Catering Theory of Corporate Spinoffs:
Empirical Evidence from Europe

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Abstract

This paper argues that investor sentiment affects the market reaction to spinoff announcements. It further proposes a catering theory for corporate spinoff decisions. This theory points out that a firm's manager may observe a prevailing strong investor demand for corporate focus or glamour stocks, then rationally cater to investor demand by spinning off the unrelated business or the subsidiary business which is currently more attractive to the stock market than the parent business. Such catering-motivated spinoffs will experience higher stock returns at the announcement dates than other types of spinoffs. However, they may not benefit shareholders in the long run since their primary goal is to maximise the firm's short-run share prices rather than to improve a firm's operating efficiency.

To test the catering theory for corporate spinoff decisions, we examine a sample of European spinoffs during the period from January 1987 to December 2005. We construct several price-based variables to capture investor demand for corporate focus and glamour stocks. These investor demand proxies are positively associated with the spinoff announcement returns. In addition, we present evidence that subsidiaries following spinoffs that cater to investor demand for glamour stocks underperform those following other types of spinoff in the long run.

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1 Introduction

Corporate spinoff is a special type of corporate restructuring. Through a spinoff, a publicly traded firm offers shares of a subsidiary to its shareholders on a pro rata distribution basis. Following this spinoff transaction, the newly floated company has an independent existence and is separately valued on the stock market. The divestor continues to exist, albeit downsized. In this paper, the divestor is referred to as the parent, the spunoff subsidiary as the offspring, and the portfolio of the continuing entity and the spunoff subsidiary as the post-spinoff firms.

The literature has established that corporate spinoffs are value-enhancing restructuring transactions. For example, Desai and Jain (1999) and Veld and Veld-Merkoulova (2004) document a significant positive stock market reaction to spinoff announcements of American and European firms, respectively. Existing theories attribute significant and positive spinoff announcement returns to divestiture gains to firms involved in spinoffs (Chemmanur and Paeglis, 2001). For instance, the corporate focus hypothesis argues that a spinoff of non-core assets can reserve managerial resources on the core business and improve the operating efficiency of remaining assets of the parent firm (e.g. see Daley, Mehrotra and Sivakumar, 1997; Desai and Jain, 1999; among others).

However, corporate spinoffs are joint events which combine features of divestitures and equity offerings. Less attention has been paid to the managerial rationale of and the market reaction to the offering of equity of the subsidiary. Recent literature suggests that shareholder reaction to a corporate announcement can be affected by investor sentiment, which means the investor reaction to factors other than the value creation logic of the corporate transaction (e.g. see Ljungqvist, Nanda and Singh (2006) for initial public offerings and Rosen (2006) for mergers).

Likewise, the positive market reaction to spinoff announcements may result from overly optimistic beliefs of investors about the value benefits from the spinoff transaction. For investors, corporate spinoffs have two distinctive features, increasing corporate focus of the divesting parent and listing a subsidiary. Therefore, there may be a positive correlation between the investor sentiment about corporate focus (or glamour stocks) and the market reaction to a spinoff announcement. Although to date no empirical study specifically has tested the impact of investor sentiment about spinoffs on stockholder returns, there is some evidence that such sentiment may affect the market reaction to spinoff announcements.

Prior empirical studies have shown that there is a time-varying pattern of investor demand for corporate focus and that such demand affects the market valuation of diversification or refocusing transactions. For example, diversifying acquisitions experienced favourable market reactions in the 1960s (Matsusaka, 1993) but have been penalised by markets since the 1980s (Morck, Shleifer and Vishny, 1990). In a recent literature review, Baker, Ruback and Wurgler (2004) put forward that the variation of investor appetite for conglomerates over time have may been responsible for the different valuation effects of diversifying and refocusing transactions between 1960s and 1980s.

There is also anecdotal evidence on investor sentiment about an offspring's industry prospectus. A well-known example is the spinoff of Palm by 3Com in 2000 (Lamont and Thaler, 2003). In anticipation of a full spin-off within nine months, 3Com floated 5 percent of its Palm subsidiary, the high tech subsidiary making smartphones, on March 2nd 2000. At that time, high-tech or internet stocks were in a significant demand. Upon floatation, Palm's market capitalisation was immediately higher than the entire market value of 3Com, implying that 3Com's other businesses had a negative value. Considering the size and profitability of the rest of 3Com's businesses, this result would indicate significant market mispricing of different businesses of 3Com at that time. Following its floatation, there was a significant price reversal in Palm's stock: a decline from $104.13 per share to $0.10 per share within the three-year post-floatation period. Clearly, investors were initially over-optimistic about the future growth of Palm.

Investor sentiment changes over time. Therefore, corporate transactions that are initially favoured by stock markets due to investor sentiment may turn out to be value destroying for shareholders. The consideration of the relationship between investor sentiment and spinoff announcement returns could resolve why there are generally positive market reactions to spinoff announcements but long-term performance of post-spinoff firms differs substantially across different periods and locations. For instance, with the refocusing argument gaining strength among academics and practitioners since the late 1980s, there has been a fast growing trend of refocusing divestitures with an aim to improve shareholder values. However, empirical studies employing recent data have demonstrated that corporate focus has no significant impact on long-term performance of post-spinoff firms[1].

Managers may seek to exploit investor sentiment. If market valuations for different businesses of a diversified firm are driven by investor sentiments at any time, managers of undervalued parent firms may tend to spin off overvalued subsidiaries because such spinoffs maximise the short-run share prices and temporarily relieve the pressures to improve the firm performance[2]. Practitioners have pointed out that managers often spin off overvalued subsidiaries to shareholders (e.g. see Montier, 2002, Chapter 7). A recent press comment from the Financial Times on the managerial rationale of spinoffs also highlights this issue, which is given below:

> "In the late 1990s, a spate of companies donated overvalued technology offshoots to their shareholders. Recent months have seen demergers of old economy oil,

[1] For example, Desai and Jain (1999) studied a US sample of 155 spinoffs between the years 1975 and 1991 and found a highly significant average abnormal return of 19.82% to the post-spinoff parent as well as post-spinoff offspring firms in the three-year post-spinoff period. On the other hand, McConnell, Ozbilgin, and Wahal (2001) examined a US sample of 96 spinoffs over the period 1989-1995 and document ed insignificant abnormal returns to either parent firms or to subsidiary firms. The two sample periods are largely non-overlapping.

[2] Spinoffs are large-scale corporate restructurings and it may take a long time for investors to fully understand the value benefits (or detriments) of such dramatic restructurings. Sanders and Carpenter (2003) argue that managers are likely to use share repurchase programmes to resolve potentially conflicting pressures – maximising shareholder wealth in the long term and appeasing shareholders in the near term. This argument can also apply to the case of spinoffs.

> metals and even paper and pulp subsidiaries. Perhaps one clear lesson is that spin-offs sometimes point to asset categories that are overvalued.”
>
> (“Spin-offs”, Lex Column, Financial Times, 12 February 2005)

We thus propose a catering theory to describe some spinoffs that are undertaken for reasons other than operating efficiency improvement. The catering theory is based on a behavioural perspective where investors are less than fully rational (for detailed discussions on irrational investors, see Shleifer, 2000). Irrational investors are likely to react to non-fundamental factors in making investment decisions. For example, there is an excessive investor demand for glamour stocks, such as internet (dotcom) stocks during the 1990s. The consequence of such investor sentiment is that the stocks subject to such excessive demand become overpriced (Baker et al., 2004). Rational corporate mangers may then cater to a temporary investor demand by spinning off overvalued subsidiary businesses to shareholders. When the positive spinoff announcement returns are partially caused by investor sentiment, the initial high expectation on the offspring should eventually turn out to be unfounded. Put differently, the stock price of offspring should reverse in the long run as sentiments are replaced by reality. Therefore, the catering theory also predicts that offspring firms from spinoffs that are undertaken to cater to unrealistic investor demand will initially outperform but in the long term underperform those from other types of spinoffs.

Using a sample of 170 spinoffs completed by European companies during the period between January 1987 and December 2005, we find evidence that investor sentiment affects the spinoff announcement returns. The market reaction to a spinoff announcement is positively related to the recent market valuation of focused firms relative to that of diversified firms, which captures the investor time-varying demand for corporate focus. Moreover, the market reaction to a spinoff announcement is positively associated with the prevailing market valuation of the offspring’s industry, which measures the investor temporary demand for glamour stocks. These investor sentiment proxies are highly significant in the regression models to explain spinoff announcement abnormal returns after controlling for the factors that effect fundamental value. Thus, our results indicate that the prevailing investment sentiment is an important factor explaining the positive market reaction to spinoff announcements.

To test the catering theory of corporate spinoff, we also examine the market reaction to spinoff announcements when managers are likely to exploit market mis-valuation to conduct spinoffs. We identify spinoff transactions in which mangers have strong incentives to cater to temporary investor demand for glamour stocks to spin off subsidiaries which are currently attractive to investors. The announcement returns to spinoffs that cater to investor demand are significantly higher than those to other types of spinoff. In contrast, the long-run returns to offspring following spinoffs that cater to investor demand are significantly lower than those to offspring following other types of spinoff. Overall, we document supporting evidence for the catering theory, that the long-run return to a post-spinoff offspring is worse if the parent firm’s manager undertakes a spinoff to exploit an unrealistic investor demand for glamour stocks.

The catering theory of corporate spinoff is along the line of research that views managerial decisions as rational responses to inefficient markets. Baker and Wurgler (2002) argue that managers observe security mispricing and they issue securities to capitalise on it. Thus, in their view, current capital structure is a result of past market timing decisions. Shleifer and Vishny (2003) propose a market timing theory of mergers which suggests managers rationally use overvalued stocks to purchase target firms. Baker and Wurgler (2004) develop a theoretical model to explain managerial decisions to initiate dividends as a response to investor demand for dividends. Ljungqvist et al. (2006) build a theoretical model to justify managerial decisions to underprice the IPOs. Their model argues that managers are willing to sell underpriced equities to sentimental investors during hot IPO markets because sentiment-driven demand may disappear prematurely.

This study contributes to the behavioural finance literature by providing empirical evidence that the stock market reaction to corporate divestiture news is affected by investor sentiments and not merely driven by fundamental value drivers. In addition, we find that some spinoffs are undertaken by managers to cater to an unrealistic investor demand for glamour stocks. There is evidence that such catering-motivated spinoffs have higher announcement-period returns but lower long-run returns.

The rest of the paper is organised as follows. Section 2 develops testable hypotheses based on the assumption of market inefficiency. Section 3 outlines the test methodology. Section 4 examines the relationship between investor sentiment and the spinoff announcement returns. Section 5 investigates both the short run market reaction and the long run market reaction to spinoffs that cater to investor demand for glamour stocks. Section 6 concludes.

2 Theory Development

Extant literature demonstrates that irrational investors tend to react to non-fundamental factors upon the announcement of corporate transactions. The early empirical investigation of the relationship between investor sentiment and stock returns was conducted by De Bondt and Thaler (1985, 1987, and 1990). They find systematic price reversals for stocks that experience extreme long-term gains or losses: past losers significantly outperform past winners. They interpret this as evidence that investors tend to make biased expectation of a stock’s future performance when confronting a series of good or bad earnings news[3]. Later empirical research documents evidence that investors often form systematic mistakes on assessing the desirability of different corporate transactions based on the past performance of event firms. Loughran and Ritter (1995) find that firms that issue equities have high earnings growth prior to earnings announcements but have poor long-run performance. Rau and Vermaelen (1998) and Sudarsanam and Mahate (2003) observe that the bidder with good past performance, as

[3] There is a hot debate on how to explain the finding of market overreaction documented by De Bondt and Thaler. Fama and French (1996) argue that the documented market overreaction is due to mis-specified asset pricing models used in the measuring of stock performance by De Bondt and Thaler. Chan, Frankel and Kothari (2004) find that investors do not overreact to consistent earnings news based on trends in accounting data. However, both Daniel and Titman (2006) and Lee (2006) document evidence that investors overreact to intangible information contained in the news after using more robust return measurement methodologies.

reflected in its low book-to-market ratio, underperform the bidders with poor past performance in the long run.

It is also possible that investor sentiment may affect the market reaction to spinoff announcement news. We consider two cases of investor reactions to non-fundamental factors upon the spinoff announcement. First, investors may be over-optimistic about the value benefits of a spinoff that increases the corporate focus. Second, investors may be over-optimistic about the value benefits of a spinoff that lets investors own a subsidiary whose industry stocks are currently attractive to the markets. Therefore, there should be a positive association between an investor demand for corporate focus (and stocks of the offspring's industry) and the market reaction to spinoff announcements.

Prior studies have revealed that corporate focus is valued by stock markets differently over time. Ravenscraft and Scherer (1987, p40) document that the average return on 13 leading conglomerates reached 385% from July 1965 to June 1968, against the modest gains of 34% of the S&P 425. Klein (2001) observes that the diversification premium turned into a discount of 1% in 1969-1971 and 17% in 1972-1974. The diversification discount has remained around 15% for the US in the 1980s and 1990s (Berger and Ofek, 1995). Lins and Servaes (1999) even document no diversification discount in Germany in the early 1990s. Baker et al. (2004) review the empirical studies on corporate diversification and propose that the diversification and subsequent re-focusing wave in the US seems to be driven by managerial efforts to cater to a temporary investor appetite for conglomerates.

If there is a time-varying pattern of investor demand for corporate focus, such investor sentiment will affect the market reaction to announcements of corporate spinoffs that are widely believed to be refocusing corporate transactions. Therefore, we propose the first hypothesis on the impact of investor sentiments on spinoff announcement returns:

***H1*: There is a positive association between the prevailing investor demand for corporate focus and spinoff announcement returns.**

A large number of studies have found investor over-optimism to equity issues. Using annual data from the 1920s on aggregate equity issuance relative to debt plus equity issuance, Baker and Wurgler (2000) find that the fraction of equity issuance is negatively associated with the overall stock market return in the following year, suggesting reversal of investor over-optimism subsequent to equity issues. Shefrin (2002) also proposes that overvalued IPOs (defined as new issuers with high market-to-book ratios) will underperform in the long-term because investors who buy the issue suffer from an unsustainable excess of optimism about the future prospects of the issuing firms. Investigating companies issuing stock during the period from 1970 to 1990, Loughran and Ritter (1995) find that IPO firms underperform size-matching non-issuing firms by about seven percent per year in the five-year post-listed period. Brav, Geczy, and Gompers (2000) re-examine the long-term performance of IPO firms in the period between 1975 and 1992 with various long horizon test methodologies and observe that IPO returns are similar to non-issuing firm returns matched on the basis of size and book-to-market ratios. Mitchell and Stafford (2000) also observe insignificant long-run abnormal returns to IPO firms with the calendar-time portfolio abnormal return approach. However, Brav et al. (2000) still find that small issuing firms with high market-to-book ratios underperform various benchmarks in the long term, which is consistent with Shefrin's investor- overoptimism argument.

