

Market Segmentation and Decoupling in the Financial Markets:

The Case of Two-Stage Stock-Financed Mergers

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Abstract

A two-stage stock-financed merger occurs when an acquiring firm first issues shares in the equity markets, and engages in a cash acquisition shortly afterward. Such deals are of special interest, because they offer an experiment to test two important hypotheses involving the interactions of corporate finance with the capital markets: the market segmentation hypothesis and the decoupling hypothesis. If security markets are segmented by investors' preferences, an acquiring firm's value is maximized by selling shares to those investors preferring to hold the shares, and use the newly raised cash to pay the target shareholders who may prefer cash payment (segmentation hypothesis). Two stage deals are value increasing, also because they facilitate stock acquisitions in the same industry by allowing the acquirer to decouple its own shares from the correlated target's shares by issuing at an earlier date and acquiring during lower industry valuation period (decoupling hypothesis). The paper further shows that the two-stage deals are useful also in separating the confounding effects associated with stock mergers: market response to stock as a means of payment (the financing decision), and market response to the perceived synergies (the investment decision).

JEL Classifications: G32; G34

Keywords: Mergers and acquisition; method of payment; SEO/IPO; market segmentation; decoupling; use of proceeds.

1. Introduction:

Of the cash-only mergers by publicly traded acquirers during the period January 1985 to July 2008, 15.3% may actually have been financed by stock issues in the preceding 12 months through SEOs or IPOs. Are these stock-financed mergers after all? When viewed as two-stage stock-financed mergers – stocks issued for cash, and cash used to finance acquisitions – how are they any different from the one-stage cash mergers?

This topic is of both theoretical and empirical interest. Stock-financed cash mergers call attention to the fact that, underlying many mergers, there are actually two separate but related decisions. The first is the financing decision (source of funds) and the second is the investment decision (use of funds). A study of these stock-financed cash acquisitions allows us to disentangle the confounding effects of these two decisions.

Of potentially greater theoretical significance is the notion of maximizing a firm's value by adapting to the characteristics of the capital markets. If the capital markets are segmented, (e.g., there are investors preferring to hold shares of one firm while others preferring to hold that of another firm, due to difference in dividend policy (see Baker and Wurgler, 2004), idiosyncratic risks, leverage, or even 'greenness', etc.), could the acquiring firms exploit this market characteristics? More specifically, an acquirer intending to use stocks for acquisition may perform this mental calculation: will it be better to offer stocks to target's shareholders who may not want our stock (or else they would have already owned them, and even if they do, they may not want more of them). Or, would it be better to issue stocks to those who want to hold it (and thus are willing to pay a higher price), and use the cash raised to pay the target's shareholders. In short, capital market characteristics such as

market segmentation could affect a firm's financing decision. Two part stock acquisition would provide just the sort of experiment to test the existence of segmented market for equity. We explore its testable implications in the rest of the paper.

To provide empirical content to the viability of two stage mergers, we conduct empirical tests to the question: is the market value gain to the acquirer in a two stage stock acquisition superior to that achieved in a single stage stock offer? This requires we reconstitute an equivalent 'pure play' simple cash mergers by combining the separate value gain to the acquirer at the time stocks are issued via secondary stock offering (SEO), or initial public offering (IPO), and value gain or loss when the offer to acquire is to be paid with cash proceeds from stocks issued earlier. We also predict the combined market response to both announcements - stock issue and acquisition, of a two-stage financed merger is greater than that of a single stage stock acquisition. Assuming market segmentation prevails for acquirer's and target's shares, we further predict that at stock issue, whether through SEO or IPO, the more specific the stated purpose of the use of funds, the more specific clientele the issue will attract, and the more favorable is the market response. We also propose that, consistent with market segmentation, market discount to the stock issuance announcement by the firm catering to the desired clientele is less than the market discount demanded by the non clientele to hold the same stocks.

In this paper, we introduce the principle of decoupling. Our motivation is in response to these challenges: 1) If many stock acquisitions are motivated by acquirers with overvalued shares acquiring targets with lesser or no overvaluation, how could an acquirer with overvalued shares do the same to

acquire same industry firms when all firms in the industry are likely to be similarly overvalued? 2) How could an acquirer make essentially a stock offer for a diversifying acquisition in periods when its share price is low? We start with the insight that a time shift allows prices of the same or similar assets to be decoupled.¹ The share price of an acquirer and its intended same industry target may be very highly correlated contemporaneously, however, the cross correlation between the acquirer's share price at one time, and that of its same industry target six months later is certainly to be greatly reduced if not disappeared. This suggests that the optimal financing and investment strategy to acquire same industry firms with stocks is to decouple the two transactions across time. We thus empirically test whether the number of two-stage stock acquisitions of same industry firms is greater than the number of single stage stock acquisitions. We also test whether some acquirers issue stocks in periods when industry valuation is higher, and make acquisitions when industry valuation is lower in a later period. Decoupling allows more stock acquisitions to be completed that would otherwise not be possible when acquirers experience low valuation like all firms in the same industry. We also test the proposition that decoupling enables the acquirers to make more diversifying acquisitions even in period when their share prices are low. As a consequence, there will be more diversifying acquisitions via two stage offers than the single stage offers, as some acquisitions could not have been possible with the single stage stock offers.

¹An example from future contracts can help clarify the point. The price of same asset or collection of assets as in a firm is defined by time. Assets to be delivered at different time are not the same asset trading at the same price; shares of a firm are not at the same price when not at the same time. They are no longer perfectly correlated, and nor will share price of an acquirer be highly correlated with its industry peers with a time shift.

In addition to introducing and testing the notions of market segmentation and decoupling in stock acquisitions, our paper also contribute to the methodological issue of unbundling the two confounding issues in stock acquisitions. The first issue is how much of the market response to the merger announcement is due to the market revaluation of the acquirer's share overvaluation and how much is due to the market's expectations of value created or destroyed from the merger? Two stage stock acquisitions provide answer to the first issue by isolating the revaluation of acquirer's stocks at the financing announcement with new stocks via SEO or IPO. The answer to the second issue could now be exclusively assigned to the market response at merger announcement.

By unbundling stock issues and acquisition offer across time, our two stage stock offer sample solves a second confounding problem in empirical methodology. Previously, inference on post acquisition long term returns could not distinguish whether the observed substantial negative returns is due to a normal eventual correction from overpricing, or from poor choice of target. Because our two stage sample separates the stock issuance (financing) from acquisition announcement (investment) into different time periods, the time lead in months allows market correction for overpricing, if any, to adjust. Thus, long term returns measured from stock acquisitions date could now be attributed to the quality and fit of the target chosen.

Our empirical results support both the market segmentation and the decoupling hypotheses. Consistent with the market segmentation hypotheses, we find the combined wealth effects to the shareholders of the acquiring firms in two stage stock financed cash acquisitions are statistically greater than that of stock financed acquisitions. When acquisition was the primary stated

purpose of the IPO/SEO issues, (i.e., the market segment of investors favoring use of proceeds to make acquisitions are specifically targeted), we find, in contrast to the significant negative announcement at -0.215% of the matching simple stock financed sample, the two stage sample report a positive but not significant 0.252% (0.312%) for non shelf (shelf) SEO, and positive and significant 22.806% for IPO samples. This result is robust with respect to the size of the acquiring firms. Market segmentation is further supported by the result of an empirical test that is based on valuation discount. Theories based on information asymmetry, such as pecking order, predict market will discount share prices when firms choose to issue equity. A refinement in the market segmentation hypothesis is to predict that such discount will be lesser (greater) when new equity are offered to those investors who want (do not want) to hold the shares. Since overpricing of acquirer shares are more severe in periods when their valuation are high, we can calculate relative market discounts by taking the difference in market discounts when equities were offered to different clienteles, willing investors versus not so willing target shareholders, at high versus low valuation periods for acquirers' shares. We find further support for the hypothesis. Relative market discount to the less favored clienteles (i.e., the shareholders of the target firms) is 8.04% (4.60%) versus -0.48% (0.36%) for the favored investors (investors in SEO), based on 2 digit (3 digit) SIC industries.

We present two empirical tests in support of the decoupling hypothesis. Decoupling allows the acquiring firm to separate the financing from the investment decision (acquisition) into different time periods. The first prediction is that for favorable decoupling, valuation of equity issues, which are to occur in periods when the acquiring firm's industry valuation is higher, is greater than the in the periods they made the acquisition offer. We find in 56.5% (vs. 43.5%) of the time or a statistically significant 13% difference, the median market to book value of the acquiring firm's industry at the quarter

IPO/SEO occur for two stage stock financed cash mergers exceeded the median industry market to book in the quarter acquisitions were made. The second prediction verifies an advantage of decoupling in allowing acquirers to essentially use stocks to acquire same industry firms in periods when the industry valuation is low. We find, of the same industry acquisitions, 8.85% of two stage acquisitions occurred in periods when the industry market to book was below its historical median, versus only 5.62% of single stage stock mergers.

From a methodological viewpoint, two stage stock financed mergers separates a confounding issue inherent in a single stage stock merger – whether the post acquisition decline in acquirer’s share price is the eventual market correction of the firm’s overvaluation at the time of the merger, or is it the result of acquirer making poor target choice. In our matching sample of simple cash (single stage stock) acquisitions, we find a market adjusted one year return of -0.58% (-8.19%), and market three year adjusted returns of -6.70% (-24.22%). However, for the two stage counterpart when IPO/ SEO occurred at least a few days but less than 12 months before mergers, we can separate the financing (IPO/SEO) event from the investment (acquisition) event (Two stage mergers separate the financing (IPO/SEO) event from the investment (acquisition) event by an average of 6.3 months.) We find the separate investment effect (i.e., the value gain or loss from target choice) is a one year market adjusted returns of -9.88% (-17.25%), and three year loss of -38.84% (-10.20%) for non shelf (shelf) SEOs financed acquisitions, when acquisition was the stated primary purpose for the issue proceeds. The corresponding market adjusted returns from IPO financed stocks for one and three years are -0.76% and -22.44%. The long term evidence, which is no longer confounded, suggests that acquirers made poor target choice, as they regarded the cash raised from overvalued equity as ‘cheap’ money. We further obtain a cleaner estimate of the quality of acquisitions using cash from previous equity issues

by including in the analysis only those firms that had experienced an actual stock market correction, i.e., negative cumulative returns between SEO/IPO and merger announcements. In this sample we still find negative long term returns, one year post merger adjusted returns of -16.21%, -12.67%, and +21.19%, and three years adjusted returns of -33.31%, +20.65%, and +94.63% for non-shelf SEO, shelf SEO, and IPO. The positive returns from IPO financed cash mergers are found to be mainly from non diversifying acquisition by these new firms, especially those declaring acquisition as the primary use of IPO funds. This result is consistent with that of Arikian and Stulz (2011) that younger firms make better acquisitions than those of SEO firms when financed with 'cheap' cash.

The rest of the paper is organized as follows. Section 2 formulates our hypothesis. Section 3 describes sample selection and descriptions. Section 4 gives the empirical results. Section 5 concludes our main findings. Appendix has a stylized model illustrating the market segmentation and the decoupling in the context of two-stage deals.

2. Hypothesis and Predictions

2.1 Acquirers' Short-Term Wealth Effect: Market Segmentation Theory

Market segmentation theory, showing a clientele preference for a particular type of security, has been applied to many financial fields². In the

²In international finance, for example, existing studies have interpreted the dramatic patterns in share values around cross-border listings as evidence of market segmentation due to direct or indirect investment barriers. To the extent that a higher risk premium is built into the expected returns of such stocks as compensation for these investment restrictions, the cross-border listings in the United States overcome these barriers and their stock prices adjust accordingly (see Forester and Karolyi, 1999). Additionally, restrictions on equity ownership — multiple classes of equity that differentiate between foreign and

two-stage financed merger setting, firms can issue shares to those who wish to hold their shares (i.e., the market segment that holds high expectations for their shares), instead of issuing to the shareholders of target firms as in single-stage stock mergers. The latter market segment may not be as receptive. They may not wish to hold acquirers' shares or else they would have already done so; and even if they had, some may have to rebalance their portfolios and sell acquirers' shares after mergers. Through such catering activities, two-stage acquirers will gain under the market segmentation theory because they issue stocks to the market segment wanting to buy their shares and use cash in the market segment of target shareholders who prefer this method of payment. We present a stylized theoretical model in the appendix. The following summarize our hypotheses:

H1: Under market segmentation, firms maximize value by unbundling and marketing to different clienteles who prefer different securities. In the case of mergers, unbundling stock merger offer into an earlier stock issue and subsequent cash offer is predicted to increase shareholders' wealth.

