demonstrated by Miller (1977). Miller argues that the greater risk of a stock, the steeper its demand curve. Thus, a steeper sloping demand curve will induce greater flipping due to aggregate investors trading decisions being more sensitive to a given change in price.

These arguments illustrate the incremental effect of ex ante risk to explain flipping, contingent upon a positive initial return. Ex ante risk also has an independent effect on flipping. IPOs whose intrinsic value is difficult to measure are likely to develop greater heterogenous beliefs among investors concerning their aftermarket value. Heterogenous beliefs generate significant trading volume (Harris and Raviv (1993)), thus higher flipping is expected for those IPOs with greater ex ante risk. This argument is supported by Miller and Reilly (1987) and Houge, Loughran, Suchanek and Yan (2000) who proxy aftermarket trading volume as the extent to which investors disagree about the value of an IPO.

2.5 Summary

In summary, this section has differentiated the institutional characteristics of the US IPO market where flipping has received the most attention and highlighted several areas of IPO research, which have been argued to explain flipping behaviour. These include underpricing, hot issue markets, entrepreneurial flipping, ex ante risk, informed investor behaviour and underwriter reputation. The next section formally develops these arguments into testable propositions.

3. Hypotheses

This section formally develops the arguments presented in the previous section into testable propositions. Each hypothesis and a brief summary for its justification is outlined below.

3.1 The Initial Return

A positive average initial return is a well-known empirical anomaly in the IPO market. The disposition effect refers to the human behavioural bias to sell investments that have appreciated in value relative to those that have depreciated. Applying the psychological explanations driving the disposition effect to the IPO aftermarket, we expect:

\( H_1: \) There will be a positive relationship between the proportion of shares flipped and the initial return.

3.2 Hot Issue Markets
IPO markets exhibit substantial time series variation in underpricing. Time periods with high average initial returns are referred to as hot issue markets. These periods also display a disproportionate concentration of firms in particular industries. The representative heuristic asserts that individuals assess the likelihood of an event’s occurrence by the similar outcomes of its stereotypes. Hot issue markets provide ideal conditions for investors relying on this heuristic. In the spirit of this heuristic, high average initial returns attract investors to follow illogical investment patterns and industry clustering within hot issue markets provide ideal stereotypes for myopic investors to use in forming their judgements. An application of the representative heuristic to the IPO aftermarket seeks to explain the behaviour of those investors who subscribe with intent to flip (i.e., trend chasers). Thus, if IPO investors apply this heuristic to hot issue markets, we expect:

**H₂**: The proportion of shares that are flipped will be positively related to market momentum.

### 3.3 Ex ante Risk

IPOs whose intrinsic value is difficult to measure are likely to develop greater heterogenous beliefs concerning their aftermarket value. Heterogenous beliefs are argued to create significant trading volume (Harris and Raviv (1993)). Applying this argument to the IPO aftermarket we expect:

**H₃**: There will be a positive relationship between ex ante risk and the proportion of shares that are flipped.

### 3.4 Informed Investor Behaviour

This paper has argued that informed investors are expected to behave in a manner consistent with Rock (1986). Thus, informed investors are able to abstain from participating in unattractive offers without the penalty of future exclusions imposed by underwriters. Accordingly, we expect informed investors to discern IPO quality and maximise IPO returns for the short-run and long-run. We expect:

**H₄**: There will be lower flipping by informed investors relative to uninformed investors for IPOs providing greater long-run returns.

### 3.5 Underwriter Reputation

Our expectation of the effect of an underwriter’s reputation on the magnitude of flipping stems from two arguments.

Firstly, underwriters perform a screening role. The ability to screen for firms providing strong aftermarket performance allows an underwriter to acquire reputational capital (Chemmanur and Fulghieri (1994)). This prediction is supported by Dunbar (2000) and Carter, Dark and Singh (1998). Thus, the superior screening role of highly reputable underwriters to issue high quality firms provides an expectation from investors that
high prestige investment banks will underwrite firms with strong aftermarket performance. Thus, we expect highly reputable underwriters to elicit greater shareholder loyalty by their presence.

Our second argument stems from the empirical findings of Jain and Kini (1999) who show that highly reputable underwriters provide superior placement services to institutional shareholders who do not flip their allocations, and that the firms they underwrite have superior three-year investing and operating performance.

Following these two arguments, the following hypothesis is tested

H₅ It is expected that highly reputable underwriters will be associated with lower flipping activity.

4. Data

4.1 Data Sources

4.1.1 CHESS

CHESS data are used to analyse the trading activities of IPO investors in the aftermarket. CHESS records provide a detailed electronic record of all daily buying and selling activities by CHESS registered shareholders (identified by their HIN number). CHESS records also the researcher to identify whether the shareholder is local (the postcode is provided) or foreign, and the investor type. Nine types or investors are identified, namely banks, other deposit taking institutions, nominees, insurance companies, superannuation (pension) funds, trusts, governmental investments, incorporated companies and individuals. Since the introduction of CHESS in 1995, the share registers of a listed company are segmented into three sub-registers; the Issuer Sponsored Sub-register, the Certificated Sub-register and the CHESS Sub-register.

The listed company maintains the issuer sponsor sub-register. Investors in the certificated sub-register hold share certificates as physical documentation of share ownership. The CHESS sub-register is maintained by ASX and the majority of ASX listed companies are CHESS registered. In most cases, IPO investors have the option to register their shares on CHESS, thus CHESS is only a partial data source (but perhaps the largest) for tracking changes in the holding balances of IPO investors.

11 The HIN numbers supplied to SIRCA by ASX are disguised, though they are disguised in a consistent fashion. Accordingly, we can calculate the portfolio positions of each CHESS holder.
12 Approximately 97 percent of ASX listed stocks are included in CHESS, though the coverage of firm’s ownership varies considerably. At December 1999 CHESS records covered over five million investors, whose aggregate shareholdings represented approximately 60 percent of the total market capitalisation of ASX listed securities.
13 This observation is made based on a lengthy perusal of 300 or so prospectuses.
CHESS is designed to automate the settlement process for ASX transactions taking place on SEATS. Settlement of ASX listed securities is lagged after the actual transaction takes place. Prior to August 1998, settlement was mandated within five days of the transaction. Post August 1998, settlement occurred within three trading days. We assume that changes in CHESS shareholding balances relate to trades that took place either five or three trading days previously.\footnote{ASX records indicate that more than 99 percent of trades settle on their last settlement day.}

4.1.2 Share Price Data

The Volume Weighted Average Prices (VWAP) for each company in the sample are extracted from ASX’s Stock Exchange Automated Trading System (SEATS) Database and verified against the Core Research Data (CRD) Database. Both databases are provided by Securities Industry Research Centre of Asia-Pacific (SIRCA). Possible anomalies\footnote{All price relatives greater than 1.5 or less than 0.5 were verified.} in VWAP are verified against the share prices published in the Australian Financial Review.

4.1.3 Firm Variable Data

Firm variable data includes issue price, the number of shares offered and outstanding at the completion of the issue, accounting information, the date of establishment and prospectus and listing dates. These are obtained from two data sources. The majority of the sample is hand collected from prospectuses, while the remainder is obtained from the SDC database. The underwriters for each IPO are collected solely from the SDC database.

