Essays on Stock Issuance

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ESSAYS ON STOCK ISSUANCE

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Niklas Kohl

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The PhD School in Economics and Management

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CBS COPENHAGEN BUSINESS SCHOOL
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Essays on Stock Issuance

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PhD School in Economics and Management

Copenhagen Business School

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"The PhD School in Economics and Management is an active national and international research environment at CBS for research degree students who deal with economics and management at business, industry and country level in a theoretical and empirical manner".

Preface

This dissertation is the result of my Ph.D. studies at the Department of Finance at the Copenhagen Business School. It consists of summaries in English and Danish, an introduction and three self-contained essays on the long-run performance of firms issuing new equity.

The dissertation, and my professional development at large, has benefited from the support and advice of many people. First and foremost, I am indebted to my supervisor Søren Hvidkjær for his support and guidance throughout the process. My secondary supervisor Ken Bechmann has read a number of very preliminary draft and helped me sharpen ideas. Lasse Heje Pedersen invited me to teach the course Hedge Fund Strategies together with him, and helped me secure an internship at AQR Capital Management.

Moreover, I thank colleges, fellow Ph.D. students, and the numerous master students, I have had the pleasure to teach and supervise, for making my years at Copenhagen Business School so enjoyable.

There are things they don't teach you at a Business School - for example how markets really work and how you make money on them. Fortunately, I have spent time, actually a lot of time, hanging out with people who could make op for this. Thorleif Jackson has taught me a lot about how you run a small investment company and has introduced me to his network of investors and fund managers. Numerous discussions with my business partner Jon Forst has sharpened my understanding of, in particular, market making and price dynamics in connection with corporate actions. I hope our joint struggle to keep markets efficient will remain joyful and profitable.

Finally, I thank my family, parents, children and in particular Lene for support throughout the process.

Niklas Kohl

Copenhagen, September 2017

Summary

Summary in English

Stock Issuance and the Speed of Price Discovery

Firms which issue new equity subsequently have lower returns than other firms, but does the strength of the issuance effect vary in the cross section of firms? The essay shows, that US firms with characteristics that makes them "hard to value" have returns which are strongly related to their past issuance activity, while the return of "easy to value" firms are less related to their past issuance activity. In most cases the difference between "hard to value" and "easy to value" firms are significant.

As proxies for "hard to value", I use three different types of firm characteristics. First, I consider firms for which relatively little information is available as "hard to value". Examples are firms covered by few analysts and small firms. Second, I consider firms with high levels of analyst disagreement on stock price target, next quarter earnings per share and share recommendation as "hard to value". Third, firms with expected cashflows in the more distant future are "hard to value". These include firms with low earnings, high asset growth, and low dividend yield.

As one possible explanation, consistent with the empirical results, I propose a model with informed investors receiving a noisy value signal, and other investors who infer value from past market prices. I analyze the price dynamics after informed investors have received a new value signal (for instance an issue announcement), and show that prices will converge to fundamental

value, but convergence will be slowest when the value signal is most noisy, i.e. for firms which are "hard to value".

The Issuance Effect in International Markets

The issuance effect first documented in the US market also exists in international markets, but does the strength of the issuance effect vary in the cross section of markets? The essay shows that the issuance effect is stronger in non-developed markets, i.e. markets not classified as developed by MSCI, than in developed markets. If firms listed in non-developed markets are more difficult to value than firms listed in developed markets, then the result is consistent with the "hard to value" hypothesis advocated in the essay "Stock Issuance and the Speed of Price Discovery".

The empirical results are inconsistent with those reported by McLean *et al.* (2009) who find a stronger issuance effect in more developed markets than in less developed markets.[1] My essay shows, how their results are not robust to minor methodological changes. I propose an alternative approach, which arguably is better suited to explore differences in the issuance effect in the cross-section of markets. I show that this approach confirms my empirical results in several robustness tests.

Issue costs, financial and otherwise, are likely to be higher in less developed markets than in more developed markets. The essay proposes a model of the relationship between issue costs, issuance behavior and average long-run performance of issuers. Higher levels of issue costs predict lower issuance activity and lower long-run returns for issuers, consistent with the empirical findings.

[1]The list of references is found at the end of the section Introduction.

Does Information Asymmetry Explain Issuer Underperformance?

A prominent behavioral explanation for the low long-run returns of firms raising new equity through seasoned equity offerings (SEOs) holds, that opportunistic firms exploit information asymmetry at issue time to sell overvalued equity Loughran and Ritter (1995). If this explanation holds, one would expect that the most overvalued issuers, and those which are least constrained in the sense, that they do not need to issue to continue operations or service current debt, have the best opportunities to exploit temporary windows of mispricing. Therefore, issuers with these characteristics should experience the lowest risk-adjusted returns subsequent to SEOs.

I derive proxies for overvaluation and issuer constrainedness and show, empirically, that the most overvalued and least constrained US SEO firms have similar or higher risk-adjusted long-run returns relative to issuers without these characteristics. Consequently, I find no evidence of information asymmetry at issue time as explanation for long-run performance of SEO firms.

As an alternative explanation, I propose that information asymmetry is particularly low at event time because of the information requirements on issuing firms and the incentives of issuers, investors, and intermediaries. In this case, a possible explanation for the low returns subsequent to SEOs is, that the marginal investor does not fully utilize all available information. I measure the informational content of the SEO announcement using the event return. Negative event returns are interpreted as "bad news" while the rarer positive event returns are interpreted as "good news". I show that, empirically, event news, and in particular negative event news, predict long-run return. This is consistent with the hypothesis that investors underreact to available information, and that information is only gradually reflected in prices, and that this process is slowest for “bad news”.