The more specific the stated purpose of SEO and IPO's use of funds is, the more likely the issue will cater to its desired market segment or clientele. In

domestic traders, and between domestic individuals and institutions — are common in many emerging markets.² Some studies (e.g., Bailey (1994); Bailey and Jagtiani (1994)) show that such investment barriers can induce segmentation in the sense that share prices for identical claims to cash flows and voting rights vary across investor groups.² As for corporate dividend policy, Baker and Wurgler (2004) outline and test a catering theory of dividends in aggregate U.S. data between 1963 and 2000. They find that firms initiate dividends when the shares of existing payers are trading at a premium to those of non-payers, and dividends are omitted when payers' prices are at a discount.)

the case of mergers, the firm will first market shares to those who want to hold acquirer's shares with the expressed purpose that it will be used for acquisitions. The firm can then simply negotiate with the target regarding the price without considering stock as a form of payment. Therefore, we hypothesize the following:

H2: Firms can realize better reception from the capital market when they issue securities that cater to a more specific segment.

Although both SEO and stock mergers could reveal the offering firm's overvaluation, we expect the market discount on SEO/IPO to willing holders of issuers' shares designated for future acquisitions (clientele) to be less than the implicit market discount by targets' shareholders (non clientele), as reflected in the merger premiums. If it is, the two-stage deals have a built-in advantage over stock financed mergers. So, our next hypothesis is:

H3: The stock price reaction to SEOs announcement (which is the discount or "price" to pay for issuing equity) should be lower in magnitude than the incremental premium stock acquirer pays to the target equity shareholders.

2.2 Decoupling Motive: It is Better to Issue Shares in High Valuation Periods and Acquire in Low Valuation Periods

The potential timing gains to acquirers of same industry firms offering stocks are limited due to the high correlation between the acquirers and same industry targets. Ideally, acquirers would prefer to use stocks as payment in high valuation periods for the industry, but to acquire same industry target when industry valuation is low³. That is, the best time to finance an

³An example is the POT (Potash Corporation of Saskatchewan Inc.) vs. MOS (The Mosaic Company). The daily stock price correlation between these two stocks during Jan2004 – Aug

acquisition and the best time to invest (make the acquisition) do not coincide. A solution is to decouple financing from the investment decision such that each decision could be conducted at the time when it is optimal to do so. This suggests a two step process: potential acquirers issue stocks for cash in period of high valuation for the industry, and use the cash to make acquisition in period of low valuation.

Note that conducting a two-stage M&A deal is not only optimal, but also consistent with exploiting the lead-lag relationship between the IPO, SEO, and MA waves. Empirical observations indicate that, typically, the aggregate equity issuance (IPO or SEO) waves lead the aggregate M&A wave by a few months/quarters (see Colak and Tekatli, 2010; and Rau and Stouraitis, 2010). Using a time series analysis (a VAR analysis) for each industry, for the quarters between 1985/1 through 2007/4, we verified that for the 8 out of 10 of the 1-digit SIC industries⁴, equity waves (either the IPO wave or the SEO wave) lead the M&A wave by 1 or 2 quarters.⁵ Results are available through

2010 (i.e., historic correlation) is very high, around +0.98. However, when POT share prices lead MOS by 3 months (i.e., POT to issue new shares in Jan 2010-Mar 2010 period and acquire MOS several months later in Apr 2010-Jun 2010 period), the correlation between these two time-shifted series drops to -0.18. Even though such a merger did not take place, the example illustrates that if POT wanted to do a two-stage merger with MOS, this would have been a way to do it. Note also that in this example, POT managers do not have to predict the future. All they have to do is issue equity during a period they think their stock price is overvalued and wait, say for the next few quarters, to find a period when MOS shares have declined in value substantially.

⁴ Performing similar tests for each of the 2- or 3-digit SICs is very cumbersome and unreliable. For substantial number of 2-digit industries many months/quarters have no observation, which makes the VAR tests not very reliable.

⁵ Following Colak and Tekatli (2011), we define a wave as the dollar volume per quarter: the sum of the proceeds or transaction values for all IPOs/MAs/SEOs during that quarter. The

the authors. Thus, this lead-lag empirical relationship between the equity issuances and the M&A waves is convenient for implementing a two-stage M&A strategy of the type analyzed in this study.

We propose the following testable hypotheses if the decoupling strategy was followed by a sufficient number of firms. We are aware that the power of the tests could be weakened by two considerations in practice. One, there could be substantial noise due to various other reasons explaining the timing of financing and investment (acquisition) decisions. And two, many firms may not yet understand the optimal solution involves the decoupling of the two decisions. With these concerns in mind, our hypotheses are:

H4: According to the decoupling motive for two stage stock financed cash mergers, the valuation of the acquiring firm's industry is predicted to be higher during the IPO/SEO date than during the M&A announcement date.

H5: Same industry, two-stage deals are more likely to happen when the involved firms' industry's market-to-book (MTB) is below historic median.

2.3 Two-Stage Deals as an Experiment: Disentangling the Confounding Effect of Overvalued Shares vs. Poor Choice of Target

The Miller and Modigliani (1958) theorem postulates that a firm's value is unaffected by how it is financed. In the real world, however, there are agency costs, asymmetric information, and market imperfections causing separation of corporate investment and financing decisions. In the vast literature on mergers and acquisitions, for example, simple stock deals usually result in

dollar values are converted to year 2000 dollars using the Consumer Price Index (CPI) data obtained from the Bureau of Labor Statistics.

significantly negative average announcement returns (see Travlos, 1987); Andrade, Mitchell and Stafford, 2001). One dominant explanation for this pattern is that stock financing creates an adverse selection effect similar to a seasoned equity offering.⁶ Consequently, equity issues are inferred as a revelation of overvaluation and hence considered bad news by the market.⁷

Another possible explanation for why simple stock mergers result in significantly negative announcement returns is due to poor acquisitions⁸. Jensen (2005), in his agency costs based explanation, suggests that managers who wish to maintain an overvalued stock price have an incentive to mislead the market by making acquisitions in order to create an appearance of having growth opportunity to fulfill what the market expects. When the market eventually finds out that the high value and growth is an illusion, the firm's value will fall sharply and the overvalued stock price will also be eliminated. Thus, high valuation increases managerial discretion, making it possible for managers to make poor acquisitions as they do not have good candidates.

According to the empirical literature, Moeller, Schlingemann, and Stulz (2005) claim that the evidence supports Jensen's (2005) argument and document that in the three-day period surrounding the announcements

⁶Myers (1984) proposes that stock price decline in response to announcements of equity issues reflects asymmetric information problems, which are severe for SEOs (see Asquith and Mullins, 1986; and Masulis and Korwar, 1986). Myers and Majluf (1984) hypothesize that managers will issue equity only when the firm is overvalued, and, therefore, equity issues will be a negative revelation to public investors about the private beliefs of the insiders.

⁷Shleifer and Vishny (2003) and Rhodes-Kropf and Vishwanatan (2004) created models that predict that managers use overvalued stocks as cheap currency for acquiring real assets. Based on Myers and Majluf's (1984) view, these models follow the belief that managers take advantage of temporarily overvalued stocks during market booms. On another note, Rhodes-Kropf, Robinson, and Vishwanathan (2005) show that cash acquirers are less overvalued than stock acquirers, hence supporting the view that mispriced premiums are an important motive for choosing equity as a means of payment.

⁸Shleifer and Vishny's (2003) market timing model of acquisitions suggests that acquirers are overvalued; their motive for acquisitions is not to gain synergies, but to safeguard some of their temporary overvaluation for long-run shareholders.

during the period from 1998 to 2001, acquirers' aggregate dollar loss was excessively large due to a small number of acquisition announcements by firms with extremely high valuation.⁹They argue that an important component of the market's reaction to the announcement is a reassessment of the stand-alone value of the acquirer. They also find that acquirers who announce acquisitions with large dollar losses perform poorly afterwards. In addition, Dong, Hirshleifer, Richardson and Teoh (2006), Ang and Cheng (2006) show that high valuation firms are more likely to make acquisitions and exhibit abnormally low returns. Following this line of reasoning, negative price reaction in stock merger announcements is the result of two confounding signals: overvaluation and poor acquisition. However, in such single-stage stock deals these two effects could not be separated.

On the other hand, two-stage stock-financed mergers present a unique setting that allow us to disentangle the confounding effect of the overvalued stocks and the valuation effect of the target on the acquirer. In a two-stage stock financed merger, market response at announcement is no longer confounded as there is the earlier market response to stock issuance and the later simple market response to a cash offer announcement. Thus, we predict the following:

H6: Market response to a merger announcement of a two-stage stock financed merger is more similar to that of a cash offer than that of a stock offer.

Although we predict that they are similar at announcement, management's agency costs of overvalued equity could be present in a two-stage stock-financed merger. As previously alluded to, two-stage stock-financed

⁹Unlike Moeller et al. (2005), we can identify long-run performance as reflecting target firm's quality and acquisition synergies that are not captured by the announcement period return.

acquisitions can yield lower long-run returns if acquirers make bad choices in their targets (the cheap money effect). Therefore, we hypothesize the following:

H7: Two-stage stock-financed cash acquisitions yield inferior long-run returns than those of similar cash-offer acquisitions.

3. Data, Sample Construction and Descriptions

The sample is constructed from the Mergers and Acquisitions Database and New Issue Database of the Securities Data Corporation (SDC) and contains acquirers from the period of January 1985 to July 2008. We start from 1985 because SDC does not provide complete uses of proceeds prior to 1985. Each deal in the sample satisfies the following requirements: (1) the transaction is completed and categorized by the SDC as a majority M&A transaction; (2) both parties in the transaction are independent corporations; (3) acquirer and target are both U.S. companies; (4) acquirer must have ordinary shares listed on the NYSE, AMEX, or Nasdaq, and must exist in the CRSP database; (5) in order to control the means of payment, only simple stock mergers, simple cash mergers, and stock-financed cash mergers that offered IPOs/SEOs in the 12 months preceding their announcement dates are included in the sample; (6) in order to estimate systematic risk, the trading days for an acquirer are at least 70 days prior to the merger announcement date; (7) daily security returns and the equally-weighted CRSP index are obtained from CRSP.

We collect two-stage financing samples (i.e., stock-financed cash mergers) using both forward and backward approaches; we identify SEO/IPO, and check to see if these firms conducted cash acquisitions in the next 12 months, and alternatively, by identify cash mergers and then check to see if the

acquiring companies have done any external stock financing (IPO/SEO) in the 12 months preceding their announcement dates. To provide benchmarks to the calculated gains to the two stage stock-financed cash mergers, two one to one matching samples – one with simple stock mergers and the other with simple cash mergers – are collected using two matching criteria: mergers' announcement dates and relative sizes. Relative size refers to the ratio of merger transaction value over the sum of the merger transaction value plus the acquirer's market capitalization. The acquiring firms' market capitalization 30 days prior to the initial merger announcement – obtained from CRSP – is used to measure the acquirers' market capitalization.

Table 1 describes the sample. Panel A gives sample descriptions of stock-financed cash mergers. The number of firms in the sample, which matches the sample selection criteria, is 1,492. Average transaction value (\$101.301 million) is less than the average financing amount (\$122.499 million). This means the acquirers were, on average, fully funded to finance the mergers. In fact, of the mergers in the samples, 1,132 (75.87%) could have been fully funded by the share issues. Panel B gives the matching simple stock merger sample that satisfies the two matching criteria: mergers' announcement date is within 30 days before or after the announcement date and relative size is within +/-10% of their the stock-financed cash merger counterpart. The average number of days between these two mergers' announcement dates (diff1) is 15.049 days, and the average difference between these two mergers' relative size (diff2) is only 0.811%. Thus, we are assured that the simple stock payment matching firms indeed provide close match to the two stage stock financed cash mergers. Panel C gives the second matching sample – that of simple cash mergers that satisfy the same matching criteria. The sample also

reports good matching properties: the average difference in the number of days is 15.526, and average difference in relative size is 0.419%.

Table 2 specifically analyzes the stated use of the proceeds: Panel A focuses on IPO-financed cash mergers; Panels B and C list SEO-financed cash mergers, non-shelf and shelf, respectively. The classification system is as follows: Classification1 is the narrowest in scope in that it includes only cases where acquisition is indicated as the primary purpose in the prospectus when issuing IPOs/SEOs. Classification2 includes cases in which acquisition is indicated as either the primary or secondary purpose. Classification3 lists cases that fit the criteria for Classification2 *and* indicate general purpose/no specific purpose in their prospectuses. Classification4 indicates that funds would be used to increase assets, not to reduce liabilities. Classification 5 indicates that funds would be used for other purposes, not related to M&A. That is, Classification5 refers to all issues not classified above. All Samples classification is the broadest in that it includes *all* stated intended use of funds at IPO/SEO. All Samples is the broadest in that it includes *all* stated intended use of funds at IPO/SEO. That is, it includes all the aforementioned criteria; and additionally, it indicates that funds would be used for other purposes, not related to M&A.

