Seasoned public offerings:

Resolution of the 'new issues puzzle'

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Abstract

The 'new issues puzzle' is that stocks of common stock issuers subsequently underperform non-issuers matched on size and book-to-market ratio. With 7,000+ seasoned equity and debt issues, we document that issuer underperformance reflects lower systematic risk exposure for issuing firms relative to the matches. As equity issuers lower leverage, their exposures to unexpected inflation and default risks decrease, thus decreasing their stocks' expected returns relative to matched firms. Also, equity issues significantly increase stock liquidity (turnover) which also lowers expected returns relative to non-issuers. Our conclusions are robust to issue characteristics, to "decontamination" of factor portfolios, and to model specifications.

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1 Introduction

Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) report that common stock returns of industrial firms making seasoned equity offerings (SEOs) underperform control groups of non-issuing firms by 40-60% over the 3-5 years following the offering date. These findings—commonly referred to as the "new issues puzzle"—appears to challenge the presumption of rational pricing in security markets. However, tests for abnormal returns are always joint tests of the model assumed to generate expected returns. With a sample exceeding 7,000 seasoned equity and debt offerings from 1964–1995, this study carefully examines the risk characteristics of the return *differential* between stock portfolios of issuing and non-issuing matched firms. We find that this return differential covaries with a set of macroeconomic risk factors commonly studied in the asset pricing literature. Moreover, the macroeconomic risk factors that primarily drive the differences in expected returns across issuers and non-issuing matched firms are economically plausible. Thus, we argue that the "new issues puzzle" reflects a failure of the matched-firm technique to provide a proper control for risk rather than market underreaction to the news in security issue announcements.

We start by recreating earlier findings of significant five-year "underpeformance" of issuer firm stocks relative to a sample of non-issuers matched on size and book-to-market ratios. We then show that zero-investment portfolios which are short stocks of issuers and long stocks of matched firms yield statistically insignificant abnormal returns when conditioned on a specific factor generating model of expected returns. The portfolio factor loading estimates imply that issuing firms have slightly higher exposure to market risk than do matching firms, but that this higher market exposure is more than offset by issuers' lower exposure to risk factors such as unanticipated inflation, default spread, and changes in the slope of the term structure. It appears that *as equity issuers lower leverage, their exposures to unexpected inflation and default risks also decrease relative to the matching firms.* In addition, although stock liquidity is not part of the risk factor model, we find that SEOs significantly increase stock turnover, which is often interpreted as a measure of liquidity, while the matched firms experience no change in stock turnover. Thus, stocks of SEO issuers may require lower liquidity premiums in the post-offering period. Overall, we conclude that during the post-offering period issuer stocks are on average less risky —and require lower expected returns— than stocks of matched firms. Thus, the definition of abnormal performance which uses matched firms as a performance benchmark by itself gives rise to the 'new issues puzzle'.

With long horizon returns, abnormal return estimates are likely to be sensitive to the choice of the expected return benchmark. Thus, we perform sensitivity analysis with respect to model assumptions as well as issue characteristics. For example, given extant evidence that expected returns are to some extent predictable, we reestimate our performance measure conditioning factor loadings and risk premiums on a continually updated set of publicly available information. Also, in response to Loughran and Ritter (1999), we examine the effect of ensuring that stock portfolios used to mimic risk factors are not "contaminated" by issuing firms. Moreover, we explore the effect on long-term performance of using alternative sets of risk factors. These alternatives include principal components factors (extracted from the covariance matrix of returns) used by Connor and Korajczyk (1988) to test an equilibrium APT model, as well as the size and book-to-market factors of Fama and French (1993). Furthermore, we examine the effect of using the original raw macroeconomic factors in place of their corresponding factor-mimicking stock portfolios. These raw macro factors are interesting as they are not impacted by any possible stock market mispricing. Our main conclusions are robust to all of these methodological variations.

In terms of issue characteristics, we examine results broken down by stock exchange listing (NYSE/Amex/Nasdaq), by industry type (industrial/utility), and by class of security issued (equity/convertibles/straight debt). In this analysis, we uncover several key pieces of evidence. First, the issuer 'underperformance' generated from a matched firm technique is by and large driven by stocks of relatively small Nasdaq issuers. Interestingly, when using our factor model (but not the Fama and French (1993) model) these Nasdaq issuers have zero abnormal returns. Second, we find that stock returns of regulated utilities are largely indistinguishable from those of industrial issuers; neither generates significant long-run abnormal performance. Third, while the matching firm technique produces some apparent 'underperformance' following both straight and convertible debt issues, our factor model results again indicate that such 'underperformance' is largely a reflection of differential risk exposure between the stocks of issuers and matched firms.

The rest of the paper is organized as follows. Section 2 discusses the econometrics of long-run performance estimation using a factor model as the return benchmark. Section 3 describes the data selection and main sample characteristics. Section 4 discusses the empirical results using matching-sample techniques, while section 5 presents empirical estimates using factor model procedures.

Section 6 summarizes the evidence and draws conclusions.

2 Data and sample characteristics

The sample of SEOs used in this study are drawn primarily from the Wall Street Journal Index over the 1963-1979 period and from Security Data Corporation's New Issues database over the mid-1979 to 1995 period. Other data sources used to uncover SEOs include the Investment Dealer's Digest Corporate Financing Directory, Dow Jones News Retrieval Service, Lexis, Mooody's Industrials and Utilities manuals, Drexel, Burnham & Lambert's annual Public Offerings of Corporate Securities, the Securities and Exchange Commissions Registered Offering Statistics (ROS) database and offering prospectuses. These sources uncover about 7,000 SEOs which yield a usable sample of 4,860 SEOs after imposing the restrictions listed below. The debt offerings are drawn from two sources. First, we include the sample compiled by Eckbo (1986) which covers 723 offerings from 1964-81.[1] Second, starting in mid-1979, another 1,420 debt offerings are identified from Securities Data Corporation's New Issues database.

The final sample reflects the following restrictions:

(1) Issuer common stock is listed on the NYSE, Amex or Nasdaq market at the time of the initial offering announcement and through the public offering date. This precludes IPOs from entering the sample. All issuer stocks are found in the University of Chicago CRSP monthly stock return database at the time of the SEO public offering date. The offer must have a CRSP share code of 10 or 11 (common stock). This sample requirement excludes, among other securities, issues by closed-end funds, unit investment trusts, Real Estate Investment Trusts (REITS), and American Depository Receipts (ADRs). We also require that the issuer's equity market value (size defined as price multiplied by shares outstanding) is available on the CRSP data base at the year-end prior to the public offering date.

(2) Issues are publicly announced prior to the offering date. SEC registration dates are treated as public information. The debt offering and SEO announcement dates are obtained from the Wall Street Journal Index, the Wall Street Journal, and prospectuses for the 1963 through

[1]The debt offerings in Eckbo (1986) reflects a minimum restriction on the issue size and on the issuer's leverage change in the year of the offering.

1979 period, while announcement dates thereafter are based on the Dow Jones News Retrieval Service, Lexis and Predicast's F&S Index of Corporations and Industries.

(3) For SEOs, there are no simultaneous offers of debt, preferred stock or warrants. All issuers are US domiciled and all issues are made publicly in the US market. All private placements, exchange offers of stock, 144A shelf registered offers, pure secondary offerings and canceled offers are excluded.

(4) All SEOs are firm commitment underwritten offers. Information on the flotation method is found in offering prospectuses, in the Investment Dealer's Digest Corporate Financing Directory, in the "Rights Distribution" section of Moody's Dividend Record, Moody's annual Industrial, Utilities, Bank & Finance and Transportation manuals, the Wall Street Journal Index, Dow Jones News Retrieval Service and Lexis.

(5) For debt offers, all issuers are US domiciled and all issues are for cash. Simultaneous offers of debt and equity, offers sold entirely overseas, and municipal bonds and other government and agency issues are excluded. For the 1980–95 period, mortgages and medium term notes are also excluded.

The final sample consists of 7,003 seasoned offerings, of which 4,860 are SEOs and 2,143 are straight and convertible debt offerings. The SEOs are by 2,998 separate issuing firms, i.e., an average of 1.6 SEOs per issuer over the sample period. The debt offerings are by 945 different issuing firms, with an average of 2.3 offerings per firm.

Table 1 shows the annual distribution of security offerings classified by stock exchange (NYSE / Amex / Nasdaq), by security type (equity/convertible/straight debt), and by issuer type (industrial firm/public utility). Nasdaq issues begin in 1974. Note that the well known 'hot' issue periods include 495 equity issues in 1983 and 442 issues in 1993. Of the total number of 4,860 equity issues, 55% are by NYSE/Amex listed firms, while all but 54 of the 2,123 debt issues are by NYSE/Amex listed firms. The debt sample contains a total of 593 convertibles (28% of the debt sample) of which 94% are by NYSE/Amex listed firms. Public utility issues are almost exclusively by NYSE and Amex listed firms, and these issues represent 21% (1,009 cases) of the equity issue sample and 20% (423 cases) of the debt issue sample.[2] Utility issuers are examined separately as their investment

[2]Utilities are defined as firms with CRSP SIC codes in the interval [4910, 4939]. This classification differ slightly

and financing policies are highly regulated.[3]

Table 2 lists the average dollar amounts of securities offered, pre-issue equity market value, and securities offered divided by pre-issue equity market value, which for SEOs equals the percentage increase in outstanding shares produced by the offering. All figures are in terms of 1995 dollars. A straight debt issue is typically three times larger than the dollar value of an SEO on the NYSE/Amex. For NYSE/Amex listed firms, industrial issuers of SEOs increase their equity market value on average by 17%, while public utility issuers increase their equity value on average by 10%.

3 SEO performance using matching-firm techniques

We start the performance analysis by replicating the evidence of SEO underperformance reported in the extant literature which is based on a matching-firm technique. This technique equates abnormal performance with the difference in holding-period returns of issuing firms and their non-issuing matches. Let R_{it} denote the return to stock i over month t, and ω_i denotes stock i's weight in forming the average holding-period return. The effective holding period for stock i is T_i which is either five years or the time until delisting or the occurrence of a new SEO, whichever comes first. The percent weighted average holding-period return across a sample of N stocks is then given by

$$BHR \equiv \sum_{i=1}^{N} \omega_i \left[\prod_{t=\tau_i}^{T_i} (1 + R_{it}) - 1 \right] \times 100 \tag{1}$$

The five-year abnormal performance following equity issues is then computed as the difference in BHR for issuers and their matching firms.[4]

We select matching firms using a procedure analogous to the one employed by Fama and French (1993) when constructing their size- and book-to-market ranked portfolios. Specifically, we first generate a list of all companies that have total equity values within 30% of the total equity market value of the issuer at the year-end prior to the issue's public offering date. Then we select from

from the one used originally by Eckbo and Masulis (1992).

[3]The regulatory policy is public knowledge and thus makes it less likely that a utility announcing a stock offer is attempting to take advantage of temporary market overpricing.