Dansk Resumé

Aktieemissioner og Priskonvergens

Selskaber som emitterer nye aktier har efterfølgende lavere afkast end andre selskaber, men er der forskel på styrken af ”emittent effekten” mellem forskellige typer af selskaber. Essayet viser en stærk sammenhæng mellem aktieudstedelse og efterfølgende afkast for selskaber som er svære at værdiansætte, mens denne sammenhæng er meget svagere for selskaber som er lettere at værdiansætte. I de fleste tilfælde er forskellen mellem selskaber som er svære at værdiansætte og selskaber som er lette at værdiansætte signifikant.

Jeg bruger tre forskellige typer af proxier for ”svær at værdiansætte”. For det første, selskaber med relativt lidt tilgængelig information, for eksempel selskaber som kun følges af få aktieanalytikere og små selskaber. For det andet, selskaber hvor analytikerne er meget uenige om aktiens prismål, næste kvartals indtjening og anbefaling på aktien. For det tredje, er selskaber med forventet cashflow langt ude i fremtiden sværere at værdiansætte. Eksempler på disse er selskaber med lav indtjening, høj vækst i aktivmassen og lave eller ingen udbytter.

Som en mulig forklaring, konsistent med de empiriske resultater, foreslår jeg en model med informerede investorer, som modtager et værdisignal med støj og andre investorer som udleder værdi fra observerede markedspriser. Jeg analyserer prisdynamikken efter at informerede investorer har modtaget et nyt værdisignal (for eksempel en emissionsmeddelelse), og viser at aktiens pris vil konvergere mod den fundamentale værdi, men at konvergensen vil være langsomst når værdisignalet har mest støj, dvs. for selskaber som er svære at værdifastsætte.

Emittent Effekten på Internationale Markeder

Emittent effekten, som først blev påvist på det amerikanske marked, eksisterer også på internationale markeder (dvs. udenfor USA), men er der forskel på styrken af effekten mellem forskellige markeder? Essayet viser at emittent effekten er stærkere på ikke-udviklede markeder, dvs. markeder som ikke er klassificerede som udviklede af MSCI, end på udviklede markeder. Hvis selskaber noteret på ikke-udviklede markeder er sværere at værdiansætte end selskaber noteret på udviklede markeder er dette resultat konsistent med "svær at værdiansætte" hypotesen udviklet i mit essay "Aktieemissioner og Priskonvergens".

De empiriske resultater er inkonsistente med resultaterne i McLean *et al.* (2009), som finder at emittent effekten er stærkere på mere udviklende markeder end på mindre udviklede markeder.[2] Mit essay viser, at deres resultater ikke er robuste i forhold til mindre metodemæssige ændringer. Jeg foreslår en anden metode, som jeg mener er mere egnet til at vurdere emittent effekten på tværs af markeder. Jeg viser at denne metode bekræfter mine resultater i forskellige robusthedstest.

Emissionsomkostninger, finansielle såvel som andre, et formodentlig højere på mindre udviklede markeder end på mere udviklede markeder. Essayet foreslår en model for sammenhængen mellem emissionsomkostninger, emissionsadfærd og emittenters gennemsnitlige langtids afkast. Højere emission-

[2]Se referencelisten i slutningen af afsnittet Introduction.

somkostninger prædikterer lavere emissionsaktivitet og lavere langtids afkast for emittenter, hvilket er konsistent med de empiriske resultater.

Forklarer Informationsasymmetri Emittenters Lave Afkast?

En prominent adfærdsteoretisk forklaring på det lave langtidsafkast for selskaber som emitterer nye aktier er, at opportunistiske selskaber udnytter informationsasymmetri på emissionstidspunktet til at sælge overvurderede aktier (Loughran and Ritter, 1995). Hvis denne forklaring holder, må det forventes, at de mest overvurderede emittenter, og de emittenter der er mindst begrænsede for så vidt at de ikke behøver at emittere for at fortsætte deres drift eller servicere kortfristet gæld, har de bedste muligheder for at udnytte midlertidige vinduer af forkert prisfastsættelse. Derfor bør selskaber med disse karakteristika have de laveste risikojusterede afkast efter emissionen.

Jeg udvikler proxier for overvurdering og begrænsethed og viser empirisk, at de mest overvurderede og mindst begrænsede amerikanske emittenter har samme eller højere risikojusteret afkast som emittenter uden disse karakteristika. Følgelig finder jeg ikke belæg for at informationsasymmetri på emissionstidspunktet forklarer langtidsafkast for emittenter.

Som alternativ forklaring foreslår jeg at informationsasymmetri er særligt lav på emissionstidspunktet fordi emittenten skal opfylde informationsforpligtelser og på grund af incitamenterne hos emittent, investorer og finansielle formidlere. I så fald er en mulig forklaring på det lave afkast efter emission, at den marginale investor ikke udnytter al tilgængelig information fuldt ud. Jeg måler informationsindholdet af emissionsmeddelelsen med afkastet ved emissionsmeddelelsens offentliggørelse. Negative afkast opfattes som "dårlige nyheder" og de sjældnere positive afkast opfattes som "gode nyheder". Jeg viser empirisk, at afkast ved emissionsmeddelelsens offentliggørelse, og især negative afkast, prædikterer langtidsafkast. Dette er konsistent med at investorer underreagerer på tilgængelig information, og at information kun gradvist afspejles i aktiens pris, og at denne proces er langsomst for "dårlige nyheder".