What Table 2 shows is that shelf SEO-financed cash mergers have higher average proceeds and acquisition amounts compared to non-shelf SEO and IPO-financed cash mergers. This result is simply due to the fact that, according to SEC regulations, only firms with large market values can use shelf registration. Examining the figures after dividing them into Classifications 1-5, we observe, in general, the funds raised in SEO/IPO roughly correspond to the size of targets identified for acquisitions,

reinforcing the connection between the earlier financing rounds, and subsequent acquisitions¹⁰.

4. Empirical Results

In this section we present our results from the tests developed to verify our hypotheses. First, we present the results associated with abnormal returns around the relevant event dates (IPO/SEO date and M&A date), using standard event study method. Then, we move on to test our market segmentation hypotheses and our decoupling hypotheses, both of which are designed to explain the motives behind the two-stage deals.

4.1 Event Study Results

The standard for evaluating acquirer returns involves estimating abnormal percentage returns with standard event study methods (see Brown and Warner, 1985). Average abnormal returns (ARs) are estimated on a percentage basis using the market model around the event day, which is either the merger announcement, SEO filing date, or IPO issue date.¹¹The parameters for the market model are estimated over the (-180,-11) period. Samples are disregarded if the observations are less than 60 days in the estimation period. The market return is the daily return on an equal-weighted market portfolio of the NYSE, Amex, and NASDAQ stocks.

¹⁰Except for the Classification1 row in Panel B, Panels A and B– IPO-financed cash mergers and non-shelf SEO-financed cash mergers – show that the proceed from financing is on average greater than the acquisition amount. In Panel C, however, the SEO average proceeds are smaller than the acquisition amount, except under Classification1 and Classification 5. In Panel C Classification1, although the acquirers were, on average, fully capable of financing mergers, but the number of fully funded acquisitions is only 18 out of 28.

¹¹Previous studies of SEOs have treated filing dates as announcement dates (e.g., Jegadeesh, Weinstein, and Welch, 1993; Denis, 1994; and Datta, Iskandar-Datta, and Raman, 2005).

4.1.1 Preliminary Results

Figure 1 shows the M&A's CARs for simple cash mergers, simple stock mergers, and stock-financed cash mergers. As established in previous studies, cash mergers, in general, yield higher CARs than stock mergers around announcement dates. When focusing on the time around merger announcements or the event window after merger announcements, we find stock financed cash mergers are initially perceived as simple cash mergers with a similar increase in abnormal return immediately after announcement. However, the subsequent decline also parallels that of simple stock mergers, thus, raise the intriguing possibility that some investors may soon come to the realization that the source of cash comes from the stock issues from an immediate earlier period.

We take a closer look at the origin of stock issuance, whether it derives from IPO or SEO. In theory, there is no a priori reason to expect new firms or seasoned firms to have advantage in organizing for external growth, in identifying acquisition targets, or in managing merged companies. IPO firms are expected to raise cash for internal growth for investments in R&D, and market development. Both may accumulate free cash flows as many issuers could not digest the relatively large sum raised, especially when the motive behind the share issue is to take advantage of high valuation, and not having immediately profitable opportunity to fund. However, since IPO firms tend to be younger and from newer industries, they are more likely to need complementary businesses (in product lines, resources, technical expertise, etc.,) than the older, more established SEO firms. That is, the younger IPO

firms may be expected to make more sensible acquisitions (Arikan and Stulz, 2011).

Figure 2 confirms this conjecture; the CAR pattern for IPO-financed cash mergers is about 2-3% greater than that of SEO-financed cash mergers at the event window. Thus, the good performance of stock financed cash mergers is mainly due to the sample of IPO financed cash mergers.

4.2 Results From Market Segmentation Hypothesis Tests

As explained above, exploiting market segmentation motive could be one of the primary drivers behind the two-stage deals. Thus, we develop several testing procedures to verify the hypotheses H1, H2, and H3, which are either directly or indirectly related to the market segmentation motive.

4.2.1 Acquirers' Short-Term Wealth Effect

We propose that issuing firms, under market segmentation of the equity market by corporate strategy, would identify the market they intended to cater. That is, they would attract the desired clientele by advertising their intended use of funds. A finding of more favorable market reception to the new equity issue (IPO or SEO) the more specific is the clientele is consistent with the prediction of the market segmentation hypothesis. Thus, we classify the issuers stated intended use of funds at IPO/SEO into five categories, from the most precise Classification 1 (acquisition is explicitly stated as the primary purpose in the offering prospectus) to the coarser general purpose in Classification 4, and no stated M&A purpose in Classification 5.

Table 3 gives the acquirers' event-study short-term returns¹² by the details of information disclosed as to the use of funds.¹³ Panel A reports stock-financed cash mergers and two matching samples – simple cash mergers and simple stock mergers– and calculates these individual groups' cumulated 3-day abnormal stock returns(-1, 0, +1). The results show that simple cash mergers and stock-financed cash mergers have almost the same 3-day CAR (1.007% and 1.099%, respectively). However, CAR is a negative -0.215% for simple stock mergers.

We further divide the sample into means of share issuance, and recalculate CAR by collapsing the two stages into a single stage, i.e., make it equivalent to a 'pure play' simple stock merger. Panel B gives the adjusted CAR for IPO-financed cash acquirers – M&A's CAR plus its IPO issue date's AR. Consistent with the prediction of the market segmentation hypothesis, we find IPO issue type that would attract the most specific clientele (Classification1) receive the most favorable receptions in the equity market. The AR at IPO (first stage) of Classification1 (acquisition is stated as the primary use of funds), 19.609%, is higher than any classification and Classification 5 (no stated M&A purpose) is the lowest at 13.344%. The second stage CARs at merger announcement again show Classification 1 to have the highest value at 3.197%, and Classification5 to have the lowest at 1.915%. Combining these two events together to form a single stock financed mergers; we find Classification1's combined CAR of 22.806% versus 15.258% for that of

¹²Panel B, C, and D in this table all indicate the adjusted CAR for stock-financed cash acquirers using identical classification criteria as outlined above in Table 2.

¹³ In untabulated results, we find that the findings in this table are robust to using simple market returns ($R_i - R_m$) in which equal-weighted and value-weighted portfolio of the NYSE, Amex, and Nasdaq stocks are both employed as a proxy for market portfolio (R_m), respectively.

Classification5, a 7.5% significant difference. In general, there is a monotonic relationship that increases with the specificity of the clientele.

Panel C presents the adjusted CAR for non-shelf SEO-financed cash acquirers –M&A’s CAR plus its non-shelf SEO filing date’s CAR. As previous studies have shown (see Asquith and Mullins, 1986), the CAR around the SEO filing date is significantly negative. However, the figure for Classification1 is less negative than those of the other classifications. Moreover, the CAR of Classification1 around the time of the acquisition announcement is 2.011%, which is much higher when compared to those of other classifications(Classifications2, 3 and 4 are 0.448%, 0.271% and 0.287%, respectively). At merger announcement, the adjusted CAR for Classification1 is the only category with a positive value 0.252%, albeit insignificant. Nevertheless, it is significantly greater than the minus 2% CARs in the other four classifications.

Panel D reports the two stage CARs for shelf SEO. The results are very similar to Panel C; Classification 1 is again the only issue type with positive combined CARs. In fact, Classification 1 consistently receives the highest CARs for merger announcements under all issuance methods. The result is consistent with the acquisition preferring clientele expressing approval to acquirers having fulfilled their expectations.¹⁴

¹⁴ We performed a robustness tests regarding the results in this subsection. It intends to address issues like “If issuing new equity indeed created an option, then you could not just look at the cases this option was exercised, you also need to look at SEOs/IPOs that did not immediately got involved in a merger. Otherwise, you are dealing with a sample selection bias or a look-back bias.” We have collected the data for all the IPOs/SEOs that did not exercise their option to engage in merger during the same period as our sample (about 11,270 [=3959+1515+5796; see Table A1 in the Appendix]). We have divided this sample into the same subsamples as in Tables 2&3 (IPO, non-shelf SEO, classification1, classification2, etc.). We have calculated the 3-day abnormal returns around the announcement date and the one to three years buy-and-hold returns after the issuance date. These returns are similar in

The results thus far provide support for market segmentation in the equity market by their expressed corporate strategy. The more specific the expressed corporate strategy is, the more likely the share issue would attract the intended clientele. We demonstrated that IPO/SEO that are most specific about the intended use of funds (with acquisition as the corporate policy) have the most favorable market reception at issue date due to a good matching of firm and clientele. They also have the most favorable reception to merger announcement due to firms fulfilling the expectation that the funds will be used for acquisitions.

Next, we perform another robustness test. We have shown above that the market's more favorable reaction to the two-stage cash mergers is due to the ability to market the issued new shares to the desired clientele (i.e., due to the ability of the acquiring company to segment the investors who are willing equity buyers and the investors who are more inclined to accept a merger deal if paid in cash). However, could it be that the more favorable response to specific use of funds be due to substantial reduction in asymmetric information?

To conduct a robustness test associated with this claim, we have calculated the idiosyncratic risks of our two-stage merger firms from the Fama-French-Carhart four-factor model.¹⁵ More specifically, we calculate the idiosyncratic risk of each SEO-financed-two-stage-acquiring firm using daily returns data for two periods: three months (or 63 trading days) before the SEO filing) and

sign and significance to the returns reported in Table 3 and Table 8. Thus, based on these results, there is no reason to believe that our 2-stage sample is more biased than the sample of equity issuances that did not exercise their merger option. The results are available upon request through the authors.

¹⁵ The construction of these factors is discussed in detail in Carhart (1997) and Fama and French (1993).

for the three months (or 63 trading days) after the SEO filing. The results show that for Classification1 and Classification2 firms the idiosyncratic risk does not decline significantly, and there is some decline for the rest of the SEO financed two-stage acquirers. If the reduction in asymmetric information is the main cause of the more favorable market reaction to the merger announcement, then we should see the decline in the idiosyncratic risk to be the largest for the most information revealing two-stage merger announcements, which are in Classifications 1 and 2. The fact that we do not see the expected pattern (the most reduction in asymmetric information in Classification 1 and the least in Classification 4) suggests that we can rule out the reduction of idiosyncratic risk as the main driver of the favorable market reaction to two-stage deals.

4.2.1 Relative Market Discounts

The second part of testing the market segmentation hypothesis addresses the question: "In period when industry valuation is high, will a firm fare better with a single stock merger offer, or issue stocks to one clientele and use the cash raised to pay target shareholders who may not value acquirer's shares as much?". This empirical test is equivalent to a comparison of what firms would pay in incremental premium when using stocks in a single stage merger, versus what market discount to pay in order to issue SEO in the same high valuation market. Bearing in mind that market may discount more heavily when IPO/SEO are issued in hot versus cold market, and also market may demand greater merger premium in hot versus cold market, we construct measures of relative discount in these two market regimes; one for SEO and another for mergers.

Using the data available in SDC database for all SEOs during our sampling period, we calculate each issuing firm's *Relative SEO Discount* as the market's reaction to SEO announcement when industry valuation is high minus announcement response to SEO when industry valuation is low. Rights offerings and Shelf (415) offerings are excluded from our SEOs sample. After matching our SDC sample with CRSP files to retrieve daily stock prices, we end up with 5,047 unique SEOs. Of those 4,976 SEOs have CARs for the three-day window around the event date, [-3,+3].¹⁶

We measure *Relative Merger Discount* as the average merger premium in stock deals when industry valuation is high minus average merger premium when industry valuation is low.¹⁷ The premium is the offer price to target's share price one day before the announcement date. To obtain an average value for this measure across all the merging firms, we retrieved all the stock-financed M&A deals from the SDC data files between 1985 and 2008. We find 7,255 such pure stock deals, of which 1,704 have information about premium paid.

To determine the high-low valuation conditions for the firms' industries, we rely on quarterly market-to-books (MTBs) of the firms in each industry.¹⁸ We use the data obtained from COMPUSTAT and CRSP data going back to 1984. We use 3-digit or 2-digit SICs for the industry classifications. We define high-low valuation industry quarters by comparing the mean current MTB of

¹⁶ We use filing date item from SDC as the event date.

¹⁷ We use the industry of the acquirer when assessing the industry of the merger.

¹⁸ We use quarterly data, because quarterly MTB ratios are more readily available through COMPUSTAT rather than, say, monthly MTBs.

industry to its four-quarter moving average (MA(4)).¹⁹ If it is higher (lower), then it is a high (low) valuation quarter.