4.2 Sample Size

The SDC database was used to identify all IPOs listing between December 1995 and December 2000. The majority of companies in the sample were verified against their prospectus to ensure they were IPOs as opposed to new listings. In total 457 IPOs were identified, 38 were omitted from our analysis (36 firms have insufficient CHESS information, one firm has its prospectus missing and one outlier is eliminated.\footnote{Stadium Australia Limited, which listed on 11/04/1997, had an issue price of $10,000 and a first day listing price of $2,600. Not all of the entitlements in the Stadium Australia Limited IPO were transferable (for example subscribers received reserved tickets to the 2000 Olympic Games), and accordingly the first day listing price cannot be validly compared to the IPO issue price.})

5. Method

5.1 Definition of Flipping

Flipping is defined as shares sold by IPO investors in the initial aftermarket.\footnote{IPO investors are defined as those CHESS registered shareholders who were registered before the IPO went public.} The initial aftermarket is defined as the first 35 trading days. We define flipping in three ways (see section 5.1 below) and calculate
these for the first three, ten and 35 days of trading. Any IPO shares sold by IPO investors after day 35 is regarded as normal trading activity and does not enter our definition of flipping.

Apart from selling shares in the initial aftermarket, IPO investors have the opportunity to buy shares. When analysing aggregate flipping ratios, this buying activity needs to be accounted for. Aftermarket buying activity by IPO investors can be classified in two ways; the reacquisition of shares that were previously flipped and purchases by IPO investors which increase their investment in the issuing firm. This buying activity creates several problems in measuring the volume of shares flipped. Sales, which occur subsequent to aftermarket buying activity, can either be a sale from a previous days purchase, flipping (sale of original IPO shares) or a day trade (if an aftermarket purchase and sale occurs on the same day). Thus, several flipping measures are created, making different assumptions concerning the classification of aftermarket selling. Principally, we have three flipping measures; FLIP1, FLIP2, AFLIP1. These are outlined below.

5.1 Flipping Metrics

5.1.1 FLIP1
FLIP1 is the selling of original holdings by IPO investors that occurs in the first three, ten or 35 trading days. This is calculated for each IPO investor and the amount of selling activity recognised as flipping is capped by their original holdings. Further, FLIP1 ignores aftermarket-buying activity. Thus, any extra selling activity that occurs by IPO investors over and above their initial holdings is allocated to either a sale from a previous days purchase, a day trade or a short sale and is not subject to our flipping analysis. Essentially the FLIP1 measure operates under a first-in-first-out approach.

5.1.2 FLIP2
Contrary to FLIP1, FLIP2 accounts for aftermarket buying. It measures flipping for each individual investor as the amount of selling occurring in the initial aftermarket, which decreases an IPO investor’s investment in the issuing firm below their initial holdings. Thus, if an investor purchases shares in the initial aftermarket prior to selling shares, only the amount of selling that exceeds their total aftermarket purchasing is accounted for as flipping. If their aftermarket buying exceeds their subsequent selling, no flipping is recognised. Contrary to the FLIP1 measure, it can be seen that FLIP2 recognises flipping activity under a LIFO approach. Similar to FLIP1, FLIP2 caps the amount of initial aftermarket selling at each investor’s original holding. Hence, any selling activity that exceeds the original holding is recognised as a short sale and not included in our flipping analysis.

18 Original holdings or IPO investment refer to the investment of each IPO investor had before the issuing firm went public.
5.1.3 AFLIP1
The remaining flipping measure, AFLIP1 adjusts for aftermarket purchases. AFLIP1 is calculated as FLIP1 less RFLIP1, where RFLIP1 is the reacquisition of flipped shares (reverse flipping) by IPO investors in the initial aftermarket. Specifically, RFLIP1 recognises all buying activity by IPO investors when their investment in the issuing firm is below their initial holdings. Because RFLIP1 seeks to capture the reacquisition of flipped shares it is capped for buying activity up to the investor’s original holding. Any initial aftermarket purchasing which increases their investment beyond their initial holdings is not recognised under RFLIP1.

In order to calculate flipping ratios for each IPO in the sample, the above metrics are computed on an individual IPO investor basis and summed for the total amount of IPO investors in each firm. These flipping measures, denoted in the number of shares flipped, are then deflated by the number of CHESS registered shares for the issuing firm in order to ascertain the flipping ratio for each IPO.

Previous studies have used aftermarket-trading volume divided by the number of shares offered as a proxy for the percentage of flipped shares (Miller and Reilly (1987), Krigman, Shaw and Womack (1999), Houge, Loughran, Suchanek and Yan (2000) and Chen and Mak (2001)). The above metrics provide a significant contribution to the literature. They incorporate the effects of investors reacquiring shares that were previously flipped and flipping by IPO investors after accounting for shares, which were previously purchased in the aftermarket. This improves the substance of the reported results and adds to our understanding of IPO investor behaviour in the initial aftermarket.

5.2 Methodology for Cross Sectional Determinants
The nature of this paper is to explore six original almost mutually exclusive predictions to explain flipping behaviour. The remainder of this section outlines the different models employed to examine each cross sectional prediction.

5.2.1 The Initial Return Model
To test hypothesis 1, which predicts a positive relationship between flipping and the initial return we use the initial return model. This is a simple univariate regression model where all flipping measures; FLIP1, FLIP2 and AFLIP1 (hereafter denoted FLIP) are regressed against IPO underpricing (UNDERP).

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19 Ideally this paper would like to create a second flipping measure, AFLIP2. This would capture the net inventory position of IPO investors, showing the net amount of selling by all IPO investors after accounting for those IPO investors who increase their investment in the issuing firm. Unfortunately, the CHESS data provided do not allow us to compute this metric without error. CHESS data do not capture the complete ownership records of all IPO investors.
\[ FLIP_{it} = \alpha + \beta_1(UNDERP_{it}) + \epsilon_{it} \]  

where:

\[ UNDERP_{it} = (VWAP_{it} - OFFER_{it}) / OFFER_{it} \]

\( OFFER_{it} \) = the offer price listed in the prospectus, and
\( VWAP_{it} \) = the volume weighted average price for the first day of trading.

Underpricing (\( UNDERP \)) is calculated on a ‘headline’ basis rather than on an adjusted basis. This is because we are interested in modelling the gains to investors as opposed to the cost to the issuer.\(^{20}\) The above underpricing metric does not control for market returns earned between the prospectus date and the listing date. We use a raw return to conform to our psychological explanation of flipping and underpricing. Prospect theory argues that gains and losses are calculated relative to a reference point, and is silent on whether the reference point is updated relative to the returns which could have of been earned on similar assets. The remaining two explanations for the disposition effect; biases in returns expectations and regret theory are also silent on whether selling decisions are affected by the returns on similar financial assets.