[4]See Kothari and Warner (1997), Barber and Lyon (1997) and Lyon, Barber and Tsai (1999) for simulation-based analyses of the statistical properties of test statistics based on long-run return metrics such as BHR.

this list the firm with the book-to-market ratio that is closest to the issuer's. The book value of equity is from one of two periods: for offer dates in the first six months of the year, the book value is for the fiscal year-end two years earlier, and for offer dates in the second half of the year, the book value is for the prior fiscal year-end. Book value is defined as in Fama and French (1993).[5] Matching firms are included for the full five-year holding period or until they are delisted or issue equity, whichever occurs sooner. If a match delists or issues equity, a new match is drawn from the *original* list of candidates described above.[6]

Table 3 shows the impact on the performance estimates of using only a size-matching criterion, as opposed to matching on both size and book-to-market ratios. The table presents value-weighted as well as equal-weighted holding period returns. For the total sample of 3,851 industrial SEOs, size-matching leads issuer stocks to underperform their matched firms by 26.9% using equal-weighting and 21.1% using value-weighting. Both performance estimates are highly significant.[7] Moving to size and book-to-market matching,[8] industrial issuers now underperform matching firms by 23.2% using equal-weighting and 10.6% using value-weighting. The attenuating effect of adding book-to-market matching and using value-weighted returns for industrial SEOs, shown in Table 3, is also consistent with the findings of Brav, Geczy and Gompers (1998). Interestingly, Table 3 shows that this attenuation effect is specific to industrial issues. Utility SEOs exhibit *greater* underperformance with size and book-to-market matching than when only matching on size (18.6% v. 6.2%, respectively, using value-weighting).

The finding of significant underperformance for utility issuers when using the matching technique is new to the literature. Loughran and Ritter (1995) do not report results for utilities because of their regulatory status. As pointed out by Eckbo and Masulis (1992), the regulatory approval process reduces the ability of utilities to selectively time an issue to exploit private information

[5] As described on their page 8, book value is defined "as the COMPUSTAT book value of stock holders equity, plus balance sheet deferred taxes and investment tax credits (if available), minus the book value of preferred stock. Depending on availability, we use the redemption, liquidation, or par value (in that order) to estimate the value of preferred stock."

[6] This procedure for replacing matching firms in the event of delisting of new issues is analogous to Loughran and Ritter (1995). We have also experimented with different replacement procedures, including rematching using information at the time of the delisting and monthly updating of matching firms. As shown in an earlier draft, the overall impact of alternative procedures on the abnormal return estimates appears to be small.

[7] The p-values in Table 3 are based on the student-t distribution. In a previous draft, we reported p-values based on the bootstrapped empirical distribution of BHR. Bootstrapping tends to decrease the significance levels but does not alter the conclusions drawn from Table 3.

[8] This reduces the total sample to 3,315 due to the COMPUSTAT data requirement.

about temporary overpricing. Since the matching firm technique does not match on industry type (matching is only on size and book-to-market ratio), and given the small number of listed utility companies, it is possible that matching firms are less comparable in terms of risk for utility stocks than for industrial stocks. Nevertheless, the apparent utility underperformance tends to undermine arguments that the 'new issues puzzle' is driven by opportunistic issuer behavior.

Turning to panels (b) and (c) of Table 3 we see that Nasdaq issuers exhibit greater underperformance than NYSE/Amex issuers.[9] Focusing on size and book-to-market matching under value-weighting, industrial SEO firms underperform matching firms by 18.2% in the Nasdaq sample and 6.4% in the NYSE/Amex sample. Moreover, the latter underperformance is statistically indistinguishable from zero. Furthermore, stocks of utility issuers (NYSE/Amex only) underperform matching firms by a significant 18.4%. Finally, when using equal-weighting, all issuer categories in Table 3 significantly underperform their respective size and book-to-market matched firms by 15% or more.

Table 4 shows five-year holding period abnormal returns (issuer minus match) broken down by size and book-to-market quintiles. The quintiles are defined using breakpoints for NYSE listed stocks only. The right-side of the table contains the number of observations and the percentage of the sample that is represented by Nasdaq issues. Focusing on industrial SEOs, significant abnormal returns occur only in the first two rows, i.e., the two lowest *book-to-market* quintiles. Moreover, with one exception, significant abnormal returns occur only for the three smallest *size* quintiles. These six cells represent about 60% of the total sample, and of these 71% are Nasdaq issues. Thus, from Table 4, it is difficult to judge whether one ought to characterize the underperformance generated by the matching-firm technique as a "small-firm" effect or a "Nasdaq" effect.[10]

In sum, like earlier studies, we find that the matching firm technique produces significant buy-and-hold abnormal returns for the overall sample of SEOs. Next we proceed to examine whether this abnormal performance is compensation for differential risk bearing of issuing and matched firms. In particular, we ask whether a zero-investment portfolio strategy of shorting issuing firms and purchasing matched firms yields abnormal returns conditional on a specific factor model which

[9]Note that in panels (b) and (c) the population of matching firms is restricted to the stock exchanges under investigation.

[10]The results in Table 4 are consistent with the findings of Jegadeesh (1997) who also reports abnormal buy-and-hold returns sorted by size- and book-to-market quintiles.

generates expected returns. In so doing, we also gain insights into the specific factors, if any, that are responsible for generating lower than expected returns for issuing firms.

4 SEO performance using factor models

4.1 Factor model specification

Let r_{pt} denote the return on portfolio p in excess of the risk-free rate, and assume that expected excess returns are generated by a K-factor model:[11]

$$E(r_{pt}) = \beta_p' \lambda, \tag{2}$$

where β_p is a K-vector of risk factor sensitivities (systematic risks) and λ is a K-vector of expected risk premiums. The excess return generating process can be written as

$$r_{pt} = E(r_{pt}) + \beta_p' f_t + e_{pt}, \tag{3}$$

where f_t is a K-vector of risk factor shocks and e_{pt} is the portfolio's idiosyncratic risk with expectation zero. The factor shocks are deviations of the factor realizations from their expected values, i.e., $f_t \equiv F_t - E(F_t)$, where F_t is a K-vector of factor realizations and $E(F_t)$ is a K-vector of factor expected returns.

Regression (3) requires specification of $E(F_t)$ which is generally unobservable. However, consider the excess return r_{kt} on a portfolio that has unit factor sensitivity to the kth factor and zero sensitivity to the remaining $K-1$ factors, i.e., it is a "factor-mimicking" portfolio. Since this portfolio must also satisfy equation (2), it follows that $E(r_{kt}) = \lambda_k$. Thus, when substituting a K-vector r_{Ft} of the returns on factor-mimicking portfolios for the raw factors F, equation (2) and (3) imply the following regression equation in terms of observables:

$$r_{pt} = \beta_p' r_{Ft} + e_{pt}. \tag{4}$$

[11] This model is consistent with the Arbitrage Pricing Theory (APT) of Ross (1976) and Chamberlain (1988) as well as with the intertemporal (multifactor) asset pricing model of Merton (1973). See Connor and Korajczyk (1995) for a review of APT models.

Equation (4) generates stock p's returns. Thus, inserting a constant term α_p into a regression estimate of equation (4) yields a measure of abnormal return. We employ monthly returns, so this "Jensen's alpha" (after Jensen (1968)) measures the average monthly abnormal return to a portfolio over the estimation period.[12]

As listed in Table 5, we use a total of six prespecified macro factors:[13] the value-weighted CRSP market index (RM); the return spread between Treasury bonds with 20-year and 1-year maturities (20y−1y); the return spread between 90-day and 30-day Treasury bills, (TBILLspr); the seasonally adjusted percent change in real per capita consumption of nonduarble goods (RPC); the difference in the monthly yield change on BAA-rated and AAA-rated corporate bonds (BAA−AAA); and unexpected inflation (UI).[14] As shown in Panel (b) of Table 5, the pairwise correlation coefficient between these factors ranges from -0.166 for UI and BAA-AAA to 0.392 for TBILLspr and 20y−1y.

Of the six factors, three are themselves security returns, and we create factor-mimicking portfolios for the remaining three: RPC, BAA−AAA, and UI.[15] A factor-mimicking portfolio is constructed by first regressing the returns on each of the 25 size and book-to-market sorted portfolios of Fama and French (1993) on the set of six factors, i.e., 25 time-series regressions producing a (25×6) matrix B of slope coefficients against the six factors. If V is the (25×25) covariance matrix of error terms for these regressions (assumed to be diagonal), then the weights on the mimicking portfolios are formed as:

$$w = (B'V^{-1}B)^{-1}B'V^{-1}. \tag{5}$$

For each factor k, the return in month t on the corresponding mimicking portfolio is determined by multiplying the k'th row of factor weights with the vector of month t returns for the 25 Fama-French portfolios. As shown in Panel (c) of Table 5, when we regress the mimicked factors on the

[12]Applications of Jensen's alpha range from investigations of mutual fund performance (e.g., Ferson and Schadt (1996)) to the performance of insider trades (Eckbo and Smith (1998)).

[13]These factors also appear in, e.g., Ferson and Harvey (1991), Evans (1994), Ferson and Korajczyk (1995), and Ferson and Schadt (1996).

[14]Data sources are as follows: The returns on T-bills, T-bonds and the consumer price index used to compute unexpected inflation is from the CRSP bond file. Consumption data are from the U.S. Department of Commerce, Bureau of Economic Analysis (FRED database). Corporate bond yields are from Moody's Bond Record. Expected inflation is modeled by running a regression of real T-bill returns (returns on 30-day Treasury bills less inflation) on a constant and 12 of it's lagged values.

[15]When we also use factor mimicking portfolios for the yield curve factors 20y−1y and TBILLspr, the main conclusion of the paper remains unchanged.

set of six raw factors, it is only the own-factor slope coefficient that is significant, as required.[16]

Assuming stationarity of factor loadings and risk premiums, the model implies Jensen's alpha is zero for passive portfolios. When regressing size-sorted decile portfolios (CRSP, value- or equal-weighted) on our factors, none of the alpha estimates are statistically significant at the 5% level or higher. The alpha estimates are also insignificant for 24 of the 25 Fama-French portfolios. The exception is the Fama-French "small-low" portfolio with the lowest size and book-to-market ratio which produces a value of alpha of -0.54 with a significant p-value of 0.003. In comparison, when Fama and French (1993) perform regressions of the same 25 portfolios on their three-factor model, a total of three portfolios (including the "small-low" portfolio) have significant alphas.

In the following analysis, we explicitly separate Nasdaq issues from NYSE and Amex issues in our examination of the new issues puzzle. Moreover, to gauge the sensitivity of our conclusions to alternative model specifications, we report results using the original raw factors (without factor mimicking); "decontaminated" factor mimicking portfolios that exclude issuing firms; and conditionally updated expected returns that explicitly allow for time-varying factor loadings. Also, we provide alpha estimates based on factors extracted from the covariance matrix of asset returns used by Connor and Korajczyk (1988) as well as the Fama and French (1993) three-factor model.