Additional support for market segmentation of equity market by corporate strategy is provided if Relative M&A discount premium (timing cost of stock offer merger) is greater than Relative SEO discounts (timing cost for two stage stock issue and cash merger). In that case, two stage, stock issue and cash offer, is more advantageous in support of the market segmentation hypothesis.²⁰

Table 4 presents our estimates of relative SEO and M&A discounts for the 1985 and 2008 periods. Consistent with the M&A literature, we find that the mean M&A premium during high valuation markets is around 36.86% (for 3-digit SICs), which is about 4.6% higher than the premium during low valuations; this value is our measure of relative M&A discount. Similarly, we calculate the relative SEO discount to be only 0.11%, when measured as the CAR between the day before and the day after the announcement day (using [-1,+1] is commonly accepted measure of the market reaction to SEO announcement). Clearly, the relative M&A discount (for stock acquisitions) is significantly larger (at 5%-significance level) than the relative SEO discount, which supports the market segmentation rationale for two-stage M&A deals.

4.3 Tests on Decoupling Motive for Two-Stage Mergers

The decoupling rationale for mergers suggests separating financing and investments across time. Thus, the time shift between the two actions

¹⁹ Four quarter moving average is necessary to eliminate any possible seasonality effects in the valuations of various industries.

²⁰ This is a difference-in-difference comparison, because we do not have any basis for absolute SEO or M&A discount, except in relative terms.

transforms two highly positively correlated times series (share prices of acquirers and their same industry targets; price of fund raising and price of merger with stocks by the same firm) into much lower, if not negative, correlation. Specifically, decoupling these two actions over time allows the acquiring firm to issue equity during high valuation periods, and use the cash to purchase a target firm from the same industry, when the industry is in low valuation period. Our hypothesis H4, tests this prediction.

More specifically, if decoupling between merger financing via SEO/IPO (first stage) and merger, especially with a same industry target (second stage) is to occur at different times, the market valuation of the acquirer's industry is predicted to be greater in the financing stage than in the acquisition stage. We use the median Market-to-Book (MTB) ratio of the acquiring firm's industry as measure of valuation. Thus, industry MTB at SEO /IPO quarter should be greater than industry MTB at merger's quarter for successful decoupling. However, we realize the power of H4 is not strong, as decoupling could just be one of the many reasons explaining the timing for SEO/IPO and mergers. Thus, at best, we may detect some firms following the decoupling strategy at the margin.

To obtain the data for our tests, we merge CRSP monthly and quarterly COMPUSTAT data using CRSP's calendar year-quarter and COMPUSTAT's year-quarter during the sample period of our study (see the data section). When merging the above combined CRSP-COMPUSTAT data with our two-stage sample, we use cash announcement date to find the year-quarter of the merger. Our measure of industry's valuation is median quarterly Market-to-Book ratio of the firms in the same 2-digit, or alternatively, 3-digit SIC code

industries. Quarterly data is necessary, because we need COMPUSTAT's data for book value of equity.

The results are presented in Table 5. In Panel A, we present the results for the entire sample (using the SIC of the acquirer), our findings indicate that in 56.5% (vs. 43.5%, a difference of 13%) of the time, the equity issuance quarter of the two-stage mergers has higher equity valuation than the same firm's corresponding merger quarter, supporting decoupling at the margin. We further divide the sample into same or different industry mergers, and also obtain positive 11.20% (14.2%) difference for the same (different)-industry deals.

We devise a second empirical test to verify whether decoupling allows potential acquirers more flexibility in timing the acquisitions. In H5, we utilize the empirical fact that acquirers prefer (not prefer) to use stocks when their industry valuations are high (low), and investigate whether the frequency of acquisitions in low industry valuation period increases under two stage mergers.

To test this hypothesis we implement the following testing procedure. We separate the sample into same- and different-industry merger classifications using 2- or 3-digit SICs. We retrieved industry Book-to-Market (B/M) data from Kenneth French's Web site. We chose 38 industry portfolios' value-weighted averages of B/M because most of the industry classifications are based on 2-digit SICs (23 out of 38). When choosing which specific industry grouping within the 38 industry portfolios the acquirer falls into, we use the acquirer's 4-digit SIC that matches that industry's coded number range. The industry portfolio's sample period covers BE/ME data, following French's Web site's standard definition, from 1926 to 2009 for a total of 84 annual

observations. The “historical period” is considered to be the time span from 1926 to the year of the M&A. In cases where data is not available within the historical period, we delete these years’ data. Thus, the B/M’s historical median (mean) of the industry is taking the median (mean) from that same time series data.

The results are presented in Table 5, Panel B. We find evidence that supports the flexibility option to firms adopting the decoupling, two-stage strategy. Under the two-stage, we find acquirers significantly increase the frequency of acquiring same 2-digit SIC industry target to 8.85% from 5.62% for single stage stock mergers. A closer examination shows that the benefit of decoupling is mainly to enable acquisition of same industry targets in low industry valuation period, but not to acquire different industry firms in the same period.²¹ We find similar results when using the 3 digit industry classification; same industry acquisitions increase from 5.57% for single stage to 7.99% in two-stage. This flexibility not only allows the acquirers to use own overvalued shares to acquire overvalued same industry targets in high industry valuation period, but also to acquire undervalued target in low industry valuation period using its own overvalued shares issued in high

²¹ Related to this statement, we took a finer look at different industries (at 2-digit level) two-stage acquisitions. We find that an important determinant of whether or not a two-stage merger between different industry firms will take place is the degree of correlation between the daily stock prices of the firms within one year of the M&A announcement. If this correlation is high, it is more optimal for the acquirer to engage in a two-stage acquisition. In a related test we check for what percentage of the two-stage, different industry mergers, the correlation coefficient is greater than certain level, say greater than 0.20 (or alternatively we checked for greater than 0.30 or 0.40, results are qualitatively similar). We find that more than 60% of the different-industry, two-stage mergers have higher than 0.20 correlation coefficients between their daily stock prices. In comparison, among all the cash-only mergers obtained from SDC during our sampling period, only 53% have such high correlation coefficients. These results suggests that, as long as the contemporaneous correlations between the stock prices of merging firms is high (regardless of whether the merger is among the same industry or different industries firms), it is optimal to engage in equity financed cash mergers.

industry valuation period. Our results support the option value of decoupling.

4.4 Confounding Effect: Overvalued Shares vs. Poor Targets

As previously discussed, many researchers have found that post-acquisition returns are lower for stock-financed acquisitions than for cash-financed acquisitions. However, it is not clear whether the reason for the poor performance of stock-financed acquisitions is due to the eventual correction of the acquirers' overvalued shares or from acquirer's poor choice of targets. Two stage mergers could provide a solution to unravel this confounding problem, because the data to test these two potential explanations are now separated by time over several months. In the first stage, acquirers may or may not issue overvalued shares, which may be corrected over the intervening period between SEO/IPO and merger announcement, thus, separating the overvaluation issue. The question of the quality of target choice may then be examined from the post merger longer term return, which is not possible under a single stage stock merger.

We calculate 3- year return for two stage mergers using buy and hold market adjusted returns, versus those of single stage cash or stock mergers, in a difference-in-difference comparison. Table 6 gives the 3-months, 1-year, and 3-year returns after the announcement. We find that the long-term merger results are mostly negative. Given that these returns may not be confounded with price correction from overvaluation, we can infer that acquirers make poor target choice. Advertising a corporate acquisition strategy to attract likeminded clientele does not guarantee the acquirers have the expertise in finding and managing acquisitions. On a difference-in-difference comparison,

we find that these stock financed cash acquirers do worse than simple cash acquirers. They could possibly suffer from a ‘cheap money’ fallacy – i.e., be less careful with their money if they regard cash raised from overvalued shares as easy money. Consistent with having the confounded effects of overvalued equity and poor target choice, we find simple stock mergers have the lowest long term returns compare to various two stage samples.

In another related analysis, we investigate whether the two-stage firms overpay for the target above and beyond the other firms’ overpayment. Such an analysis will help us disentangle the two compounding effects: bad choice for the target or the target was good, but the acquirer overpaid. For this purpose we calculate the premium paid for the target as the difference between the price paid for the acquisition and the target’s price 1 day before announcement.²² Using the M&A data from SDC, we find 29,828 M&A events between 1980 and 2009. After cleaning up for repeating or erroneous observations, we are left with 29,670 observations. Out of those, only 6,200 M&A events have premium measurable as described above. Using these events, for each quarter in our sampling period we calculate the mean/median premium. This is a measure of the typical premium prevalent during that particular time.

We also calculate the premium for our 2-stage mergers. Only 144 of them have premium data. We compare each 2-stage firm’s premium to the corresponding mean/median premium for the quarter the event takes place. We find that 40% (60%) of our 2-stage acquirers overpay (underpay). When

²² If the price 1 day before announcement is missing, we use the price 2 days before, and if that one is missing as well, we use the first available price for 3 days to 7 days before. If neither of those days is available, we use the price 2 weeks before, and if that is not available we use 4 weeks before. If none of these alternative dates provide an observable market price, we assume that the premium is non-measurable.

we look into subsample results (classification 1, shelf-SEOs, non-shelf SEOs, and recent IPOs), we find that only 18% of shelf-SEOs overpay, but 49% of non-shelf SEOs overpay. Similarly, two-thirds of the classification 1 firms do not overpay (67% underpay). Nearly half of the 2-stage firms that were recent IPOs end up overpaying (47% overpay). These results indicate that the incidences of overpayment of the target firm are reduced by conducting 2-stage M&A deals.

4.5 Further analysis

We conduct several additional analyses. To provide a cleaner sample of overvalued shares issued in the first stage SEO/IPO, we keep only those firms that have experienced share price decline since SEO/IPO up to one week before merger announcements, i.e., price correction from an earlier share overvaluation. The price increase group provides a reference for comparison. *Table 8* presents the longer term returns for these two samples, where the price decline sample is the clean sample to test for the quality of targets acquired. In Panel A shows, from the date the stock was issued to one week prior to the merger announcements, positive market-adjusted returns. This explains why, on average, the overvaluation effect still could not be fully accounted for during this time, which is especially true for non-shelf SEO-financed and IPO-financed cash mergers. Thus, during this period, we divide stock-financed cash merger samples into those with positive versus negative returns so that we can concentrate on acquirers who have experienced a price decline before the merger announcements.

When we concentrate on the longer term returns of the two stage merger cases with negative pre-merger return where overvalued equity shares have

already adjusted, leaving post merger long term effect to derive mainly from target selection, we find mixed results. Pure merger effects after 3 years for various means of issuance and degree of specificity of disclosed use of funds (and thus, the corresponding clienteles) are mostly negative. This is not surprising given that benefits accrued to most mergers are often less than expected. However, there are two notable exceptions, both are Classification 1 acquisitions financed from IPO and Shelf SEO. This implies that not only these issuing firms attract the desired clienteles to allow them to make acquisitions subsequent to IPO/SEO issuance, but that these clienteles are also correct in assessing the soundness of these firms' acquisition strategy. To complete the analysis, we also report the long term returns for those SEO/IPO that have not had the time to experience price correction before making acquisitions: the ones with positive adjusted returns after SEO/IPO but before merger announcement. As expected, these firms report large negative 3 years returns, a result of confounding price correction and poor target choice.

We also investigate whether the greater announcement CARs of Classification 1 SEO/IPO is due to a size effect and not to the specificity of fund use that attracted the desired clienteles.²³ When we examine different classifications under given stock-financing sources in detail, we find no relation between the CAR and firm size as measured by acquirers' market capitalization. (see Table 9). On the other hand, we find part of the gains to Classification 1 acquirers occur because they do not overpay for the targets. We report in Table 10 that, for all two stage mergers, 60% (vs. 40%) of the

²³The size effect is due to Moeller, Schlingemann, and Stulz (2004) who show that when announcing acquisitions, small firms yield significantly larger returns than those of large firms, with the exception of using equity as means of payment. Along these same lines, large firms show significant losses, regardless of financing method, when they announce acquisitions of public firms.

acquirers pay less (more) than the median premium by all mergers in the same quarter or year. The percentage of two stage Classification 1 mergers paying below contemporary median premium increases to 67%. Classification 1 acquirers have shown to have greater skills in timing, and bargaining, consistent with their understanding of market segmentation and decoupling.

We also investigate the question of whether acquirers make good acquisitions by comparing with the samples of SEO (shelf and non shelf) that issue new shares but do not use the funds for acquisitions. We find mixed results; IPO firms that acquire perform better than those that do not. This is particularly true for Classification 1 issuers. However, SEO issuers are better off not using the funds for acquisition, which is consistent with Jensen's idea.