### 5.2.2 The Hot Issue Market Model

Hypothesis 2 seeks to capture those investors who subscribe with an intention to flip, motivated by recent trends in high average IPO underpricing (market momentum). In order to measure the relationship between flipping and market momentum we propose a number of univariate tests. These are as follows.

\[ FLIP_{it} = \alpha + \beta_2(HOT_{it}) + \epsilon_{it} \]  

\[ FLIP_{it} = \alpha + \beta_2(UNDERP3P_{it}) + \epsilon_{it} \]  

\[ FLIP_{it} = \alpha + \beta_2(UNDERP3PIND_{it}) + \epsilon_{it} \]  

where:

\( HOT_{it} \) = a dummy variable equal to one if the listing month average equally weighted underpricing,

\( UNDERP3P_{it} \) = the equally weighted underpricing for the prior three IPOs before issuing firm \( i \)'s listing date, and

\( UNDERP3PIND_{it} \) = the equally weighted average underpricing for the three most recent IPOs within issuing firm \( i \)'s industry.

The aforementioned univariate analysis captures the essence of the representative heuristic. It tests whether IPO investors look to past events (underpricing in the market and recent underpricing in the issuing firms industry) and seek to obtain the short-term gains of expected positive initial returns by flipping.

\(^{20}\) See Barry (1989) for related work.
In order to determine whether hypothesis 2 provides any incremental power over and above hypothesis 1, the initial return needs to be controlled for (a direct test of our application of the disposition effect to the IPO aftermarket). Thus, multivariate tests are also conducted, in which \( \text{UNDERP}_{it} \) is added as an additional explanatory variable in equations (2) to (4).

### 5.2.3 Ex Ante Risk

Ex ante risk refers to the risk faced by an investor in determining the intrinsic value of an IPO. Estimating this risk is unobservable. Thus, the IPO literature has used several proxies for ex ante risk. Three proxies are used in this paper; the standard deviation of aftermarket returns, firm age and issue size.

To test Hypothesis 3, which predicts a positive relationship ex ante risk and flipping, the following model is proposed.

\[
\text{FLIP}_{it} = \alpha + \beta_1 (\text{SIZE}_{it}) + \beta_2 (\text{AGE}_{it}) + \beta_3 (\text{STDRETit}) + \epsilon
\]  

(5)

where:

- \( \text{SIZE}_{it} \) = the nominal gross proceeds of the issue,
- \( \text{AGE}_{it} \) = the operating history of the issuing firm, measured in the number of years since incorporation, and
- \( \text{STDRETit} \) = the standard deviation of returns for each firm estimated from a time series of daily raw returns from the second date of listing through to day 25.

Ex ante risk is argued to have a positive relationship with the initial return (Rock (1986) and Beatty and Ritter (1986)). To control for this effect and to ensure that the results are not an indirect result of a positive relationship between the initial return and flipping, robustness tests are conducted, computing the above regression while controlling for the initial return.

### 5.2.4 Underwriter Quality

Hypothesis 5 predicts lower flipping for IPOs marketed by highly reputable underwriters. An underwriter is identified as high quality if it is (or is backed by) a major financial institution or bank.\(^{21}\) Thus, we are measuring the presence of a highly reputable underwriter with a dummy variable, equal to 1 if they are financially backed or zero otherwise. If a syndicate of underwriters market an IPO, only one underwriter needs to be high quality for the issuing firm to obtain a value of 1. In order to test hypothesis 5 the underwriter quality model is proposed.

\(^{21}\) This measure is based on Taylor (1991) where a high quality underwriter has ‘deep pockets’ or a significant national presence.
\[ FLIP_{it} = \alpha + \beta_1(UWQ_{it}) + \epsilon_{it} \]  

(6)

where \( UWQ_{it} \) is a dummy variable equal to one if the underwriter is (or is backed by) a major financial institution or bank.

### 5.2.5 Multivariate Analysis

The methodology proposed above tests each hypothesis individually. In order to determine the dominant explanation driving flipping behaviour the following multivariate model is proposed.

\[
FLIP_{it} = \alpha + \beta_1(Underp_{it}) + \beta_2(AGE_{it}) + \beta_3(STDRET_{it}) + \beta_4(SIZE_{it}) + \beta_5(UWQ_{it}) + \beta_6(HOT_{it}) + \epsilon_{it}
\]  

(7)

where all variables are defined as above.

### 5.2.6 Informed Investor Behaviour

This paper presents two hypotheses investigating the trading activities of informed investors in the initial aftermarket. Hypothesis 4 predicts lower flipping by informed investors relative to uninformed investors for IPOs with greater long-run returns.

We proxy the informational advantage of an IPO investor by the size of their investment in the issuing firm. Deciles of shareholders are created to proxy for information levels. Decile 10 represents the top 10% of shareholders based on their investment in the IPO. Decile 1 is the lowest 10% of shareholders. We assume that decile 10 is the most informed about the intrinsic value and decile 1 is the least informed. In order to investigate the flipping and reverse flipping (RFLIP2) of informed and uninformed investors with respect to long-run returns we categorise informed investors as both decile 9 and 10 and uninformed investors as decile 1 and 2. These are chosen to capture the extreme variation in flipping activity between informed and uninformed investors. In measuring the trading activity of these investors with respect to long-run returns, the following models are proposed.

\[
FLIP_{it}(9)(10) = \alpha + \beta_250WR_{it} + \epsilon_{it}
\]  

(8)

\[
FLIP_{it}(1)(2) = \alpha + \beta_250WR_{it} + \epsilon_{it}
\]  

(9)

where:

\( FLIP_{it}(9)(10) \) = the sum of shares flipped by investors in both decile 9 and 10 expressed as a percentage of the total amount of shares held by investors in decile 9 and 10 for issuing firm \( i \).
\( FLIP_{it}(1)(2) = \) the sum of shares flipped by investors in both decile 1 and 2 expressed as a percentage of the total amount of shares held by investors in decile 1 and 2 for issuing firm \( i \), and
\[ 250WR_{it} = \] the 250 day market adjusted Buy and Hold return for issuing firm \( i \).

To determine whether the informational advantage of large investors dominates their aftermarket activities over and above the other hypothesised flipping motives, multivariate tests are conducted and outlined below.

\[
FLIP_{it}(9)(10) = \alpha + \beta_1(250WR)_{it} + \beta_2(UNDERP)_{it} + \beta_3(AGE)_{it} + \beta_4(STDRET)_{it} + \beta_5(SIZE)_{it} + \beta_6(UWQ)_{it} + \beta_7(HOT)_{it} + \epsilon_{it}
\]

\[
FLIP_{it}(1)(2) = \alpha + \beta_1(250WR)_{it} + \beta_2(UNDERP)_{it} + \beta_3(AGE)_{it} + \beta_4(STDRET)_{it} + \beta_5(SIZE)_{it} + \beta_6(UWQ)_{it} + \beta_7(HOT)_{it} + \epsilon_{it}
\]

In order to provide unanimous support for hypothesis 4 we expect the \( \beta_1 \) coefficient in equation 8 and 10 to be significantly negative, while \( \beta_1 \) in equations 9 and 11 is expected to be significantly positive.