Since spinoffs are actually a transaction to issue equities of subsidiaries to investors, the investor sentiment about the offspring's industry will affect the market reaction to spinoff announcements. Thus, we suggest the second hypothesis on the relationship between the investor sentiments and spinoff announcement returns:

H2: There is a positive association between the prevailing investor demand for stocks of the offspring's industry and spinoff announcement returns.

A growing literature begins to view managerial decisions as rational responses to inefficient markets. Based on an information asymmetry model, Baker and Wurgler (2000) suggest that firms respond to investors' over-optimism by issuing equity to exploit a "window of opportunity". Shleifer and Vishny (2003) propose a market timing theory of mergers which suggests managers rationally use overvalued stocks to purchase target firms[4]. Baker and Wurgler (2004) develop a theoretical model to explain managerial decisions to initiate dividends as a response to investor demand for dividends[5]. Ljungqvist et al. (2006) also model an IPO company's optimal response to sentiment-driven investors in order to explain the underpricing puzzle of new issues. Their model shows that the equity issuers intentionally underprice the issued equities to facilitate a quick equity sale to sentiment-driven investors later because a sentiment demand for new stocks may disappear prematurely.

Provided that investor sentiment is expected to affect the spinoff announcement returns, managers may rationally react to investor sentiment to undertake spinoffs. We formulate a catering model that some spinoffs are undertaken to cater to investor demand for glamour stocks rather than to improve the operating efficiency of post-spinoff firms. The catering theory argues that if the investor demand for an offspring's industry stocks is high, managers may respond to such demand by spinning off subsidiaries that are currently attractive to investors to maximise the firm's short-run share price. Therefore, the market reaction to announcements of spinoffs that cater to investor demand for glamour stocks should be more positive than to announcements of other types of spinoff. This argument gives rise to our third hypothesis:

H3: Parent firms of spinoffs undertaken to cater to investor demand for glamour stocks earn significantly higher announcement abnormal returns than those of other types of spinoffs.

However, the long-run stock performance of an offspring from such glamour spinoffs will be lower than that of an offspring from other types of spinoff because the investor

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[4] A well-know case of market-driven acquisition is the merger of AOL and Times Warner in early 2000. At that time, AOL used its highly overvalued stocks to acquire Times Warner, a traditional media giant. This high-profile deal eventually turned out to be a value-destroying acquisition (Geoffrey Colvin, "Time Warner, Don't Blame Steve Case", February 3, 2003, Fortune)

[5] Hoberg and Prabhala (2006) argue that idiosyncratic risk rather than catering explains the change of propensity to pay dividends over time. However, Gemmill (2005) documents evidence that investor demand for dividends explains the price changes of dividend shares of "split-capital" closed-end funds in the UK, which is difficult to explain with the risk-based consideration since dividend shares are stripped from mutual fund portfolios with pre-determined payment rules.

optimism is eventually replaced by results. Hence, we propose the following fourth hypothesis:

H4: Offspring firms from spinoffs undertaken to cater to investor demand for glamour stocks earn significantly lower long-run abnormal returns than those from other types of spinoffs.

3 Data Selection and Test Methods

This section sets out the sample selection and the models to be tested.

3.1 Data Selection

This study analyses a sample of European spinoffs. A European spinoff is defined as a spinoff where a European parent firm spins off a subsidiary. This subsidiary can be either from the same or a different country. All European countries are taken into account initially with the exception of the Eastern European countries because we have limited financial data for these countries. Both parent and offspring firms must be independently managed and separately valued at the stock market after the completion of the spinoff. We also require that the spinoff parent should distribute a majority of its interests in the subsidiary to its existing shareholders since the offspring firm would not be independently managed if the offspring were still subject to the control of its parent firm.

The sample of European spinoffs covers the period from January 1980 to December 2005. The spinoff sample is gathered from SDC M&A Database. The sample countries searched include Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxemburg, Norway, the Netherlands, Portugal, Spain, Sweden, Switzerland, and the UK. The initial sample consists of 367 spinoffs, where the transactions were announced during the sample period.

The data selection process in this study uses the following screening criteria and the reduction of observations following the application of a criterion is reported in parentheses:

a) parent firms or offspring firms have no stock price information in Datastream (67);
b) other types of restructuring transactions are mistakenly recorded as spinoffs in SDC, such as divestiture of a joint-venture with multi-parents and privatisation deals and asset redistribution as part of a merger deal (19)[6];
c) less than 50% of interests of offspring firms are distributed to existing shareholders (9)[7];
d) the same spinoff announcements are double counted in SDC (9)[8];
e) offspring firms are already listed before the spinoff (6);
f) parent firms are not traded in Europe (6);
g) the shares of offspring firms are sold to either existing shareholders or the market (3); and
h) the announced spinoffs are not completed by the end of year 2005 (78).

We identify the spinoff announcement dates by cross-checking the spinoff transactions with the details in the press reports via the Factiva newspaper database. Specifically, we search the Factiva database at least one year before the SDC-identified spinoff

[6]The SDC often includes other types of restructurings in the spinoff sample. For example, SDC records the spinoff of the Adam and Harvey unit of Stocklake Holdings to its shareholders in July 1991. However, the deal was actually part of the liquidation plan of Stocklake Holdings. Stocklake Holdings' shares were delisted in September 1991. Another example is the spinoff of non-automotive business to shareholders by Sommer Allibert SA in 2001 as recorded in SDC. The spinoff was actually undertaken to facilitate the acquisition of Sommer Allibert SA by Peugeot Citroen. We remove transactions which are either part of a complex restructuring plan or part of a predefined merger plan because those transactions are not spinoffs and such transaction announcement news often contains confounding information.

[7] This sample selection criterion is chosen for two reasons. First, we hope that our results are comparable with earlier US studies on corporate spinoffs. Prior US studies typically define a spinoff as a divestiture where the majority of shares of the subsidiary are distributed to the parent's existing shareholders. Second, we want to avoid the cases where parent firms retain the control over offspring firms in the post-spinoff period, where the performance of either parent of offspring firm might be substantially affected by the related transactions. A more than 50% interest of subsidiary held by the parent in the post-spinoff period could allow parent managers to do such transactions. Thus it is difficult to assess the real long-term value creation from a spinoff under such circumstances.

[8] When a parent firm is split into two or more independent firms via a spinoff, SDC sometimes records the number of spinoffs as the number of post-spinoff parent and offspring firms rather than the number of offspring firms. We remove the repeated counting of the parent from the sample for such cases.

announcement date for the earliest press announcement of the spinoff. When an announcement is reported in the news, we search back another year from that date to confirm that there are no earlier announcements.

The cross-checking of announcement dates is undertaken because we are primarily interested in the initial market reaction to the spinoff announcement. We find that, for our sample, 157 out of 170 completed spinoffs have earlier announcement dates in the news reports than the SDC-identified announcement dates. In addition, the calculation of cumulative abnormal returns (CARs) based on SDC-identified announcement dates will be very different from that based on the earliest announcement dates in the news reports. For example, SDC reports that Culver Holdings announced the spinoff of World Travel Holdings on May 22nd, 2000. The two-day announcement period (-1, 0) CARs based on an estimated market model is -0.66%. However, the actual earliest announcement date is December 23rd, 1999 (see ‘Culver Holdings PLC Prop. Offer for Shr Subscriptn’, Regulatory News Service, December 23rd, 1999). The two-day announcement period (-1, 0) CARs based on the earliest announcement date with the same method is 10.54%.

A further check of the SDC-identified spinoff completion dates is conducted with the details of a spinoff transaction in the news reports via Factiva and the stock price data in *Datastream*. This cross-checking is undertaken to confirm the completion status of a spinoff and to obtain an accurate completion date. We find that SDC sometimes mistakenly classifies one spinoff as uncompleted when the spinoff was actually completed.[9] When there are mistakes in the SDC-reported completion details identified with crosschecking, we amend the sample data based on the verified information.

The final sample includes 170 completed European spinoff deals during the sample period, including 144 spinoff parent and 170 offspring firms, where 10 parent firms spin off two or more subsidiaries at the same time and a further 13 parent firms conducted

[9] For example, SDC reports that the spinoff of three units (EQ Holdings, Evox Rifa Holdings, and Vestcap) by Finvest Oy in March 2000 is pending (at the data collection date, February 2006). Actually, the spinoff was completed on November 1st, 2000 (See ‘Finvest Details Demerger Listing Plan’, Reuters News, October 26th, 2000).

spinoffs at different times during the sample period. The number of European spinoffs will be 157 if we consider the firms announcing spinoffs at different times as different observations. For the completed spinoff sample, parent firms operate in 46 different industries and offspring firms operate in 50 different industries (defined as the two-digit SIC level). In total, both parent and offspring firms operate in 59 different industries.

The final spinoff sample covers 13 European countries. The earliest year with spinoff data available in our sample is the year 1987. Table 1 shows the distribution of 170 announced spinoff deals by parents' listing country and announcement year.

[Insert Table 1 about here]

3.2 Investor Sentiment Proxies

Through a corporate spinoff, a parent increases its corporate focus and a divested subsidiary is listed on the stock market. Investors may react to a spinoff announcement favourably if they have strong demand for corporate focus and/or the stocks of the offspring's industry. We construct four investor sentiment proxies to measure investor demand for corporate focus and investor demand for offsprings' stocks.

The first two investor sentiment proxies, called focus premium variables in this study, measure the prevailing investor demand for corporate focus. These two proxies are market-based variables to measure the market valuation of focused firms relative to diversified firms. The valuation methodology starts from the procedure to identify both focused firms and diversified firms in each European country. Then we calculate the aggregate valuation difference between focused firms and diversified firms.

The first focus premium variable, FPMTB, is the difference of natural logarithms of market-to-book value (MTBV) of assets ratios between diversified firms and focused firms. First, business segment data for all publicly traded firms from the 13 sample European countries are collected from Worldscope for the period between 1987 and

2005. Worldscope provides financial data for a large number of companies which have been previously used by Lins and Servaes (1999) to calculate the diversification discount on international firms. We classify firms as diversified when they report sales in two or more segments (defined at the two-digit SIC code level), and the most important segment accounts for less than 90 percent of total sales. This 90 percent cut-off uses a diversification classification similar to the one companies are required to follow in the United States (Berger and Ofek, 1995). If a firm has two or more segments but has more than 90% of its sales in one segment, this firm will be classified as a focused firm. To avoid misclassification of diversified firms into focused firms, we define focused firms as those operating in the single two-digit SIC code level based on segment sales data available in Worldscope.[10]

Second, we calculate the value-weighted average MTBV of assets ratios for all diversified firms and focused firms, separately. The calculation of MTBV of assets ratio employs firms' market capitalisation at the month end prior to the spinoff announcement date and the most recently available accounting data at the spinoff announcement date[11]. Specifically, the market value of total assets for a firm is the sum of its market value of equity and its book value of total debt. The book value of total assets is the sum of its book value of equity and its book value of total debt. The computation of value-weighted average uses the book value of total assets.

Finally, we compute the difference in the natural logarithms of the average MTBV of assets ratios of focused firms and diversified firms (i.e. the ratio for focused firms minus

[10] In some cases, Worldscope reports that a firm has segments operating in different two-digit SIC industries but gives no details of the firm's segment sales. Following our definition of diversified firms, such firms may not necessarily be diversified firms if one segment's sales accounts for more than 90% of the total revenues. To avoid the potential misclassification of focused firms into diversified firms, we remove such observations during the calculation of focus premium.

[11] We require a more than four-month gap between the most recent financial year-end and focus premium measurement date to avoid the looking-ahead bias when using the most recent accounting data to calculate the market valuation ratios. Let us suppose we compute the MTBV of assets ratio, at the date of June 30th 2004, for BAA PLC, whose accounting year ends at March 31st. The most recent financial year-end for BAA for calculation is the March 31st 2003 rather than March 31st 2004 because there is only a three-month gap between financial year end of 2004 and the measurement date. This time-gap setting assumes that the current year's financial reports will not be available to the public within four months immediately following the financial year end.

the ratio for diversified firms). This proxy for investor demand for corporate focus follows the same construction approach of Baker and Wurgler (2004) to measure investor demand for dividends. They use the difference in logs of the MTBV of equity ratios of dividend payers and non-dividend payers to gauge the investor demand for dividends.

The second focus premium variable, FPRET, is the difference in past-year stock returns between diversified firms and focused firms. The identification of diversified and focused firms for FPRET uses the same approach as for FPMTB. After diversified and focused firms are identified, we calculate the cumulative stock returns to diversified firms and those to focused firms over the 12-month period prior to the spinoff announcement date. The value-weighted past-year returns to diversified and focused firms are then computed. The computation weights are based on the market capitalisations of diversified firms and focused firms, respectively. Then the investor demand for corporate focus is measured as the value-weighted average past-year stock returns to focused firms minus the value-weighted average past-year stock returns to diversified firms.

The remaining two investor sentiment proxies, called glamour stock variables in this study, measure the prevailing investor demand for the stocks of the offspring's industry.

We consider two market-based measures to capture the investor demand for stocks of the offspring's industry. The first glamour stock variable, SUBMTB, is the industry MTBV of assets ratio for the offspring. The industry MTBV of assets ratio is calculated as the value-weighted average of MTBV of assets ratios to all firms in the offspring's industry. The MTBV of assets ratio for SUBMTB is computed similarly to that for FPMTB. The second glamour stock variable, SUBRET, is the industry past-year stock returns for the offspring. The industry past-year stock returns are computed as the value-weighted average of past-year stock returns to all firms in the offspring's industry. For proxies SUBMTB and SUBRET, the weight is the market capitalisation of industry peers of the offspring's industry, where the industry is defined at two-digit SIC level[12]. The definitions of these above four investor sentiment proxies are also given in Table 2.