Contents

Introduction

This dissertation consists of three papers on stock issuance by listed firms. The study of stock issuance is important because one of the primary functions of the stock market is to enable firms to raise new equity to finance investments or operations. This takes place through initial public offerings (IPOs), but even more importantly through new equity issues by firms which are already listed. According to Thomson Reuters (2017), global IPO activity in 2016 totaled $131 billion while seasoned equity offerings (SEOs) raised $448 billion. McKeon (2015) shows that US-listed firms raise a similar amount in other issues. In total, global equity issuance activity raised around $1 trillion, and more than 80% of this was raised by listed firms.

SEOs refer to cases where the firm offers new shares for cash, usually to a group of selected investors, or pro rata to all current shareholders. Typically, the issue consists of at least 3% new shares, although larger issues are commonplace (McKeon, 2015). SEOs are events in the sense that the issue is announced and one can study return pre-event, when the event occurs, and post-event. Other issues, including the exercise of employee stock options, other warrants and convertible bonds, are much more frequent than SEOs but individually much smaller. These issues are not generally announced when they occur, but can only be inferred from quarterly reports or other filings . New issues also occur in connection with stock-financed mergers where the acquiring firm purchases all or some stocks in the target firm and pays with its own stocks.

It is well known that firms which issue new equity, on average, subsequently have high returns before the issue and low returns. In the third paper, I show that the average US SEO firms overperform, relative to the stock market, by more than 60% the year before issue and underperform by more than 20% over the three years subsequent to issue.

The appreciation before issue has a number of plausible explanations. It could reflect improved earnings prospects for the firm. To utilize these, increased investments might be necessary, hence the issue of new equity. Alternatively, the appreciation could be due to a reduction in required return, either market wide or for the particular firm, and either rationally or otherwise. In any case, lower required returns mean that more investment opportunities will move into positive net present value territory, hence the firm will invest more and issue more to finance investments. Finally, if the appreciation reflects mispricing, and firm management realize this, opportunistic firms may try to exploit the situation and sell overpriced equity to new investors to the benefit of old investors, possibly including themselves. In the case of issues due to the exercise of employee stock options (or other derivatives), average high returns before issue follow from the fact that these are only exercised when they are in-the-money. This is most likely to take place after the stock has appreciated. From an investor's perspective, the appreciation before issue is not interesting, because we do not know which firms will be next year's issuers.

The depreciation after issue is much more interesting. A key discussion in financial economics is to what extent financial markets are efficient in the sense that prices reflect available information. The majority of research on returns subsequent to issue takes a stance on this, either arguing that the low returns subsequent to issue are a "puzzle" which cannot be explained by a fully rational model or that returns are explained by known risk factors –

or at least factors known to predict return in the cross-section of stocks, i.e. there is no issuance puzzle. From an investor's perspective, the depreciation after issue is of utmost importance: to the extent it reflects a deviation from market efficiency, it provides trading opportunities. Even if it reflects exposure to rationally priced risk-factors, investors need to decide whether and to what extent they wish to be exposed to this risk.

My three papers seek to explore and test existing explanations and propose new explanations for the low returns subsequent to issue. The majority of previous research aims to show that issuers underperform or do not underperform on a risk-adjusted basis subsequent to issue. However, my papers differ, in that I investigate whether there are issuer characteristics which determine which issuers are likely to underperform. This is a useful approach, because the ability to characterize the types of issuers which underperform may help us understand the reasons for the underperformance regardless of whether these are behavioral or explained by risk. From an investment perspective, it is also useful because it highlights the issuers which should be avoided or possibly shorted and the issuers which can safely be purchased.

The first paper *Stock Issuance and the Speed of Price Discovery*, focuses on the issuance effect, i.e. the extent to which past issuance activity (in SEOs or otherwise) predicts future return in the cross section of listed US firms. This has previously been performed by Pontiff and Woodgate (2008) using the Fama and MacBeth (1973) methodology to measure the issuance effect. They report that past issuance activity is a strong and significant predictor of future return in the cross section of firms. The mentioned papers only control for firm size and firm book-to-market ratio in the Fama-MacBeth regressions. By now, it is well established that other factors predict future return. I add asset growth and profitability. This is partly motivated by the incorporation of these factors in the Fama French five-factor model Fama and French (2015), but also by the fact that issuers and non-issuers are likely to differ substantially in terms of these characteristics. Firms issue for a reason – and that reason is often because they need more equity due to poor profitability or because they want to grow their asset base through investments. Controlling for asset growth and profitability reduces the issuance effect substantially, i.e. a substantial part of the low return of issuers is explained by the fact that they have high asset growth and low profitability. This is partly in line with Bessembinder and Zhang (2013), who find that issuers and non-issuers differ in return-predicting characteristics beyond market value and book-to-market ratio.

However, the important contribution of the paper is to study how the issuance effect varies in the cross-section of firms. The question is whether the issuance effect is stronger for some types of firm than for others. Empirically, I show that the issuance effect is strong and significant among firms which are "hard to value" but small and often insignificant among firms which are "easy to value". I use three different types of proxies for "hard to value" – the amount of information available, the extent to which equity analysts agree on firm valuation, and whether expected cash-flows are in the near or more distant future. As one possible explanation, consistent with the empirical results, I propose a model with informed investors receiving a noisy value signal and other investors who infer value from past market prices. I study the price dynamics after informed investors have received a new value signal (for instance an issue announcement) and show that prices will converge to fundamental value, but convergence will be slowest when the value signal is most noisy, i.e. for firms which are "hard to value".