4.2 Performance estimates

Tables 6 and 7 list the factor model parameter estimates (factor loadings and Jensen's alpha) for industrial firms and public utilities, respectively, classified by the stock exchange listing (NYSE/Amex vs. Nasdaq). We examine three basic portfolios: issuing firms, matching firms, and the zero-investment portfolios (long in matching firms and short in issuers). Both equal-weighted (EW) and value-weighted (VW) portfolios are presented, resulting in a total of six portfolios in each panel of the tables. The zero-investment portfolio is of particular interest because we can test the conjecture of Loughran and Ritter (1995) and others, that the matching firm technique adequately controls for risk, which if true should produce zero factor loadings on these portfolios. Conversely, if the matching firm technique does not adequately control for risk, then we should find significant factor

[16] Let b_k be the kth row of B. The weighted least squares estimators in (5) are equivalent to choosing the 25 portfolio weights w_k for the kth mimicked factor in w so that they minimize $w_k' V w_k$ subject to $w_k b_i = 0$, $\forall k \neq i$, and $w_k' b_k = 1$, and then normalizing the weights so that they sum to one (also see Lehmann and Modest (1988) for a review of alternative factor mimicking procedures). Note that the normalization of the weights will generally produce own-factor loadings in Panel (c) that differ from one.

loadings on the zero-investment portfolios. Moreover, these factor loadings will directly identify the differences in risk exposures between the issuer and matching firm portfolios.

Starting with the sample of industrial offerings in Panel (a) of Table 6, the alphas are insignificantly different from zero across all six portfolios, with estimates ranging from -0.10% for the EW matching firm portfolio to -0.03% for the VW-issuer portfolio. Focusing on the zero-investment portfolio, the model produces significant factor loadings for the market portfolio (RM), the corporate bond spread (BAA−AAA), and unanticipated inflation (UI). For all three factors, the factor loading is somewhat greater under equal-weighting than value-weighting. These factor loadings indicate that while issuing firms have slightly higher exposure to market risk, this is more than offset by lower post-issue exposure to unanticipated inflation and default spread, resulting in a negative value of Jensen's alpha for the zero-investment portfolio. Intuitively, as equity issuers lower leverage, their exposures to unexpected inflation and default risks decrease, thus decreasing their stocks' expected returns relative to matched firms.[17]

As seen from Panel (b) and (c), separating out Nasdaq industrial issuers does not change the prior conclusions.[18] The factor loadings on all six portfolios are stable across the three panels. Furthermore, Jensen's alpha is insignificant for Nasdaq firms (issuers and match) as well as for NYSE/Amex firms and of approximately equal values across the two exchange groupings when using VW portfolios. EW portfolios produce somewhat greater (but still insignificant) alphas for Nasdaq-listed issuers, -0.27% vs. -0.02% for NYSE/Amex issuers.

Turning to SEOs by public utilities shown in Table 7, the estimated alphas are all insignificant.[19] Again, this contrasts with the result of the matching firm technique for estimating abnormal performance reported earlier in Table 3. The factor loadings indicate that issuing firms have significantly higher positive exposure than matching firms to term structure risk (20y−1y and TBILLspr) and higher negative exposure to default risk (BAA−AAA). Moreover, utility issuers have lower exposure to market risk (RM). Comparing utility issuers with the portfolios of industrial issuers in Table 6, the former have greater exposure to unanticipated inflation (0.02 vs. -0.03 for EW portfolios)

[17]Note that the issuer and matching firm portfolios have very similar (and for EW portfolios significant) loadings on the consumption growth (ΔRPC) and the change in the slope of the yield curve (20y-1y), producing near-zero exposure of the zero-investment portfolio to these two risk factors. Thus, it appears that the matching firm technique succeeds in controlling for these two risk factors.

[18]In panel (b), matching firms are drawn from the population of NYSE/Amex-listed firms only, while in Panel (c), matches are drawn exclusively from the population of Nasdaq firms.

[19]Table 7 does not single out Nasdaq issues because there are only 33 Nasdaq utility SEOs in the total sample.

and terms structure risk (0.36 vs. -0.22 for 20y−1y, and 5.25 vs. -0.27 for TBILLspr), and lower exposure to market risk (0.49 vs. 1.40). This is consistent with the generally higher leverage of regulated utilities relative to industrial firms and the lower price sensitivity of regulated industries.

Overall, the results in Tables 6 and 7 fail to reject the hypothesis of zero abnormal performance following SEOs. Moreover, the estimated factor loadings indicate that on average during the post-issue period issuer stocks are less risky—and thus require lower expected returns—than stocks of matched firms. As a result, the matched firm technique is by itself likely to generate 'abnormal' performance.

4.3 Sensitivity analysis

We begin our sensitivity analysis by examining Jensen's alphas over holding periods of between one and five years for the samples in panels (b) and (c) of Table 6. For example, with a two-year holding period, firms enter the SEO issuer portfolio as before, but exit after only two years (or at a subsequent security offer or delisting, whichever occurs earlier). This serves to check whether any subperiod abnormal performance are washed out in the averaging of returns over the five-year holding period used in the prior tables. The results for one to five year holding periods are given in Table 8. None of the alphas are significantly different from zero at the 5% level. If anything, there is a weak tendency for *over*-performance by issuing firms over the twelve months following an SEO (the alpha of the EW portfolio of NYSE/Amex issuers equals 0.36 with a p-value of 0.097). Overall, the results in Table 8 fail to reject the hypothesis of zero abnormal performance for all five holding periods and across all three stock exchange samples.

Second, returning to our five-year holding period, we reestimate the factor model for the portfolios in Panels (b) and (c) of Table 6, but with the sample period starting in 1977. This shortened sample period gives greater weight to SEOs that take place in the "hot" issue markets, which occur in the second half of the full sample period. This subperiod is also frequently studied in the long term performance literature. Starting in 1977, the portfolios in Panel (a) of Table 9 include all firms that complete SEOs over the previous five-year period.[20] As shown in Panel (a), none of the alphas are significant at the 5% level. Moreover, the point estimates for the issuer portfolios are very close to the estimates in Table 6 for the full sample period.

[20]In January of 1977, the portfolios contain a total of 77 NYSE/Amex issues and 48 Nasdaq issues.

Third, we reestimate Jensen's alpha using factor-mimicking portfolios that are continously updated. That is, the weights defined earlier in equation (5) are now constructed using a fixed time length, but a rolling estimation period where the matrix B of factor loadings and covariance matrix V are reestimated every month. This rolling estimation procedure relaxes the stationarity assumption on the factor-mimicking weights underlying the earlier tables. As seen in Panel (b) of Table 9, the alphas are again all insignificant with rolling factor-mimicking portfolio weights.

Fourth, in Panel (c) of Table 9, we report alpha estimates when our factor mimicking portfolios have been purged of issuing firms. On average, 11.1% of the firms in the factor-mimicking portfolios also make SEOs during the subsequent five-year holding period. This evidence reinforces concerns voiced by Loughran and Ritter (1999) that generating benchmark returns from factor-mimicking portfolios which include SEO issuers risks "throwing the baby out with the bath water". That is to say, we are to some extent using the returns of issuing firms as a benchmark for computing abnormal returns of issuing firms. However, the alpha estimates in Panel (c) of Table 9 fail to reject the hypothesis of zero abnormal performance when our factor-mimicking portfolios are completely purged of issuing firms.[21] Thus, we may safely conclude that the lack of abnormal performance is not a product of our factors being "contaminated" by issuers.

Fifth, Panel (d) of Table 9 shows the alpha estimates when the time series of the raw macroeconomic factors is used rather than factor-mimicking portfolios. As discussed earlier, use of factor-mimicking portfolios is convenient in terms of estimating factor realizations and risk premiums. However, factor-mimicking portfolios obviously contain measurement error vis-a-vis the true risk factors. Furthermore, one cannot determine à priori whether this measurement error is lower than the measurement error induced by the raw macroeconomic factors themselves. Interestingly, the alpha estimates in Panel (d) are all insignificantly different from zero, though somewhat larger in absolute value than those for regressions based on factor-mimicking portfolios. Also, although not reported in Table 9, the adjusted R^2's are somewhat smaller for the raw macro factor regressions than for regressions using factor-mimicking portfolios.

Overall, our main conclusion of zero long-run abnormal performance for SEO issuers is robust to a number of alternative approaches to partitioning the sample and defining the relevant set of

[21] At any time t, a firm is eliminated from the factor-mimicking portfolio if the firm issued equity (primary offerings) over the previous five years. The universe of issuing firms used for this purpose contains approximately 6,300 issues contained in the sample sources described at the beginning of Section 2.

risk factors. To provide a perspective on the sensitivity of our results to the specific factor model employed, we next turn to an examination of three alternative factor model specifications.

4.4 Alternative factor model specifications

Thus far, our analysis allows for some non-stationarity in the regression parameters through sample period partitioning, rolling estimation of factor-mimicking portfolios and, not the least, through our analysis of *differences* between the stock returns of issuing and non-issuing matched firms. However, in light of the growing evidence that expected returns are predictable using publicly available information, it is useful to reexamine our null hypothesis of zero abnormal performance in a conditional factor model framework.[22]

We follow Ferson and Schadt (1996) and assume that factor loadings are linearly related to a set of L known information variables Z_{t-1}:

$$\beta_{1pt-1} = b_{p0} + B_{p1} Z_{t-1}. \tag{6}$$

Here, b_{p0} is a K-vector of "average" factor loadings that are time-invariant, B_{p1} is a $(K \times L)$ coefficient matrix, and Z_{t-1} is an L-vector of information variables (observables) at time $t-1$. The product $B_{p1}Z_{t-1}$ captures the predictable time variation in the factor loadings. After substituting equation (6) into equation (4), the return generating process becomes

$$r_{pt} = b'_{p0} r_{Ft} + b'_{p1}(Z_{t-1} \otimes r_{Ft}) + e_{pt} \tag{7}$$

where the KL-vector b_{p1} is $\text{vec}(B_{p1})$, and the symbol $\otimes$ denotes the Kronecker product.[23] Again, we estimate this factor model adding a constant term, α_p, which equals zero under the null hypothesis of zero expected abnormal returns.

The information variables in Z_{t-1} include the lagged dividend yield on the CRSP value-weighted market index, the lagged 30-day Treasury bill rate, and the lagged values of the credit and yield curve spreads, BAA$-$AAA and TBILLspr respectively. The resulting estimates of alpha are given

[22] A survey of conditional factor model econometrics is found in Ferson (1995).

[23] The operator $\text{vec}(\cdot)$ vectorizes the matrix argument by stacking each column starting with the first column of the matrix.

in Panel (a) of Table 10. Consistent with our prior findings, the estimates are all insignificantly different from zero. Thus, we cannot reject the null hypothesis of zero abnormal returns whether or not we explicitly condition the factor loadings on publicly available information.