In the Appendix B, we report some more robustness tests' results.

6. Conclusion

In this study, we separate firms' financing and investment decisions during stock mergers via the two-stage stock-financed merger sample. This sample offers an experiment to test the catering-related market segmentation hypothesis and to investigate financing-related long-run investment performance. We find evidence to support market segmentation. Funds generated from IPO and SEO that specify acquisitions as their intended use seem to attract the desired clientele as reflected in better market receptions at issue. The combined valuation effect of two-stage stock acquisitions dominates the valuation effect of single stage stock-offer acquisitions. The result may be interpreted as supporting the catering hypothesis in which some SEO/IPO specifically target investors preferring these firms' aggressive acquisition strategy. However, the empirical evidence points to a more nuanced picture. Instead of a reversal in share prices as in demand induced

catering or fads, we find acquiring firms fare the best (three years after the event) when they specifically advertise acquisitions as the primary use of SEO/IPO funds. Thus, the acquisition minded clientele subscribe to the SEO/IPO not just because they prefer firms pursuing an acquisition strategy, but also because they correctly identified the firms where acquisition is their best policy.

To the best of our knowledge, this is the first empirical study that investigates whether significant market segmentation exists in the financial markets in general, and the M&A market in particular. There are two related papers that discuss stock-financed cash mergers. Schlingemann (2004) examines cash-paid mergers, focusing on the ex ante ability of an acquirer to finance an M&A with equity, cash, or debt. He suggests that takeover announcements resolve only part of the uncertainty surrounding a firm's motivation and decision to issue equity. Martynova and Renneboog (2008) retrieve the actual financing of the transaction from a unique database while simultaneously investigating the sources of financing along with the means of payment in European corporate takeovers. They demonstrate that equity financing in cash-paid mergers is caused by the acquirer's stock price run-up preceding acquisition announcements and the substantial size of the bidding firm. These two studies, however, did not take into account of the stock price reaction at the equity issue date when valuing acquisitions, in the computation to measure the total shareholder wealth effect with respect to these acquisitions, and to condition on the declared use of proceeds.

We also find evidence in support of decoupling, where firm value is maximized when financing and investment decisions are separated over time to reduce their correlations in the capital markets. Through decoupling, we find some firms are able to increase their probability to acquire same industry

firms even in period when industry valuation is low. The nature of the relationship between IPO, SEO, and MA waves allows for such strategies to be implemented. Typically, the aggregate equity issuance (IPO or SEO) waves lead the aggregate M&A wave by a few months/quarter(s) (see Colak and Tekatli, 2011; and Rau and Stouraitis, 2010). We verified also that for most industries, equity waves (the IPO wave or the SEO wave) lead the M&A wave by 1 or 2 quarters.

Separating the two decisions also allows us to solve the confounding overvaluation and target choice problem inherent in simple stock mergers. From a clean sample of two stage cash financed stock mergers that have experienced price correction, we find mixed results from acquirers' target choice. On the one hand, most stock acquirers suffers long term loss in firm value post acquisition, suggesting an agency problem in which firms may regards funds raised from overvalued shares as cheap money. On the other hand, we are also able to identify a subs-sample of IPO issuers that added value through acquisitions.

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Figure1: Acquirers' cumulative abnormal returns (CARs) by cash mergers that may actually be financed by stock issues in the preceding 12 months, and matching *simple* stock/cash mergers

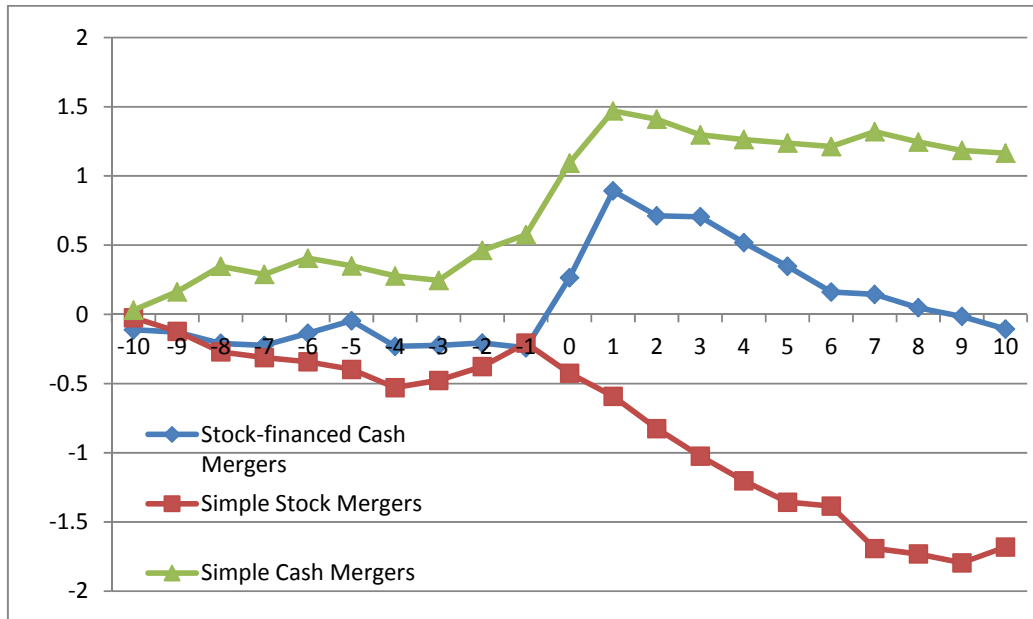


Figure2: Acquirers' cumulative abnormal returns (CARs): IPO-financed Cash Mergers vs. SEO-financed Cash Mergers

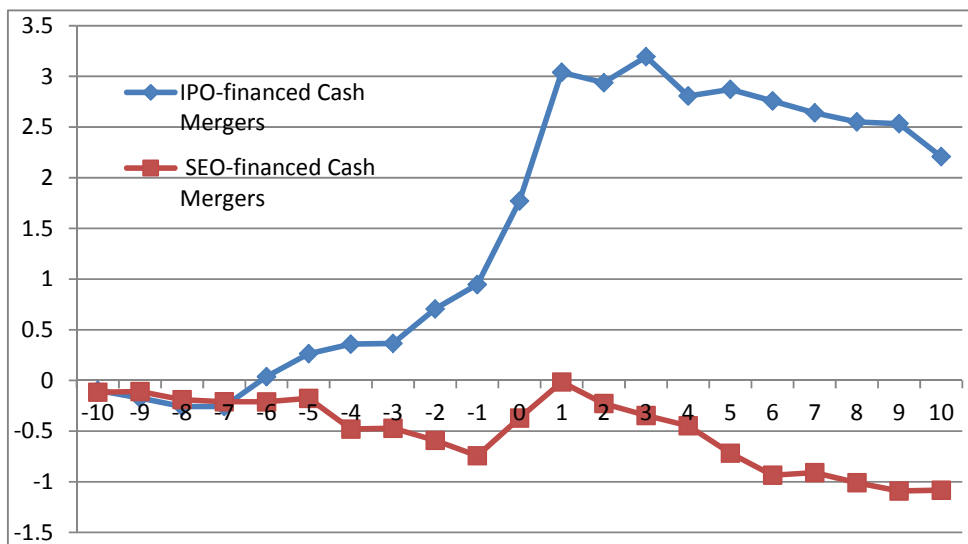


Table 1: General Sample Descriptions

This table reports the sample descriptions for stock-financed cash mergers and their matching samples. The IPO/SEO and mergers' data comes from the SDC database. The period of the mergers' data and IPO/SEO's data is from January 1985 to July 2008. Panel A shows sample descriptions of stock-financed cash mergers that have undergone IPO/SEO issues within 12 months preceding the announcement date. Panel B shows *simple* stock mergers that match stock-financed cash mergers with similar conditions, controlled by these two mergers' announcement dates (within 30 days before or after announcement date) and relative size within +/-10%. Panel C shows *simple* cash mergers that match stock-financed cash mergers with similar conditions, controlled by these two mergers' announcement dates (within 30 days before or after announcement date) and relative size within +/-10%. Relative size refers to the ratio of merger transaction value over the sum of the merger transaction value plus the acquirer's market capitalization. The acquiring firm's market capitalization 30 days prior to the initial merger announcement was used to measure acquirer's market capitalization. Diff1 denotes the average number of days between these two mergers' announcement dates. Diff2 denotes the average value of difference between these two mergers' relative size.

Panel A: Stock-financed cash mergers

	Number of samples	IPO/SEO Average Amount (in millions)	Average Acquisition Amount (in millions)	Number of Fully Funded	Relative Size (%)
Total	1492	122.499	101.301	1132	10.268

Panel B : Matching samples (*Simple* Stock Mergers)

	Number of samples	Relative Size (%)	Average Acquisition Amount (in millions)	Diff1(<i>days</i>)	Diff2 (%)
Total	1492	10.238	546.677	15.047	0.810

Panel C: Matching samples (*Simple* Cash Mergers)

	Number of samples	Relative Size (%)	Average Acquisition Amount (in millions)	Diff1(<i>days</i>)	Diff2 (%)
Total	1481	9.856	153.388	15.526	0.419

Table 2: Sample Descriptions by Specific IPO/SEO Classifications

Panel A indicates the sample descriptions of cash mergers that have undergone IPO issues within 12 months preceding the announcement date. They are grouped into these classifications: Classification1 is the most narrow in that it allows only cases where acquisition is indicated as the primary purpose in the prospectus when issuing IPO. Classification2 includes cases in which acquisition is indicated in either the primary or secondary purpose. Classification3 lists cases that fit the criteria for Classification2 and indicate general purpose/no specific purpose in their prospectuses. Classification4 indicates that funds would be used to increase assets, not to reduce liabilities. Classification5 indicates that funds would be used for other purposes, not related to M&A. That is, Classification5 refers to all issues not classified above. All Samples is the broadest in that it includes all stated intended use of funds at IPO/SEO. Panel B uses identical classification criteria as outlined above for Panel A except that it includes non-shelf SEO rather than IPO issues. Panel C does the same for shelf SEO rather than non-shelf SEO and IPO issues.

Panel A: IPO-financed Cash mergers

	Number of samples	IPO Average Amount (in millions)	Acquisition Amount (in millions)	Number of Fully Funded	Relative Size (%)
All Samples	443	84.204	60.034	361	12.534
Classification1	37	95.900	67.471	35	10.031
Classification2	114	96.490	69.528	97	11.689
Classification3	265	92.817	59.036	227	11.196
Classification4	271	91.715	58.173	232	11.218
Classification5	172	72.372	62.968	129	14.606

Panel B: non-shelf SEO-financed Cash mergers

	Number of samples	SEO Average Amount (in millions)	Acquisition Amount (in millions)	Number of Fully Funded	Relative Size (%)
All Samples	724	110.590	74.176	548	9.162
Classification1	63	67.695	69.474	42	10.767
Classification2	196	96.389	60.033	150	9.000
Classification3	425	98.448	63.816	329	8.370
Classification4	430	100.236	63.389	334	8.298
Classification5	294	125.733	89.938	214	10.426

Panel C: Shelf SEO-financed Cash mergers

	Number of samples	SEO Average Amount (in millions)	Acquisition Amount (in millions)	Number of Fully Funded	Relative Size (%)
No classification	325	201.227	217.977	222	9.642
Classification1	28	395.003	296.908	18	9.416
Classification2	116	212.085	220.467	80	10.524
Classification3	248	183.255	212.911	176	9.525
Classification4	248	183.255	212.911	176	9.525
Classification5	77	259.114	234.294	46	10.021

Table 3: Acquirers' event-study returns (%)

This table shows the acquirers' short-term CAR. Average abnormal returns (ARs) are estimated on a percentage basis using the market model around the event day, which may include the merger announcement, SEO filing date, or IPO issue date. The market model is estimated over the (-180,-11) period. Samples are disregarded if the observations are less than 60 days in the estimation period. Market return is the daily return on an equal-weighted market portfolio of the NYSE, Amex, and Nasdaq stocks. The return data comes from the CRSP database. Panel A shows stock-financed cash mergers and two matching samples – *simple* cash mergers and *simple* stock mergers– and calculates these individual groups' cumulated 3-day abnormal stock returns(-1, 0, +1). Panel B indicates *adjusted* IPO-financed cash acquisitions– the merger announcement date's CAR plus its IPO issue date's ARs. Panel C indicates *adjusted* non-shelf SEO-financed cash acquisitions– the merger announcement date's CAR plus its non-shelf SEO filing date's CARs. Panel D uses the same method for calculating the CAR as outlined above for Panel C, except that it includes shelf SEO rather than non-shelf SEO issues. In addition, Panel B, C, and D all indicate *adjusted* stock-financed cash acquisitions using identical classification criteria as outlined above for Table 2. Statistical significance 1%, 5%, and 10% level is indicated with ***, **, and *, respectively.