[12] Alternative measures for SUBMTB and SUBRET are the offspring's industry valuation ratio minus the

[Insert Table 2 about here]

3.3 Glamour Spinoff Proxies

Not all spinoffs are undertaken to improve operating efficiency. The catering theory of spinoff argues that some spinoffs are undertaken to exploit potential market misevaluation of different segments of a diversified firm as a rational response to investor sentiment. In particular, managers of undervalued parent firms tend to spin off potentially overvalued subsidiaries. When the parent business is undervalued while the subsidiary business is overvalued, stock markets are likely to misprice different segments of a diversified firm and the parent's managers may face significant shareholder pressure to improve the market valuation of the parent firm. In this circumstance, managers of the undervalued parents have strong incentives to cater opportunistically to investor demand for glamour stocks by spinning off the overvalued subsidiary.

We construct three dummy variables, called glamour spinoff proxies in this study, to indicate whether a spinoff is undertaken to cater to investor demand for glamour stocks. Whether a segment of a conglomerate firm is undervalued or overvalued following spinoffs is not straightforward to measure because there are no sufficient segment data for measuring the true values of different segments of a diversified firm. For the first two glamour spinoff proxies, we use the market-based valuation for firms in an offspring's industry to estimate the market valuation of the offspring within a conglomerate. The market valuation measures are the MTBV of assets ratio for the offspring's industry and past-year returns for the offspring's industry. When the market-based valuation of the parent (offspring) industry is lower than the median of the market valuation for all two-digit SIC industries, the parent (offspring) business is likely to be undervalued. When the market-based valuation for the parent (offspring) industry is higher than the

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median value of all valuation ratios of all two-digit SIC industries. In the following section, we use dummy variables to indicate the glamour status of an offspring relative to the market median, which are also significantly and positively associated with spinoff announcement-period returns.

median of the market valuation for all two-digit SIC industries, the parent (offspring) business is likely to be overvalued.

The first glamour spinoff proxy, GLAMMTB, is a dummy variable that equals one when the MTBV of assets ratio for the parent's industry is lower than the median of the MTBV of assets ratios for all two-digit SIC industries in the parent's country while the MTBV of assets ratio for the subsidiary industry is higher than the median of the MTBV of assets ratios for all two-digit SIC industries in the parent's country, and equals zero otherwise.

The second glamour spinoff proxy, GLAMRET, is a dummy variable that equals one when past-year stock return for the parent's industry is lower than the median of past-year stock returns for all two-digit SIC industries in the parent's country while past-year stock returns for the offspring's industry is higher than the median of past-year stock returns for all two-digit SIC industries in the parent's country, and equals zero otherwise.

The third glamour spinoff proxy, GLAMHT, is motivated by the high-tech bubble in the late 1990s. This dummy variable, or the high-tech spinoff variable, will equal one when the parent firm operates in a non-high-tech industry while the offspring is in the high-tech industry; and equals zero otherwise. The details of the classification of high-tech spinoffs are included in Appendix. The definitions for the above three glamour spinoff proxies are also given in Table 2.

3.4 Measurement of Spinoff Value Effects

This study employs a standard event-study methodology, a market model, as described in Campbell, Lo and MacKinlay (1997: Chapter 4) and Kothari and Warner (2006)[13]. The formula for expected return for firm i in time t based on a market model is given by:

[13] The same event methodology is initially proposed in Dodd and Warner (1983) and has been used in prior empirical studies on corporate spinoffs, such as Krishnaswami and Subramaniam (1999) and Veld and Veld-Merkoulova (2004).

$$R_{it} = \alpha_i + \beta_i R_{Mt} \tag{1}$$

Where the parameters α_i and β_i are estimated by regressing the security returns on the market return for the estimation period.

The abnormal returns are defined as the difference between actual stock returns and expected stock returns:

$$AR_{it} = R_{it} - E(R_{it}) \tag{2}$$

Where AR_{it} is the abnormal return, R_{it} is the realised return and $E(R_{it})$ is the expected return on firm i for period t. The expected return is calculated with the estimated market model with the earlier-mentioned formula.

Cumulative abnormal returns (CARs) are then computed as the sum of daily abnormal returns over the horizon of the study. CAR for firm i during the period T is given by:

$$CAR_{iT} = \sum_{t=1}^{T} AR_{it} \tag{3}$$

In this study, the estimation period for the parameters of the market model comprise trading days [-220, -20] relative to the spinoff announcement day, which is day 0. The market return is estimated based on the total market return index for each country given in *Datastream*. The total market return index is calculated by *Datastream* with value-weighted average returns to representative companies comprised in the index for each country it covers. The calculation of total market return index by *Datastream* includes both the capital gains and the dividend yields. The selection of total market return index for each country is to ensure the consistency of stock return results across different countries. We then calculate the three-day CARs in the window (-1, +1) for each spinoff announcement. We also compute CARs during different event windows, (-10, +1), (-1, 0), 0, and (+1, +10).

There are alternative methodologies to estimate the announcement period abnormal returns to corporate events, such as market adjusted returns, abnormal returns based on

Fama and French (1993) three-factor model, abnormal returns relative to reference portfolios. Kothari and Warner (2006) argue that different methodologies will yield qualitatively similar results for estimating short-run abnormal returns to events because the statistical problems are trivial for a short event window.

However, the estimation of long-term abnormal returns to events is very controversial. Barber and Lyon (1997) argue that CARs do not measure true experience of investors over the long horizon. They propose to measure the buy-and-hold abnormal returns (BHARs) in order to capture the real abnormal returns[14]. This study follows their argument to use the BHAR approach to measure long-run abnormal stock returns to post-spinoff firms.

For post-spinoff firms, raw buy-and-hold returns are calculated as follows:

$$R_{i,T} = \left[\prod_{t=1}^{T} (1 + r_{i,t}) \right] - 1 \tag{4}$$

where $r_{i,t}$ is the return on stock *i* in month t relative to the spinoff completion date, 0. The return over the first partial calendar month is considered as the return in the spinoff completion month. The first one-year return includes the first partial calendar month's return and the returns over the next 11 months. The average of the N individual buy-and-hold returns for the T months subsequent to the completion month is computed as below:

$$\overline{R_T} = \frac{\sum_{i=1}^{N} R_{i,T}}{N} \tag{5}$$

Buy-and-hold returns are calculated for the matching stock ($R_{i,T}^{bm}$) with the above procedure. The buy-and-hold abnormal returns are then given below:

$$AR_{i,T} = R_{i,T} - R_{i,T}^{bm} \tag{6}$$

[14] Fama (1998) is against the BHAR approach to measure long-run abnormal returns because the BHAR approach can bias upwards the abnormal returns over a long horizon.

Then control-portfolio (or matching-firm) adjusted returns, AR, are calculated as the average of the differences in the buy-and-hold returns over the T months following the completion date as

$$\overline{AR_T} = \frac{\sum_{i=1}^{N}(R_{i,T} - R_{i,T}^{bm})}{N} \qquad (7)$$

The t-statistic to estimate the statistical significance of the ARs is given below:

$$t = \frac{\overline{AR_T}}{s/\sqrt{N}} \qquad (8)$$

where s is the cross-sectional standard deviation of AR_T for the N firms in the sample. Fama (1998) has argued that the calculation of t-statistic for the ARs inappropriately assumes that event-firm returns are independent. Following Mitchell and Stafford (2000), we estimate the correlation of complete overlapping monthly returns of spinoff firms and calculate an adjusted t-statistic for the AR to mitigate the cross-sectional return dependence problem.

The selection of benchmarks for the calculation of long-run excess returns is not straightforward because most previously suggested return methods suffer from statistical problems[15]. Recent empirical studies have argued that matching sample firms with control firms based on similar company-specific characteristics provides an appropriate benchmark to detect abnormal returns (Daniel and Titman, 1997; Daniel, Titman and Wei, 2001; Jegadeesh, 2000). Following their arguments, this study uses a characteristics-based benchmark, the size- and book-to-market- control portfolio approach.

The size and book-to-market control portfolio approach aims to capture the power of size and book-to-market ratio in explaining cross-sectional returns (Fama and French, 1992 and 1995). To implement the size and book-to-market matching portfolio procedure, all

[15] See e.g. Ang and Zhang (2004), Barber and Lyon (1997), Fama (1998), Kothari and Warner (2006), Lyon, Barber and Tsai (1999) for related discussion on the various methods to calculate long-run stock returns.

stocks in each sample country are grouped into five portfolios based on their market capitalisation at the end of June for each sample year[16]. Each portfolio contains an equal number of stocks. Stocks with the smallest market values are placed into portfolio 1, and those with the largest market values are placed into portfolio 5. For each stock, we also calculate the book-to-market ratio using the most recently reported book value of equity prior to the portfolio construction date. We then divide stocks within each size quintile into five equal-sized subgroups based on their book-to-market ratio. Stocks with the smallest book-to-market ratios are placed into sub-group 1, and those with the largest book-to-market ratios are placed into sub-group 5.

After constructing 25 size and book-to-market control portfolios, post-spinoff parent and subsidiary stocks are matched with a portfolio based on the post-spinoff firm's market value and the book-to-market ratio at the spinoff completion date for the sample country.[17] Then we calculate market-value-weighted average stock returns to the control portfolio. If stock returns for a firm in the control portfolio are missing in the computation period, we assume that the investment proceeds are reinvested in the remaining stocks of the control portfolio on a pro-rata basis. Specifically, the investment proceeds will be reallocated to the remaining stocks of the control portfolio proportionally, where the reallocation weight is the stocks' market values. When no matched firm is available in the size- and book-to-market control portfolio for the sample country[18], returns on the total market return index for each country given in *Datastream* are then used[19].

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[16] Similar to Fama and French (1992), we use a firm's market capitalisation at June end to construct control portfolios. Our results remain qualitatively similar when portfolio construction relies on a firm's market capitalisation in other calendar months.
[17] In some cases, *Datastream* does not have the data of the book value of equity for the sample firms. We then calculate the ratio based on the book value of equity given in the annual reports of sample firms, which are downloaded from Thomson Research.
[18] Such cases sometimes occur for some European countries which have a small stock market. For example, Ireland has an average of only 73 stocks during the 1990s as indicated by the stock data in *Datastream*.
[19] Results for long-run post-spinoff performance do not materially change when we use the value-weighted stock returns for all listed firms in the sample country as the benchmark returns rather than the total market return index for the sample country given in *Datastream*.

We compute these abnormal stock return measures during the post-spinoff period for each parent/offspring portfolio. Combining performance data from post-spinoff parent and offspring into a single portfolio is to gauge the overall performance gains from a spinoff. Specifically, we create a pro-forma combined firm following the spinoff by calculating value-weighted abnormal returns of parent and offspring. The value weight is based on market values of spinoff parent and offspring on the spinoff completion date.

3.5 Empirical Models to Test Investor Sentiment

The first two hypotheses about the investor sentiment predict a positive association between investor demand for corporate focus (subsidiary stocks) and the market reaction to spinoff announcements. To test these two hypotheses, we use a multiple regression model to analyse the impact of investor sentiments on spinoff announcement gains. The regression model is given below:

$$CARs = f\,(Investor\ Sentiment\ Proxy, Control\ Variables) \qquad (9)$$

where *CARs* are cumulative abnormal returns to a parent during the three-day spinoff announcement period.

There are seven control variables considered in the regression model (9) to explain the spinoff announcement effects. The first control variable (FOCUS) is corporate focus, which is a dummy variable that equals one when the post-spinoff parent and subsidiary firms do not share the same two-digit SIC code, and equals zero for otherwise. The SIC codes for sample firms are from Worldscope. Prior studies have found that the corporate focus variable is positively and significantly associated with spinoff announcement period returns and long-run returns to post-spinoff firms (Daley et al., 1997; Desai and Jain, 1999; Veld and Veld-Merkoulova, 2004).

The second control variable (INFASYM) is an information asymmetry variable, proxied by the residual volatility in daily stock returns for parent firms in the year prior to the spinoff announcement date. Specifically, the residual standard deviation variable captures the firm-specific uncertainty that remains after removing the total market-wide uncertainty. Krishnaswami and Subramaniam (1999) argue that this variable captures the information asymmetry between the investors and managers as regards the firm-specific information about the pre-spinoff parent. This information asymmetry proxy is predicted to be positively associated with the spinoff value creation.

The third control variable (GROWTH) is a parent's growth options in its investment opportunity set, measured as its MTBV of assets ratio at the end of month prior to spinoff announcement date. Following Faccio, McConnell and Stolin (2006), the MTBV of assets ratio is computed as the market capitalisation plus book value of preferred stocks and book value of debt divided by the sum of book values of equity, preferred stocks and debt[20].

The third variable is also motivated by the information asymmetry argument. Krishnaswami and Subramaniam (1999) document evidence that high-growth firms have a high likelihood of engaging in a spinoff to increase their information transparency because high-growth firms with information asymmetry problems cannot obtain sufficient external capital to finance their positive NPV projects. A conjecture following this information-based argument is that high-growth firms will create more shareholder values from undertaking spinoffs than low-growth firms. The reason is that a spinoff can partially resolve underinvestment problems for the former as argued in Myers and Majluf (1984) by improving the information environment of post-spinoff firms. Thus we predict a positive association between GROWTH and spinoff value effects.

The fourth control variable (ROA) is a parent's return on assets in the year prior to the spinoff announcement date, which is measured as the earnings before interest, tax, depreciation and amortisation (EBITDA) divided by the total assets of the firm. This variable is also related to the information asymmetry argument. Nanda and Narayanan (1999) put forward that liquidity-constrained firms have strong incentives to undertake spinoffs in order to mitigate the information asymmetry problem, thus facilitating

[20] For the measurement of GROWTH variable, we also require a more than four-month gap between the most recent financial-year end on which accounting data are used and the spinoff announcement date to avoid the looking-ahead bias.

post-spinoff firms' future access to external finance. Therefore, firms with higher internal cash flows are less likely to undertake spinoffs (Krishnaswami and Subramaniam (1999) because they benefit less from spinoffs. Hence we expect a negative relationship between ROA and spinoff value effects.