6. Results

6.1 Descriptive Statistics

6.1.1 Flipping in Time Series

Figure 1 highlights the composition of CHESS trading volume for the first ten days of seasoning. Consistent with previous studies, trading volume peaks in the initial aftermarket and rapidly dissipates. In unreported results, the volume of shares traded on day 10 continues to decrease until day 35.

In Figure 1 the classification of trades uses a LIFO approach and is detailed in appendix 1.
Figure 1 also shows that flipping only accounts for a small proportion of aftermarket trading volume. This highlights the inferiority of previous attempts, which have used aftermarket-trading volume as a proxy for flipping.

Our results provide a significant contribution to the literature in that they demonstrate that Aggarwal’s (2000b) results are not specific to the NASDAQ market. In an order driven market where double counting does not exist we also show large differences between the volume of shares traded and the amount flipped. In our case, this is principally due to large volumes of day trading. Approximately 50% of aftermarket trading volume is day trading and its composition of total trading volume does not seem to change throughout the first 35 days of seasoning.

One other noticeable feature concerning the composition of aftermarket trading volume is the almost non-existent short sales. Using CHESS data we are only able to capture those investors who hold a short position overnight. This low amount of short selling by investors in the aftermarket satisfies the second condition or Miller’s (1977) argument for the poor long-run IPO returns.

Figure 2 shows the behaviour of flipping using our FLIP2 metric, but extends the analysis to day 35. It is very clear that the majority of the flipping we observe in concentrated in the first three days of trading. In fact 56 percent to the total flipping in the first 35 days of trading occurs in the first three days. Accordingly we tend to concentrate our regression work on the three day flipping measures.

**FIGURE 2**

Proportion of Shares Flipped (Using the FLIP2 Metric) During the First 35 Days of Trading for 419 IPOs
Figure 3 highlights the time series of flipping under our FLIP1 metric which produces a slightly higher figure than FLIP2 but its relationship through time is qualitatively similar. Figure 4 highlights the amount of reverse flipping (RFLIP1) which is quite high compared to the amount flipped. It shows that the bulk of reverse flipping also occurs in the first few days and quickly diminishes. Thus, it can be seen that IPO investors sell more than they purchase and the majority of their aftermarket trading activities occurs in the first few days of seasoning.

**FIGURE 3**

Proportion of Shares Flipped (Using the FLIP1 Metric) During the First 35 Days of Trading for 419 IPOs

**FIGURE 4**

Proportion of Shares that were Flipped and Subsequently Reacquired (Using the RFLIP1 Metric) for 419 IPOs

Figure 5 reveals the cumulative time series behaviour of the AFLIP1 metric, which is seen to be significantly lower than FLIP1. This highlights the turbulent nature of IPO aftermarket trading. A more

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22 This is because we are unable to infer the timing of intra day trades. Hence, some portion of day trading may also be
compelling finding is that approximately 16% of CHESS registered shares are flipped on the first day, and that 5% of CHESS registered shares are then reacquired on the next trading day. This behaviour is hard to reconcile with a logical IPO investment strategy.

**FIGURE 5**

Cumulative Flipping for the First 35 Days of Trading for 419 IPOs Using FLIP1, AFLIP1 and RFLIP1 Metrics

6.2 Cross Sectional Determinants

6.2.1 Underpricing

Table 1 documents the univariate relationship between our flipping metrics and underpricing. The relationship is positive, as predicted, and statistically significant when flipping is defined for a three or ten day period, though it is insignificant for the 35-day measure. We thus find evidence to support hypothesis 1, providing flipping measure are confined to three or ten day windows. Two other noticeable features in table 1 are firstly the large magnitude and statistical significance of the intercept term, and secondly the low explanatory power of the regression. In subsequent tests we employ more comprehensive models to explain flipping behaviour, and find substantial improvement in the power of the model and a corresponding reduction in the significance of the intercept.

a short sale as well.
Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Various Periods of Seasoning (Three, Ten and 35 Days) and the Independent Variable is Initial Underpricing.

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
<th>FLIP1 (10)</th>
<th>AFLIP1 (10)</th>
<th>FLIP2 (10)</th>
<th>FLIP1 (35)</th>
<th>AFLIP1 (35)</th>
<th>FLIP2 (35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.20705</td>
<td>0.12698</td>
<td>0.18454</td>
<td>0.26281</td>
<td>0.15231</td>
<td>0.24596</td>
<td>0.3576</td>
<td>0.21934</td>
<td>0.33538</td>
</tr>
<tr>
<td>t-stat</td>
<td>21.18**</td>
<td>22.67**</td>
<td>21.25**</td>
<td>24.13**</td>
<td>27.07*8</td>
<td>23.83**</td>
<td>29.42**</td>
<td>33.97**</td>
<td>29.12**</td>
</tr>
<tr>
<td>UNDERP</td>
<td>0.04524</td>
<td>0.02417</td>
<td>0.04015</td>
<td>0.04929</td>
<td>0.01647</td>
<td>0.04714</td>
<td>0.0485</td>
<td>0.01055</td>
<td>0.0468</td>
</tr>
<tr>
<td>t-stat</td>
<td>1.76*</td>
<td>1.79*</td>
<td>1.77*</td>
<td>1.72*</td>
<td>1.68*</td>
<td>1.74*</td>
<td>1.60</td>
<td>1.17</td>
<td>1.62</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.0683</td>
<td>0.0552</td>
<td>0.067</td>
<td>0.0667</td>
<td>0.0247</td>
<td>0.0667</td>
<td>0.0523</td>
<td>0.0075</td>
<td>0.0533</td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>0.066</td>
<td>0.0529</td>
<td>0.0648</td>
<td>0.0644</td>
<td>0.0224</td>
<td>0.0645</td>
<td>0.05</td>
<td>0.0052</td>
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</tr>
<tr>
<td>n</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. The numbers in parentheses are the number of days for which flipping is recorded. UNDERP is the underpricing for IPO i. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

6.2.2 Representative Heuristic

Overall, there is support in favour of the representative heuristic, which is the basis of our hypothesis 2. Table 2 Panel A highlights that flipping is significantly positively related to the underpricing of three previous IPOs within each IPOs industry. This result is robust when controlling for the underpricing of each IPO.

This result is also supported by Table 2 panel B, which shows an even stronger relationship between flipping and the underpricing of the three IPOs before each IPOs prospectus date (irrespective of industry). Similar to Table 2 Panel A, the results are qualitatively similar when controlling for each IPOs level of underpricing.
**TABLE 2**

Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Three Days of Seasoning and the Independent Variables are the Initial Underpricing of the Three Previous IPOs in the Same Industry and the Firm’s Initial Underpricing (Panel A) and Initial Underpricing of the Three Previous IPOs and the Firm’s Initial Underpricing (Panel B).