The second paper *The Issuance Effect in International Markets*, considers the issuance effect in international markets. If the issuance effect, at least partly, reflects some sort of market inefficiency or friction, this might be detectable in the cross section of international markets. It is natural to hypothesize that the issuance effect should be stronger in less developed, and presumably less efficiently priced, markets than in more developed markets. However, this hypothesis is at odds with the findings of McLean *et al.* (2009), who find that the issuance effect is strongest in the most developed markets, suggesting that this is because firms in developed markets can easily issue and repurchase equity. Therefore, in developed markets, it is easy to be opportunistic and exploit temporary mispricings. In less developed markets, issues and repurchases are more expensive and issues will only occur for "primary reasons", i.e. not to exploit mispricings.

I find this result troubling for two reasons. First, the reasoning assumes that firms get away with opportunistic behavior on a large scale in the most developed markets. Second, it is not at all clear that firms will refrain from opportunistic issues just because it is expensive to issue. The paper addresses both these concerns. Theoretically, I show that issue costs do reduce the frequency at which issues occur but do not prevent firms from attempting opportunistic issues. In fact, theoretically, the relation is opposite. In markets with high issue costs long-run issuer underperformance should be stronger than in markets with low issue costs. Empirically, I show that the methodology employed by McLean *et al.* (2009) is highly sensitive to seemingly arbitrary methodological choices. I suggest an alternative methodology, one which is arguably more suited to analyzing the issuance effect in the cross section of markets. The empirical result is that the issuance effect is significantly stronger in non-developed markets than in developed markets. This may be because of higher issue costs in non-developed markets, but the result is also consistent with the “hard to value” hypothesis developed in my first paper.

While the first two papers study the issuance effect, i.e. how issuance activity, whatever the form, predicts future return, the third paper focuses on SEOs. The purpose is to explore whether information asymmetry between firm management and investors at issue time can potentially explain long-run performance. This idea is most explicitly advocated in Loughran and Ritter (1995). If issuer underperformance is explained by opportunistic issues by overvalued issuers this could potentially be detected with suitable proxies for issuer overvaluation and proxies for whether issuers were in a position where they could choose to issue or not to issue. The hypothesis is that firms which are less financially constrained have more room to be opportunistic in their issuance behavior than firms for which an issue is necessary to finance current operations or service current debt. Empirically, I find no support for information asymmetry as an explanation for issuer underperformance, because the most overvalued issuers and the least financially constrained issuers do not have lower risk-adjusted long-run returns than less overvalued and more constrained issuers.

The paper also considers the possibility that information asymmetry is low at issue time. This is plausible due to information requirements in connection with issues, firms’ incentives to attract interest in the issue, and investors’ and intermediaries’ interest in conducting their own independent research in connection with issues. Nonetheless, long-run underperformance is possible if the marginal investor does not fully take the available information into consideration. I show that this explanation is consistent with empirical findings because event returns, and, in particular, negative event return ("bad news" at event time), predict long-run returns. As always in financial economics, empirical findings lend support for different interpretations. My empirical findings are that certain types of issuers, those with little information available, those which analysts disagree about , those with most of their expected cash-flows in the distant future, those which are listed in less developed markets, and those which experience the most negative event returns when they announce a SEO, are more likely to subsequently underperform on a risk-adjusted basis. One possible explanation, developed in the first paper, is that some investors do not have or do not utilize all available information, and the activities of more sophisticated investors, due to limits of arbitrage, cannot immediately compensate fully for this, in particular when the most sophisticated investors have the most negative valuation.

References

Bessembinder, H. and Zhang, F. (2013). Firm characteristics and long-run stock returns after corporate events. *Journal of Financial Economics*, *109*(1), 83 – 102.

Fama, E. F. and French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, *116*(1), 1 – 22.

Fama, E. F. and MacBeth, J. D. (1973). Risk, return, and equilibrium:

Empirical tests. *Journal of Political Economy*, *81*(3), 607.

Loughran, T. and Ritter, J. R. (1995). The new issues puzzle. *Journal of Finance*, *50*(1), 23 – 51.

McKeon, S. B. (2015). Employee option exercise and equity issuance motives. SSRN.

McLean, D. R., Pontiff, J., and Watanabe, A. (2009). Share issuance and cross-sectional returns: International evidence. *Journal of Financial Economics*, *94*(1), 1 – 17.

Pontiff, J. and Woodgate, A. (2008). Share issuance and cross-sectional returns. *Journal of Finance*, *63*(2), 921 – 945.

Thomson Reuters (2017). Global equity capital markets review. Webpage: http://share.thomsonreuters.com/general/PR/ECM_4Q_2016_E.pdf.

Stock Issuance and the Speed of Price Discovery

Niklas Kohl*

Abstract

Firms which issue new equity subsequently have lower returns than other firms. In this paper, I show that underperformance by issuers is confined to firms which are "hard to value", while issuance activity does not significantly predict future returns for "easy to value" firms. "Hard to value" firms include small cap, firms with high dispersion in analyst estimates and recommendations, and firms with more distant cash-flows, such as firms with low profitability, low dividend yield, or high asset growth. Moreover, I show that only the negative component of seasoned equity offering (SEO) event returns significantly predicts one-year post-SEO returns. These results are consistent with a model in which informed investors receive noisy signals of fundamental value and shorting is constrained or costly.

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1 Introduction

Firms which issue new equity subsequently have lower returns than other firms. This has been shown in the context of seasoned equity offerings (Loughran and Ritter (1995)) as well as for equity issuance in general (Daniel and Titman (2006), Pontiff and Woodgate (2008), Fama and French (2008b), Fama and French (2008a)). Pontiff and Woodgate (2008) conclude that "... post-SEO, post-repurchase, and post-stock merger return performance is part of a broader share issuance effect".