The fifth control variable (RELSIZ) is the relative size of a spinoff. Prior studies find that the spinoff announcement returns are higher when the proportion of spun-off assets is larger (see, e.g. Hite and Owers, 1983; Miles and Rosenfeld, 1983; Krishnaswami and Subramaniam, 1999; Veld and Veld-Merkoulova, 2004). Chemmanur and Yan (2004) propose a corporate control model to explain the transaction effect. According to their model, a spinoff creates shareholder value because post-spinoff firms are smaller than the pre-spinoff parent and thus post-spinoff firms are more likely to be acquired following the spinoff transaction. To control the transaction size effect, we use the market value of an offspring relative to the sum of the market capitalisations of parent and offspring on the spinoff completion date[21]. When a parent spins off more than one offspring at the same time, we calculate the relative size as the sum of all offspring's market values divided by the sum of parent and all offspring's market values on the spinoff completion date. It is predicted that the larger the relative size of a spinoff, the higher the shareholder value created from the spinoff.

The sixth control variable (ANTIDIR) is an anti-director index that measures the effectiveness of a country's legal system to protect shareholder rights and control potential managerial opportunism, which is proposed in La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998). This anti-director index ranges from zero to six, where the lower score refers to a weak protection of shareholder rights. This variable is motivated by a growing literature on the country-level corporate governance system. It is often argued that managers in Anglo-Saxon countries are more focused on shareholder value creation than managers in continental countries (e.g. see Denis and McConnell 2003; La Porta, Lopez-de-Silanes, Shleifer and Vishny 2000). Likewise, spinoff decisions made by

[21] We measure the relative size variable on the spinoff completion date because it is the first date on which the market capitalisation data for an offspring is available.

managers in a country with better shareholder protection are more likely to be shareholder-value-oriented than those made by managers in a country with poorer shareholder protection. This anti-director index is thus predicted to be positively related to the shareholder value creation from corporate spinoffs.

Finally, we use a dummy variable (HOTTIME) to indicate whether a spinoff is announced in hot periods or in cold periods. As illustrated in Table 1, the number of spinoff transactions is noticeably higher during the period 1996-2001 than that of other periods[22]. Therefore, the HOTTIME variable equals one when a spinoff is announced between 1996 and 2001, and equals zero otherwise. We use this dummy variable to control for potential effects of spinoff decisions that may be purely time-driven. The definitions for the above-mentioned control variables are also given in Table 2.

3.6 Empirical Models to Test Glamour Spinoffs

The catering theory of spinoff predicts that glamour spinoffs evoke more favourable announcement reactions than other types of spinoff but offspring firms following glamour spinoffs underperform offspring firms following other types of spinoff. Therefore, the short run market reaction to glamour spinoffs and the long run market reaction to glamour spinoffs will be of opposite signs. We use two regression models to measure the value consequences of glamour spinoffs. The first regression model is to measure the short run market reaction to glamour spinoffs, which is given below:

$$CARs = f\,(Glamour\ Spinoff\ \ Proxy, Control\ Variables) \qquad (10)$$

where *CARs* are cumulative abnormal returns to spinoff announcements. In this study, we focus on *CARs* for the three-day (-1, +1) announcement window, where day0 is the event day. The control variables considered in regression model (10) are those used in regression model (9) to measure the impact of investor sentiment on the spinoff announcement gains.

[22] This hot period of spinoffs is largely overlapping with the European merger wave in the period 1995-2001 as identified in Sudarsanam (2003, Chapter 2). This time-varying pattern of spinoff activity implies that, like mergers and acquisitions, spinoffs may cluster in time.

The second regression model is to measure the long run market reaction to glamour spinoffs, which is offered below:

$$BHARs = f\,(Glamour\,Spinoff\;\;Proxy, Control\,Variables) \qquad (11)$$

where *BHARs* are long-run size- and book-to-market- adjusted buy-and-hold abnormal returns to post-spinoff firms. In the subsequent analyses, we report regression results based on three-year *BHARs* to post-spinoff firms, where the three-year event window starts from the spinoff completion date. For post-spinoff parent firms, the control variables considered in equation (11) are those used in equations (9) and (10). For post-spinoff offspring firms, the control variables considered in equation (11) are FOCUS, INFASYM, RELSIZ, ANTIDIR and HOTTIME. The variables GROWTH and ROA are not used because these two variables are operating characteristic variables of parents rather than those of offspring firms.

3.7 Summary of Explanatory Variables

Table 3 reports the summary statistics of explanatory variables. Panel A of Table 3 gives summary descriptive statistics of continuous explanatory variables for parents. The data for FPMTB suggest that the markets generally value diversified firms slightly higher than focused firms prior to spinoff announcement dates. In contrast, the data for FPRET indicate that the recent stock performance for focused firms is in line with that for diversified firms before spinoff announcements. An offspring's industry generally has a high market valuation and good past-year performance since the variable SUBMTB has a mean value higher than 1 and the mean of the variable SUBRET is positive. The information asymmetry variable has a mean of 0.02 and a median of 0.02, which are somewhat lower than results of earlier US studies. For example, in Krishnaswami and Subramaniam (1999), the mean and the median of residual standard deviations for their spinoff parents are 0.08 and 0.03, respectively. However, this is not surprising given that Veld and Veld-Merkoulova (2004) find that European spinoff parent firms do not seem to suffer serious information asymmetry problems.

European spinoff parents generally operate well before spinoff announcements since the mean value of GROWTH is 2.63 and the mean ROA is 0.10. Further, the data show that spinoff transactions are large-scale restructurings since the relative size variable has a mean (median) of 0.30 (0.24). This evidence indicates that, on average, a European parent divests one third of its assets through a spinoff.

[Insert Table 3 about here]

Panel B of Table 3 illustrates that about 20% of the sample spinoffs can be classified as glamour spinoffs. The proportions of glamour spinoffs based on the definitions for GLAMMTB, GLAMRET, and GLAMHT are 25%, 21%, and 17%, respectively. A significant proportion of high-tech spinoff in our sample is in line with our catering theory argument, which suggests that a number of spinoff transactions could be driven by the investor demand for high-tech stocks during the 1990s. As indicated by the mean of the variable HOTTIME, about 58% of spinoff transactions are announced in the period between 1996 and 2001.

Panels C and D of Table 2 provide summary statistics for the continuous and dummy explanatory variables for offspring, separately. The data pattern of Panel C and D is qualitatively similar to that of Panels A and B in Table 3.

4 Investor Sentiment and Spinoff Announcement Returns

Abnormal returns to all spinoff announcements between January 1987 and December 2005 are reported in Table 4. For the full sample, the average CARs over the three-day event window (-1, +1) are 4.82%, which are somewhat higher than the announcement returns documented in earlier US studies (3.84% in Desai and Jain, 1999; 3.28% in Krishnaswami and Subramaniam, 1999). The announcement returns over one-day, two-day, and three-day event windows are all significant at the 1% level, indicating that the market strongly reacts to spinoff announcement news.

[Insert Table 4 about here]

The full sample of spinoff announcements is further split into two sub-groups, UK spinoffs and non-UK spinoffs). Examination of announcement returns for these two sub-samples yields the following conclusions. UK spinoffs are slightly better perceived in the market than non-UK spinoffs as the former have an average of 5.48% CARs over the three-day event window while non-UK spinoffs have an average of 4.27%. The median three-day cumulative abnormal return to UK spinoffs is 3.03%, which is similar to the median three-day *CARs* to non-UK spinoffs of 3.33%. The announcement abnormal return pattern remains unchanged if the comparison of announcement period returns is based on alternative announcement windows such as the two-day window or the one-day window.

As indicated in Panel D of Table 4, the difference in *CARs* between UK and non-UK spinoffs is generally insignificant. The only significant difference is the mean difference of *CARs* between UK and non-UK spinoffs for the announcement date, which is significant at the 5% level (t-statistic = 2.20). The difference in *CARs* between UK and non-UK spinoffs is statistically insignificant for other event windows. For example, the mean (median) difference in *CARs* between UK and non-UK spinoffs during the three-day announcement period is 1.21% (0.87%), which has a t-statistic of 0.75 (z-statistic of 0.52).

We then examine the relationship between investor sentiments and the market reaction to spinoff announcements. According to our hypotheses H1 and H2 in section 2, the relationship between investor sentiments and the market reaction to spinoff announcements should be significantly positive. Table 5 reports the regression results for the empirical tests. As illustrated in Table 5, investor sentiment proxies are highly significant in explaining the announcement returns to spinoffs.

[Insert Table 5 about here]

Models in Panel A of Table 5 each employ one of the four investor sentiment proxies in multiple regressions that explain the spinoff announcement returns. In model 1, the coefficient for FPMTB is 5.83, which is statistically significant at the 5% level (t-statistic = 2.21). In model 2, the coefficient for FPRET is 79.76[23], which is statistically significant at the 5% level (t-statistic = 2.24). Clearly, investor demand for corporate focus has a significant and positive impact on the market reaction to spinoff announcements. In model 3, the coefficient for SUBMTB is 0.67, which is statistically significant at the5% level (t-statistic = 2.30). In model 4, the coefficient for SUBRET is 44.24, which is also significant at the 5% level (t-statistic = 2.07). Likewise, investor demand for the subsidiary stocks positively affects the market reaction to spinoff announcements.

For models 1 - 4, control variables such as FOCUS and RELSIZ have significant and positive coefficients as argued in prior studies. The proxies for information problems, INFASYM, GROWTH, and ROA, are generally insignificant for all regression models. The anti-director index also has low power in explaining the spinoff announcement returns. Finally, the coefficient of HOTTIME variable is positive but insignificant across different regression models. Given the relatively strong explanatory power of investor sentiment proxies in regressions, we conclude that investor sentiment is an additional factor that explains the value gains to spinoffs.

In Panel B of Table 5, we consider both focus premium and glamour stock proxies in each multiple regression. The general conclusions remain unchanged. The coefficients for both the focus premium and glamour stock proxies are highly significant for different regression models. The adjusted R-squares for regression models 5 - 8 are generally not less than 0.20. Therefore, our regression results support hypotheses H1 and H2 by confirming that investor demand for corporate focus and for glamour stocks jointly determine spinoff announcement returns.

[23] The large coefficient of 79.76 for FPRET is because that the difference of past-year stock returns between focused and diversified firms is very small, as indicated in the summary statistics of explanatory variables in Table 3.

5 Catering to Investor Demand and Spinoff Value Effects

This section tests hypotheses H3 and H4 proposed in section 2 by analysing the value effects of spinoffs that are undertaken to cater to investor demand for glamour stocks.

5.1 Short Run Market Reaction

Hypothesis H3 proposes that spinoffs which cater to investor demand for glamour stocks are better perceived by markets than other types of spinoff. To test this hypothesis, we conduct univariate analysis to examine whether glamour spinoffs have higher announcement returns than other types of spinoffs. Table 6 presents the cumulative abnormal announcement returns to completed spinoffs by sub-samples based on glamour spinoff proxies.

[Insert Table 6 about here]

As shown in Table 6, glamour spinoffs have significantly higher announcement returns than other types of spinoff. For the glamour spinoff proxy GLAMMTB, glamour spinoffs have a mean (median) three-day *CARs* of 8.24% (4.74%) while other types of spinoffs have a mean (median) three-day *CARs* of 3.69% (1.88%). The mean (median) difference of *CARs* between glamour spinoffs and other spinoffs is significant at the 5% (1%) level (t-statistic = 2.38 and z-statistic = 3.03). The results remain similar when other glamour spinoff proxies are used. Therefore, the univariate analysis results support the hypothesis H3 that spinoffs that cater to investor demand for glamour stocks earn higher announcement returns than other spinoffs.

To further test the value impact of glamour spinoffs, we regress *CARs* to spinoffs on glamour spinoff proxies. The regression model is regression model (10) given in section 3.5. The regression results are presented in Table 7.

[Insert Table 7 about here]

For the three regression models in Table 7, coefficients for glamour spinoff proxies are highly significant across three models. The coefficient for GLAMMTB is 3.16, which is significant at the 10% level (t-statistic = 1.80). The coefficient for GLAMRET is 3.41, which is significant at the 5% level (t-statistic = 2.61). The coefficient for GLAMHT is 5.83, which is significant at the 5% level (t-statistic = 2.45). Thus, in general, our regression results support the prediction of H3 that spinoffs which cater to investor demand for glamour stocks have more favourable announcement reactions than other spinoffs.

5.2 Long Run Market Reaction

Table 8 reports long-term abnormal returns to parents, offspring, and pro-forma combined firms in the three-year post-spinoff period. The abnormal returns are calculated as the difference between the sample firm returns and the returns on the control portfolio, as introduced in section 3.4. We examine the long-run performance of post-spinoff firms over the three-year post-spinoff period. Therefore, we focus on the post-spinoff firms following spinoffs completed between January 1987 and December 2002 in order to have three-year post-spinoff data to calculate the long-run performance.

[Insert Table 8 about here]

Panel A in Table 8 demonstrates no significant stock returns to post-spinoff parent/offspring combined firms. For instance, the mean and median three-year size- and book-to-market-adjusted BHARs to post-spinoff combined firms are 0.06 and -0.03, respectively. Both the mean and the median are insignificant at conventional significance levels (t-statistic = 0.29 and z-statistic = -0.19). The results documented in this study differ from earlier US findings on corporate spinoff value effects. For example, Cusatis, Miles and Woolridge (1993) and Desai and Jain (1999) observe that post-spinoff firms perform significantly better than matching firms in the three-year post-spinoff period.

However, our evidence is consistent with Veld and Veld-Merkoulova (2004) who also observe no long-run abnormal returns to European spinoffs.

Panel B presents the summary statistics of long-term size- and book-to-market- adjusted BHARs to post-spinoff parents. As shown in Table 8, abnormal returns to post-spinoff parent firms are not statistically different from zero. Since the sample size is not large, we focus on the analysis of the median returns to post-spinoff parents to avoid biased statistical inferences. The median BHARs to post-spinoff parents are -0.06, -0.08 and -0.09 for one-year, two-year, and three-year holding periods, respectively. None of those returns is significant at conventional levels. Again, this evidence is different from the US findings that post-spinoff parent firms earn superior long-run stock returns (e.g. see Desai and Jain, 1999).