<table>
<thead>
<tr>
<th></th>
<th>Panel A</th>
<th></th>
<th>Panel B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FLIP1 (3)</td>
<td>FLIP1 (3)</td>
<td>AFLIP1 (3)</td>
<td>AFLIP1 (3)</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>0.21423</td>
<td>0.20206</td>
<td>0.13254</td>
<td>0.12585</td>
</tr>
<tr>
<td><strong>t-stat</strong></td>
<td>20.90**</td>
<td>19.18**</td>
<td>20.68**</td>
<td>19.48**</td>
</tr>
<tr>
<td><strong>UNDERP3PIND</strong></td>
<td>0.0349</td>
<td>0.03292</td>
<td>0.01648</td>
<td>0.01539</td>
</tr>
<tr>
<td><strong>t-stat</strong></td>
<td>2.12*</td>
<td>2.18*</td>
<td>1.88*</td>
<td>1.91*</td>
</tr>
<tr>
<td><strong>UNDERP</strong></td>
<td>0.04029</td>
<td></td>
<td>0.02215</td>
<td></td>
</tr>
<tr>
<td><strong>t-stat</strong></td>
<td>1.70*</td>
<td></td>
<td>1.73*</td>
<td></td>
</tr>
<tr>
<td><strong>R-Squared</strong></td>
<td>0.0163</td>
<td>0.0797</td>
<td>0.0097</td>
<td>0.0608</td>
</tr>
<tr>
<td><strong>Adj R-Squared</strong></td>
<td>0.0135</td>
<td>0.0744</td>
<td>0.0069</td>
<td>0.0554</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>353</td>
<td>353</td>
<td>353</td>
<td>353</td>
</tr>
</tbody>
</table>

**FLIP1, AFLIP1 and FLIP2 are all defined in section 5.** The numbers in parentheses are the number of days for which flipping is recorded. **UNDERP** is the underpricing for IPO i and **UNDERP3PIND** is the underpricing for the three previous IPOs within the IPOs industry before its prospectus date, while **UNDERP3P** is the underpricing for the three previous IPOs (irrespective of industry) before the IPOs prospectus date. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

Table 3 also shows strong support for the representative heuristic. The dummy variable for the hot issues market is significantly positively related to flipping. This demonstrates that when the secondary market is highly favourable to the value of IPOs, investors subscribe with the intent to flip. It is not surprising that underpricing is not a significant determinant of flipping in these regressions, given that underpricing and hot issues are highly correlated.
Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Various Days of Seasoning (Three, Ten and 35 days) and the Independent Variables are a Dummy Variable for a Hot Issue Market and the Firm’s Initial Underpricing.

**TABLE 3**

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
<th>FLIP1 (10)</th>
<th>AFLIP1 (10)</th>
<th>FLIP2 (10)</th>
<th>FLIP1 (35)</th>
<th>AFLIP1 (35)</th>
<th>FLIP2 (35)</th>
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<tbody>
<tr>
<td>Intercept</td>
<td>0.16197</td>
<td>0.10467</td>
<td>0.14471</td>
<td>0.12792</td>
<td>0.19348</td>
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<td>0.20019</td>
<td>0.28325</td>
<td></td>
</tr>
<tr>
<td>t-stat</td>
<td>17.30**</td>
<td>17.06**</td>
<td>17.00**</td>
<td>19.48**</td>
<td>18.63**</td>
<td>19.13**</td>
<td>23.32**</td>
<td>22.35**</td>
<td></td>
</tr>
<tr>
<td>HOT</td>
<td>0.08804</td>
<td>0.04357</td>
<td>0.07779</td>
<td>0.04762</td>
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</tr>
<tr>
<td>t-stat</td>
<td>4.91**</td>
<td>4.15**</td>
<td>4.88**</td>
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<td>4.56**</td>
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<tr>
<td>UNDERP</td>
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<td>0.03434</td>
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</tr>
<tr>
<td>t-stat</td>
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<td>1.54</td>
<td>1.50</td>
<td>1.42</td>
<td>1.29</td>
<td>1.44</td>
<td>1.30</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.1248</td>
<td>0.0944</td>
<td>0.1221</td>
<td>0.137</td>
<td>0.0699</td>
<td>0.1358</td>
<td>0.1109</td>
<td>0.0283</td>
<td></td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>0.1206</td>
<td>0.09</td>
<td>0.1178</td>
<td>0.1329</td>
<td>0.0655</td>
<td>0.1317</td>
<td>0.1066</td>
<td>0.0236</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td></td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. The numbers in parentheses are the number of days for which flipping is recorded. UNDERP is the underpricing for IPO i and HOT is a dummy variable equal to one if the equally weighted underpricing for the listing month is above the median. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

6.2.3 Underwriter Quality

Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Various Days of Seasoning (Three, Ten and 35 days) and the Independent Variable is a Dummy Variable for Underwriter Quality.

**TABLE 4**

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
<th>FLIP1 (10)</th>
<th>AFLIP1 (10)</th>
<th>FLIP2 (10)</th>
<th>FLIP1 (35)</th>
<th>AFLIP1 (35)</th>
<th>FLIP2 (35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.16286</td>
<td>0.13751</td>
<td>0.20265</td>
<td>0.28087</td>
<td>0.15731</td>
<td>0.26462</td>
<td>0.37268</td>
<td>0.22183</td>
<td></td>
</tr>
<tr>
<td>t-stat</td>
<td>24.82**</td>
<td>25.13**</td>
<td>24.69**</td>
<td>27.87**</td>
<td>28.67**</td>
<td>27.39**</td>
<td>33.58**</td>
<td>34.87**</td>
<td></td>
</tr>
<tr>
<td>UWQ</td>
<td>-0.0834</td>
<td>-0.0440</td>
<td>-0.0812</td>
<td>-0.0432</td>
<td>-0.0005</td>
<td>-0.0601</td>
<td>-0.0061</td>
<td>0.0094</td>
<td></td>
</tr>
<tr>
<td>t-stat</td>
<td>-3.33**</td>
<td>-3.36**</td>
<td>-3.93**</td>
<td>-1.39</td>
<td>-0.02</td>
<td>-2.22**</td>
<td>-0.15</td>
<td>0.42</td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.015</td>
<td>0.0118</td>
<td>0.0177</td>
<td>0.0033</td>
<td>0.0000</td>
<td>0.0070</td>
<td>0.0001</td>
<td>0.0004</td>
<td></td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>0.0127</td>
<td>0.0094</td>
<td>0.0154</td>
<td>0.0009</td>
<td>-0.0024</td>
<td>0.0046</td>
<td>-0.0023</td>
<td>-0.0002</td>
<td></td>
</tr>
<tr>
<td>n</td>
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<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td></td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. The numbers in parentheses are the number of days for which flipping is recorded. UWQ is a dummy variable equal to one if the IPO is (or is backed by) a major financial institution or bank. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

The univariate relationship between flipping and underwriter quality is significantly negative when flipping is measured over a three-day horizon. When flipping is measured over a longer time period the coefficients are mostly in the predicted direction, however five of the six coefficients are no longer significant. Thus we are only able to infer mild support for hypothesis 5.
6.2.4 Firm Characteristics

Our arguments predict a positive unconditional relationship between flipping and ex ante risk. These results are displayed in Table 5. Offer size is in the predicted direction and is always significant under a three day flipping horizon, and in two of the three ten day window regressions. Operating history shows no clear relationship with flipping. The standard deviation in aftermarket returns is strongly positively related to flipping. Thus, there is moderate support for the relationship between ex ante risk and flipping, consistent with hypothesis 3.