CAR around announcement (3 days: -1, 0, 1)	AR at IPO issue date/ CAR around SEO filling date	CAR around acquisition announcement	total	# of samples
Panel A: Stock-financed cash merger and two matching samples				
<i>Simple</i> cash merger	None	1.007%***	1.007%	1481
<i>Simple</i> stock merger	None	-0.215%***	-0.215%	1492
Stock-financed cash merger	None	1.099%***	1.099%	1492
Panel B: <i>adjusted</i> IPO-financed cash acquisitions				
All Samples	15.173%	2.174***	17.347%***	430
Classification1	19.609%	3.197%***	22.806%***	37
Classification2	17.998%	2.435%***	20.433%***	111
Classification3	16.169%	2.316%***	18.485%***	253
Classification4	16.382%	2.346%***	18.728%***	259
Classification5	13.344%	1.915%***	15.258%***	171
Panel C: <i>adjusted</i> non-shelf SEO-financed cash acquisitions				
All Samples	-2.686%***	0.710%***	-1.976%***	698
Classification1	-1.759%***	2.011%***	0.252%	59
Classification2	-2.796%***	0.448%	-2.348%***	188
Classification3	-2.612%***	0.271%**	-2.341%***	408
Classification4	-2.555%***	0.287%**	-2.268%***	413
Classification5	-2.875%***	1.323%***	-1.552%***	285
Panel D: <i>adjusted</i> shelf SEO-financed cash acquisitions				
All Samples	-1.024%***	0.400%***	-0.624%*	321
Classification1	-1.019%***	1.331%**	0.312%	28
Classification2	-1.537%***	0.587%*	-0.950%***	116
Classification3	-1.007%***	0.342%	-0.665%***	244
Classification4	-1.007%***	0.342%	-0.665%***	244
Classification5	-1.077%**	0.584%	-0.493%	77

Table 4. Evidence on Market Segmentation Motive: Comparing Relative Discounts of M&A Market and SEO Market

The table shows the relative magnitude of the discounts (or costs) in the M&A market vs. the SEO market. The relative M&A discount is measured using the mean industry M&A premiums (for the acquirer’s industry) in high-valuation vs. low-valuation quarters. M&A premium is the premium paid by the acquirer to the target shareholders (the M&A premium is the offer price to target’s share price one day before announcement). The M&A sample covers all the stock acquisitions between 1985 and 2008 obtained from SDC. The relative SEO discount is measured using the mean industry SEO market reactions in high-valuation vs. low-valuation quarters. The SEO market reaction is the cumulative abnormal return (CAR) around the announcement date of the SEO. We use two event windows: [-3 days;+3 days] and [-1 day; +1 day] around the announcement date. The market return is the CRSP equally-weighted return. The industries are classified using 2-digit SICs or 3-digit SICs. To determine each industry’s valuation in each quarter, we compare that industry’s mean market-to-book (MTB) to its moving average (measured by MA(4)); if it is above (below) that industry is considered in a high (low) valuation quarter. We use CRSP data to calculate firms’ market values at the end of each fiscal quarter, and COMPUSTAT quarterly data to retrieve the quarter’s book value. We also present the results from *t*-test for significant differences in the means of M&A discount and the SEO discount.

Discount Measure	Mean Discount in High Valuation Quarters	Mean Discount in Low Valuation Quarters	Relative Discount; High – Low (% of Low)
1) M&A Premium; 3-digit SIC Industry	36.86%	32.26%	+4.60% (or +14.26% of Low)
2) SEO Announcement, CAR [-3,+3]; 3-digit SIC Industry	3.10%	2.74%	+0.36% (or +13.14% of Low)
3) SEO Announcement, CAR [-1,+1]; 3-digit SIC Industry	2.54%	2.43%	+0.11% (or + 4.53% of Low)
<i>t</i> -test for differences in means b/w 1) and 2) [or 1) and 3)]			0.0020 [0.0280]
4) M&A Premium; 2-digit SIC Industry	38.55%	30.51%	+8.04% (or +26.35% of Low)
5) SEO Announcement, CAR [-3,+3]; 2-digit SIC Industry	2.74%	3.22%	-0.48% (or -14.91% of Low)
6) SEO Announcement, CAR [-1,+1]; 2-digit SIC Industry	2.33%	2.72%	-0.39% (or -14.34% of Low)
<i>t</i> -test for differences in means b/w 4) and 5) [or 4) and 6)]			0.0001 [0.0001]

Table 5: Tests on Decoupling Motive for Two-Stage Deals

The table provides evidence on the decoupling hypothesis for the 2-stage M&A deals. Panel A compares the acquirer’s median/mean industry MTB during the IPO/SEO quarter vs. the same industry’s median/mean MTB during the M&A’s quarter. The numbers presented are the percentages of all the 2-stage M&A deals that were conducted in each comparison (higher MTB during equity issuance and lower MTB during the M&A and vice-a-versa). The industries are classified using 2-digit or 3-digit SICs. The results for the entire 2-stage sample, for the same industry 2-stage M&As subsample, and for the unrelated industries 2-stage M&As sub-sample. Panel B shows the percentage of two-stage M&As and the percentage of one-stage (regular) M&As that were conducted during the periods of above- and below-average valuations, as measured by MTB of the industry. The results for the same-industry deals and for the different industry deals are presented. The historic MTBs are found using the inverse of the annual value-weighted average of BE/ME from French’s Web site, going back to 1926. The *p*-values from a one-sided, one sample binomial test (which tests whether the proportion of the quarters with *higher* MTB during the IPO date significantly differs from 50%) are also shown.

Panel A: MTBs during the IPO/SEOs and during the M&As quarter.

Entire Two-Stage Sample				
	<i>3-Digit SIC</i>	<i>3-Digit SIC</i>	<i>2-Digit SIC</i>	<i>2-Digit SIC</i>
	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>
MTB of IPO qtr > MTB of MAs qtr	56.5%	53.8%	53.0%	51.9%
MTB of IPO qtr < MTB of MAs qtr	43.5%	46.2%	46.9%	48.1%
Binomial Test (p-values)	0.0001	0.0020	0.0092	0.0700
Same Industry, Two-Stage MAs (using 2-Digit or 3-Digit SICs)				
	<i>3-Digit SIC</i>	<i>3-Digit SIC</i>	<i>2-Digit SIC</i>	<i>2-Digit SIC</i>
	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>
MTB of IPO qtr > MTB of MAs qtr	55.6%	52.7%	52.1%	51.9%
MTB of IPO qtr < MTB of MAs qtr	44.4%	47.3%	47.9%	48.1%
Binomial Test (p-values)	0.0024	0.0813	0.0829	0.0945
Different Industry, Two-Stage MAs (using 2-Digit or 3-Digit SICs)				
	<i>3-Digit SIC</i>	<i>3-Digit SIC</i>	<i>2-Digit SIC</i>	<i>2-Digit SIC</i>
	<i>Median</i>	<i>Mean</i>	<i>Median</i>	<i>Mean</i>
MTB of IPO qtr > MTB of MAs qtr	57.1%	54.6%	54.2%	52.0%
MTB of IPO qtr < MTB of MAs qtr	42.9%	45.4%	45.8%	48.0%
Binomial Test (p-values)	0.0001	0.0044	0.0150	0.0910

Panel B1: Two-Stage Mergers

Merger Type	Industry MTB is <i>Above</i> Historical Median (2-digit SIC)	Industry MTB is <i>Below</i> Historical Median (2-digit SIC)	Industry MTB is <i>Above</i> Historical Median (3-digit SIC)	Industry MTB is <i>Below</i> Historical Median (3-digit SIC)
Same Industry	91.15%	8.85%	92.01%	7.99%
Different Industry	95.07%	4.93%	93.70%	6.30%

Panel B2: One-Stage Mergers

Merger Type	Industry MTB is <i>Above</i> Historical Median (2-digit SIC)	Industry MTB is <i>Below</i> Historical Median (2-digit SIC)	Industry MTB is <i>Above</i> Historical Median (3-digit SIC)	Industry MTB is <i>Below</i> Historical Median (3-digit SIC)
Same Industry	94.38%	5.62%	94.43%	5.57%
Different Industry	91.80%	8.20%	92.36%	7.64%

Table 6: Quality of the Target Firm

The table looks at events that occur three months after, one year after, and three years after the announcement dates. Three types of mergers are considered: two-stage cash mergers – including IPO-financed, non-shelf SEO-financed, shelf SEO-financed cash mergers—and its two types of corresponding matching firms, simple cash mergers and simple stock mergers. Panels A, B, and C show buy-and-hold returns three months after, one year after, and three years after announcement date, respectively. Equally weighted average three-year buy-and-hold percentage returns (BHR) after merger announcements are calculated from the week following each event to the earlier of either the three-year anniversary, the delisting week, or December 31, 2009. Market-adjusted returns are calculated for all five types of returns as a buy-and-hold return minus its compounded weekly return on the CRSP value-weighted index of AMEX, Nasdaq, and NYSE firms. The conventional t-test is used as the statistical test for market-adjusted BHAR. Statistical significance, the 5% level, is indicated with*.

Panel A: 3 months after

	Buy and hold returns	Market adjusted returns	# of sample
Simple cash mergers	3.14%	-0.05%	1475
Simple stock mergers	1.99%	-1.21%	1485
2-stage cash mergers	2.04%	-1.21%	1485
a. Non shelf SEO financed	2.73%	-0.83%	721
b. Shelf SEO financed	0.71%	-1.26%	324
c. IPO financed	1.90%	-1.79%	440
Significant difference between 2-stage and simple stock		0.05% t-stat=0.06	

Panel B: 1 year after

	Buy and hold returns	Market adjusted returns	# of sample
Simple cash mergers	13.34%	-0.58%	1475
Simple stock mergers	6.03%	-8.19%*	1485
2-stage cash mergers	8.51%	-5.53%*	1485
a. Non shelf SEO financed	9.75%	-4.95%	721
b. Shelf SEO financed	7.04%	-3.37%	324
c. IPO financed	7.55%	-8.07%*	440
Significant difference between 2-stage and simple stock		2.48% t-stat=1.14	

Panel C: 3 years after

	Buy and hold returns	Market adjusted returns	# of sample
Simple cash mergers	29.38%	-6.70%*	1475
Simple stock mergers	11.77%	-24.22%*	1485
2-stage cash mergers	20.21%	-15.74%*	1485
a. Non shelf SEO financed	17.56%	-22.80%*	721
b. Shelf SEO financed	21.94%	0.25%	324
c. IPO financed	23.28%	-15.93%	440
Significant difference between 2-stage and simple stock		8.44% t-stat=2.01	

Table 6: Quality of the Target Firm: Only Negative Pre-Merger Returns for Acquirer

The table focuses on samples in which only negative returns between IPO/SEO and M&A announcements to merger dates are considered. Panels A and B show the buy-and-hold returns one year after and three years after merger announcements, respectively. Three types of mergers are considered: non-shelf SEO-financed cash mergers, shelf SEO-financed cash mergers, and IPO-financed cash mergers. Equally weighted average three-year buy-and-hold percentage returns (BHR) after merger announcements are calculated from the week following each event to the earlier of either the three-year anniversary, the delisting week, or December 31, 2009. Following Lyon, Barber and Tsai's (1999) procedures, we construct the 70 reference portfolios at the end of June of each year from 1984 to 2008. Reference portfolio-adjusted BHARs for all two-stage cash mergers are calculated as buy-and-hold returns minus their compounded weekly buy-and-hold returns on their respective matching reference portfolios. In MC1, the matching firm is the single most correlated firm within the subset of firms in the size and M/B matching portfolio. The conventional t-test is used as the statistical test for reference portfolio-adjusted BHARs. Statistical significance, the 5% level, is indicated with*. Parentheses refer to the number of samples.