Panel C of Table 8 further demonstrates that long-run abnormal returns to post-spinoff offspring are insignificant across different holding periods. The mean two-year (and three-year) BHARs to post-spinoff offspring is 0.23 (0.26). Both returns would be significant at the 5% level if the traditional t-statistics were used. We use the adjusted statistics following the approach of Mitchell and Stafford (2000) to account for the cross-sectional return dependence, i.e. cross-sectional correlation due to clustered events. Adjusted t-statistics show that the mean BHARs to post-spinoff offspring are no longer significant. The median BHARs to post-spinoff offspring are also insignificantly different from zero for different holding periods. Therefore, our evidence indicates that European stock markets generally react efficiently to spinoff announcements and post-spinoff offspring firms do not earn superior long-run stock returns.

Hypothesis H4 argues that offspring from a spinoff which caters to investor demand for glamour stocks have a lower long-run performance than that of other types of spinoff. To test this prediction, we compare long-run abnormal stock returns to offspring firms following glamour spinoffs and those to offspring firms following other types of spinoff. The univariate analysis results are reported in Table 9.

[Insert Table 9 about here]

As shown in Table 9, offspring firms following glamour spinoffs underperform those following other types of spinoffs in the long term. The relative underperformance of offspring from glamour spinoffs is statistically significant for different definitions of glamour spinoffs and for different return measurement periods. For instance, offspring firms with relatively high industry MTBV of assets ratios prior to spinoff announcement dates have a mean (median) three-year BHARs of -0.37 (-0.25), which is significant at the 5% level. In contrast, other offspring firms have a mean (median) three-year BHARs of 0.47 (0.28), which is also significant at the 5% level. Both the mean and the median difference of three-year BHARs between these two groups are significant at the 1% level (t-statistic = -3.79 and z –statistic = -3.20). This evidence supports hypothesis H4 that an offspring from a spinoff which caters to investor demand for glamour stocks underperforms other offspring in the long run.

We also run regression analysis to examine whether offspring from glamour spinoffs have lower long-run performance than other offspring. The dependent variable, long-run returns to offspring firms, is first measured against returns to the size and book-to-market control portfolios. The independent variables include FOCUS, INFASYM, RELSIZ, ANTIDIR and HOTTIME. Two control variables, GROWTH and ROA, are not employed in the regression because they are not directly related to the long-run performance of offspring firms.

Table 10 presents the regression results. According to Table 10, glamour spinoff proxies have significant and negative coefficients in all regression models. The coefficient for GLAMMTB is -0.79, which is significant at the 1% level (t-statistic = -3.25). The coefficient for GLAMRET is -0.90, which is significant at the 1% level (t-statistic = -4.14). Finally, the coefficient for GLAMHT is -0.76, which is also significant at the 1% level (t-statistic = -3.43). Since glamour spinoff proxies are dummy variables, the coefficients from regression models 1-3 indicate that offspring firms following catering-motivated spinoffs underperform those following other types of spinoffs by 76% or more over the three-year post-spinoff period.

[Insert Table 10 about here]

Control proxies such as corporate focus, information asymmetry, and relative size are insignificant for all regression models. This finding suggests that stock markets may efficiently react to these value factors upon spinoff announcements. The control variable for country-level shareholder protection is insignificant for all regression models. Finally, the dummy variable to indicate the hot or cold periods of spinoff announcements has an insignificant coefficient in each regression model. Thus, the long-run returns to offspring firms cannot be explained by the country-specific or time-specific effects.

Taken together, the glamour spinoff proxies are the only independent variables having a significant coefficient in the regression models. The negative coefficients for glamour spinoff proxies suggest that offspring firms from spinoffs which cater to investor demand for glamour stocks significantly underperform other types of offspring firms.

We also analyse whether parent firms from glamour spinoffs are underperforming those from other spinoffs. The regression model is equation (11) given in section 3.6. Results (not reported) show that the glamour spinoff proxies do not have a significant impact on the long-run returns to post-spinoff parent firms. None of the coefficients for glamour spinoff proxies is significant at conventional significance levels for regression models. This evidence indicates that investors may be over-optimistic about the future performance of the offspring rather than the future performance of the parent.

6 Robustness Checks

This section discusses whether our results are sensitive to variable construction, return measurement procedures, and sample country.

First, we consider whether our investor sentiment proxies are actually measuring the fundamental value drivers of a spinoff. In particular, independent variables SUBMTB and SUBRET may be alternative measures of the growth opportunity of an offspring firm. Thus the positive impact of these two variables on the spinoff announcement returns can be attributed to the rational expectation of stock markets that the offspring firm with high growth opportunity can create more values in the post-spinoff period.

We check this issue by regressing the CARs to spinoff announcements on three different offspring industry-based variables. The first industry-based variable is an alternative investor sentiment proxy, SUBPE, which is the value-weighted average of price-to-earnings ratios for all firms in the offspring's two-digit SIC industry. To make the price-to-earnings ratio meaningful, we remove all firms with negative earnings in calculating SUBPE. Since the price-to-earnings ratio is a popular valuation ratio, the variable SUBPE may also capture the investor demand for glamour stocks. Thus, the variable SUBPE is predicted to be positively associated with the spinoff announcement returns. The second and third variables are measures of investment opportunity of the offspring industry. The second variable, SUBCAPEX, is the value-weighted capital expenditure to total assets ratio for all firms in the offspring's two-digit SIC industry. The third variable, SUBREVINC, is the value-weighted past-year revenue increase rates for all firms in the offspring's two-digit SIC industry. If markets assess the desirability of a spinoff transaction based on the fundamental value driver of an offspring industry, the variables SUBCAPEX and SUBREVINC should have a significant and positive coefficient in the regression to explain spinoff announcement returns.

Then the three-day (-1, +1) CARs to parents are regressed on one of these industry-based variables with other control variables as reported in Table 5. Results (not shown) indicate that the variable SUBPE has a positive and significant coefficient of 0.07 in the regression (t-statistic = 2.24). However, neither SUBCAPEX nor SUBREVINC has a significant coefficient in the regression models. Therefore, our investor sentiment proxies do not seem to be alternative measures of fundamental value drivers of a spinoff.

Another concern is that return measurement errors may affect our empirical results. We use the world market model suggested in Park (2004)[24] to re-estimate the spinoff announcement returns and find that the relationship between investor sentiment proxies and the spinoff announcement returns still holds when the return methodology is changed (results not shown). Similarly, the glamour spinoff proxies still have significant and positive coefficients in regressions with the re-estimated spinoff announcement returns (results not reported).

The measurement of long-run returns is very controversial since the current literature has no consensus on the return measurement (e.g. see Ang and Zhang, 2004; Fama, 1998; Loughran and Ritter, 1995; Mitchell and Stafford, 2000). To ensure the robustness of our results, we also use the industry- and size- adjusted BHARs to examine the long run performance of post-spinoff firms. The control of industry classification in selecting matched firm is because current asset pricing models have imprecise estimates of industry returns (Fama and French, 1996). The control of size is because size has been demonstrated to be an important factor in explaining cross-section returns (e.g. see Fama and French, 1993).

For the industry- and size- matched firm approach, matching stocks are selected as of the last day of the completion month of the spinoff according to market value and two-digit SIC code classification. For each parent and subsidiary, we identify all equities within the same two-digit SIC code industry classification in the sample country. Further, we remove firms that conduct a spinoff in the five-year period centring on the spinoff completion date of the sample firm. Finally, we require that the market capitalisation of control firms should be within the scope of (50%, 150%) for the market capitalisation of the sample firm. We then select five stocks with the closest market value to that of the sample firm. Among those five stocks, the first matching firm is defined as one with the

[24] The world market model introduced in Park (2004) argues that the benchmark returns for an event firm in a multi-country sample should consider the joint impact of the local market index, world market index and the movement of foreign exchange rate for the local currency. In this study, we use the local country's *Datastream* total return index as the local market index, the S&P 500 index as the world market index, and the daily change of US dollars to the local currency. The results remain similar when we use other indices as the world market index rather than S&P 500.

closest market value and the fifth matching firm has the largest difference from the sample firm in the market values. The stock returns of the first matching firm are used as the benchmark returns for the sample firm. If the first matching firm is delisted within the three-year post-spinoff period for whatever reason, we use the second matching firm from thereon.[25] If the second matching firm disappears as well, we continue with the third one and so on. If no matched firm within the two-digit SIC code level is available or five matching firms have been exhausted during the computation period, we replace the matching firm returns with the returns on the total market return index for each country given in *Datastream*.

Then, based on equation (11) in section 3.6, we regress the alternative long-run abnormal returns to offspring firms on glamour spinoff proxies to examine whether regression results are sensitive to the return methodology used. Control variables are FOCUS, INFASYM, RELSIZ, ANTIDIR and HOTTIME. The regression results are reported in Panel A of Table 11.

[Insert Table 11 about here]

In general, offspring firms following spinoffs that cater to investor demands for glamour stocks have lower long-run industry- and size- adjusted BHARs than those following other types of spinoff. The coefficients for two out of three glamour spinoff proxies are significant in the regression models. The variable GLAMMTB has a negative coefficient of -0.68, which is significant at the 1% level (t-statistic = -2.69). The variable GLAMRET also has a negative coefficient of -0.98, which is significant at the 1% level (t-statistic = -4.69). Thus, this evidence lends support to the catering theory of spinoff that offspring firms following spinoffs which cater to investor demand for glamour stocks underperform those following other types of spinoff.

[25] An alternative approach is to use the return to industry control firms which survive in the three-year post-spinoff period as the benchmark returns. However, this approach contains the look-ahead bias since it is unknown which control firm will be delisted in the post-spinoff period at the spinoff completion date. The approach we use in the study mimics the real investment experience of some investors i.e. that they rebalance their investment portfolio in case of the delisting of invested firms but keep the same investment preference in choosing stocks with similar operating characteristics.

On the other hand, the variable GLAMHT has an insignificant coefficient of -0.21 in the regression model 3. The insignificance of GLAMHT in the regression may be due to the fact that the whole high-tech industry experienced return reversal as the high-tech bubble burst in the early 2000. Therefore, the relative underperformance of offspring firms in the high-tech industry may not be significant.

We also consider abnormal accounting returns of post-spinoff firms as an alternative measure of the long-run performance of post-spinoff firms. Following Barber and Lyon (1996), we use two benchmark-adjusted accounting returns, industry median- adjusted return on assets ratio and industry- and size- adjusted return on assets ratio. Return on assets (ROA), is measured as the ratio of earnings before interest, tax, depreciation and amortization (EBITDA) to book value of assets. The cash-flow based accounting measure is adopted to minimise the impact of managerial manipulation of accounting numbers. Similar approach has been adopted in Daley et al. (1997) to compute the abnormal accounting returns to post-spinoff firms for their US spinoff sample.

The industry median- adjusted ROA is computed as the return on assets of the parent (offspring) subtracted by the median return on assets for all firms, except the parent (offspring), that operate in the same two-digit SIC code industry as the post-spinoff parent (offspring). The industry- and size- adjusted ROA is calculated as the median ROA for all firms, except for the parent (offspring), that share the same two-digit SIC code industry as the parent (offspring) and have asset values within 50% of the asset value of the parent (offspring) in the same fiscal year[26]. Because we sometimes cannot identify an industry peer that has an asset value within 50% of the asset value of the post-spinoff firm, the number of observations with industry- and size- adjusted ROAs available is smaller than that with industry median- adjusted ROAs available.

[26] The size matching on a smaller scope such as between 70% and 130% often gives no matching industry firms because some European countries have a very small stock market. Using a broader industry definition (one-digit SIC code industry) does not solve the data limitation problem. To make industry- and size-matching feasible and meaningful, we use 50% instead of 30% as in Daley et al (1997).

To measure the three-year accounting performance of post-spinoff firms, we use the average of abnormal accounting returns over the three-year post-spinoff period. However, we do not always have three-year accounting data for post-spinoff firms because post-spinoff firms may be delisted in the three-year post-spinoff period. For such cases, we then use the average of abnormal accounting returns with the data available. If a post-spinoff firm only has accounting data for the first two years following the spinoff completion, we use the average of abnormal accounting returns over the first two years as the three-year accounting performance of the post-spinoff firm. If a post-spinoff firm only has accounting data for the first year following the spinoff completion, we then use the abnormal accounting return in the first year as the three-year accounting performance of the post-spinoff firm.

In unreported results, we analyse the long-run abnormal accounting returns to both parent and offspring. We find that neither parent nor offspring experiences significant and positive abnormal accounting returns over the three-year post-spinoff period. This evidence is different from that of Chemmanur and Nandy (2006), Daley et al. (1997) and Desai and Jain (1999), who all document that post-spinoff firms have a significant improvement in accounting performance. However, our results for accounting performance of post-spinoff firms are consistent with our findings for stock performance of post-spinoff firms.

Based on equation (11) in section 3.6, the three-year abnormal accounting returns to offspring are regressed on glamour spinoff proxies. Control variables are FOCUS, INFASYM, RELSIZ, ANTIDIR and HOTTIME. The regression results for the three-year industry median- adjusted ROAs and those for the three-year industry- and size- adjusted ROAs are reported in Panel B and Panel C of Table 11, respectively.

Our results in Panels B and C indicate that equation (11) has a good explanatory power in explaining the variation of long-run accounting performance of offspring since the adjusted R-squared for regression model varies between 15% and 28%. Further, the coefficients of GLAMMTB and GLAMHT are significantly negative for models 4 – 9. In contrast, the coefficient of GLAMRET is insignificant for models 4 – 9. However, the variable GLAMRET has a predicted negative sign in the regression models 4 – 9. Thus, our results with different measures of long-run performance of post-spinoff offspring also suggest that offspring firms following spinoffs which cater to investor demand for glamour stocks underperform those following other types of spinoff in the long run.

Although we document evidence that offspring firms following catering-motivated spinoffs underperform others in the long run, a possible explanation is that some European stock markets may be inexperienced with spinoff transactions and thus make mistakes in the initial assessment of those transactions.[27] Therefore, the evidence on catering theory of spinoffs may not obtain for samples of spinoffs in a country with well-developed stock markets, such as the UK. We address this concern by analysing the determinants of long-run returns to post-spinoff offspring firms in the UK. Specifically the equation (11) in section 3.6 is run for the UK sub-sample of offspring firms. Control variables are FOCUS, INFASYM, RELSIZ and HOTTIME. The variable ANTIDIR is not used because this variable has the same value for all UK offspring firms. The regression results are reported in Panels D - G of Table 11. Dependent variables are three-year size and book-to-market- adjusted BHARs to UK offspring, three-year industry- and size- adjusted BHARs to UK offspring, three-year industry median-adjusted ROAs to UK offspring, and three-year industry- and size- adjusted ROAs to UK offspring. These are for regression models in Panel D, Panel E, Panel F and Panel G, respectively.