TABLE 5

Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Various Days of Seasoning (Three, Ten and 35 days) and the Independent Variables are the Firm’s Age, the Standard Deviation of the Firm’s Aftermarket Returns and the Firm’s Size.

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
<th>FLIP1 (10)</th>
<th>AFLIP1 (10)</th>
<th>FLIP2 (10)</th>
<th>FLIP1 (35)</th>
<th>AFLIP1 (35)</th>
<th>FLIP2 (35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.14719</td>
<td>0.1007</td>
<td>0.13244</td>
<td>0.18858</td>
<td>0.11874</td>
<td>0.17548</td>
<td>0.25996</td>
<td>0.16291</td>
<td>0.24235</td>
</tr>
<tr>
<td>t-stat</td>
<td>7.37**</td>
<td>8.54**</td>
<td>7.44**</td>
<td>8.51**</td>
<td>10.20**</td>
<td>8.38**</td>
<td>10.71**</td>
<td>11.79**</td>
<td>10.46**</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>-0.0000</td>
</tr>
<tr>
<td>t-stat</td>
<td>-3.16**</td>
<td>-3.05**</td>
<td>-4.03**</td>
<td>-1.20</td>
<td>-2.31*</td>
<td>-3.43**</td>
<td>1.17</td>
<td>1.39</td>
<td>-1.01</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.00025</td>
<td>-0.00026</td>
<td>-0.00015</td>
<td>0.00088</td>
<td>0.00011</td>
<td>0.00072</td>
<td>0.00097</td>
<td>0.00144</td>
<td>0.00048</td>
</tr>
<tr>
<td>t-stat</td>
<td>-0.16</td>
<td>-0.27</td>
<td>-0.11</td>
<td>0.53</td>
<td>1.16</td>
<td>0.46</td>
<td>0.54</td>
<td>1.37</td>
<td>0.28</td>
</tr>
<tr>
<td>STDRET</td>
<td>1.65752</td>
<td>0.77737</td>
<td>1.44473</td>
<td>1.84215</td>
<td>0.70706</td>
<td>1.78002</td>
<td>2.30639</td>
<td>1.11358</td>
<td>2.29365</td>
</tr>
<tr>
<td>t-stat</td>
<td>4.59**</td>
<td>3.93**</td>
<td>4.53**</td>
<td>4.55**</td>
<td>3.59**</td>
<td>4.63**</td>
<td>5.56**</td>
<td>4.44**</td>
<td>5.75**</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.0879</td>
<td>0.0559</td>
<td>0.0849</td>
<td>0.0836</td>
<td>0.0416</td>
<td>0.089</td>
<td>0.1063</td>
<td>0.0737</td>
<td>0.1169</td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>0.0813</td>
<td>0.049</td>
<td>0.0783</td>
<td>0.077</td>
<td>0.0347</td>
<td>0.0824</td>
<td>0.0998</td>
<td>0.067</td>
<td>0.1105</td>
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<tr>
<td>n</td>
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<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
<td>419</td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. The numbers in parentheses are the number of days for which flipping is recorded. SIZEit is the nominal gross proceeds of the issue, AGEit is the operating history of the issuing firm, measured in the number of years since incorporation and STDRETit is the standard deviation of returns for each firm estimated from a time series of daily raw returns from the second date of listing through to day 25. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

6.2.5 Multivariate Analysis

The multivariate analysis yields similar inferences to the univariate analysis. From Table 6, underpricing and operating history are insignificant explanatory variables to our flipping analysis. Offer size, standard deviation in aftermarket returns and the dummy variable for hot issue markets are significant and in the predicted direction. Offer size becomes less significant the greater the flipping horizon and contrary to the univariate results underwriter quality is no longer a significant explanatory variable.

From the multivariate analysis we can infer that flipping is greatest among small, speculative IPOs who list when the market is highly receptive. This is consistent with the representative heuristic, where investors...
subscribe to more speculative IPOs with the intent of flipping, in expectation of high initial returns resulting from recent well-received offerings.

Providing the representative heuristic is the dominant explanation of flipping behaviour, the insignificant underpricing variable shows that investors who subscribe with intent to flip do not always achieve high initial returns.

The insignificant underpricing variable may also reflect that investors are choosing not to realise investment returns on the most underpriced IPOs. If either are correct, then the results demonstrate little support for our application of the disposition effect from the pre market to the aftermarket.

**TABLE 6**

Regression Results for 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Various Days of Seasoning (Three, Ten and 35 days) and the Independent Variables are The Firm’s Initial Underpricing, the Firm’s Size, the Firm’s Age, the Standard Deviation of the Firm’s Aftermarket Returns and Dummy Variables for the Quality of the Underwriter and Whether the IPO Market is Hot.

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
<th>FLIP1 (10)</th>
<th>AFLIP1 (10)</th>
<th>FLIP2 (10)</th>
<th>FLIP1 (35)</th>
<th>AFLIP1 (35)</th>
<th>FLIP2 (35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.10973</td>
<td>0.08245</td>
<td>0.09982</td>
<td>0.13775</td>
<td>0.09435</td>
<td>0.12833</td>
<td>0.20626</td>
<td>0.14299</td>
<td>0.19339</td>
</tr>
<tr>
<td>t-stat</td>
<td>6.04**</td>
<td>7.61**</td>
<td>6.14**</td>
<td>8.34**</td>
<td>8.66**</td>
<td>8.86**</td>
<td>10.18**</td>
<td>8.76**</td>
<td></td>
</tr>
<tr>
<td>UNDERP</td>
<td>0.02837</td>
<td>0.01606</td>
<td>0.02528</td>
<td>0.02926</td>
<td>0.00789</td>
<td>0.02794</td>
<td>0.0265</td>
<td>0.00131</td>
<td>0.02561</td>
</tr>
<tr>
<td>t-stat</td>
<td>1.37</td>
<td>1.44</td>
<td>1.38</td>
<td>1.30</td>
<td>1.09</td>
<td>1.31</td>
<td>1.14</td>
<td>0.22</td>
<td>1.16</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
<td>-0.0000</td>
</tr>
<tr>
<td>t-stat</td>
<td>-2.95**</td>
<td>-2.87**</td>
<td>-3.89**</td>
<td>-1.68*</td>
<td>-2.71**</td>
<td>-3.49**</td>
<td>0.67</td>
<td>-0.28</td>
<td>-1.74*</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.00065</td>
<td>-0.00048</td>
<td>-0.00049</td>
<td>0.00028</td>
<td>0.00084</td>
<td>0.00019</td>
<td>0.00028</td>
<td>0.00124</td>
<td>-0.00012</td>
</tr>
<tr>
<td>t-stat</td>
<td>-0.44</td>
<td>-0.52</td>
<td>-0.37</td>
<td>0.17</td>
<td>0.90</td>
<td>0.13</td>
<td>0.16</td>
<td>1.18</td>
<td>-0.07</td>
</tr>
<tr>
<td>STDRET</td>
<td>1.37288</td>
<td>0.62277</td>
<td>1.18572</td>
<td>1.57192</td>
<td>0.63197</td>
<td>1.50926</td>
<td>2.08436</td>
<td>1.09543</td>
<td>2.06419</td>
</tr>
<tr>
<td>t-stat</td>
<td>4.24**</td>
<td>3.44**</td>
<td>4.14**</td>
<td>4.29**</td>
<td>3.36**</td>
<td>4.35**</td>
<td>5.23**</td>
<td>4.21**</td>
<td>5.40**</td>
</tr>
<tr>
<td>UWQ</td>
<td>-0.04457</td>
<td>-0.0251</td>
<td>-0.04567</td>
<td>-0.0037</td>
<td>0.01677</td>
<td>-0.01688</td>
<td>0.03008</td>
<td>0.02718</td>
<td>0.01101</td>
</tr>
<tr>
<td>t-stat</td>
<td>-1.44</td>
<td>-1.56</td>
<td>-1.77*</td>
<td>-0.11</td>
<td>0.81</td>
<td>-0.55</td>
<td>0.69</td>
<td>1.10</td>
<td>0.28</td>
</tr>
<tr>
<td>HOT</td>
<td>0.08666</td>
<td>0.04295</td>
<td>0.07677</td>
<td>0.10662</td>
<td>0.04743</td>
<td>0.10144</td>
<td>0.10612</td>
<td>0.03598</td>
<td>0.09985</td>
</tr>
<tr>
<td>t-stat</td>
<td>5.13**</td>
<td>4.23**</td>
<td>5.10**</td>
<td>5.70**</td>
<td>4.54**</td>
<td>5.74**</td>
<td>5.08**</td>
<td>2.94**</td>
<td>5.06**</td>
</tr>
</tbody>
</table>