Panel A: 1 year after

	2 stage buy and hold returns	Simple stock, Comparison group	Reference portfolio-adjusted BHAR (size, M/B)	Matching firm - adjusted abnormal return (MC1)
All, two stage	9.01% (613)	6.033 (1485) or 13.540 (613)	-10.48%*	-3.99%*
SEO, shelf	3.92% (114)	NA	-8.52%*	-8.93%*
SEO, non shelf	11.96% (315)	NA	-7.29%	-3.21%*
IPO	7.10% (184)	NA	-17.18%*	-2.26%*

Panel B: 3 years after

	2 stage buy and hold returns	Simple stock, Comparison group	Reference portfolio-adjusted BHAR (size, M/B)	Matching firm - adjusted abnormal return (MC1)
All, two stage	24.24% (613)	11.773 (1485) or 15.601 (613)	-27.87%*	-16.50%*
SEO, shelf	13.63% (114)	NA	-18.17%*	-35.11%
SEO, non shelf	24.33% (315)	NA	-27.99%*	-23.91%*
IPO	30.67% (184)	NA	-33.68%*	7.80%

Table 8: Issuer and Stated Use of Funds

This table further examines whether or not our two-stage samples' primary use of proceeds as acquisitions have different impacts on long-run performance. Panel A shows the buy-and-hold returns three years after merger announcements and also divides the samples into two subsamples: acquisitions as primary use of proceeds; the rest of the samples. Three types of mergers are considered: non-shelf SEO-financed cash mergers, shelf SEO-financed cash mergers, and IPO-financed cash mergers. Extending Panel A analysis, Panels B and C focus on IPO-financed cash mergers and divides these into two subsamples: whether the two parties belong to the same industry or not. Our definition of "same industry" is "the same 2-digit SIC between acquirers and target firms." Equally weighted average one- or three-year buy-and-hold percentage returns (BHR) after merger announcements are calculated from the week following each event to the earlier of either the three-year anniversary, the delisting week, or December 31, 2009. Adopting Lyon, Barber and Tsai's (1999) method, we construct the 70 reference portfolios at the end of June of each year from 1984 to 2008. Some of the book value for our two-stage M&As was retrieved from SEC's website (COMPUSTAT was missing these companies). Additionally, seven samples couldn't be retrieved from either of these two sources, thus reducing our sample size for conducting BHR to only 1,485 firms with BE/ME data. Matching firm-adjusted BHARs for all two-stage cash mergers are calculated as buy-and-hold returns minus their compounded weekly buy-and-hold returns on their individual most-correlated firms (MC1). Fisher's sign test is used as the statistical test for matching firm-adjusted BHAR. Statistical significance, the 5% level, is indicated with*.

Panel A. All firms (3 years returns)

	IPO Buy and hold	Matching firm adjusted abnormal return	SEO Shelf Buy and hold	Matching firm adjusted abnormal return	SEO not shelf Buy and hold	Matching firm adjusted abnormal return
All two-stage	23.28%/13.87%	-1.05%*/-10.63%*	21.94%	-17.65%	17.56%	-18.19%*
-no stated use of funds at issue.	40.33%/12.73%	21.05%/-7.01%*	20.32%	-10.70%	19.27%	-20.02%*
For acquisition, primary use; (c1)	20.52%	1.41%	17.43%	-1.67%	11.47%	-32.21%
Acquisition is either primary or secondary use (c2)	4.20%	-7.42%*	17.57%	-9.59%	2.87%	-27.98%*
The rest of c2	29.87%	1.15%	24.38%	-22.15%	23.01%	-14.55%*
The rest of c1	23.53%	-1.28%*	22.37%	-19.16%	18.13%	-16.87%*

Panel B: IPOs only (1-year returns)

	IPO, same industry acquisitions; Buy and hold 1 year	Matching firm adjusted abnormal return	IPO, different industries acquisitions buy and hold, 1year	Matching firm adjusted abnormal return
All two stage mergers	11.42%	4.64%	2.11%/0.45%	-8.91%*/-10.60%*
-no stated use of funds at issue.	14.15%	7.83%	1.84%/-2.93%	-1.83%/-6.44%
For acquisition, primary use; (c1)	24.69%	26.86%	2.21%	-31.49%
Acquisition is either primary or secondary use (c2)	8.34%	0.54%	-0.16%	-18.64%
The rest of the c2	12.52%	6.12%	2.85%	-5.74%*
The rest of the c1	10.23%	2.67%	2.10%	-6.74%*

Panel C: IPOs only (3-year returns)

	IPO, same industry acquisitions; Buy and hold 3 years	Matching firm adjusted abnormal return	IPO, different industries acquisitions buy and hold, 3years	Matching firm adjusted abnormal return
All two stage mergers	19.54%	-4.57%*	28.51%/5.81%	3.90%/-19.23%*
-no stated use of funds at issue.	19.06%	-9.04%*	68.14%/4.18%	60.40%/-4.26%
For acquisition, primary use;(c1)	39.74%	16.46%	-4.72%	-18.34%*
Acquisition is either primary or secondary use (c2)	9.76%	-6.99%	-4.20%	-8.06%
The rest of the c2	23.06%	-3.71%*	39.18%	7.80%
The rest of the c1	17.75%	-6.45%*	31.70%	6.03%

Appendix A:

A Stylized Model: Market Segmentation and Decoupling Motives

We use a stylized model to demonstrate how the two-stage stock financed cash mergers are optimal under the “market segmentation” and “decoupling” rationales.

a) Why Sustainable Market Segmentation Can Exist Between the Investors

There are several reasons why segmentation of the investors in the equity market could exist. One is due to information frictions and availability of technical resources to various types of investors. For example, it is very likely that between the IPO/SEO markets and the secondary equity markets there is sustainable market segmentation, because the average participant in the primary markets and the average participant in the secondary markets are likely to have different *risk tolerance* and different sophistication level.²⁴ Information acquisition costs can be different (a la, Stulz and Wasserfallen, 1995)

Another cause could be due to different demand functions held by different groups of investors. If the demand functions are different, the price they will pay for those shares is different. The differences in demand functions could occur for several reasons: 1) technological differences that allow institutional investors to be able to hedge the risk of an IPO stock and the retail investors who cannot. This ability to reduce risk through hedging will enhance institutional investors’ willingness to pay a slightly higher price for those shares. The same investors will also be more tolerant towards the risk, and thus are more dominant participants to the IPO/SEO process. 2) Different investors may have different expectations of the firm’s current business strategy. 3) Investors may also disagree on the best investment and financing strategy for the firm. Consequently, the

²⁴This assumption is not a farfetched stretch given that in real life situations, ordinary investors can not usually participate in IPO (or SEO) deals easily, at least not as easy as buying stock shares in the secondary market.

reservation prices for the firm's shares may vary by investor types conditional on these and other factors.

To demonstrate the point more clearly, assume that there is asymmetric information on the value of the firm: management of the firm A knows that the true value of the firm is E^* . Investors observe the value E' , and they estimate that the true value of the firm E^* is $E^* = E' + \varepsilon_j$. Let, $\varepsilon_j \sim N(\mu, \sigma^2)$, where $\mu > 0$. That is, $E^* > E'$, but that the investors do not know that with certainty. They assume that $\varepsilon_j \sim N(0, \sigma^2)$.

It is possible to obtain signal about ε_j , but the search for the signal is costly and time consuming. Furthermore, once the signal is received, it requires actions (i.e., hedging) that are also costly and require a certain level of sophistication.

There are two types of investors: sophisticated investors who we will also refer to as high risk-tolerance investors (HRT) and low risk-tolerance investors (LRT). Sophisticated investors, who are better informed and who have the resources and tools for reducing their risk (i.e., they can hedge). HRT investors can, to a certain degree, assess the riskiness of the shares issued by firm A. That is, they can afford to put effort and resources to improve their estimate of ε_j . Thus, they can afford to pay a higher price E^H , where $E' < E^H < E^*$.

LRT investors do not have advanced technological capabilities to assess risk and hedge accordingly. They assume that $\varepsilon_j \sim N(0, \sigma^2)$, so they are reluctant to pay any premium above E' . They can be thought of as unsophisticated investors who cannot hedge their risk.

Therefore, HRT investors will participate in risky deals such as new shares offerings through IPO (and SEOs), because they can engage in hedging and they have more informative signal, which reduces their risk exposure. Also, their tolerance for risk is higher due to the availability of the funds, i.e., they are sophisticated institutional

investors. While HRT investors will pay E^H for the same stock share, the LRT investors will pay only E^L .²⁵

Having demonstrated how market segmentation can occur among the equity investors in the primary and the secondary markets, we move on to show the market segmentation and decoupling idea behind the two stage deals from the firms' perspective.

a) One period model: segmenting the markets

1) Case one: cash vs. stock offer, no market segmentation

Firm A is contemplating an acquisition of Firm T. Firm A's objective is to maximize the net present value of the acquisition. Given that we fixed the present value of the Target firm T at V^a , the objective function is equivalent to minimizing the cost of acquisition C^A . Firm T would not accept any offer less than $\$M$ in cash or cash equivalent. Thus, the objective function to Firm A is to choose the payment method that would minimize cost of acquisition, C^A :

$$\min_{i \in \{Cash, Stock\}} C^A$$

subject to the incentive compatibility constraint of Firm T: $C^T > \$M$

Where C^A and C^T are the cost of the offer to Firm A, and value of the offer to Firm T respectively. In the case of all cash offer, $C^A = C^T$

In this case, the minimum is achieved when $C^T = \$M$.

Next, we specify stock offers. Per share value of the acquirer, Firm A, may be represented by two values $\{E^L, E^H\}$, $E^L < E^H$. Investors holding shares of A value the firm at E^H , while those do not hold shares in the firm value the firm lower, at E^L . Since shareholders of Firm T are not likely to be holder of Firm A shares, Firm T, through its management would value shares of Firm A at E^L .

²⁵As a consequence, the firm A will perform a two stage deal in the cases when it believes that IPO (or SEO) market participants/investors are primarily of the type HRT and the investors of the firm T are of the type LRT.

For stock offer to satisfy the target's incentive compatibility condition, and be comparable in value (such that shareholders of Firm T be indifferent between cash and stock offers), the number of shares offer must be no less than:

$$(\$M/ E^L) = (C^T/ E^L) = \delta^L \text{ shares.}$$

2) Case two: segmenting the SEO and merger markets, in two stage stock financed cash offer.

Firm A has another alternative. It could issue new shares (via rights offering or SEO) to investors at E^H , and use the cash received to make a cash offer to Firm T. This payment method, although in cash, was actually financed by the equity issue. The procedure separates issuing shares (a financing issue) from making offer in an acquisition (an investment issue). The separation of finance from investments helps to decompose the sources of gains (losses) in an acquisition.

The number of shares to be issued in the first stage, due to the SEO, is:

$$\delta^H = (\$M/ E^H);$$

$$\text{Since } E^L < E^H, \Rightarrow \delta^H < \delta^L$$

That is, when these two markets are segmented, separate SEO to raise cash from investors of A to pay for a cash purchase, acquirer A issues fewer own shares to make a cash offer. That is, segmenting the markets puts the shares in the hands of A's investors who value it at E^H , instead of the shareholders of target, whose valuation is only at E^L .

To summarize, the gain to the Acquirer A making use of segmented market is:

$$E^H (\delta^L - \delta^H).$$

Thus, we have the following lemma:

Lemma 1: *Market value to the Acquirer A is greater under separation of financing and investment decision through market segmentation.*

The testable empirical implication from this lemma is: *For Firm A, market response to SEO issuance announcement + market response to subsequent cash offer announcement > market response to a straight stock offer announcement.*

b) Multi-period model with market segmentation: decoupling acquirer and target's stock correlation.

3) Case 3: Cash vs. stock offer.

In this case, we investigate how payment method interacts with the type of merger, whether it is a diversification or focus-increasing action.

Let us consider a two period model, working backward from period 2, the firm decides whether to pay with cash or stocks in an acquisition. To model diversification or focus-increasing merger, we differentiate them by how much the share price returns of the acquirer and target are correlated, where a high correlation is a focus increasing acquisition, and a low correlation as a diversifying acquisition. For simplicity, we shall assume correlation coefficient of 1.0 for focus increasing mergers partners, and 0.0 for diversification merger partners.

At time 2, let the Firm T incentive compatible amount for a cash merger be $\$N$ for both diversifying and focus increasing acquisition.

Let share price takes a value of $E_{t=2}$, at time 2. There are two possible values for share price at time 2: $\{E_{t=2}^B, E_{t=2}^G\}$, where $E_{t=2}^B < E_{t=2}^G$. Firm A's management's own valuation is a weighted function of the two.

We analyze merger feasibility and the preferred method of payment under these two realizations of Firm A's share prices at time 2.

A) If the share price of the acquirer A is $E_{t=2}^B$, target share price is also $E_{t=2}^B$ in a focus increasing merger, but $E_{t=2}^G$ in a diversifying merger (at zero correlation, strictly speaking, about half the time).

- i) In focus increasing merger: since (abstracting merger premium and expected synergy gains, etc.) Firm A exchanges shares with market value at $E_{t=2}^B$, for Firm T's shares also value at $E_{t=2}^B$, stock offer is at best a value neutral transaction.