As indicated in Panel D of Table 11, the glamour spinoff proxies GLAMMTB and GLAMRET have significant and negative coefficients in regression models 10 -12, which are consistent with the results in Table 10. The coefficient of glamour spinoff proxy GLAMHT is insignificant in the regression but it has a predicted negative sign. Similar conclusions can be reached based on the results in Panel E of Table 11. Again, the results in Panel F and Panel G are generally similar to those in Panel B and Panel C. Hence, in

[27] Based on the spinoff transaction data in SDC, many continental European countries do not have spinoff transactions prior to the 1990s.

general, our robustness check results for the UK sub-sample show that investor sentiment still plays a role in the market reaction to spinoff announcements even for a well-developed stock market such as the UK stock market.

Finally, we consider whether our results are purely driven by the high-tech bubble in the late 1990s. To this end, we remove the high-tech spinoffs announced in the late 1990s, i.e. within the period 1996 and 2000. Then we design a new glamour spinoff variable, GLAM, which equals one when either GLAMMTB or GLAMRET equals one and equals zero otherwise. Following hypotheses 3 and 4, this new glamour spinoff variable GLAM should have a significant and positive impact on the spinoff announcement returns while having a significant and negative impact on the long-run performance of post-spinoff firms.

In Panel A of Table 12, we regress the three-day CARs to parents on the variable GLAM and control variables as used in Table 5. Consistent with Hypothesis 3, the variable GLAM has a coefficient of 2.74, which is significant at the 10% level. The regression model has an adjusted R-squared of 5%, which is significant at the 7% level. Panel A of Table 12 also reports the regression coefficients of long-run abnormal stock returns to offspring on the variable GLAM. The coefficient of GLAM is significantly negative when the dependent variable is either three-year size- and book-to-market- adjusted BHARs or three-year industry- and size- adjusted BHARs.

[Insert Table 12 about here]

In Panel B of Table 12, we regress the three-year abnormal accounting returns to offspring on the variable GLAM and control variables. Consistent with Hypothesis 4, the variable GLAM has a negative coefficient in the regression models. When the dependent variable is three-year industry median- adjusted ROAs to offspring, the coefficient of GLAM is -0.06, which is significant at the 5% level. When the dependent variable is thee-year industry- and size- adjusted ROAs to offspring, the coefficient of GLAM is

-0.02 but is insignificant at conventional levels. This significant result may be attributed to the smaller sample size.

7 Summary

Existing literature argues that corporate spinoffs are value-enhancing restructuring transactions. However, past empirical analysis only focuses on one side of the spinoff transaction: the divestiture of a subsidiary. Corporate spinoffs are joint events combining the divestiture and the equity listing of a subsidiary. Less attention has been paid to how stock markets react to the equity listing of a subsidiary. In addition, extant studies have not explored whether the investor sentiments can affect the market reaction to spinoff announcements and whether some spinoffs are undertaken for non-efficiency-related reasons.

This study contributes to the existing literature on corporate divestiture in two ways. First, it provides empirical evidence that investor sentiments affect the market reaction to spinoff announcements. In particular, investor demand for corporate focus and glamour stocks is positively affecting the announcement returns to spinoffs. Our study presents new evidence supporting this behavioural argument that markets are not always efficient. Investors have an unrealistic demand for non-fundamental factors and such demand affects the market valuation of corporate events.

Second, we propose and test a catering theory of the managerial decision of spinoff. The catering theory argues that rational managers may respond to the prevailing strong investor demand for glamour stocks, and then spin off a subsidiary with glamour status to boost short-run share prices. Further, the long-term performance of offspring following the catering-motivated spinoffs will be lower than that of other types of spinoff.

Our empirical analysis results support the catering theory. We find that spinoffs which are undertaken to cater to investor demand for glamour stocks have better announcement returns than other spinoffs. However, offspring from spinoffs that cater to investor demand for glamour stocks have lower long-run stock returns than offspring from other spinoffs. This evidence indicates that investors' overoptimistic beliefs of offspring from catering-motivated spinoffs eventually turn out be unfounded.

On a cautionary note, the catering theory of corporate spinoffs only applies to certain types of spinoff and is not a complete story of corporate spinoffs. Corporate spinoffs may be motivated to reduce agency conflicts associated with conglomerates, divest underperforming divisions, improve the efficiency of stock-based compensation, and for other reasons (for detailed discussions on other spinoff rationales, see Sudarsanam, 2003, Chapter 11 and Weston, Mitchell and Mulherin 2005, Chapter 11). However, the catering theory complements other existing theories of corporate divestitures to depict a more complete picture of spinoff value effects.

It is also worth mentioning that the glamour spinoff proxies used in this study are not perfect measures of managerial motives to exploit misevaluations. Future research should design better proxies to measure the managerial response to market inefficiency.

Our results for the long-run performance of post-spinoff firms are different from those reported in earlier US studies. This difference may be attributed to the institutional difference between the US and Europe. First, the US has a more active hostile takeover market than Europe as documented in Sudarsanam (2003, chapter 2). Thus, according to the corporate control rationale of spinoffs as proposed in Chemmanur and Yan (2004), post-spinoff firms following European spinoffs will generally experience less effective market discipline and deliver lower long-run returns than those following US spinoffs. Second, managers in the US firms generally have more intensive stock-based compensation than those in European firms (e.g. see Conyon and Murphy, 2000). Therefore, following the arguments of Jensen and Murphy (1990) and Coles, Daniel and Naveen (2006), managers in the US are more likely to conduct spinoffs to maximise shareholder wealth than those in Europe. Ahn and Walker (2006) have presented evidence that the spinoff decision is positively related to the CEO compensation. For those reasons, it is possible that our catering theory of spinoffs may not be applicable to the US spinoffs. Future research testing the predictions of catering theory with the US spinoff sample will be useful.

Finally, the behavioural explanation of the managerial catering incentive to spin off can be equally applied to other cases of managerial decisions, such as mergers and acquisitions. The test of the association between investor appetite for corporate focus (and glamour stocks) and the market reaction to other managerial decisions may produce more fruitful results that could deepen our understanding of managerial decisions from a behavioural perspective.

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Table 1 Distribution of European spinoffs by announcement year and country of spinoff parent

Distribution of European companies that completed a spinoff in the period from January 1987 to December 2005 by announcement year and listing country of the spinoff parent firm. A total of 367 spinoff announcements are originally identified from the SDC Mergers and Acquisitions Database. Spinoffs are eliminated for the following reasons with data reduction number in parentheses: a) parent firms or offspring firms have no stock price information in *Datastream* (67); b) other types of restructuring transactions are mistakenly recorded as spinoffs in SDC, such as divestiture of a joint-venture with multi-parents and privatisation deals and asset redistribution as part of a merger deal (19); c) less than 50% of interests of offspring firms are distributed to existing shareholders (9); d) the same spinoff announcements are double counted in SDC (9); e) offspring firms are already listed before the spinoff (6); f) parent firms are not traded in Europe (6); g) the shares of offspring firms are sold to either existing shareholders or the market (3); and h) the announced spinoffs are not completed by the end of year 2005 (78). The final sample includes 144 parent firms (157 distinct announcements) and 170 offspring firms. Countries are coded as follows: BD for Germany, BG for Belgium, DK for Denmark, FN for Finland, FR for France, IR for Ireland, IT for Italy, NL for the Netherlands, NW for Norway, PT for Portugal, SD for Sweden, SW for Switzerland, and UK for the United Kingdom.

Year	BD	BG	DK	FN	FR	IR	IT	NL	NW	PT	SD	SW	UK	Total
1987													1	1
1988									1				3	4
1989									1				6	7
1990											1			1
1991									1				2	3
1992									1		1		1	3
1993													2	2
1994							1				1			2
1995							1		1		2		2	6
1996					1		1		1		5		8	16
1997						1	1	1			4	1	6	14
1998	2					1		1	2		5		8	19
1999	1	1	1	1			4	3	1		2	2	5	21
2000		1		4			1				3		13	22
2001	1				3				1		5		11	21
2002							1	1					1	3
2003	1	1		1			2		2				3	10
2004	1	1		1					1	1	5		3	13
2005											1		1	2
Total	6	4	1	7	4	2	12	6	13	1	35	3	76	170

Table 2 Definitions for explanatory variables

Variables	Definition
Panel A: Investor sentiment proxies	
FPMTB	The difference in the natural logarithm of value-weighted average market-to-book value (MTBV) of assets between focused firms and diversified firms in the country where parents are listed. The variable is measured at the month end prior the spinoff announcement date. The weight is the book value of assets. Market value of total assets is the sum of the market value of equity and the book value of total debts. Diversified (Focused) firms are defined as listed firms that have (no) segments operating in different two-digit SIC industries. The product segment data are from Worldscope.
FPRET	The difference in the value-weighted average past-year stock returns between focused firms and diversified firms in the country where parents are listed. The variable is measured at the month end prior to the spinoff announcement date. The weight is the market capitalisation. For definitions of diversified and focused firms, see the definition of FPMTB.
SUBMTB	The value-weighted average MTBV of assets ratios for all firms in an offspring's two-digit SIC industry. The weight is the market capitalisation.
SUBRET	The value-weighted past-year returns to all firms in an offspring's two-digit SIC industry. The weight is the market capitalisation.
Panel B: Glamour spinoff proxies	
GLAMMTB	A dummy variable that equals one when the MTBV of assets ratio of a parent's industry is lower than the median of MTBV of assets ratios for all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of MTBV of assets ratios for all industries, and equals zero otherwise.
GLAMRET	A dummy variable that equals one when past-year stock return to a parent's industry is lower than the median of past-year stock returns to all industries while past-year stock returns to an offspring's industry is higher than the median of past-year returns for all industries, and equals zero otherwise.
GLAMHT	A dummy variable that equals one when a non-high-tech parent spins off a high-tech offspring, and equals zero otherwise. For details of high-tech spinoff classification, see Appendix.

Table 2 (continued)

Variables	Definition
Panel C: Control variables	
FOCUS	A dummy variable that equals one when parent and offspring operate in different two-digit SIC industries, and equals zero otherwise.
INFASYM	The dispersion in the market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement.
GROWTH	The parent's growth options in its investment opportunity set, measured as its MTBV of assets ratio at the end of month prior to spinoff announcement date.
ROA	The parent's return on assets in the year prior to the spinoff announcement date, measured as its earnings before interest, tax, depreciation and amortisation (EBITDA) divided by its total assets.
RELSIZ	Market value of an offspring divided by the sum of the market capitalisations of parent and offspring on the spinoff completion date. When a parent spins off multiple offspring firms on the same date, the relative size is total market values of all offspring firms divided by the sum of market capitalisations of parent and all offspring firms on the spinoff completion date.
ANTIDIR	An index to measure the strength of a country's legal system to protect minority shareholders developed by La Porta et al. (1998), which ranges from zero to six, where the lower score refers to a weak protection of shareholder rights.
HOTTIME	A dummy variable that equals one when a spinoff is announced between 1996 and 2001, and equals zero otherwise.

Table 3 Summary descriptive statistics for explanatory variables

This table reports summary descriptive statistics for explanatory variables. FPMTB = difference in the natural logarithms of value-weighted average MTBV of assets between focused firms and diversified firms in the parent listing country. FPRET = difference in the value-weighted average past-year stock returns between focused firms and diversified firms in the parent listing country. SUBMTB = value-weighted average MTBV of assets ratios for all firms in an offspring's two-digit SIC industry. SUBRET = value-weighted past-year returns to all firms in an offspring's two-digit SIC industry. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. GROWTH = parent's MTBV of assets ratio at the end of month prior to spinoff announcement date. ROA = parent's EBITDA divided by its total assets. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise.

	Parents			**Offspring**		
Variable	**Mean**	**Median**	**No. of obs.**	**Mean**	**Median**	**No. of obs.**
Panel A: Continuous variables						
FPMTB	-0.11	-0.13	157			
FPRET	0.00	0.00	157			
SUBMTB	1.97	1.39	157			
SUBRET	0.02	0.02	157			
INFASYM	0.02	0.02	157	0.02	0.02	170
GROWTH	2.63	1.75	157			
ROA	0.10	0.11	157			
RELSIZ	0.30	0.24	157	0.32	0.24	170
ANTIDIR	3.60	4.00	157	3.65	4.00	170
Panel B: Dummy variables						
GLAMMTB	0.25		157	0.23		170
GLAMRET	0.21		157	0.20		170
GLAMHT	0.17		157	0.16		170
FOCUS	0.74		157	0.73		170
HOTTIME	0.58		157	0.66		170

Table 4 Cumulative abnormal returns to parents over the announcement periods

This table reports the average cumulative abnormal returns (CARs) for the entire sample of 157 completed spinoffs from January 1987 to December 2005.The spinoff announcements are identified from SDC Merger & Acquisitions Database. Abnormal returns are calculated with the market model, estimated over a 200-day period for each sample firm (from day -220 to day -21 relative to spinoff announcement date). The significance of the mean is tested by t-statistic. The significance of the median is tested by the Wilcoxon signed rank test. The binomial test is used to test the significance of the percentage of sample firms with positive abnormal announcement returns. The null hypothesis is that the proportion of positive abnormal announcement-period returns is 50%. [a], [b], [c] indicates the significance level at the 1%, 5% and 10% level, respectively.