| R-Squared  | 0.1965    | 0.1398     | 0.1931    | 0.1991     | 0.1036     | 0.2046     | 0.195      | 0.0974     | 0.2034     |
| Adj R-Squared | 0.1848   | 0.1273     | 0.1813    | 0.1874     | 0.0906     | 0.193      | 0.1833     | 0.0843     | 0.1918     |
| n          | 419       | 419        | 419       | 419        | 419        | 419        | 419        | 419        | 419        |

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. The numbers in parentheses are the number of days for which flipping is recorded. UNDERP is the underpricing for IPO i, SIZE, is the nominal gross proceeds of the issue, AGE, is the operating history of the issuing firm, measured in the number of years since incorporation and STDRET, is the standard deviation of returns for each firm estimated from a time series of daily raw returns from the second date of listing through to day 25, UWQ is a dummy variable equal to one if the IPO is (or is backed by) a major financial institution or bank and HOT is a dummy variable equal to one if the equally weighted underpricing for the listing month is above the median. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).
6.2.6 Informed/Uninformed Shareholder Activities

6.2.6.1 Univariate Results

Tables 7 and 8 present the univariate results for informed and uninformed investors. Table 7 presents the results for informed investors (Decile 9 and 10). Informed investors do not seem to flip less for IPOs with superior long-run returns, though two of the three coefficients are however significantly negative at the 6 percent level. The coefficient on long-run returns is also sensitive to differences in flipping metrics. In unreported tables similar results are obtained for longer flipping horizons.

**TABLE 7**

Regression Results for Informed Investor Participation in 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Three Days of Seasoning and the Independent Variable is the 250 Day Market-Adjusted Buy and Hold Return for the IPO.

<table>
<thead>
<tr>
<th></th>
<th>FLIP1 (3)</th>
<th>AFLIP1 (3)</th>
<th>FLIP2 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.25656</td>
<td>0.1479</td>
<td>0.22671</td>
</tr>
<tr>
<td>t-stat</td>
<td>24.42**</td>
<td>24.73**</td>
<td>24.24**</td>
</tr>
<tr>
<td>250WR</td>
<td>0.01413</td>
<td>-0.01047</td>
<td>-0.01672</td>
</tr>
<tr>
<td>t-stat</td>
<td>1.22</td>
<td>-1.59</td>
<td>-1.59</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.0051</td>
<td>0.004</td>
<td>0.0042</td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>0.0027</td>
<td>0.0017</td>
<td>0.0019</td>
</tr>
<tr>
<td>n</td>
<td>419</td>
<td>419</td>
<td>419</td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. Table 7 only analyses the flipping activity of Decile 9 and 10, our proxy for the most informed IPO investors. The numbers in parentheses are the number of days for which flipping is recorded. 250WR is the 250-day market adjusted Buy and Hold return for issuing firm i. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

Table 8 presents the results for uninformed investors (decile 1 and 2). Similar to table 7, uninformed investor flipping behaviour is unrelated to the IPOs long-run performance. In addition the sign on the coefficient of long-run returns is also sensitive to the choice of flipping metrics.
Regression Results for Uninformed Investor Participation in 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Three Days of Seasoning and the Independent Variable is the 250 Day Market-Adjusted Buy and Hold Return for the IPO.

<table>
<thead>
<tr>
<th></th>
<th>FLIP1(3)</th>
<th>AFLIP1(3)</th>
<th>FLIP2(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.0013</td>
<td>0.08634</td>
<td>0.1047</td>
</tr>
<tr>
<td>t-stat</td>
<td>0.20</td>
<td>17.33**</td>
<td>17.23**</td>
</tr>
<tr>
<td>250WR</td>
<td>-0.0011</td>
<td>0.00675</td>
<td>0.00642</td>
</tr>
<tr>
<td>t-stat</td>
<td>-0.18</td>
<td>1.30</td>
<td>1.04</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.0013</td>
<td>0.0025</td>
<td>0.0015</td>
</tr>
<tr>
<td>Adj R-Squared</td>
<td>-0.0011</td>
<td>0.0001</td>
<td>-0.0009</td>
</tr>
<tr>
<td>n</td>
<td>419</td>
<td>419</td>
<td>419</td>
</tr>
</tbody>
</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. Table 8 only analyses the flipping activity of Decile 1 and 2, our proxy for the least informed IPO investors. The numbers in parentheses are the number of days for which flipping is recorded. 250WR is the 250-day market adjusted Buy and Hold return for issuing firm i. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

6.2.6.2 Multivariate Results

The preceding analysis did not control for extraneous influences, which may affect each investor’s choice for flipping. Table 9 and 10 presents the multivariate results for informed and uninformed investors controlling for the other hypothesised flipping motives. Table 9 presents the results for informed investor (Decile 9 and 10). Similar to the univariate results, long-run return is an insignificant explanatory variable. It is however worth noting that in all cases the estimated coefficient on 250WR is negative, consistent with the proposition that informed investors flip a smaller proportion of the issue that subsequently perform better. The other control variables display similar results to Table 6.
TABLE 9

Regression Results for Informed Investor Participation in 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Three Days of Seasoning and the Independent Variables are the 250 Day Market-Adjusted Buy and Hold Return for the IPO, the Firm’s Size, the Firm’s Age, the Standard Deviation of the Firm’s Aftermarket Returns and Dummy Variables for the Quality of the Underwriter and Whether the IPO Market is Hot.