Second, we reestimate alpha using factors extracted from the covariance matrix of returns using the principal components approach of Connor and Korajczyk (1988).[24] While these factors do not have intuitive economic interpretations, they are by construction consistent with APT theory. The resulting alpha estimates are reported in Panel (b) of Table 10. For NYSE/Amex issuers, none of the alphas are significantly different from zero. However, Nasdaq portfolios now produce significant underperformance by SEO issuers (-0.64% for EW and -0.54% for VW portfolios, with p-values of 0.005 and 0.042, respectively). However, the model also generates some degree of underpricing for the non-issuing matched firm, so that the zero-investment portfolio has a significant alpha only for the EW portfolio (alpha=0.39%, p-value of 0.038).

Finally, we examine Jensen's alpha using the three-factor model of Fama and French (1993).[25] The results, shown in Panel (c) of Table 10, are similar to the results for the Connor and Korajczyk (1988) model in Panel (b). That is, NYSE/Amex issuers are associated with zero average abnormal returns. Moreover, VW returns produce insignificant alphas across all portfolios. Furthermore, Nasdaq issuers produce a negative Jensen's alpha of -0.42% for the EW portfolio that is strongly significant, with a p-value of 0.009. Focusing on the EW zero-investment portfolio, however, this underperformance is reduced to an insignificant 0.32% (p-value of 0.10).[26] When reestimating the Fama-French model using the more recent sample period of 1977-1997 (not reported in the tables), the alpha estimate for the EW issuer portfolio is -0.38% for Nasdaq issuers and -0.36% for NYSE/Amex issuers, which are both highly significant.[27] Moreover, in this subperiod the EW zero investment portfolio produces significant underperformance of 0.23% (p-value 0.000) and 0.25% (p-value 0.045) for NYSE/Amex and Nasdaq portfolios, respectively. Again, the VW portfolio eliminates all traces of significant Jensen's alpha in the Fama-French model.

In sum, while our six-factor model produces zero abnormal post-issue performance for both

[24] We thank Robert Korajczyk for providing us with the return series on these factors.

[25] We thank Ken French for providing us with the return series on these factors.

[26] While they do not report results for zero-investment portfolios, the evidence in Mitchell and Stafford (1997) for issuing firms is comparable to those in Panel (c) of Table 10.

[27] Brav, Geczy and Gompers (1998) report a similar result for the Fama-French model: Pooling Nasdaq- and NYSE/Amex issues, they find a significant Jensen's alpha of -0.37% for the EW issuer portfolio.

EW and VW portfolios, and regardless of the exchange listing, the Connor and Korajczyk (1988) and Fama and French (1993) models both leave some evidence of abnormal performance by the EW Nasdaq issuer portfolios. Of course, our six-factor model has the added advantage that it can explain why issuing firms tend to underperform non-issuing matched firms by highlighting their differential exposures to exogenous macroeconomic risk factors.

4.5 SEOs and stock liquidity

Recent empirical work on asset pricing by Brennan and Subrahmanyam (1996), Datar, Naik and Radcliffe (1998) and Brennan, Chordia and Subrahmanyam (1998) find that stock expected returns are cross sectionally related to stock liquidity measures. Brennan-Chordia-Subrahmanyam and Datar-Naik-Radcliffe report that share turnover (measured by shares traded divided by shares outstanding) appears to be a priced asset attribute, which lowers a stock's expected return. This result is obtained after controlling for various factors, including the Fama and French (1993) factors and the Connor and Korajczyk (1988) principal component factors. These studies interpret the negative relationship between mean stock returns and share turnover as a liquidity premium. In the context of examining stock returns around SEOs, this negative relationship between returns and share turnover can have important implications, since share turnover is likely to rise after the public sale of new shares.

In Table 11, we examine the average monthly level of share turnover (trading volume in percent of total shares outstanding) for issuers and their matched sample prior to the SEO public offering date and then subsequently. In the pre-offering period, we find that SEO issuer common stocks exhibit somewhat higher share turnover ratios than their risk-matched control sample. For example, monthly turnover for industrial NYSE/Amex issuers averages 5.72% compared to 4.37% for non-issers. Differences in monthly turnover ratios are more striking on Nasdaq, with turnover averaging 12.44% for issuers and 9.33% for the non-issuing control sample. The p-values for the difference between issuer and non-issuing matched firms are statistically significant, indicating that issuing firms are more liquid. Moreover, the table shows that industrial firms are on average more liquid that regulated utilities (5.72% versus 2.01%). The high percentage of industrial firms used in the matched sample for utility issuers results in higher liquidity (and lower liquidity premium) for non-issuers than for issuers in the utility category (3.05% versus 2.01%)

Industrial NYSE/Amex listed firms experience a large rise in the five-year average monthly share turnover ratio from 5.72% before the SEO to 7.08% following the SEO (statistically significant at the 1% level). In contrast, there is no substantive change in the matched sample over these pre and post-SEO periods (4.37% versus 4.46%). A similar conclusion holds for industrial Nasdaq listed issuers who experience an increase in average monthly turnover from 12.44% in the pre-SEO period to 14.48% in the post SEO period. The matched firm sample shows a slight decrease in turnover over the same pre and post-SEO periods (from 9.33% to 8.29%). This evidence indicates that the change in share turnover is induced by the SEO itself, rather than being the result of a secular time trend. Thus, in the post-issuance period, stocks of industrial SEO issuers have much higher liquidity both absolutely and relative to non-issuing matched firms. In contrast, there is little evidence of a liquidity change for utility issuers or their matches.

Given the evidence of positive liquidity premiums reported by Brennan, Chordia and Subrahmanyam (1998), the evidence in Table 11 implies that stocks of industrial SEOs should have lower expected returns than their risk-matched control sample. Moreover, this difference in expected returns between the issuers and matches is more serious in the post-offering period, when on average SEO issuers' liquidity substantially improves. One result of this increasing issuer share turnover following SEOs is that portfolios which are short these issuer stocks and long matched stocks are likely to exhibit greater abnormal performance in this period. Thus, in addition to the matching procedure not creating portfolios with similar risk exposures in the post offering period, we also find that the matching procedures for SEOs fails to create portfolios with similar liquidity, again especially in the post-offering period.

5 Performance following debt issues

In this section, we estimate abnormal performance using both the matching firm technique and the factor-model procedure for samples of straight and convertible debt issues. The purpose is two-fold: First, given the hybrid debt/equity nature of convertibles, replicating the test procedures on a sample of issuers of convertible debt reduces the potential for data snooping bias that exists in the SEO literature, where several studies in effect examine similar samples of offerings. Second, straight debt issues as less likely to be mispriced by the market given that they have lower risk and are issued at a higher frequency than SEOs. Furthermore, these events are less likely to reflect opportunistic timing by issuers which result in lower adverse selection risk. Thus, we expect the matching firm technique to reflect this lower potential for finding true post-issue abnormal performance in this sample.[28]

Nevertheless, Table 12 indicates significantly negative post-issue abnormal performance for debt issues when matching on size and book-to-market ratio. In fact, as shown in Panel (a) of Table 12, the magnitudes of the abnormal returns following straight debt issues on NYSE/Amex are very similar to the abnormal returns following SEOs reported earlier in Table 3. For example, with EW portfolios and industrial issuers, the difference in buy-and-hold returns between issuer and matched firms is -11.2% for straight debt offerings versus -18.1% for SEOs. For utility issuers, the EW portfolio differences are -10.4% for straight debt offerings versus -15.7% for SEOs. The similarity in the magnitudes of the abnormal returns across straight debt issues and SEOs is unreasonable from an economic point of view and again raises issues concerning the effectiveness of the matching firm technique itself.

Turning to convertible debt issues by NYSE/Amex listed firms in Panel (b), the matching firm technique again produces significant post-issue abnormal performance for issuer stocks of a magnitude similar to that of SEO issuers. Using EW portfolios of buy-and-hold returns, the average five-year abnormal performance of issuers is 16.1% lower than the corresponding performance of the control firms matched on size and book-to-market ratios. With VW portfolios, the difference is -28.2%. The latter result is substantially *greater* than the SEO issuer underperformance of -6.4% reported in Table 3. So, we again find evidence of abnormal performance for debt issuers similar in spirit to the Loughran and Ritter (1995) results for SEO issuers.

Table 13 shows Jensen's alpha estimates for our two debt issuer samples using the six-factor model to adjust for risk. Focusing first on the sample of 981 straight debt offerings by industrial firms in Panel (a), none of the alpha estimates are significant at the 5% level. For utility firms, the issuer EW and VW portfolios also have insignificant alphas. However, the *matching firm* portfolios now exhibit significantly positive alpha values, which in turn produces positive alphas for the two

[28] There is substantial evidence that the negative market reaction to seasoned security issue announcements is a function of the type of security issued. Eckbo (1986) and Masulis and Korwar (1986) show that the negative market reaction is approximately -3% for SEOs, -1.5% for convertibles and zero for straight debt issues. This evidence is consistent with adverse selection models (e.g., Myers and Majluf (1984)) where the market reaction reflects the potential for issuer mispricing.

zero-investment portfolios. Note that the matching firm portfolio for the straight debt offerings contains on average only 18 firms. Moreover, as pointed out earlier, the control sample procedure doesn't involve industry matching. In fact, of these 18 firms 16 are industrial companies. Thus, one interpretation of the positive alphas is that that our factor model tends to underprice relatively small portfolios of relatively large industrial issuers. But, there is no evidence of underpricing or overpricing for utility issuers.

For the convertible debt sample, Panel (b) of Table 13 lists Jensen's alphas for portfolios of issuers and their matching firms. Only one of the six portfolios have alpha estimates that are significantly different from zero at the 5% level. The exception is the VW issuer portfolio which has an alpha of -.33% and a p-value of 0.042. This portfolio represents 459 stocks of convertible debt issuers and contains on average 56 firms each month. The alpha of the matching firm portfolio is an insignificant 0.08%, resulting in a statistically insignificant abnormal performance for the zero-investment portfolio of 0.41%.

Overall, while the matching firm technique tends to produces significant "underperformance" following straight and convertible debt issues, the factor model approach tends to eliminate this abnormal performance. Thus, our conclusions for the debt sample are very much similar to our earlier conclusions for SEOs. Evidence of abnormal performance following debt issuance is highly sensitive to the control sample procedure used. Furthermore, evidence of abnormal underperformance by debt issuers is equally likely to be the results of abnormal overperformance by the matching firm sample.

6 Conclusions

Capital market participants react to security issue announcements by revaluing the issuer's stock price. This revaluation depends in part on the market's perception of the issuing firm's objectives and in part on the nature of the information asymmetry between investors and the firm concerning the true value of its securities. As surveyed Eckbo and Masulis (1995), substantial empirical research has established that the market reaction to SEOs is swift and consistent with the hypothesis that investors are concerned with adverse selection. The average two-day announcement-induced abnormal stock return to SEOs on the NYSE/Amex is -3%, a value-reduction equal to approximately 20% of the proceeds of the average issue. However, Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995), who find that SEO firms substantially underperform a set of non-issuing control firms over the five-year post-issue period, question whether the initial market reaction is unbiased: "... if the market fully reacted to the information implied by an equity issue announcement, the average announcement effect would be -33%, not -3%." (Loughran and Ritter, 1995, p.48).