Interval	Mean%.	t-statistic	Median%	z-statistic	% (+)
Panel A: CARs based on the market model for All spinoffs (N=157)					
-10 to -1	1.75[b]	2.62	0.79[b]	2.36	56.05
-1 to 0	4.24[a]	6.64	2.64[a]	7.06	70.70[a]
0	3.45[a]	6.25	1.75[a]	6.57	68.15[a]
-1 to +1	4.82[a]	6.14	2.61[a]	6.80	73.25[a]
+1 to +10	-0.06	-0.08	-1.14	-1.55	40.76
Panel B: CARs based on the market model for UK spinoffs (N=72)					
-10 to -1	1.95	1.59	0.72	1.18	52.78
-1 to 0	5.26[a]	4.67	3.02[a]	4.98	75.00[a]
0	4.80[a]	4.70	2.19[a]	5.06	70.83[a]
-1 to +1	5.48[a]	4.12	3.03[a]	4.31	69.44[a]
+1 to +10	0.57	0.43	-1.21	-0.32	45.83
Panel C: CARs based on the market model for Non-UK spinoffs (N=85)					
-10 to -1	1.58[b]	2.38	0.99[b]	2.14	58.82
-1 to 0	3.39[a]	4.91	2.61[a]	4.99	67.06[a]
0	2.29[a]	4.50	1.32[a]	4.20	65.88[a]
-1 to +1	4.27[a]	4.65	3.33[a]	5.29	76.47[a]
+1 to +10	-0.59	-0.72	-1.03[b]	-2.03	36.47
Panel D: Difference in CARs between UK and Non-UK spinoffs					
-10 to -1	0.38	0.27	-0.27	-0.53	
-1 to 0	1.87	1.42	0.41	1.40	
0	2.51[b]	2.20	0.87	1.58	
-1 to +1	1.21	0.75	0.70	0.52	
+1 to +10	1.62	0.74	-0.18	-0.24	

Table 5 Regression of announcement period CARs on investor sentiment proxies

Regression coefficients for announcement period (-1, 1) CARs for the 157 completed spinoffs from January 1987 to December 2005. FPMTB = difference in the natural logarithms of value-weighted average MTBV of assets between focused firms and diversified firms in the parent listing country. FPRET = difference in the value-weighted average past-year stock returns between focused firms and diversified firms in the parent listing country. SUBMTB = value-weighted average MTBV of assets ratios for all firms in an offspring's two-digit SIC industry. SUBRET = value-weighted past-year returns to all firms in an offspring's two-digit SIC industry. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. GROWTH = parent's MTBV of assets ratio at the end of month prior to spinoff announcement date. ROA = parent's EBITDA divided by its total assets. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise. White heteroscedasticity-adjusted t-statistics are in parentheses. [a], [b], [c] indicates the significance at the 1%, 5%, and 10% level, respectively.

Panel A: Regression models with one investor sentiment variable

Variable	**Model 1**		**Model 2**		**Model 3**		**Model 4**	
Intercept	-6.86[b]	(-2.39)	-6..74[b]	(-2.27)	-7.07[b]	(-2.50)	-7.38[a]	(-2.65)
FPMTB	5.83[b]	(2.21)						
FPRET			79.76[b]	(2.24)				
SUBMTB					0.67[b]	(2.30)		
SUBRET							44.24[b]	(2.07)
FOCUS	4.16[a]	(3.18)	3.85[a]	(2.93)	3.88[a]	(2.88)	3.63[a]	(2.72)
INFASYM	129.27	(1.52)	114.17	(1.26)	110.72	(1.27)	124.20	(1.46)
GROWTH	0.19	(1.13)	0.20	(1.23)	0.14	(0.81)	0.10	(0.56)
ROA	6.03	(1.02)	6.59	(1.16)	4.48	(0.75)	3.73	(0.60)
RELSIZ	14.11[a]	(2.94)	14.02[a]	(2.97)	13.42[a]	(2.64)	14.35[a]	(3.11)
ANTIDIR	0.10	(0.18)	-0.10	(-0.20)	-0.13	(-0.27)	-0.05	(-0.09)
HOTTIME	1.31	(0.93)	1.50	(1.06)	1.68	(1.24)	1.87	(1.40)
No. of obs.	157		157		157		157	
Adjusted R^2	0.20		0.19		0.19		0.19	
F statistic	5.72		5.63		5.70		5.70	
Sig. level	<0.001		<0.001		<0.001		<0.001	

Table 5 (Continued)

Panel B: Regression models with both focus premium and glamour stock variables								
Variable	**Model 5**		**Model 6**		**Model 7**		**Model 8**	
Intercept	-6.78[b]	(-2.35)	-6.98[b]	(-2.44)	-6.72[b]	(-2.27)	-6.89[b]	(-2.33)
FPMTB	4.45[c]	(1.84)	4.92[c]	(1.95)				
FPRET					56.63	(1.62)	65.55[c]	(1.90)
SUBMTB	0.50[c]	(1.78)			0.51[c]	(1.69)		
SUBRET			36.96[b]	(1.80)			37.55[c]	(1.78)
FOCUS	3.96[a]	(2.96)	3.73[a]	(2.86)	3.73[a]	(2.80)	3.46[a]	(2.63)
INFASYM	113.51	(1.29)	122.48	(1.42)	102.63	(1.12)	110.04	(1.21)
GROWTH	0.16	(0.96)	0.13	(0.73)	0.17	(1.04)	0.14	(0.81)
ROA	4.97	(0.83)	4.23	(0.68)	5.34	(0.92)	4.66	(0.77)
RELSIZ	13.17[b]	(2.57)	13.75[a]	(2.88)	13.13[b]	(2.59)	13.68[a]	(2.90)
ANTIDIR	0.05	(0.10)	0.14	(0.27)	-0.10	(-0.20)	-0.02	(-0.04)
HOTTIME	1.14	(0.81)	1.19	(0.85)	1.32	(0.93)	1.37	(0.97)
No. of obs.	157		157		157		157	
Adjusted R^2	0.20		0.20		0.20		0.20	
F statistic	5.30		5.39		5.22		5.31	
Sig. level	<0.001		<0.001		<0.001		<0.001	

Table 6 Announcement period CARs by glamour spinoff status

This table compares 3-day (-1, +1) CARs for glamour sub-samples of 157 spinoff announcements from January 1987 to December 2005. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to the a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. In parentheses are the t statistics (mean) or Wilcoxon test z statistics (median). All tests are based on two-tailed tests. [a], [b], [c] indicate the significance level at the 1%, 5% and 10% level, respectively.

Variable	**Parent relative to offspring less glamorous (1)**		**Parent relative to offspring same or more glamorous (2)**		**Group difference (1-2)**	
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**
GLAMMTB	8.24[a]	4.74[a]	3.69[a]	1.88[a]	4.54[b]	2.86[a]
	(4.82)	(4.93)	(4.30)	(4.84)	(2.38)	(3.03)
No. of obs.	39		118			
GLAMRET	9.34[a]	4.56[a]	3.62[a]	1.80[a]	5.71[b]	2.76[a]
	(4.05)	(4.26)	(4.81)	(5.24)	(2.36)	(2.82)
No. of obs.	33		124			
GLAMHT	13.37[a]	10.23[a]	3.13[a]	1.94[a]	10.24[a]	8.29[a]
	(4.74)	(4.05)	(4.66)	(5.38)	(3.53)	(3.92)
No. of obs.	26		131			

Table 7 Regression of announcement period CARs on the glamour spinoff proxies

Regression coefficients for announcement period (-1, 1) CARs for the 157 completed spinoffs from January 1987 to December 2005. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. GROWTH = parent's MTBV of assets ratio at the end of month prior to spinoff announcement date. ROA = parent's EBITDA divided by its total assets. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise. White heteroscedasticity-adjusted t-statistics are in parentheses. [a], [b], [c] indicates the 1%, 5%, and 10% significance level, respectively.

Variable	**Model 1**		**Model 2**		**Model 3**	
Intercept	-7.37[a]	(-2.65)	-7.44[a]	(-2.61)	-5.42[c]	(-1.90)
GLAMMTB	3.16[c]	(1.80)				
GLAMRET			3.41[c]	(1.70)		
GLAMHT					5.83[b]	(2.45)
FOCUS	3.21[b]	(2.26)	3.27[b]	(2.46)	3.13[b]	(2.41)
INFASYM	147.14[c]	(1.73)	140.60[c]	(1.67)	98.14	(1.19)
GROWTH	0.17	(1.02)	0.14	(0.80)	0.02	(0.16)
ROA	6.69	(1.15)	6.76	(1.21)	4.47	(0.86)
RELSIZ	14.38[a]	(3.11)	13.86[a]	(3.23)	12.09[a]	(2.65)
ANTIDIR	-0.17	(-0.35)	-0.06	(-0.12)	-0.04	(-0.08)
HOTTIME	1.78	(1.36)	1.91	(1.41)	1.46	(1.14)
No. of Obs.	157		157		157	
Adjusted R^2	0.21		0.19		0.21	
F statistic	5.67		5.69		6.29	
Sig. level	<0.001		<0.001		<0.001	

Table 8 Long-run size- and book-to-market adjusted BHARs

This table reports long-run size- and book-to-market- adjusted BHARs for 129 European post-spinoff parent/offspring combined firms, 129 parent firms and 142 offspring firms in the period between January 1987 and December 2002. Panel A reports the t statistic associated with the abnormal returns and the percentage of positive abnormal returns for post-spinoff parent/subsidiary combined firms. Panel B reports the data for post-spinoff parent firms. Panel C reports the data for post-spinoff subsidiary firms. The reported t statistic is adjusted for cross-sectional dependence (Mitchell and Stafford, 2000). The benchmark for size- and book-to-market- adjusted BHARs is the returns to a group of firms selected based on the closeness of market capitalisations and book-to-market ratios. The significance of the mean (median) is tested by the t-statistic (Wilcoxon test z-statistic). The binomial test is used to test the significance of the percentage of sample firms with positive abnormal announcement returns, with the null hypothesis that the proportion of positive abnormal announcement returns is 50%. None of the BHARs is significant at conventional levels.

Interval	Mean	t-statistic	Median	z-statistic	% (+)
Panel A: Size- and book-to-market- adjusted BHARs for parent/offspring combined firms (N=129)					
(0, +1 year)	-0.01	-0.09	-0.001	-0.58	48.84
(0, +2 year)	0.14	0.52	-0.04	0.76	49.61
(0, +3 year)	0.06	0.29	-0.03	-0.19	48.06
Panel B: Size- and book-to-market- adjusted BHARs for parent firms (N=129)					
(0, +1 year)	-0.03	-0.23	-0.06	-1.33	44.19
(0, +2 year)	0.14	0.33	-0.08	-0.44	44.19
(0, +3 year)	0.01	0.05	-0.09	-1.38	43.41
Panel C: Size- and book-to-market- adjusted BHARs for offspring firms (N=142)					
(0, +1 year)	0.09	0.58	0.005	0.45	50.70
(0, +2 year)	0.25	0.88	0.06	1.57	56.34
(0, +3 year)	0.29	0.83	0.04	1.46	52.11

Table 9 Long-run BHARs to offspring firms by glamour spinoff status

This table compares size- and book-to-market adjusted BHARs for sub-samples of 142 offspring firms from January 1987 to December 2002. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. The mean is tested with the t-statistic adjusted for cross-sectional dependence following Mitchell and Stafford (2000). In parentheses are the t statistics (mean) or Wilcoxon test z statistics (median). All tests are based on two-tailed tests. [a], [b], [c] indicate the significance level at the 1%, 5% and 10%, respectively.

	Parent relative to offspring less glamorous (1)		**Parent relative to offspring same or more glamorous (2)**		**Group difference (1-2)**	
Interval	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
Panel A: Dummy variable is GLAMMTB						
(0, +1 year)	-0.09	-0.22	0.15	0.05[c]	-0.24[b]	-0.27[a]
	(-0.82)	(-1.64)	(0.63)	(1.66)	(-2.13)	(-2.59)
(0, +2 year)	-0.26	-0.27[b]	0.39	0.22[a]	-0.65[a]	-0.49[a]
	(-1.37)	(-2.34)	(1.37)	(3.12)	(-3.52)	(-3.49)
(0, +3 year)	-0.37	-0.25[b]	0.47	0.28[a]	-0.83[a]	-0.53[a]
	(-1.41)	(-2.49)	(1.34)	(2.97)	(-3.79)	(-3.47)
No. of obs.	35		107			
Panel B: Dummy variable is GLAMRET						
(0, +1 year)	-0.15	-0.22[c]	0.15	0.04	-0.30[a]	-0.26[b]
	(-0.97)	(-1.66)	(0.95)	(1.51)	(-2.80)	(-2.41)
(0, +2 year)	-0.39[a]	-0.33[a]	0.39	0.14[a]	-0.78[a]	-0.47[a]
	(-3.35)	(-3.01)	(1.37)	(3.29)	(-4.74)	(-4.10)
(0, +3 year)	-0.53[b]	-0.51[a]	0.47	0.26[a]	-1.00[a]	-0.77[a]
	(-2.21)	(-2.87)	(1.38)	(3.11)	(-4.63)	(-3.96)
No. of obs.	30		112			
Panel C: Dummy variable is GLAMHT						
(0, +1 year)	-0.29[b]	-0.25[a]	0.17	0.10[b]	-0.46[a]	-0.35[a]
	(-2.01)	(-3.24)	(1.15)	(2.13)	(-4.70)	(-4.00)
(0, +2 year)	-0.27	-0.29[b]	0.34	0.11[a]	-0.60[a]	-0.40[a]
	(-0.96)	(-2.32)	(1.26)	(2.83)	(-2.93)	(-3.23)
(0, +3 year)	-0.45	-0.38[b]	0.42	0.26[a]	-0.87[a]	-0.64[a]
	(-1.63)	(-2.45)	(1.31)	(2.66)	(-3.79)	(-3.20)
No. of obs.	26		116			

Table 10 Regression of 3-year size- and book-to-market adjusted BHARs to offspring firms on glamour spinoff proxies

Regression coefficients for 3-year size- and book-to-market adjusted BHARs for 142 offspring firms from January 1987 to December 2002. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to the a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise. White heteroscedasticity-adjusted t-statistics are in parentheses. [a], [b], [c] indicates the 1%, 5%, and 10% significance level, respectively.