<table>
<thead>
<tr>
<th>FLIP1</th>
<th>AFLIP1</th>
<th>FLIP2</th>
<th>FLIP1</th>
<th>AFLIP1</th>
<th>FLIP2</th>
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</table>

FLIP1, AFLIP1 and FLIP2 are all defined in section 5. Table 9 only analyses the flipping activity of Decile 9 and 10, our proxy for the most informed IPO investors. The numbers in parentheses are the number of days for which flipping is recorded. 250WRt is the 250-day market adjusted Buy and Hold return for issuing firm i. UNDERP is the underpricing for IPO i, SIZEi is the nominal gross proceeds of the issue, AGEi is the operating history of the issuing firm, measured in the number of years since incorporation and STDRETi is the standard deviation of returns for each firm estimated from a time series of daily raw returns from the second date of listing through to day 25, UWQ is a dummy variable equal to one if the IPO is (or is backed by) a major financial institution or bank and HOT is a dummy variable equal to one if the equally weighted underpricing for the listing month is above the median. All t-statistics are White’s (1980) heteroskedasticity adjusted. * Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).

Table 10 presents the results for uninformed investors (decile 1 and 2). Uninformed investor flipping behaviour is significantly positive, meaning that uninformed investors flip more of the IPOs with superior long-run returns. Uninformed investors flipping activity displays an inability to stay loyal to IPOs with better long-run returns.

The significance and direction of the coefficients on the control variables in Table 10 are similar to the results presented in Table 6, with the exception that underwriter quality is significantly negative in all three regressions when flipping is measured over a three day flipping horizon, and in four of the six regressions for the ten and 35 day windows.
TABLE 10

Regression Results for Uninformed Investor Participation in 419 Australian IPOs Listed between December 1995 and December 2000 where the Dependent Variable is Various Measure of Flipping (FLIP1, AFLIP1 and FLIP2) for Three Days of Seasoning and the Independent Variables are the 250 Day Market-Adjusted Buy and Hold Return for the IPO, the Firm’s Size, the Firm’s Age, the Standard Deviation of the Firm’s Aftermarket Returns and Dummy Variables for the Quality of the Underwriter and Whether the IPO Market is Hot.

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<td>UWQ</td>
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FLIP1, AFLIP1 and FLIP2 are all defined in section 5. Table 10 only analyses the flipping activity of Decile 1 and 2, our proxy for the least informed IPO investors. The numbers in parentheses are the number of days for which flipping is recorded. 250WR is the 250-day market adjusted Buy and Hold return for issuing firm i. UNDERP is the underpricing for IPO i, SIZE is the nominal gross proceeds of the issue and AGE is the operating history of the issuing firm, measured in the number of years since incorporation. STDRET is the standard deviation of returns for each firm estimated from a time series of daily raw returns from the second date of listing through to day 25. UWQ is a dummy variable equal to one if the IPO is (or is backed by) a major financial institution or bank and HOT is a dummy variable equal to one if the equally weighted underpricing for the listing month is above the median. All t-statistics are White’s (1980) heteroskedasticity adjusted.

* Significant at 5 percent (one-tailed test). ** Significant at 1 percent (one-tailed test).
7. Conclusion

In conclusion, this paper has presented five hypotheses in order to explain flipping behaviour. We find strong support for the representative heuristic (i.e., flipping is highest when previous IPOs with similar characteristics are highly underpriced) as a determinant to flipping behaviour. In accordance with the representative heuristic we infer that flipping behaviour is driven by investors who subscribe with an intention to flip IPOs they expect to be highly underpriced. Support is also found for underpricing and ex ante risk as determinants of flipping, while mild support is found for underwriter quality as a determinant of flipping. We also find that the flipping behaviour of large (informed) investors is unrelated to IPO long-run returns, while uninformed investors consistently flip more of the IPOs that have better long-run returns.

This paper is able to categorise aftermarket-trading volume. We find that flipping only accounts for a small proportion of aftermarket trading activity and the difference is principally due to the large volumes of day trading.

We also find that trading in the initial aftermarket is highly turbulent with large volumes of shares traded in the first few days of listing. In addition, we show that one third of the shares flipped on the first day of trading are then reacquired on the next day. Thus, we conclude that IPO investors follow somewhat illogical aftermarket investment strategies.

Following from the findings above, a fruitful area of IPO research is to investigate the presence of day trading in the IPO aftermarket. The notion behind IPO underpricing is to reward investors for adverse selection risk, sharing information, to protect the liability of the underwriter and to signal the quality of the issue. Thus, investors should not be able to earn returns from day trading in the aftermarket. Hence, future research can conduct an empirical analysis in order to determine whether day traders are earning sufficient returns in comparison to those IPO investors who flip their allocations.
References


Appendix 1

Figure 1 classifies aftermarket trading volume under four different categories; Day Trading, Selling, Flipping and Short Selling. The composition of CHESS registered trading volume displayed in Figure 1 occurs under a LIFO approach and the system for classifying trades under each category is outlined below.

Day Trades
A day trade is recognised when an investor buys and sells shares on the same day. The amount of shares recognised as a day trade is the lower of the buy or the sell. If the number of shares sold is less than the number of shares purchased during the day, then all of the daily sales by that investor are classified as a day trade. If the number of shares sold is greater than the number of shares purchased, then the number of shares recognised as a day trade is equal to the number of shares purchased. The amount sold in excess of the amount purchased is not allocated to day trading but classified as flipping, selling or short selling depending on the circumstances.

Selling
Selling is used to classify the sale of shares, which were purchased in the aftermarket. The approach used to recognise a sale from a previous days purchase differs if the investor’s first investment occurs in the pre market or aftermarket. For an IPO investor, shares recognised as selling occurs when the IPO investors investment in the issuing firm is above their initial holdings and when the shares sold are not recognised as a day trade. When the sale of shares by an IPO investor is in excess of their previous aftermarket purchases and decreases their investment in the issuing firm below their initial holdings, selling is no longer recognised. The amount of shares, which decreases their investment below an IPO investors initial holdings, is categorised as flipping. For a non-IPO investor (an investor who first becomes a shareholder in the listing companies aftermarket), selling occurs when an investor has an investment in the issuing firm and the sale is not recognised as a day trade. If the aggregate selling of shares by a non-IPO investor is in excess of their total aftermarket purchases, then that part which is in excess of total aftermarket purchases is classified as a short sale.

Flipping
Figure 1 utilises the FLIP2 metric. The methodology concerning the FLIP2 metric is discussed in section 5. Flipping can only be recognised for IPO investors.

Short Sale
A short sale is recognised when an investor has sold more than their investment in the issuing firm. For an IPO investor, a short sale is recognised for that portion of selling activity, which decreases their investment
below their initial holdings and net aftermarket purchases. For a non-IPO investor, a short sale is recognised for that portion of selling activity, which decreases their investment below their net aftermarket purchases.

In order to construct figure 1 the classification system discussed above is performed on all investors who become shareholders in one of our sample IPOs during the pre market or the first 10 days of seasoning. All of their trades are classified on an individual investor basis, summed for all investors within each IPO and then equally weighted for all IPOs.