This study raises doubts about the econometric foundation of the Loughran and Ritter (1995) "new issues puzzle". The puzzle represents the *joint* hypothesis that markets underreact to SEO announcements and that the non-issuing control firms capture the true risk characteristics of SEO firms. We examine the second part of this joint hypothesis using various factor model specifications to generate risk-adjusted expected returns. We focus in particular on zero-investment portfolios which are short the stocks of SEO firms and long the stocks of non-issuing control firms, where the control firms are matched on both size and book-to-market ratio. Overall, the evidence shows that these zero-investment portfolios exhibit systematic risk which is reflected in the estimates of our multifactor model. Thus, the matching firm technique of Loughran and Ritter (1995) and others does not adequately adjust for risk. Moreover, since we cannot reject the hypothesis that the zero-investment portfolios have zero abnormal returns over the post-SEO period, we conclude that the "new issues puzzle" is about proper risk adjustment rather than about market underreaction to the negative news released in security issue announcements.

Estimates of our factor model based on prespecified macroeconomic variables offers some interesting insights into the nature of the risk differences between issuers and non-issuing control firms. We find that, while SEO firms have slightly higher exposure to market risk than their non-issuing control firms, this effect is more than offset by lower post-issue risk exposure to unanticipated inflation, default spread, and for utility issuers measures of term structure risk. Intuitively, as equity issuers lower leverage, their exposure to unexpected inflation and default risks decrease, thus decreasing their stocks' expected returns relative to matched firms. Interestingly, we also find that equity issues significantly increase stock liquidity (measured by share turnover) which may further lower their expected returns due to lower liquidity premiums relative to non-issuer stocks.

We perform a number of sensitivity analyses, and our conclusions appear robust. Abnormal returns to the zero-investment portfolio are also insignificant for the post-1977 sub-period, for return horizons shorter than five years, for alternative factor mimicking procedures and when using the non-mimicked "raw" macroeconomic factors, and when all factor mimicking portfolios are "decontaminated" by eliminating issuing firms from these portfolios. The latter point is particularly important as it eliminates the possibility that our results are biased towards finding zero abnormal performance because the benchmark portfolios themselves include issuers (with abnormal underperformance).

Although we do not present a formal "horse race" between alternative factor models in this study, we do examine the impact of alternative model specifications. First, much in the spirit of Ferson and Schadt (1996), we condition our six-factor model on publicly available information that generate changes in expected returns due to predictable changes in systematic risks. Abnormal returns generated with this conditional factor model are also statistically insignificant. Second, as in Connor and Korajczyk (1988), we employ a model where the factors are extracted from the covariance matrix of returns using principal component estimation (as opposed to our prespecified factors). This model generates significant underperformance for equal-weighted portfolios of Nasdaq listed seasoned equity issuers, while all value-weighted portfolios, as well as NYSE/Amex-listed seasoned equity issuers, exhibit zero abnormal returns. Third, we re-estimate the results using the three-factor Fama and French (1993) model. This model also generates a negative Jensen's alpha for the equal-weighted portfolio of Nasdaq issuers. However, using the Fama-French model, the abnormal performance of the zero-investment portfolio is again statistically insignificant. In sum, our six-factor model with prespecified macroeconomic factors appears to perform somewhat better than the two commonly used alternative model specifications. More importantly, *none* of the models provide a statistically compelling basis for claiming that SEOs underperform their respective benchmark portfolios. This further strengthens the growing suspicion that the "new issues puzzle" is purely the result of poor risk controls when the analysis relies on the matching firm technique.

Finally, we report additional results not presented in earlier research on seasoned security offerings, including abnormal performance estimates following SEOs by regulated utilities and following industrial/utility offerings of convertible and straight debt. The matching firm technique produce underperformance for utility SEO issuers as well as for straight and convertible debt issues that is of a magnitude similar to that found for industrial SEOs. Since utility SEO issuers and issuers of straight debt have less potential for mispricing due to market timing, this finding raises further suspicion that the abnormal return estimates produced by the matching firm technique are seriously biased. Again, our factor model estimation by and large eliminates traces of abnormal performance, raising further suspicion about the evidence of a "new issues puzzle". Overall, the results of this study fails to reject the hypothesis that the market reactions to seasoned stock and debt offering announcements are unbiased.

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Table 1
Annual number of public offerings of seasoned common stock and debt by NYSE/Amex/Nasdaq listed stocks classified by security offered, industry type (industrial/utility) and exchange listing over the 1964–1995 period.[a]

'Ind" indicate industrial issuer while 'utl' indicate that the issuer is a public utility. Utilities are firms with CRSP SIC codes in the interval [4910, 4939].

			NYSE/Amex issuers						Nasdaq issuers[b]					
	Security issue		Equity		Convertible Debt		Straight Debt		Equity		Convertible Debt		Straight Debt	
Year	Equity Total	Debt Total	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl
1964	8	5	5	3	1	0	4	0	–	–	–	–	–	–
1965	6	16	5	1	4	2	3	7	–	–	–	–	–	–
1966	11	29	9	3	6	0	15	8	–	–	–	–	–	–
1967	10	44	8	2	12	2	16	14	–	–	–	–	–	–
1968	24	23	20	4	5	1	9	8	–	–	–	–	–	–
1969	35	38	14	11	4	1	11	21	–	–	–	–	–	–
1970	37	57	15	22	6	0	32	19	–	–	–	–	–	–
1971	64	50	44	22	9	0	17	22	–	–	–	–	–	–
1972	57	29	28	29	1	0	13	15	–	–	–	–	–	–
1973	55	20	10	45	2	0	7	11	–	–	–	–	–	–
1974	54	54	10	36	1	0	37	16	8	0	0	0	0	0
1975	94	46	22	56	1	0	32	13	16	0	0	0	0	0
1976	120	30	33	60	0	0	24	6	27	0	0	0	0	0
1977	81	28	7	55	0	0	18	10	19	0	0	0	0	0
1978	128	32	25	63	0	0	24	8	40	0	0	0	0	0
1979	113	132	23	59	13	0	86	30	31	0	0	0	3	0
1980	253	217	85	72	54	1	120	39	96	0	1	0	2	0
1981	251	167	71	80	45	2	77	42	100	0	0	0	1	0
1982	215	131	62	76	32	0	76	26	77	0	1	0	6	0
1983	495	166	218	54	56	2	90	15	223	1	1	0	2	0
1984	100	107	50	22	27	0	72	8	28	0	0	0	0	0
1985	254	142	96	24	47	1	79	9	134	1	2	0	3	1
1986	332	174	116	15	60	1	89	22	201	4	2	0	0	0
1987	206	83	95	7	39	1	31	9	104	3	2	0	1	0
1988	90	36	32	13	12	1	20	3	45	2	0	0	0	0
1989	154	25	48	17	7	0	11	6	89	4	1	0	0	0
1990	130	15	58	11	8	1	3	1	61	2	2	0	0	0
1991	337	62	118	27	29	1	22	5	192	3	5	0	0	0
1992	322	73	129	33	29	1	33	5	160	4	5	0	0	0
1993	442	88	141	36	28	0	41	6	265	4	11	0	2	0
1994	224	17	78	10	4	0	13	0	136	4	0	0	0	0
1995	132	–	29	8	–	–	–	–	95	1	–	–	–	–
Total	4860	2143	1704	976	542	18	1125	404	2147	33	33	0	20	1

[a]The sample period is 1964–1994 for debt issues.

[b]The first year of Nasdaq offerings is 1974.

Table 2
Mean issue characteristics for seasoned common stock and debt offerings, classified by industry type (industrial/utilities) and exchange listing over the 1964–1995 period.

Utilities ('Utl') are firms with CRSP SIC codes in the interval [4910, 4939]. Amount offered and market value of common stock are in 1995 dollars.

	NYSE/Amex						Nasdaq					
	Common Stock		Convertible Debt		Straight Debt		Common Stock		Convertible Debt		Straight Debt	
	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl	Ind	Utl
Gross proceeds of security offers (1995 $ millions)	101	108	157	201	321	293	37	27	99	–	152	72
Pre-offering market value of issuer common stock (1995 $ millions)	1513	1502	1888	2780	7705	3515	238	228	656	–	785	315
Offering gross proceeds divided by pre-offering market value of issuer common stock	0.17	0.10	0.22	0.19	0.23	0.11	0.24	0.18	0.32	–	0.52	0.23

Table 3

Five-year buy-and-hold stock percent returns (BHR) to seasoned equity issuers and their matched control firms, classified by exchange listing, industry type (industrial/utility), type of matching procedure (size/size-and-book-to-market), and portfolio weights (equal-/value-weighted) over the 1964–1995 period.

Buy-and-hold percent returns are defined as:

$$BHR \equiv \omega_i \sum_{i=1}^{N} \left[\prod_{t=\tau_i}^{T_i} (1 + R_{it}) - 1 \right] \times 100.$$

When equal-weighting (EW), $\omega_i \equiv \frac{1}{N}$, and when value-weighting (VW), $\omega_i = MV_i/MV$, where MV_i is the firms's common stock market value (in 1995 dollars) of the issuer in the month prior to the start of the holding period and $MV = \sum_i MV_i$. The p-values in the column marked $p(t)$ are p-values of the t-statistic using a two-sided test of no difference in average five-year buy-and-hold returns for issuer and matching firms. In panel (b) matches are drawn from the NYSE/Amex only, while in panel (c) matches are required to be listed on Nasdaq.The abnormal buy-and-hold returns shown in the columns marked "Difference" represent the difference between the average BHR in the "Issuer" and "Match" columns. The columns marked "Num obs." contain number of issues.

		Size matching					Size and book-to-market matching				
Industry	Weighting	Num obs.	Issuer	Match	Difference	$p(t)$	Num obs.	Issuer	Match	Difference	$p(t)$
(a) All seasoned stock offerings (NYSE/Amex/Nasdaq)											
Ind	EW	3851	44.2	71.1	−26.9	0.000	3315	44.3	67.5	−23.2	0.000
Ind	VW	3851	50.6	71.8	−21.1	0.006	3315	51.6	62.2	−10.6	0.161
Utl	EW	1009	35.5	41.3	−5.8	0.110	880	36.6	55.7	−19.0	0.000
Utl	VW	1009	27.7	33.9	−6.2	0.105	880	27.9	46.5	−18.6	0.002
(b) Seasoned stock offerings by NYSE/Amex listed firms											
Ind	EW	1704	53.0	73.7	−20.7	0.000	1485	52.7	70.8	−18.1	0.001
Ind	VW	1704	52.3	71.3	−19.0	0.033	1485	53.2	59.6	−6.4	0.468
Utl	EW	976	34.6	43.0	−8.4	0.021	847	35.6	51.3	−15.7	0.000
Utl	VW	976	27.3	35.3	−8.0	0.039	847	27.4	45.8	−18.4	0.002
(c) Seasoned stock offerings by Nasdaq listed firms											
Ind	EW	2147	38.7	69.3	−30.6	0.000	1829	39.3	65.8	−26.6	0.000
Ind	VW	2147	47.3	72.4	−25.1	0.002	1829	48.7	66.8	−18.2	0.058

Table 4
Average differences in five-year buy-and-hold stock returns (%) grouped by equity size and book-to-market quintiles for seasoned common stock issuers and their matching control firms over the 1964–1995 period.