It is hardly surprising that firms which announce an issue of new shares, on average, experience negative abnormal event returns. It is more challenging to explain why low returns persist for a longer period. Early research focused on behavioral explanations. According to Loughran and Ritter (1995) firms issue equity when it is overvalued, but even if this is the case, an efficient market would capture this in the event return, as shown by Myers and Majluf (1984). Consequently, delayed price discovery must also be at work to explain subsequent underperformance. Loughran and Ritter (1995) suggest that "... companies announce stock issues when their stock is grossly overvalued, the market does not revalue the stock appropriately, and the stock is still substantially overvalued when the issue occurs.". This explanation finds some empirical support in McLean *et al.* (2009), who find evidence of market timing in international stock issues, and Pontiff and Woodgate (2008) who conclude that "... it appears doubtful that these results can be explained solely by a risk-based asset pricing model".

More recent papers have focused on risk-based explanations. Bessembinder and Zhang (2013) find that the reported SEO underperformance is due to imperfect control-firm matching. When controlling for idiosyncratic volatility, liquidity, momentum and investment, SEO abnormal returns become insignificant. This is in line with Lyandres *et al.* (2008), who report that around 75% of SEO underperformance is explained by an investment factor. Fu and Huang (2015) document that abnormal returns following stock repurchases and SEOs are insignificant during the period of 2003-2012. According to the authors, this is because the pricing of stocks has become more efficient and firms less opportunistic in their behavior.

In this paper, I find that a large portion of issuer performance is explained by exposure to factors beyond the Fama-French three factor model. Nonetheless, some underperformance remains to be explained. I explore the possibility that the negative abnormal returns associated with share issues are due to *investor underreaction* to news conveyed in connection with the issue. There may be several reasons for investor underreaction. For example, investors may suffer from a conservatism bias (Barberis *et al.* (1998)), investors may be inattentive during some time periods (Duffie (2010)), or information may only diffuse gradually among investors (Hong and Stein (1999)). In Hong *et al.* (2000), the diffusion hypothesis is tested empirically as an explanation for momentum. Information diffusion is expected to be slowest for small firms, under-analyzed firms and for negative news. Empirically, small firms, under-analyzed firms and past losers show stronger momentum than other firms.

As a possible explanation for my empirical findings, I propose a model in which some investors are *informed* in the sense that they observe a noisy unbiased signal of the fundamental value whereas *uninformed* investors use the last observed price as signal of the fundamental value. Trading takes place when informed investors and uninformed investors disagree on value. If the value signal received by informed investors remains constant, the price will converge to an equilibrium price reflecting the signal received by informed investors. The speed of convergence to equilibrium depends on the fraction of informed investors and the noise of the signal received. In particular, price discovery will be slowest for noisy signals and small numbers of informed investors. Moreover, the model predicts that shorting constraints will *increase* the speed of price discovery when the equilibrium price is above current price, i.e. for "good news", but *decrease* the speed of price discovery when equilibrium price is below current price, i.e. for "bad news".

I apply the model to the case of issuance and show that, empirically, only firms which are "hard to value" underperform significantly subsequent to stock issues. I consider three types of proxies for "hard to value". First, firms for which less information is available are likely to be more difficult to value than firms for which more information is available. For example, in Fama-MacBeth regressions, past issuance activity significantly predicts next month return in the quintile of firms followed by fewest analysts, excluding firms not followed by any analysts, while past issuance activity is insignificant for the quintile of firms followed by most analysts. t-statistics are -1.99 and -2.94 depending on controls. In the quintile of firms with smallest market value, past issuance is significant with t-statistics of -5.68 and -5.72 but insignificant in the quintile of firms with highest market value.

Second, I consider dispersion in analyst estimates and recommendations as proxies for difficulty to value. For example, in the quintile of firms with the highest dispersion in analyst price targets, past issuance activity significantly predicts next month return (t-statistics -2.50 and -2.70) but is insignificant for the quintile of firms with the lowest dispersion in analyst price targets. Third, I consider firms with more distant cash-flows to be more difficult to value than firms with cash-flows in the closer future. As an example, past issuance activity significantly predicts next month return (t-statistics -2.17 and -2.73) in the lowest return on equity quintile but is insignificant among the firms with the highest return on cash-flow.

I show these results in Fama-MacBeth regressions with past issuance activity as a continuous variable as well as with dummy variables corresponding to different levels of issue activity and with double sorted calendar-time portfolios. In most specifications, past issuance activity significantly predicts return for "hard to value" firms but only rarely for "easy to value" firms.

Moreover, I show that negative stock market reaction to SEO events, i.e. "bad news", in some specifications is significantly associated with long-run negative abnormal returns, whereas positive event returns, i.e. "good news" is not associated with long-run abnormal returns.

The remainder of this paper is organized as follows. In Section 2, a model of asset prices with informed and uninformed investors is presented and predictions of the model in general and in the context of issuance are discussed. The empirical strategy and data are presented in Section 3. I apply three different methods. Results from Fama-MacBeth regressions (Fama and MacBeth (1973)) and portfolios constructed based on two-dimensional sorts are presented in Section 4 and Section 5. In Section 6, I analyze the relation between event returns and long-run returns for SEO firms. Section 7 concludes.

2 Asset Prices with Informed and Uninformed Investors

This section presents a simple model of price discovery in a world with informed and uninformed investors. Informed investors observe a noisy signal of fundamental value while uninformed investors only observe the most recent market value of a risky asset. The model shows that the speed of price discovery depends on the fraction of informed investors and the level of noise on the value signal. The latter provides motivation for the empirical findings of this paper. Price discovery is slowest for assets which are hardest to value.