Variable	Model 1		Model 2		Model 3	
Intercept	1.19	(1.64)	1.15	(1.62)	1.03	(1.45)
GLAMMTB	-0.79[a]	(-3.25)				
GLAMRET			-0.90[a]	(-4.14)		
GLAMHT					-0.76[a]	(-3.43)
FOCUS	-0.31	(-0.93)	-0.32	(-0.98)	-0.43	(-1.36)
INFASYM	-8.28	(-1.24)	-7.00	(-1.03)	-0.21	(-0.03)
RELSIZ	-0.32	(-0.66)	-0.10	(-0.21)	0.01	(0.03)
ANTIDIR	0.004	(0.05)	-0.02	(-0.19)	-0.01	(-0.14)
HOTTIME	-0.30	(-0.65)	-0.26	(-0.59)	-0.33	(-0.70)
No. of Obs.	142		142		142	
Adjusted R^2	0.05		0.06		0.03	
F statistic	2.18		2.44		1.81	
Sig. level	0.05		0.03		0.10	

Table 11 Robustness regression of long-run performance of offspring on glamour spinoff proxies

Regression coefficients for long-run performance of 142 offspring firms from January 1987 to December 2002. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to the a parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAMHT = 1 when a non-high-tech parent spins off a high-tech offspring, = 0 otherwise. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise. Panel A reports the regression results of 3-year industry- and size- adjusted BHARs to all offspring firms on glamour spinoff proxies. Panel B (C) reports the regression results of 3-year industry median- adjusted ROAs (industry- and size- adjusted ROAs) of all offspring firms on glamour spinoff proxies. Panel D (E) reports the regression results of 3-year size- and book-to-market- adjusted BHARs (industry- and size- adjusted BHARs) to UK offspring firms on glamour spinoff proxies. Panel F (G) reports the regression results of 3-year industry median- adjusted ROAs (industry- and size- adjusted ROAs) of UK offspring firms on glamour spinoff proxies. Control variables for regressions in Panels A, B, and C are FOCUS, INFASYM, RELSIZ, ANTIDIR and HOTTIME while those for regressions in Panel D, E, F and G are FOCUS, INFASYM, RELSIZ and HOTTIME. Coefficients for control variables are suppressed to save space. Coefficients for control variables are generally insignificant at conventional levels except those for INFASYM and RELSIZ. Coefficient for INFASYM is significantly negative in models 4, 5, 6, 10, 11, 16, 17, and 18. Coefficient for RELSIZ is significantly positive in models 4, 5, and 6. White heteroscedasticity-adjusted t-statistics are in parentheses. [a], [b], [c] indicates the 1%, 5%, and 10% significance level, respectively.

Model	**GLAMMTB**		**GLAMRET**		**GLAMHT**		**Adj. R^2**	**No. of Obs.**
Panel A: Regression of 3-year industry- and size- adjusted BHARs to all offspring								
Model 1	-0.68[a]	(-2.69)					0.04	142
Model 2			-0.98[a]	(-4.69)			0.07	142
Model 3					-0.21	(-0.83)	0.01	142
Panel B: Regression of 3-year industry median- adjusted ROAs to all offspring								
Model 4	-0.09[b]	(-2.57)					0.25	140
Model 5			-0.05	(-1.09)			0.23	140
Model 6					-0.16[a]	(-2.74)	0.28	140

Table 11 (continued)

Panel C: Regression of 3-year industry- and size- adjusted ROAs to all offspring								
Model 7	-0.05^{c}	(-1.69)					0.16	137
Model 8			-0.02	(-0.03)			0.15	137
Model 9					-0.16^{a}	(-2.91)	0.20	137
Panel D: Regression of 3-year size- and book-to-market- adjusted BHARs to UK offspring								
Model 10	-0.88^{a}	(-3.64)					0.15	67
Model 11			-0.65^{a}	(-2.43)			0.08	67
Model 12					-0.43^{c}	(-1.66)	0.05	67
Panel E: Regression of 3-year industry- and size- adjusted BHARs to UK offspring								
Model 13	-0.99^{a}	(-3.04)					0.12	67
Model 14			-1.08^{a}	(-3.78)			0.12	67
Model 15					-0.16	(-0.37)	0.02	67
Panel F: Regression of 3-year industry median- adjusted ROAs to UK offspring								
Model 16	-0.16^{b}	(-2.55)					0.34	67
Model 17			-0.03	(-0.42)			0.28	67
Model 18					-0.28^{a}	(-3.17)	0.41	67
Panel G: Regression of 3-year industry- and size- adjusted ROAs to UK offspring								
Model 19	-0.10^{c}	(-1.76)					0.22	67
Model 20			0.01	(0.14)			0.21	67
Model 21					-0.27^{a}	(-2.83)	0.29	67

Table 12 Robustness regression of spinoff performance for sub-sample without high-tech spinoffs in the late 1990s

Regression coefficients for wealth effects of completed spinoffs from January 1987 to December 2005, excluding high-tech spinoffs in the late 1990s. GLAMMTB = 1 when the MTBV of assets ratio of a parent's industry is lower than the median of all industries while the MTBV of assets ratio of an offspring's industry is higher than the median of industries, = 0 otherwise. GLAMRET =1 when past-year stock return to the parent's industry is lower than the median of all industries while past-year stock returns to an offspring's industry is higher than the median of all industries, = 0 otherwise. GLAM = 1 when either GLAMMTB =1 or GLAMRET = 1, = 0 otherwise. FOCUS = 1 when parent and offspring operate in different industries at the two-digit SIC level, = 0 otherwise. INFASYM = dispersion in market-adjusted daily stock returns to a parent in the 250-day trading period prior to the spinoff announcement. GROWTH = parent's MTBV of assets ratio at the end of month prior to spinoff announcement date. ROA = parent's EBITDA divided by its total assets. RELSIZ = market value of an offspring (market values of all offspring when multiple subsidiaries are spun off) relative to the sum of the market values of the parent and (all) offspring on the spinoff completion date. ANTIDIR = index of the effectiveness of a country's legal system to protect shareholder rights (La Porta et al., 1998). HOTTIME = 1 when a spinoff is announced between 1996 and 2001, = 0 otherwise. White heteroscedasticity-adjusted t-statistics are in parentheses. [a], [b], [c] indicates the significance at the 1%, 5%, and 10% level, respectively.

Panel A: Dependent variable is stock returns

Variable	**3-day (-1, +1) CARs to parent**		**3-year size- and book-to-market-adjusted BHARs to offspring**		**3-year industry- and size-adjusted BHARs to offspring**	
Intercept	-0.96	(-0.38)	1.11	(1.46)	1.21[b]	(1.72)
GLAM	2.74[c]	(1.66)	-0.94[a]	(-3.51)	-1.05[a]	(-3.53)
FOCUS	1.71	(1.31)	-0.04	(-0.13)	0.14	(0.42)
INFASYM	-50.89	(-0.72)	3.46	(0.29)	-3.35	(-0.28)
GROWTH	-0.17	(-0.80)				
ROA	-1.53	(-0.30)				
RELSIZ	7.84[b]	(1.99)	-0.33	(-0.60)	-1.11[c]	(-1.91)
ANTIDIR	0.44	(1.04)	-0.06	(-0.62)	-0.001	(-0.01)
HOTTIME	0.39	(0.30)	-0.19	(-0.43)	-0.40	(-0.95)
No. of Obs.	139		123		123	
Adjusted R^2	0.05		0.04		0.07	
F statistic	1.85		1.79		2.57	
Sig. level	0.07		0.11		0.03	

Table 12 (continued)

Panel B: Dependent variable is accounting returns

Variable	**3-year industry median- adjusted ROAs to offspring**		**3-year industry- and size- adjusted ROAs to offspring**	
Intercept	-0.03	(-0.54)	-0.09	(-1.53)
GLAM	-0.06[b]	(-2.13)	-0.02	(-0.81)
FOCUS	0.02	(0.46)	-0.02	(-0.48)
INFASYM	-3.45[b]	(-1.98)	0.22	(0.18)
RELSIZ	0.15[b]	(2.30)	0.14[c]	(1.95)
ANTIDIR	0.01	(1.25)	0.02[b]	(1.99)
HOTTIME	0.05	(1.26)	0.02	(0.77)
No. of Obs.	123		120	
Adjusted R^2	0.08		0.03	
F statistic	2.86		1.65	
Sig. level	0.01		0.14	

Appendix Classification of High-tech Spinoffs

To classify whether a non-high-tech parent spins off a high-tech offspring, we use three different classification approaches to identify the high-tech status of parent and subsidiary firm. First, we rely on the spinoff transaction details reported in SDC M&A database to classify spinoffs of a high-tech subsidiary. SDC sometimes reports the high-tech status of divested subsidiary and divesting parent. Earlier studies have used the SDC definition to classify high-tech acquisitions (e.g. Kohers and Kohers, 2001; Gao and Sudarsanam, 2005). When the offspring industry is classified as a high-tech industry while the parent industry is not according to the SDC definition of high-tech industry, we classify such spinoff as a high-tech spinoff.

Second, we use four-digit standard industry classification (SIC) codes to classify the high-tech subsidiary and non-high-tech parent. The classification scheme follows the high-tech industry classification approach of Kasznik and Lev (1995), with minor adjustments, in a study examining disclosure quality. They define communications industries as regulated industries rather than high-tech industries to examine the disclosure quality difference between regulated industries and non-regulated industries. As communications industries are classified as high-tech industries in SDC, we include the SIC codes of communications industries in the high-tech SIC code list. We collect SIC codes for subsidiary and parent firms from Worldscope and Thomson Research. The SIC codes for high-tech industries with a brief description are as follows:

Drugs: 2830-2836

Computers: 3570-3577

Electronics: 3600-3699

Communications: 4811-4899

Computer-related services: 7370-7379

Research and development: 8730-8734

When the offspring industry is classified as a high-tech industry while the parent industry is not according to the above high-tech SIC code list, we classify such a spinoff as a high-tech spinoff.

Third, we identify the high-tech status of parent and subsidiary firm based on the press reports of spinoff transaction. For each spinoff in our sample, we search the newspaper database, Factiva, to obtain news reports about the operational details of the parent and subsidiary firm. When the subsidiary is featured in the Press as one operating in the high-tech industry or in the internet-based business while the parent is not, we define such a spinoff as a high-tech spinoff where a non-high-tech parent is divesting a high-tech subsidiary. This approach has helped us identify some spinoffs of high-tech businesses which would be defined as spinoffs of non-high-tech businesses following the first two classification methods. For example, Culver Holdings PLC, a British insurance broker company, announced the spinoff of World Travel Holdings in December 1999. The former two classification approaches define World Travel Holdings as a non-high-tech travel agency firm. However, World Travel Holdings was actually a leading internet-based travel service firm in the UK. This feature was highlighted in the press reports about the spinoff. For example, the press quoted the comments of Chairman of Culver, Richard Read, on the spinoff as follows:

> "Our plans for the development and subsequent spin-off of worldtraveldirect.com are, we believe, another example of Culver seeking to generate value for our shareholders … We have assembled a strong Board to take the worldtraveldirect.com business forward and with the important acquisitions of US based travel portal, powerflyer.com, and IML, adding on-line access to one of the UK's largest databases of negotiated airfares, worldtraveldirect.com is very well placed in this exciting growth market." (‘CULVER: Announcement of finance raising and demerger’, M2 Presswire, December 29th, 1999)

Another example is the spinoff of CDB Web Tech Investments by an Italian real estate firm, AEDES, in 2000. Although CDB Web Tech Investments was classified as an investment holding firm using the former two approaches, it was actually focusing on the investments on the high-tech industry and such specialisation was also indicated in the news reports about the spinoff. The original statement of AEDES on this spinoff was quoted in the Press as follows:

> "The new company will make financial investments directly or through venture capital funds, private equity funds and technology hedge funds, in mainly American companies operating in the Internet, telecommunications and technology sector." ('Aedes spins off new high-tech investment unit', Reuters News, November 5th, 1999)

When the offspring industry is classified as a high-tech industry while the parent industry is not according to the press report, we classify such a spinoff as a high-tech spinoff.

The final list of high-tech spinoffs of our sample includes all high-tech spinoffs identified by any of these three classification approaches and is given below.

Table A1 The list of European high-tech spinoffs between January 1987 and December 2005

AnnDate	EffDate	Parent Firm	Subsidiary Firm	Nation
22-Nov-88	8-Dec-88	SALTIRE	AMSTRAD	UK
30-Jul-92	28-May-93	IMPERIAL CHM.INDS.	ASTRAZENECA	UK
16-Oct-95	24-Nov-95	BURFORD HDG.	CHORION	UK
14-Dec-95	14-May-96	HAFSLUND	NYCOMED	NW
29-Dec-95	14-May-96	KINNEVIK IND.	TELE2	SD
13-Mar-96	30-May-96	J&W	BFE BENIMA FERATOR ENGR.	SD
22-Mar-96	16-Apr-96	HEATH (CE)	REBUS GROUP	UK
22-Oct-97	18-May-98	GETINGE	LIFCO	SD
04-Jun-98	24-Jul-98	BTG	TOROTRAK	UK
01-Feb-99	1-Oct-99	ASPO GROUP	ASPOCOMP GROUP	FN
25-Feb-99	27-Oct-99	COLRUYT	DOLMEN COMPUTERS	BG
10-Aug-99	29-Oct-99	ALUSUISSE	LONZA GROUP	SW
01-Nov-99	11-Jan-00	UNIVERSE GROUP	RETAIL DECISIONS	UK
05-Nov-99	17-Mar-00	AEDES	CDB WEB TECH	IT
23-Dec-99	19-Sep-00	CULVER HOLDINGS	WORLD TRAVEL HOLDINGS	UK
05-Jan-00	30-Mar-00	IMS GROUP	TEAMTBLK MEDIA	UK
22-Feb-00	6-Apr-00	FISH	QUADRANET	UK
09-Mar-00	1-Nov-00	FINVEST	EQ HOLDING	FN
09-Mar-00	1-Nov-00	FINVEST	EVOX RIFA GROUP	FN
18-Apr-00	18-Aug-00	MODERN TIMES GP.MTG	METRO INTL.SDB	SD
01-Sep-00	13-Nov-00	BARCO NEW	BARCONET	BG
05-Oct-00	2-Apr-01	KYRO	TECNOMEN CORP.	FN
22-Nov-00	5-Feb-01	L GARDNER GP.	NOBLE INVESTMENTS (UK)	UK
24-Nov-00	11-Dec-00	PARK ROW GROUP	ILX GROUP	UK
04-Jan-01	25-Feb-02	PILAT TECH.INTL. (ISE)	PILAT MEDIA GLOBAL	UK
06-Feb-01	3-Sep-01	BERGMAN & BEVING	LAGERCRANTZ	SD
29-Oct-03	17-Mar-04	TOUCH GROUP	MONEYBOX	UK

Note: Countries are coded as follows: BG for Belgium, FN for Finland, IT for Italy, NW for Norway, SD for Sweden, SW for Switzerland, and UK for United Kingdom.