- ii) In a diversifying merger, stock offer would cause Firm A to issue more shares at $E^B_{t=2}$ to exchange for Firm T's shares at $E^G_{t=2}$. Thus, cash offer is preferred.
- B) If the share price of the acquirer A is $E^G_{t=2}$, target share price is also $E^G_{t=2}$ for focus increasing, and $E^G_{t=2}$ for diversification target.
- i) In focus increasing merger, since (abstracting merger premium and expected synergy gains, etc.) Firm A exchanges shares with market value at $E^G_{t=2}$, for Firm T's shares also value at $E^G_{t=2}$, stock offer is again, at best, a value neutral transaction.
 - ii) In diversifying merger, A issues fewer shares for T, as $E^G_{t=2} > E^B_{t=2}$. The gain is $(E^G_{t=2} - E^B_{t=2})$; this is the timing gain from paying with overvalued shares to buy undervalued target in Shleifer and Vishny. This analysis points out that such gain is possible only from diversifying mergers.

There are two more conclusions from the analysis above:

- a) Stock exchange offer in focus increasing mergers is always deal neutral regardless of whether the correlated valuation of A or T is high or low at time 2.
- b) Segmenting the market as in the first part of this analysis could not change the result, as investors buying the SEO and shareholders of target are from the same pool, i.e., they hold the same valuation whether in SEO or tender offer, and by definition of high correlation of 1.0.

4) Case 4: Multi-period model with decoupling

To improve Firm A's performance, one has to 'decouple' the high correlation between A and T's share price. Since Firms A and T are in the same industry, it could not be segmented at time 2.

We shall show below how a two stage process in a multi period model could achieve decoupling, and enable focus increasing Firm A to enjoy the same valuation gain as in diversification merger.

The basic insight to 'decoupling' is that although returns of two same industry shares may be perfectly correlated contemporaneously at all time, their returns may not be correlated between two different times (cross time correlation). Thus, returns of these two shares may be regarded as 'decoupled' across time.

i) Period one:

Firm A wants to have the option to acquire another same industry firm. To decouple the firm's share return from that of potential targets in the same industry, it does not only separates the financial and investment decision, but across time as well.

In this stylized two period approximation to multi-period model, the first period is defined as one with a variable length; this is the first passage time for its share price to reach $E^{G_{t=1}}$.

In this period, Firm A issue shares at $E^{G_{t=1}}$, creating an option to separate financing and investment decisions across (segmented) markets and across time.

ii) Period two, the length of the second period is variable; it is the first passage time a potential target is available. At $t=2$, $E^{B_{t=2}} < E^{G_{t=2}}$

iii) Scenario One: Share price of Firm A is at $E^{B_{t=2}}$. In a *focus increasing acquisition*, share price of the target is also at the low pricing state at $E^{B_{t=2}}$. Here, Firm A use the cash raise in period one to make a cash offer. Since the cost of cash was priced at $E^{G_{t=1}}$, the two stage cash financed offer yields a net gain of $(E^{G_{t=1}} - E^{B_{t=2}}) > 0$.

iv) To the acquirer A, this value exceeds the deal neutral $E^{B_{t=2}} = E^{B_{t=2}}$, in a one period simple stock for stock offer.

In a *diversification merger*, at zero correlation, target may be priced at either $E_{t=2}^B$, or $E_{t=2}^C$. When target's price is at $E_{t=2}^B$, the analysis above apply, a cash offer gives gain of $(E_{t=1}^C - E_{t=2}^B) > 0$, and dominates the deal neutral stock offer.

If, on the other hand, the diversification target is priced at $E_{t=2}^C$. Although a simple stock offer is not feasible, as Firm A's $E_{t=2}^B < \text{Firm T's } E_{t=2}^C$. However, acquirer A may still complete the acquisition with cash raised in the first period. In this case, there is no decoupling of highly correlated shares, but the period one share issue makes the deal possible via time and market segmentation, separating finance and investment decisions over markets and time.

Scenario Two: Acquirer's price is at $E_{t=2}^C$ in period two.

The analysis is the same as in the one period analysis when acquirer's price is at $E_{t=2}^C$. It is at most deal neutral for focus increasing acquisitions, and yields value gain for some diversification mergers regardless of the method of payment – cash or stocks.

Summarizing the multi-period model, the innovation is in decoupling the high correlation between acquirer and target shares in a same industry merger through time and market segmentation. It enables acquirer to solve the deal neutral limitation in stock offer involving mergers of firms in the same industry, and make an essentially stock offer with cash raised in the first period. It also enables an acquirer to acquire diversifying target with essentially a stock offer even when its share price at the time of acquisition is at low valuation, $E_{t=2}^B$.

We generate these lemmas:

Lemma 2A: *Two stage stock financed cash offer allows acquisitions of firms in the same industry with stocks, but without the disadvantages of stock acquisitions.*

The empirically testable application of this lemma is: SEO issued in the first period is associated with more stock offer by firms acquiring other firms in the same industry.

Lemma 2B: *The same two stage procedure would increase the ability of acquirers to make diversification mergers, even in period when their share price is relatively low.*

Appendix B:

Table 9: Companies did not exercise their option within one year

Panel A: The event study in which companies did not exercise their option within one year of IPO or SEO issue date

Non-shelf SEOs' 3-day CAR			Shelf SEOs' 3-day CAR		
		#			#
Classification1	-2.19%	255	Classification1	-0.74%	86
Classification2	-2.97%	832	Classification2	-0.89%	592
Classification3	-2.66%	3824	Classification3	-0.83%	1495
Classification4	-2.61%	3959	Classification4	-0.84%	1515
IPOs' first 3 days' CAR					
		#			#
Classification1	10.68%	275			
Classification2	17.41%	1041			
Classification3	19.44%	5553			
Classification4	19.48%	5796			

Panel B: The Buy-and-hold returns **three years** after IPO/SEO issues in which companies **did not exercise** their option within one year of IPO or SEO issue date

Non-shelf SEO				Shelf SEO			
	Buy-and-hold Returns	Market-adjusted returns	#		Buy-and-hold Returns	Market-adjusted returns	#
Classification1	49.33	-1.39	255	Classification1	28.61	-8.99	86
Classification2	15.50	-12.91	832	Classification2	19.95	1.57	592
Classification3	13.23	-25.31	3822	Classification3	19.49	0.26	1495
Classification4	14.17	-24.45	3957	Classification4	18.98	-0.27	1515
IPO							
			#				#
Classification1	10.29	-26.08	275				
Classification2	7.27	-12.19	1041				
Classification3	11.82	-24.43	5546				
Classification4	11.42	-24.80	5789				

Table 9 (Panel A): The event study in which companies did not exercise their option within one year of IPO or SEO issue date

Panel A: IPOs' first 3 days' CAR		
		#
Classification1	10.68%	275
Classification2	17.41%	1041
Classification3	19.44%	5553
Classification4	19.48%	5796

Panel B:non-shelf SEOs' 3-day CAR #

Classification1	-2.19%	255
Classification2	-2.97%	832
Classification3	-2.66%	3824
Classification4	-2.61%	3959

Panel C:shelf SEOs' 3-day CAR #

Classification1	-0.74%	86
Classification2	-0.89%	592
Classification3	-0.83%	1495
Classification4	-0.84%	1515

Table 9 (Panel B): The Buy-and-hold returns **three years after IPO/SEO issues** in which companies **did not exercise** their option within one year of IPO or SEO issue date

Non-shelf SEO	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO	Buy-and-hold Returns	Market-adjusted returns	#
Classification1	49.33	-1.39	255	Classification1	28.61	-8.99	86
Classification2	15.50	-12.91	832	Classification2	19.95	1.57	592
Classification3	13.23	-25.31	3822	Classification3	19.49	0.26	1495
Classification4	14.17	-24.45	3957	Classification4	18.98	-0.27	1515
IPO							
Classification1	10.29	-26.08	275				
Classification2	7.27	-12.19	1041				
Classification3	11.82	-24.43	5546				
Classification4	11.42	-24.80	5789				

Table: The Buy-and-hold returns **three years after IPO/SEO issues** in which companies did exercise their option within one year of IPO or SEO issue date

Non-shelf SEO	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO	Buy-and-hold Returns	Market-adjusted returns	#
No classification	20.32	-21.01	724	No classification	24.14	-2.40	325
Classification1	22.80	-28.24	63	Classification1	18.56	-25.23	28
Classification2	5.11	-27.23	196	Classification2	21.19	0.04	116
Classification3	14.47	-23.40	425	Classification3	22.00	-1.77	248
Classification4	14.05	-23.85	430				
IPO							
No classification	31.91	-11.93	443				
Classification1	35.95	-13.53	37				
Classification2	12.79	-15.55	114				
Classification3	33.59	-4.06	265				
Classification4	34.50	-2.83	271				

Table 10: Acquirer's CAR and Firm Size

The acquiring firms' market capitalization 30 days prior to initial merger announcements were used to measure acquirers' market capitalization – obtained from the CRSP. We use natural log acquirers' market capitalization to represent firm size.

	CAR around acquisition announcement	Firm size
Panel A: IPO-financed cash acquisitions		
No classification	2.174***	12.17
Classification1	3.197%**	12.77
Classification2	2.435%***	12.59
Classification3	2.316%***	12.18
Classification4	2.346%***	12.19
Panel B: non-shelf SEO-financed cash acquisitions		
No classification	0.710%***	13.12
Classification1	2.011%***	12.97
Classification2	0.448%	13.04
Classification3	0.271%**	13.05
Classification4	0.287%**	13.06
Panel C: shelf SEO-financed cash acquisitions		
No classification	0.400%***	14.06
Classification1	1.331%**	14.43
Classification2	0.587%*	13.96
Classification3	0.342%	14.02

Table 11: Buy-and-Hold Returns for Acquirers

An approximate measure of bad target choice may be indicated by whether the target of acquisition is same or different industry.

Panel A: Buy-and-hold returns **one year** after merger announcements: Acquirers and targets are both within the same industry

Non-shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#
No classification	10.86	-4.08	412	No classification	9.52	2.22	131
Classification1	21.62	5.02	37	Classification1	23.19	10.09	6
Classification2	8.42	-3.15	117	Classification2	15.41	10.12	55
Classification3	11.66	-1.58	238	Classification3	11.73	5.09	103
Classification4	11.49	-1.91	240				

IPO-financed cash mergers			
No classification	11.34	-2.68	259
Classification1	27.75	7.60	21
Classification2	11.03	-2.24	68
Classification3	12.41	-0.50	154
Classification4	11.62	-1.10	158

Panel B: Buy-and-hold returns **one year** after merger announcements:

Acquirers and targets **are not** within the same industry

Non-shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#
No classification	5.88	-7.40	312	No classification	4.22	-8.54	193
Classification1	-15.87	-31.08	26	Classification1	-11.07	-24.71	22
Classification2	-12.68	-23.09	79	Classification2	-0.53	-11.71	61
Classification3	2.62	-9.80	187	Classification3	4.23	-8.33	144
Classification4	1.90	-10.41	190				
IPO-financed cash mergers							
No classification	0.69	-17.38	184				
Classification1	3.66	-11.72	16				
Classification2	1.61	-12.23	46				
Classification3	1.59	-16.17	111				
Classification4	3.58	-12.66	113				

Panel C: Buy-and-hold returns **three years** after merger announcements: Acquirers and targets are both within the same industry

Non-shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#
No classification	24.26	-17.96	409	No classification	27.56	10.12	129
Classification1	37.94	-12.48	37	Classification1	42.02	2.71	6
Classification2	24.31	-11.76	115	Classification2	28.33	21.79	54
Classification3	23.85	-15.62	236	Classification3	22.63	15.58	100
Classification4	23.34	-16.47	238				
IPO-financed cash mergers							
No classification	19.61	-18.14	256				
Classification1	41.46	-9.29	21				
Classification2	14.14	-15.41	67				
Classification3	16.35	-18.23	151				
Classification4	14.11	-19.67	155				

Panel D: Buy-and-hold returns **three years** after merger announcements: Acquirers and targets are not within the same industry

Non-shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#	Shelf SEO-financed cash mergers	Buy-and-hold Returns	Market-adjusted returns	#
No classification	5.23	-30.55	312	No classification	13.50	-6.00	193
Classification1	-23.55	-76.35	26	Classification1	11.56	-13.73	22
Classification2	-27.74	-51.81	79	Classification2	3.87	-12.83	61
Classification3	-5.07	-41.15	187	Classification3	7.08	-10.13	145
Classification4	-5.19	-41.00	190				
IPO-financed cash mergers							
No classification	25.09	-15.17	184				
Classification1	-2.93	-39.69	16				
Classification2	-5.38	-23.46	46				
Classification3	34.85	3.45	111				
Classification4	38.20	7.05	113				