2.1 Model

Consider an economy with investors of which the fraction $\tau \in]0,1[$, are *informed* and $1-\tau$ are *uninformed*. All investors have absolute risk aversion parameter a. There is one risky asset in limited supply and a risk-free asset with zero return in unlimited supply. Assets can be traded in any fraction. Without loss of generality, I assume that the supply of risky assets equals the number of investors. The risky asset is traded at discrete times and the market clearing price is denoted P_t, $t = 0, 1, 2, \ldots$.

Immediately before time t informed investors learn that the fundamental value of the risky asset is normally distributed with mean $\mu_{i,t}$ and time independent variance $\sigma_i^2 > 0$. Uninformed investors believe that the time t value of the risky asset is normally distributed with mean $\mu_{u,t}$ and time independent variance $\sigma_u^2 > 0$. Uninformed investors calculate $\mu_{u,t}$ based on the most recent observed price P_{t-1}. The reasons for this are given below.

By definition, investors' expected return on the risky asset is $\mathbb{E}_t(R) =$

$\frac{\mu_t - P_t}{P_t}$ with variance $\mathbb{V}ar_t(R) = \frac{\sigma^2}{P_t^2}$, where μ_t is $\mu_{i,t}$ for informed investors and $\mu_{u,t}$ otherwise, and similarly σ is either σ_i or σ_u. Hence, their optimal investment in the risky asset is $\frac{\mathbb{E}_t(R)}{a\,\mathbb{V}ar_t(R)} = \frac{P_t(\mu_t - P_t)}{a\,\sigma^2}$.

While informed investors know μ_t and σ, uninformed investors believe that the expected value of the risky asset is fully revealed by the last observed price P_{t-1} and that no other investors have information other than themselves. Specifically, they assume that all investors are like themselves and that the last observed price P_{t-1} is consistent with investors' valuation. Market clearing implies that each investor should hold one risky asset, i.e.

$$\frac{P_{t-1}(\mu_{u,t} - P_{t-1})}{a\,\sigma_u^2} = P_{t-1}$$

with the solution

$$\mu_{u,t} = P_{t-1} + a\sigma_u^2 \tag{1}$$

In other words, uninformed investors believe that the value of the risky asset equals the last observed price plus the risk premium they require for holding the risky asset. While this belief is not consistent with rational expectations, because it ignores the presence of informed investors, it is consistent with the efficient market hypothesis, in the sense that uninformed investors assume that the last observed price incorporates all available information.[1] Demand from informed investors plus demand from uninformed investors must equal total supply. Hence, time t market clearing requires that[2]

[1]Uninformed rational expectations investors would realize that the price path $P_0, P_1, \ldots P_{t-1}$ contains information about the signals received by informed investors and would take this information into account when forming their beliefs.

[2]Here, I utilize that there are $n\tau$ informed investors, $n(1-\tau)$ uninformed investors, and a supply of n risky assets, where n is the number of investors. None of the results depend on the size of n.

$$(1-\tau)\,\frac{P_t(\mu_{u,t}-P_t)}{a\,\sigma_u^2}+\tau\,\frac{P_t(\mu_{i,t}-P_t)}{a\,\sigma_i^2}=P_t$$

with the solution

$$P_t=\mu_{u,t}+\frac{s_t\tau-\Sigma a\sigma_u^2}{\Sigma(1-\tau)+\tau} \tag{2}$$

where $\Sigma=\frac{\sigma_i^2}{\sigma_u^2}$ denotes the ratio between variance of valuation of informed investors and uninformed investors. Σ measures the precision of the signal received by informed investors relative to variance perceived by uninformed investors. $s_t=\mu_{i,t}-\mu_{u,t}$ is the time t spread between informed and uninformed investors' expected value of the risky asset. If the signal received by informed investors remains constant, i.e. $\mu_{i,t}=\mu_i$ for $t\geq T$ a necessary and sufficient condition for equilibrium is $P_t=P_{t-1}$. Insertion of this condition and the uninformed investors' valuation formula from equation 1 in equation 2 yields

$$P_t=P_t+a\sigma_u^2+\frac{s_t\tau-\Sigma a\sigma_u^2}{\Sigma(1-\tau)+\tau}\Rightarrow s_t=a\sigma_u^2(\Sigma-1) \tag{3}$$

By definition, $\mu_i=\mu_{u,t}+s_t$. Inserting $\mu_{u,t}$ from equation 1 and s_t from equation 3 and using the definition of Σ and the equilibrium condition $P_t=P_{t-1}$ yields the equilibrium price $P^*=\mu_i-a\sigma_i^2$. It depends only on informed investors' expected value and variance. In equilibrium investors do not agree on expected value unless $\Sigma=1$, but any disagreement will be "offset" by disagreement on variance.

Consider a situation in which informed investors receive a new and constant value signal $\mu_{i,t}=\mu_i$ for $t\geq T$. This creates a new equilibrium price, but the question of interest is under what conditions and how fast this equilibrium will be reached. Proposition 1 shows that P_t will always converge linearly to the equilibrium price P^*.

Proposition 1.

If $\mu_{i,t} = \mu_i$ for all $t \geq T$ then $P_t \to P^*$ for $t \to \infty$

The rate of convergence is $\frac{\Sigma(1-\tau)}{\Sigma(1-\tau)+\tau}$.

Proof.

See Appendix A.

By proposition 1, the rate of convergence depends only on Σ and τ. Since the partial derivatives

$$\begin{aligned}\frac{\partial \gamma}{\partial \Sigma} &= \frac{\tau - \tau^2}{\Lambda^2} > 0 \\ \frac{\partial \gamma}{\partial \tau} &= \frac{-\Sigma}{\Lambda^2} < 0\end{aligned}$$

convergence is faster for higher fractions of informed investors τ and for lower levels of noise of the value signal Σ received by informed investors.