The matching firms are selected to have similar size and book-to-market ratios. The quintile breakpoints are created using NYSE listed firms only. The size quintiles are ordered from Small to Big, and the book-to-market quintiles are ordered from Low to High. The parentheses on the left panels contain p-values computed using the t-statistic for the return difference between issuer and matching firm. The parentheses on the right panels contain the % of the cell represented by Nasdaq issuers.

	Abnormal five-year buy-and-hold stock returns (p-values in parentheses)					Number of observations (Percent Nasdaq firms in parentheses)				
Size:	Small	2	3	4	Big	Small	2	3	4	Big
(a) Industrial issuers										
Book-to-market ratios										
Low	−19.3	−14.7	−23.5	1.8	−12.0	583	540	327	177	95
	(0.028)	(0.166)	(0.079)	(0.891)	(0.505)	(83.7)	(78.1)	(62.1)	(36.2)	(13.7)
2	−49.6	−26.2	−30.3	−39.3	−32.9	251	185	113	71	53
	(0.029)	(0.024)	(0.047)	(0.116)	(0.033)	(68.9)	(55.1)	(34.5)	(9.9)	(3.8)
3	−35.9	−46.5	−17.7	−25.9	−9.0	156	94	69	68	56
	(0.122)	(0.130)	(0.309)	(0.120)	(0.547)	(60.9)	(35.1)	(42.0)	(16.2)	(1.8)
4	−28.4	−37.8	−21.6	21.6	−14.9	87	56	40	53	57
	(0.239)	(0.141)	(0.397)	(0.280)	(0.367)	(56.3)	(35.7)	(35.0)	(11.3)	(0.0)
High	−30.3	−32.0	−15.3	−23.6	33.4	74	47	23	21	18
	(0.383)	(0.289)	(0.673)	(0.504)	(0.111)	(51.4)	(36.2)	(8.7)	(4.8)	(0.0)
(a) Utility issuers										
Book-to-market ratios										
Low	–	–	−112.1	41.7	−14.7	–	–	1	2	2
	(–)	(–)	(–)	(0.467)	(0.625)	(–)	(–)	(0.0)	(0.0)	(0.0)
2	55.1	48.4	−14.9	−14.4	−2.9	–	1	5	20	36
	(0.080)	(–)	(0.343)	(0.452)	(0.474)	(–)	(0.0)	(0.0)	(0.0)	(0.0)
3	55.1	8.2	−39.1	−11.7	−6.4	4	19	33	74	64
	(0.080)	(0.763)	(0.023)	(0.057)	(0.580)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
4	−53.2	−23.2	−17.8	−24.3	−32.9	19	31	80	96	122
	(0.176)	(0.256)	(0.040)	(0.093)	(0.000)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
High	−20.8	0.6	−8.0	−9.3	−1.1	10	27	41	57	103
	(0.646)	(0.961)	(0.667)	(0.333)	(0.846)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

Table 5
Factor mimicking portfolios and macroeconomic variables used as risk factors over the 1964–1995 period.

A factor mimicking portfolio is constructed by first regressing the returns on each of the 25 size and book-to-market sorted portfolios of Fama and French (1993) on the total set of six factors, i.e., 25 time-series regressions producing a (25×6) matrix B of slope coefficients against the factors. If V is the (25×25) covariance matrix of the error terms in these regressions (assumed to be diagonal), then the weights on the mimicking portfolios are: $w = (B'V^{-1}B)^{-1}B'V^{-1}$ (see Lehmann and Modest (1988)). For each factor k, the return in month t for the corresponding mimicking portfolio is calculated from the cross-product of row k in w and the vector of month t returns on the 25 Fama-French portfolios.

(a) Economic variables

	N	Mean	Std Dev
Return on the CRSP value weighted market index (RM)	420	0.0052	0.0431
Change in real per capita consumption of nondurable goods (ΔRPC)[a]	420	0.0011	0.0073
Difference in BAA and AAA yield change (BAA−AAA)	420	-0.0002	0.0108
Unanticipated inflation (UI)[b]	420	-0.0002	0.0024
Return difference on Treasury bonds (20y−1y)[c]	420	0.0002	0.0257
Return difference on Treasury bills (TBILLspr)[d]	420	0.0005	0.0011

(b) Correlation coefficients for economic variables

	RM	ΔRPC	BAA−AAA	UI	20y−1y	TBILLspr
RM	1.000					
ΔRPC	0.135	1.000				
BAA−AAA	0.127	0.070	1.000			
UI	-0.113	-0.147	-0.166	1.000		
20y−1y	0.333	-0.034	0.293	-0.129	1.000	
TBILLspr	0.124	-0.001	0.328	-0.133	0.392	1.000

(c) Mimicking factor portfolios regressed on economic variables

	Independent variables						
Mimicking factor	Intercept	RM	ΔRPC	BAA−AAA	UI	20y−1y	TBILLspr
ΔRPC	0.01 (.650)	0.46 (.460)	11.93 (.001)	−0.59 (.816)	1.40 (.896)	−0.39 (.734)	9.31 (.724)
BAA−AAA	0.05 (.339)	−0.25 (.826)	−2.71 (.675)	16.87 (.000)	−2.77 (.887)	0.67 (.748)	−7.59 (.875)
UI	0.02 (.002)	−0.04 (.805)	0.52 (.568)	−0.05 (.942)	13.03 (.000)	0.01 (.972)	0.76 (.910)

[a] Seasonally adjusted real per capita consumption of nonduarble goods are from the FRED database.

[b] Unanticipated inflation (UI) is generated using a model for expected inflation that involves running a regression of real returns (returns on 30-day Treasury bills less inflation) on a constant and 12 of it's lagged values.

[c] This is the return spread between Treasury bonds with 20-year and 1-year maturities.

[d] The short end of the term structure (TBILLspr) is measured as the return difference between 90-day and 30-day Treasury bills.

Table 6
Jensen's alphas and factor loadings for stock portfolios of industrial issuers of seasoned common stock and non-issuing firms matched on size and book-to-market ratios over the 1964–1997 and 1974–1997 periods.

The model is:

$$r_{pt} = \alpha_p + \beta_1 \text{RM}_t + \beta_2 \Delta\text{RPC}_t + \beta_3(\text{BAA} - \text{AAA})_t + \beta_4 \text{UI}_t + \beta_5(20\text{y} - 1\text{y})_t + \beta_6 \text{TBILLspr}_t + e_t$$

where r_{pt} is either a portfolio excess return or a return on a zero investment portfolio that is long the stock of the matching firm and short the stock of the issuer, RM is the excess return on the market index, RPC is the percent change in the real per capita consumption of nonduarble goods, BAA−AAA is the difference in the monthly yield changes on bonds rated BAA and AAA by Moody's, UI is unanticipated inflation, 20y−1y is the return difference between Treasury bonds with 20 years to maturity and 1 year to maturity, and TBILLspr is the return difference between 90-day and 30-day Treasury bills. In the panel headings, T is the number of months in the time series regression, N is the average number of firms in the portfolio, and I is the number of issues used to construct the portfolio. In panel (b), matching firms are drawn from the population of NYSE/Amex-listed firms only, while in Panel (c), matches are drawn exclusively from the population of Nasdaq firms. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

		Factor betas						
Portfolio	$\hat{\alpha}$	RM	ΔRPC	BAA−AAA	UI	20y−1y	TBILLspr	Rsq
(a) SEOs by NYSE/Amex/Nasdaq listed industrials (1964–1997, T=406, N=361, I=3315)								
EW-Issuer	−0.05 (.769)	1.40 (.000)	0.02 (.000)	−0.00 (.018)	−0.03 (.020)	−0.22 (.000)	−0.27 (.814)	0.817
EW-Match	−0.10 (.447)	1.22 (.000)	0.02 (.000)	−0.00 (.436)	0.02 (.088)	−0.25 (.000)	0.67 (.593)	0.825
EW-zero	−0.05 (.718)	−0.18 (.000)	0.00 (.661)	0.00 (.043)	0.05 (.000)	−0.03 (.528)	0.94 (.323)	0.120
VW-Issuer	−0.03 (.818)	1.09 (.000)	−0.00 (.376)	−0.00 (.000)	−0.03 (.000)	0.06 (.164)	−1.94 (.081)	0.845
VW-Match	−0.10 (.298)	1.02 (.000)	−0.00 (.029)	0.00 (.044)	−0.00 (.733)	0.04 (.203)	−0.32 (.732)	0.880
VW-zero	−0.08 (.625)	−0.07 (.032)	−0.00 (.462)	0.01 (.000)	0.03 (.011)	−0.02 (.763)	1.62 (.335)	0.063
(b) SEOs by NYSE/Amex listed industrials (1964–1997, T=406, N=165, I=1485)								
EW-Issuer	−0.02 (.902)	1.32 (.000)	0.02 (.000)	−0.00 (.014)	−0.02 (.046)	−0.17 (.000)	0.32 (.769)	0.827
EW-Match	−0.16 (.172)	1.18 (.000)	0.02 (.000)	−0.00 (.633)	0.02 (.075)	−0.20 (.000)	2.68 (.022)	0.842
EW-zero	−0.14 (.321)	−0.14 (.000)	0.00 (.625)	0.00 (.018)	0.04 (.000)	−0.03 (.476)	2.36 (.011)	0.090
VW-Issuer	−0.02 (.843)	1.05 (.000)	−0.00 (.692)	−0.00 (.001)	−0.02 (.008)	0.07 (.115)	−1.59 (.179)	0.829
VW-Match	−0.13 (.207)	1.00 (.000)	−0.00 (.117)	0.00 (.006)	0.00 (.715)	0.06 (.116)	0.19 (.860)	0.866
VW-zero	−0.11 (.502)	−0.05 (.182)	−0.00 (.433)	0.01 (.000)	0.02 (.031)	−0.01 (.852)	1.78 (.310)	0.051
(c) SEOs by Nasdaq listed industrials (1974–1997, T=287, N=284, I=1829)								
EW-Issuer	−0.27 (.258)	1.58 (.000)	0.02 (.001)	−0.00 (.853)	−0.04 (.026)	−0.32 (.000)	−3.17 (.153)	0.791
EW-Match	−0.04 (.870)	1.33 (.000)	0.02 (.000)	−0.00 (.814)	0.02 (.304)	−0.34 (.000)	−2.70 (.206)	0.753
EW-zero	0.23 (.262)	−0.25 (.000)	0.00 (.362)	−0.00 (.975)	0.06 (.000)	−0.02 (.777)	0.47 (.741)	0.151
VW-Issuer	−0.01 (.977)	1.49 (.000)	−0.01 (.161)	−0.00 (.183)	−0.09 (.000)	−0.12 (.283)	−4.83 (.050)	0.759
VW-Match	−0.07 (.693)	1.27 (.000)	0.00 (.414)	−0.00 (.023)	−0.04 (.004)	−0.16 (.005)	−1.26 (.488)	0.796
VW-zero	−0.07 (.813)	−0.23 (.012)	0.02 (.124)	−0.00 (.588)	0.06 (.014)	−0.04 (.731)	3.57 (.161)	0.100

Table 7

Jensen's alphas and factor loadings for stock portfolios of utility issuers of seasoned common stock and non-issuing firms matched on size and book-to-market ratios over the 1964–1997 period, classified by exchange listing and portfolio weights.

The model is:

$$r_{pt} = \alpha_p + \beta_1 \mathrm{RM}_t + \beta_2 \Delta\mathrm{RPC}_t + \beta_3(\mathrm{BAA}-\mathrm{AAA})_t + \beta_4 \mathrm{UI}_t + \beta_5(20\mathrm{y}-1\mathrm{y})_t + \beta_6 \mathrm{TBILLspr}_t + e_t$$

where r_{pt} is either a portfolio excess return or a return on a zero investment portfolio that is long the stock of the matching firm and short the stock of the issuer, RM is the excess return on the market index, RPC is the percent change in the real per capita consumption of nonduarble goods, BAA−AAA is the difference in the monthly yield changes on bonds rated BAA and AAA by Moody's, UI is unanticipated inflation, 20y−1y is the return difference between Treasury bonds with 20 years to maturity and 1 year to maturity, and TBILLspr is the return difference between 90-day and 30-day Treasury bills. In the panel headings, T is the number of months in the time series regression, N is the average number of firms in the portfolio, and I is the number of issues used to construct the portfolio. In panel (b), matching firms are drawn from the population of NYSE/Amex-listed firms only, while in Panel (c), matches are drawn exclusively from the population of Nasdaq firms. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

		Factor betas						
Portfolio	$\hat{\alpha}$	RM	ΔRPC	BAA−AAA	UI	20y−1y	TBILLspr	Rsq
(a) SEOs by NYSE/Amex/Nasdaq listed utilities (1964–1997, T=406, N=57, I=880)								
EW-Issuer	−0.13 (.409)	0.49 (.000)	0.01 (.003)	−0.01 (.000)	0.02 (.059)	0.36 (.000)	5.25 (.001)	0.558
EW-Match	0.00 (.985)	1.00 (.000)	0.02 (.000)	−0.00 (.035)	0.02 (.015)	−0.06 (.139)	2.59 (.009)	0.855
EW-zero	0.13 (.451)	0.51 (.000)	0.00 (.446)	0.01 (.001)	−0.00 (.923)	−0.42 (.000)	−2.66 (.088)	0.333
VW-Issuer	−0.17 (.313)	0.49 (.000)	0.01 (.007)	−0.01 (.000)	0.01 (.439)	0.46 (.000)	4.48 (.004)	0.521
VW-Match	0.12 (.272)	0.99 (.000)	0.01 (.003)	−0.00 (.205)	0.01 (.171)	0.05 (.244)	0.18 (.866)	0.820
VW-zero	0.29 (.163)	0.50 (.000)	−0.00 (.451)	0.01 (.003)	0.00 (.918)	−0.41 (.000)	−4.31 (.023)	0.255
(b) SEOs by NYSE/Amex listed utilities (1964–1997, T=406, N=54, I=847)								
EW-Issuer	−0.12 (.445)	0.48 (.000)	0.01 (.007)	−0.01 (.000)	0.01 (.211)	0.39 (.000)	5.04 (.002)	0.556
EW-Match	−0.02 (.834)	1.00 (.000)	0.01 (.000)	−0.00 (.020)	0.02 (.036)	−0.06 (.101)	2.76 (.007)	0.855
EW-zero	0.10 (.579)	0.51 (.000)	0.00 (.459)	0.01 (.001)	0.00 (.846)	−0.45 (.000)	−2.29 (.153)	0.323
VW-Issuer	−0.18 (.298)	0.48 (.000)	0.01 (.007)	−0.01 (.000)	0.01 (.458)	0.46 (.000)	4.49 (.004)	0.518
VW-Match	0.12 (.293)	0.99 (.000)	0.01 (.003)	−0.00 (.221)	0.01 (.162)	0.05 (.276)	0.19 (.854)	0.819
VW-zero	0.29 (.164)	0.51 (.000)	−0.00 (.434)	0.01 (.004)	0.00 (.887)	−0.41 (.000)	−4.30 (.023)	0.255

Table 8

Jensen's alphas for stock portfolios of industrial issuers of seasoned common stock and non-issuing firms matched on size and book-to-market ratios, for one-year to five-year holding periods over the 1964–1997 and 1974–1997 sample periods, classified by exchange listing and portfolio weights.

The model is:

$$r_{pt} = \alpha_p + \beta_1 \text{RM}_t + \beta_2 \Delta\text{RPC}_t + \beta_3(\text{BAA} - \text{AAA})_t + \beta_4 \text{UI}_t + \beta_5(20\text{y} - 1\text{y})_t + \beta_6 \text{TBILLspr}_t + e_t$$

where r_{pt} is either a portfolio excess return or a return on a zero investment portfolio that is long the stock of the matching firm and short the stock of the issuer, RM is the excess return on the market index, RPC is the percent change in the real per capita consumption of nonduarble goods, BAA−AAA is the difference in the monthly yield changes on bonds rated BAA and AAA by Moody's, UI is unanticipated inflation, 20y−1y is the return difference between Treasury bonds with 20 years to maturity and 1 year to maturity, and TBILLspr is the return difference between 90-day and 30-day Treasury bills. Rows labeled 'T' show the number of months in the time series regression while rows labeled 'average N' contain the average number of firms in the portfolio. In panel (a), matching firms are drawn from the population of NYSE/Amex-listed firms only, while in Panel (b), matches are drawn exclusively from the population of Nasdaq firms. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

	Jensen's alpha				
	12 months	24 months	36 months	48 months	60 months
(a) SEOs by NYSE/Amex listed industrials (1964–1997)					
EW-Issuer	0.36 (0.097)	0.08 (0.606)	−0.01 (0.949)	0.01 (0.966)	−0.02 (0.902)
EW-Match	−0.06 (0.709)	−0.08 (0.576)	−0.13 (0.295)	−0.15 (0.217)	−0.16 (0.172)
EW-zero	−0.42 (0.085)	−0.16 (0.375)	−0.12 (0.442)	−0.16 (0.288)	−0.14 (0.321)
VW-Issuer	0.34 (0.118)	−0.06 (0.676)	−0.19 (0.174)	−0.08 (0.522)	−0.02 (0.843)
VW-Match	0.27 (0.125)	0.02 (0.904)	−0.03 (0.814)	−0.08 (0.488)	−0.13 (0.207)
VW-zero	−0.07 (0.794)	0.08 (0.686)	0.16 (0.373)	0.01 (0.973)	−0.11 (0.502)
T	388	400	406	406	406
Average N	44	81	113	141	165
(b) SEOs by Nasdaq listed industrials (1974–1997)					
EW-Issuer	−0.01 (0.963)	−0.34 (0.158)	−0.34 (0.165)	−0.30 (0.215)	−0.27 (0.258)
EW-Match	−0.20 (0.401)	−0.14 (0.518)	−0.14 (0.537)	−0.08 (0.718)	−0.04 (0.870)
EW-zero	−0.19 (0.496)	0.20 (0.392)	0.20 (0.363)	0.22 (0.299)	0.23 (0.262)
VW-Issuer	0.36 (0.293)	0.07 (0.813)	−0.07 (0.801)	−0.04 (0.890)	−0.01 (0.977)
VW-Match	−0.15 (0.525)	−0.19 (0.369)	−0.17 (0.379)	−0.11 (0.556)	−0.07 (0.693)
VW-zero	−0.50 (0.153)	−0.26 (0.407)	−0.10 (0.733)	−0.08 (0.788)	−0.07 (0.813)
T	269	281	287	287	287
Average N	79	144	199	247	284

Table 9

Jensen's alphas for stock portfolios of industrial SEOs and non-issuing firms matched on size and book-to-market ratio, estimated using (a) a recent sample period, (b) continuously updated mimicking factors, (c) "decontaminated" mimicking factors, and (d) raw macroeconomic factors, classified by exchange listing and portfolio weights for sample periods between 1964–1997.

The model used in panel (a) through (d) is our six-factor model (see, e.g., Table 8). The last column labeled 'N' contains the average number of firms in the portfolio. In rows labeled 'NYSE/Amex' issuers and matching firms are from the population of NYSE/Amex-listed firms only, while in rows labeled 'Nasdaq', issuers and matches are exclusively from the population of Nasdaq firms. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

	Equally weighted portfolios			Value weighted portfolios			
Exchange	Issuer	Match	zero-investment	Issuer	Match	zero-investment	N
(a) Alpha estimates for the subperiod 1977–1997							
NYSE/Amex	−0.22 (0.087)	−0.14 (0.187)	0.07 (0.380)	−0.05 (0.675)	−0.18 (0.076)	−0.13 (0.442)	267
Nasdaq	−0.30 (0.175)	−0.06 (0.751)	0.24 (0.073)	0.12 (0.634)	−0.00 (0.999)	−0.12 (0.580)	376
(b) Alpha estimates with continuous updating of factor-mimicking portfolio weights (1974–1997)							
NYSE/Amex	0.02 (.929)	0.08 (.581)	0.06 (.670)	0.07 (.720)	−0.11 (.459)	−0.18 (.438)	209
Nasdaq	−0.14 (.522)	0.19 (.380)	0.33 (.136)	−0.03 (.904)	−0.04 (.839)	−0.01 (.978)	284
(c) Alpha estimates when factor-mimicking portfolios are "decontaminated" or purged of issuers (1964–1997 for NYSE/Amex, 1974–1997 for Nasdaq)							
NYSE/Amex	−0.11 (0.450)	−0.21 (0.067)	−0.10 (0.487)	−0.05 (0.687)	−0.11 (0.288)	−0.06 (0.693)	165
Nasdaq	−0.42 (0.066)	−0.15 (0.449)	0.27 (0.199)	−0.16 (0.552)	−0.16 (0.375)	0.00 (0.991)	284
(d) Alpha estimates using the original raw factors series (1964–1997 for NYSE/Amex, 1974–1997 for Nasdaq)							
NYSE/Amex	−0.12 (0.451)	−0.17 (0.176)	−0.04 (0.773)	−0.10 (0.393)	−0.13 (0.215)	−0.02 (0.883)	165
Nasdaq	−0.40 (0.118)	−0.01 (0.964)	0.39 (0.116)	−0.32 (0.232)	−0.23 (0.243)	0.09 (0.762)	284

Table 10

Jensen's alphas for stock portfolios of industrial issuers of seasoned common stock and non-issuing firms matched on size and book-to-market ratios, estimated using (a) conditional factor model, (b) principal component factors, and (c) the Fama-French three-factor model, classified by exchange listing and portfolio weights for sample periods between 1964–1997.