We may augment the model with constraints on shorting. Some investors may be unable or unwilling to short and those who can and will, may face costs associated with shorting and limitations due to margin requirements and lending fees.

If $P^* > P_{t-1}$ informed investors will be buyers and uninformed investors will be sellers and potential shorters. If unconstrained uninformed investors would have taken short positions, introduction of shorting constraints would increase their demand and thus price. This, in turn, will increase $\mu_{u,t}$ above what it would otherwise have been, and increase the demand from uninformed investors until the shorting constraints are no longer binding.

An equilibrium where only informed investors hold the risky asset is not possible. In such an equilibrium, uninformed investors must have negative demand. This requires $\mu_{u,t} \leq P_t$. But by equation (1) $\mu_{u,t} = P_{t-1} + a\sigma_u^2$, so an equilibrium is impossible when $a > 0$ and $\sigma_u^2 > 0$. Consequently, shorting constraints on uninformed investors will decrease their impact on prices, and thus *increase* the speed of price discovery.

If $P^* < P_{t-1}$ the potential shorters are informed investors. If shorting constraints are binding, prices will be higher than they would otherwise have been, and the speed of price discovery will *decrease*. Even if shorting is impossible, an equilibrium where only uninformed investors hold the risky asset, and price discovery does not occur, is impossible. If uninformed investors hold all risky assets, market clearing implies that $P_t = \mu_{u,t} - \frac{a\sigma_u^2}{1-\tau} = P_{t-1} - \frac{\tau a\sigma_u^2}{1-\tau}$. Consequently, the price will decline provided $a > 0$, $\sigma_u^2 > 0$, and $\tau \in]0, 1[$.

Summing up, the model predicts that price discovery will always occur but be slowest for shares traded by few informed investors and for shares which are hard to value by informed investors. Shorting constraints will increase the speed of price discovery for good news, i.e. when $P^* > P_t$, but decrease the speed of price discovery for bad news, i.e. when $P^* < P_t$.

2.2 Application to Issuance

Large share issues, as well as share repurchases, are known to be information-conveying events. This has been documented in numerous event studies showing that SEO announcements, on average, are greeted with negative abnormal event returns, whereas repurchase announcements are greeted with positive abnormal event returns (see Eckbo *et al.* (2007) for a survey of studies of SEOs and Peyer and Vermaelen (2009) for repurchases).

For the case of share issuance, McKeon (2015) shows that 90% of quarters in which firms issue new shares, the issuance was not initiated by the firm but rather by investors, in particular through the exercise of employee stock options. These issues are generally small and unlikely to convey much information. In contrast, larger issues, often associated with SEOs or stock financed acquisitions, are firm-initiated and likely to convey information.

The model outlined in Section 2.1, predicts that larger share issues will be positively associated with future negative abnormal returns, because they on average convey negative information. Smaller issues are less likely to be associated with abnormal returns, as the information conveyed by smaller issues, in particular investor-initiated issues, is limited. Empirically, this is consistent with Fama and French (2008a) who find that large issues are associated with significant negative future abnormal returns, whereas small issues are associated with insignificant positive future abnormal returns.

Repurchase announcements may convey substantial positive information, but the model predicts that it will be absorbed by the market faster than negative information. Hence, it is less likely that share repurchases will be associated with significant future abnormal returns.

A novel prediction of the model is that the speed of price discovery will be slowest for "hard to value" firms trading above their fundamental value, such as "hard to value" firms with large equity issues. As "hard to value" is not directly observable, I consider three types of proxies for this property. First, I consider firms for which less information is publicly available. I measure the amount of public information by the firm's market value, because small firms disclose less information, and by the number of equity analysts following a firm. Second, I consider firms with high disagreement in analyst opinion. Here, I calculate dispersion in analyst price target, recommendation, and next quarter EPS estimate. Third, partly inspired by Baker and Wurgler (2007), I consider firms with more distant cash-flows. Firms with more distant cash-flows are harder to value, because there is more uncertainty associated with the more distant future. Firms with distant cash-flows are firms with low profitability, measured as return on equity, firms with low dividend yield, firms with high asset growth, and firms with low earnings to price ratio.

All these measures may arguably be proxies for difficulty to value, but may also be correlated with other characteristics known to predict return. In particular, market value, profitability, asset growth and the earnings to price ratio are all known to predict return. As an example, the model predicts that low profitability issuers will underperform relative to issuers with higher profitability because they are harder to value. But the underperformance may also be caused directly by the lower profitability. I address these concerns in two ways. First, I also use proxies which are not obviously correlated with return-predicting characteristics. Second, and more importantly, in the Fama-MacBeth regressions in Section 4, I control for all the return-predicting characteristics of the Fama and French (2015) five factor model as well as momentum and in the double sorted portfolio regressions reported in

Section 5, I regress returns on the Fama French five factor returns.

3 Empirical Strategy

3.1 Measures of Issuance

My gross sample consists of all shares on the monthly CRPS file during the period from 1985 to 2014 for which price `prc` or alternate price `altprc` and monthly return with and without dividends (`ret` and `retx`) are available.[3] Following some previous research (including Eckbo *et al.* (2007), Fama and French (2008a), and Bessembinder and Zhang (2013)), I leave out financial firms.[4]

To measure issuance activity, I monthly calculate the adjusted number of shares using the number of shares outstanding (`shrout`) and the cumulative factor to adjust shares (`cfacshr`) reported by CRSP. Observations for which the number of shares and cumulative factor to adjust shares are not available are dropped from the sample. Following Daniel and Titman (2006) net issue over the past year is defined as

$$NetIssue_{t,t-12} = ln(AdjustedShares_t) - ln(AdjustedShares_{t-12})$$

where $AdjustedShares_t$ is the time t adjusted number of shares. To distinguish between positive issuance and negative issuance (repurchases), I define

$$Issue_{t,t-12} = max(NetIssue_{t,t-12}, 0)$$

[3]Here and in the following variable names in CRSP and Compustat and other databases are given in `courier`.