The conditional factor model in panel (a) is:

$$r_{pt} = b'_{p0} r_{Ft} + b'_{p1}(Z_{t-1} \otimes r_{Ft}) + e_{pt},$$

where the information variables in Z_{t-1} include the lagged dividend yield on the CRSP value-weighted market index, the lagged 30-day Treasury bill rate, and the lagged values of BAA−AAA and TBILLspr. The model used in panel (b) is the five-factor model of Connor and Korajczyk (1988) where factors are extracted from the covariance matrix of asset returns. The last column labeled 'N' contains the average number of firms in the portfolio. In rows labeled 'NYSE/Amex' issuers and matching firms are from the population of NYSE/Amex-listed firms only, while in rows labeled 'Nasdaq', issuers and matches are exclusively from the population of Nasdaq firms. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

	Equally weighted portfolios			Value weighted portfolios			
Exchange	Issuer	Match	zero-investment	Issuer	Match	zero-investment	N
(a) Alpha estimates using a conditional factor model with time-varying betas (1964–1997 for NYSE/Amex, 1974–1997 for Nasdaq)							
NYSE/Amex	−0.05 (0.749)	−0.15 (0.300)	−0.09 (0.575)	−0.05 (0.713)	−0.18 (0.094)	−0.13 (0.422)	165
Nasdaq	−0.09 (0.726)	0.25 (0.330)	0.34 (0.156)	0.10 (0.732)	0.22 (0.301)	0.13 (0.693)	284
(b) Alpha estimates using Connor and Korajczyk (1988) principal component factors extracted from the covariance of asset returns (1964–1997 for NYSE/Amex, 1974–1997 for Nasdaq)							
NYSE/Amex	−0.14 (0.302)	−0.08 (0.485)	0.07 (0.604)	−0.21 (0.158)	−0.14 (0.328)	0.07 (0.617)	165
Nasdaq	−0.64 (0.005)	−0.25 (0.210)	0.39 (0.038)	−0.54 (0.042)	−0.23 (0.288)	0.31 (0.197)	284
(c) Alpha estimates using the Fama and French (1993) three-factor model (1964–1997 for NYSE/Amex, 1974–1997 for Nasdaq)							
NYSE/Amex	−0.12 (0.257)	−0.13 (0.110)	−0.01 (0.967)	−0.17 (0.132)	−0.11 (0.231)	0.06 (0.686)	165
Nasdaq	−0.42 (0.009)	−0.10 (0.548)	0.32 (0.100)	−0.12 (0.520)	−0.12 (0.427)	0.00 (0.999)	284

Table 11
Average monthly stock turnover (shares traded divided by pre-offering shares outstanding) for the five-year periods prior to and following seasoned common stock offerings for sample periods 1964–1995 and 1974–1995.

	5-year period prior to SEO offer date					5-year period following SEO offer date				
	Issuers		Matches			Issuers		Matches		
Industry	Mean	Std Dev	Mean	Std Dev	p-value[a]	Mean	Std Dev	Mean	Std Dev	p-value[a]
(a) Seasoned stock offerings by NYSE/Amex listed firms (1964-1995)										
Ind	5.72	4.46	4.37	3.43	0.000	7.08	4.70	4.46	3.27	0.000
Utl	2.01	1.47	3.05	2.69	0.000	2.63	1.85	3.66	2.94	0.000
(b) Seasoned stock offerings by Nasdaq listed firms (1974-1995)										
Ind	12.44	45.58	9.33	8.96	0.010	14.48	11.42	8.29	8.75	0.000

[a] The p-values are for differences in mean turnover between issuers and matching firms.

Table 12

Five-year buy-and-hold stock returns (%) for all firms undertaking seasoned bond offerings with NYSE or Amex listed stock and their control sample matched on exchange listing, size, and (optionally) book-to-market ratios for the 1964–1995 period. The sample is classified by portfolio weights, industry type, and debt category.

Matched firms are required to have stocks listed on NYSE/Amex, and are chosen using size- and size and book-to-market matching. The size-matching is done using the equity market value of the issuer. Book-to-market matching involves first selecting all companies that have an equity market value within 30% of that of the issuer. Then the company with the closest book-to-market value is chosen as the matching firm. Numbers in the columns marked "Issuer" and "Match" are computed using:

$$\omega_i \sum_{i=1}^{N} \left[\prod_{t=\tau_i}^{T_i} (1 + R_{it}) - 1 \right] \times 100,$$

where the weights are $\omega_i \equiv 1/N$ for equal-weighted averages and $\omega_i = MV_i/MV$ for value-weighted averages , where MV_i is the market value (in 1995 dollars) of the issuer in the month prior to the start of the holding period and $MV = \sum_i MV_i$. The p-values in the column marked $p(t)$ are p-values of the t-statistic using a two-sided test of no difference in average five-year buy-and-hold returns for issuer and matching firms.

		Size matching					Size and book-to-market matching				
Industry	Weighting	Num obs.	Issuer	Match	Difference	p(t)	Num obs.	Issuer	Match	Difference	p(t)
(a) Straight debt offerings by NYSE/Amex listed firms											
Ind	EW	1125	52.1	55.1	-3.0	0.556	981	51.7	62.9	-11.2	0.064
Ind	VW	1125	29.2	29.8	-0.6	0.902	981	31.1	32.3	-1.1	0.832
Utl	EW	404	25.3	30.7	-5.5	0.238	348	24.5	35.0	-10.4	0.022
Utl	VW	404	15.0	18.9	-3.9	0.206	348	16.1	26.3	-10.2	0.007
(b) Convertible bond offerings by NYSE/Amex listed firms											
Ind	EW	542	49.3	78.8	-29.5	0.000	459	51.7	67.7	-16.1	0.050
Ind	VW	542	45.0	72.9	-28.0	0.012	459	45.2	73.4	-28.2	0.058

Table 13

Jensen's alphas for stock portfolios of debt issuers and control firms matched on size and book-to-market ratio for stocks listed on the NYSE/Amex over the 1964–1997 period, classified by industry type and debt category.

The model is:

$$r_{pt} = \alpha_p + \beta_1 \mathrm{RM}_t + \beta_2 \Delta\mathrm{RPC}_t + \beta_3(\mathrm{BAA} - \mathrm{AAA})_t + \beta_4 \mathrm{UI}_t + \beta_5(20\mathrm{y} - 1\mathrm{y})_t + \beta_6 \mathrm{TBILLspr}_t + e_t$$

where r_{pt} is either a portfolio excess return or a return on a zero investment portfolio that is long the stock of the matching firm and short the stock of the issuer, RM is the excess return on the value-weighted CRSP NYSE/Amex/Nasdaq market index, RPC is the percent change in the real per capita consumption of nondurable goods, BAA−AAA is the difference in the monthly yield changes on bonds rated BAA and AAA by Moody's, UI is unanticipated inflation, 20y−1y is the return difference between Treasury bonds with 20 years to maturity and 1 year to maturity, and TBILLspr is the return difference between 90-day and 30-day Treasury bills. In the panel headings, T is the number of months in the time series regression, N is the average number of firms in the portfolio, and I is the number of issues used to construct the portfolio. The coefficients are estimated using OLS. Standard errors are computed using the heteroscedasticity consistent estimator of White (1980). The numbers in parentheses are p-values.

		Factor betas						
Portfolio	$\hat{\alpha}$	RM	ΔRPC	BAA−AAA	UI	20y−1y	TBILLspr	Rsq
(a) Straight debt offerings by NYSE/Amex listed firms								
Industrials (1964–1997, T=406, N=86, I=981)								
EW-Issuer	−0.10 (.301)	1.11 (.000)	0.01 (.004)	−0.00 (.014)	0.02 (.078)	−0.10 (.019)	0.87 (.309)	0.867
EW-Match	0.12 (.187)	0.97 (.000)	−0.00 (.782)	−0.00 (.217)	−0.01 (.156)	0.00 (.857)	1.24 (.130)	0.888
EW-zero	0.22 (.069)	−0.14 (.000)	−0.01 (.008)	0.00 (.130)	−0.03 (.013)	0.10 (.014)	0.37 (.679)	0.096
VW-Issuer	−0.07 (.420)	0.96 (.000)	−0.00 (.325)	−0.00 (.476)	0.03 (.000)	0.02 (.407)	−0.36 (.576)	0.865
VW-Match	0.14 (.137)	0.93 (.000)	−0.01 (.000)	0.00 (.000)	−0.02 (.021)	0.09 (.005)	−0.05 (.946)	0.854
VW-zero	0.21 (.118)	−0.03 (.223)	−0.01 (.000)	0.01 (.000)	−0.05 (.000)	0.07 (.128)	0.30 (.790)	0.144
Utilities (1965–1997, T=395, N=18, I=348)								
EW-Issuer	−0.22 (.183)	0.55 (.000)	0.01 (.007)	−0.01 (.000)	0.01 (.382)	0.33 (.000)	5.23 (.003)	0.569
EW-Match	0.25 (.043)	0.85 (.000)	0.00 (.130)	−0.00 (.007)	0.01 (.415)	0.15 (.000)	0.45 (.640)	0.778
EW-zero	0.48 (.015)	0.30 (.000)	−0.01 (.072)	0.01 (.003)	−0.00 (.855)	−0.18 (.031)	−4.78 (.017)	0.169
VW-Issuer	−0.29 (.085)	0.51 (.000)	0.01 (.006)	−0.01 (.000)	0.01 (.570)	0.40 (.000)	4.71 (.005)	0.534
VW-Match	0.41 (.004)	0.82 (.000)	−0.00 (.932)	−0.00 (.070)	0.00 (.863)	0.20 (.000)	−1.70 (.150)	0.717
VW-zero	0.71 (.001)	0.31 (.000)	−0.01 (.034)	0.01 (.005)	−0.00 (.752)	−0.20 (.029)	−6.42 (.003)	0.172
(b) Convertible bond offerings by NYSE/Amex listed firms								
Industrials (1964–1997, T=407, N=56, I=459)								
EW-Issuer	−0.31 (.066)	1.27 (.000)	0.01 (.002)	−0.00 (.398)	−0.01 (.248)	−0.19 (.000)	0.41 (.704)	0.779
EW-Match	−0.23 (.065)	1.12 (.000)	−0.00 (.761)	−0.00 (.277)	0.01 (.260)	−0.18 (.016)	0.71 (.605)	0.824
EW-zero	0.08 (.673)	−0.15 (.001)	−0.01 (.005)	−0.00 (.939)	0.02 (.079)	0.00 (.970)	0.31 (.847)	0.060
VW-Issuer	−0.33 (.042)	1.14 (.000)	−0.00 (.323)	0.00 (.284)	−0.02 (.016)	−0.08 (.066)	1.28 (.316)	0.776
VW-Match	0.08 (.550)	1.06 (.000)	−0.01 (.000)	0.00 (.961)	0.01 (.321)	−0.01 (.901)	−3.23 (.038)	0.801
VW-zero	0.41 (.064)	−0.07 (.215)	−0.01 (.063)	−0.00 (.416)	0.03 (.020)	0.07 (.406)	−4.51 (.037)	0.043