[4]Some papers, including Loughran and Ritter (1995) and Daniel and Titman (2006) leave out utilities.

and

$$Repurchase_{t,t-12} = max(-NetIssue_{t,t-12}, 0)$$

To simplify notation *Issue*, *Repurchase*, and *NetIssue* refer to $Issue_{t,t-12}$, $Repurchase_{t,t-12}$, and $NetIssue_{t,t-12}$, respectively.

In some empirical tests, firm-month observations are sorted into issuance portfolios on *NetIssue* value. These portfolios are denoted *issue1*, *issue2*, *issue3*, *issue4*, and *issue5*, respectively. The breakpoints used are fixed to facilitate the interpretation of the portfolios. *issue1* consists of net repurchasers with $NetIssue < -0.1\%$. *issue2* is "zero-issuers" with $-0.1\% \leq NetIssue < 0.1\%$. *issue3*, *issue4*, and *issue5* are net issuers with *NetIssue* of at least 0.1%, 3% and 15%, respectively. The 3% breakpoint is motivated by McKeon (2015) who finds that issues of at least 3% are typically firm-initiated. The 15% breakpoint is chosen to separate firm-initiated issues in two groups of approximately same size.

The number of firms per *NetIssue* portfolio is shown in Figure 2. Figure 2 shows that zero-issuers have become less common and that the number of repurchasers varies strongly over time. In particular, it seems that the number repurchasers spikes in the period after major stock downturns, for example year 1988, after the dot-com bubble in year 2000, after the 2008 Financial crisis, and after the August 2011 stock market fall. Since repurchase is measured over the past year, a possible interpretation is that some firms utilize the low valuations to repurchase own equity.

[Insert Figure 2 about here]

Table 1 provides statistics for each of the five *NetIssue* portfolios. In terms of firm-month observations, *issue3*, the portfolio with small positive issuance activity, accounts for 36% of all observations. There are 20% repurchasers (*issue1*), 15% zero-issuers (*issue2*) and 16% and 12% in *issue4* and *issue5*, the two groups with high issuance activity. Zero-issuers are, on average, the smallest firms, issuers are larger and repurchasers the largest firms. *BM* is highest for zero-issuers and lowest for firms with high issuance activity. *ROE* and *EP* are, as one would expect, monotonically decreasing in *NetIssue* while *AG* in increasing in *NetIssue*.

[Insert Table 1 about here]

One of my empirical tests focuses on SEO firms. I obtain information on SEOs from the Thomson One Banker New Issues Database (SDC Platinum). I selected `Follow-On` equity issues with total proceeds of at least 3% of the total pre-issue market value. Most of the issues eliminated are offerings of shares by major shareholders. These issues may be large but are not firm-initiated and do not change firm equity. The Figure 3% is motivated by McKeon (2015), as discussed above. SEO observations are merged with CRSP observations on cusip number and firm name.

3.2 Proxies for hard to value

As discussed in Section 2.2, I use nine different proxies for hard to value. These proxies are calculated monthly. Market value, denoted *MV*, is calculated from CRPS data. For firms (`permcos`) with more than one share class (more than one `permno`) issued, only the share class with the highest market value is kept, but the firm's market value is aggregated over all share classes. Dividend yield, denoted *Yield*, over the past 12 months is calculated as CRSP holding period return (`ret`) over the past 12 months less holding period return without dividend (`retx`) over the past 12 months.

For the calculation of return on equity (ROE), asset growth (AG), and earnings to price ratio (EP), accounting data from Compustat are used. I use only data from annual reports. The most recent Compustat observation, at least six months old and no more than two years older than the CRSP observation, is used. AG is calculated as the relative change in assets (`at`) over the past 12 months. ROE is calculated as net income (`ni`) divided by book equity (`ceq`) and EP is calculated as net income divided by market value. CRSP observations, for which Compustat accounting information (assets, net income and book equity) is not available, are omitted.

Data on equity analysts and their recommendations are from the IBES database. The most recent IBES observation, no more than one year old, is used. The number of analysts with a next quarter earnings per share (EPS) estimate is denoted *#Analysts*. Three measures of analyst disagreement are calculated for firms with at least two analyst observations. Dispersion in analyst price target (`PTG`) is given by

$$D_{ptg} = \frac{\sigma_{ptg}}{\mu_{ptg}}$$

where σ_{ptg} and μ_{ptg} is the standard deviation and mean of analyst price targets reported by IBES. Dispersion in analyst recommendation (`REC`) D_{rec} is the standard deviation in recommendation, measured on a five-point scale, reported by IBES. Dispersion in analyst expected next quarter earnings per share `EPS` is scaled with price, i.e.

$$D_{eps} = \frac{\sigma_{eps}}{P}$$

where σ_{eps} is the standard deviation of analysts' next quarter EPS estimate and P is the price per share. While CRSP observations without corresponding accounting data are dropped, observations without analyst information are kept in the sample. Figure 1 shows the number of firms for which at least one estimate of next quarter EPS, at least one price target, and at least one recommendation, are available. EPS estimates start around the year 1985 and coverage gradually increases until around year 2000. Analyst recommendations start becoming available from the year 1995 and price targets from year 2000. By the end of the sample, more than 80% of the firms have EPS estimates, recommendations and price targets.

[Insert Figure 1 about here]

Since analyst recommendations and price targets are not available from 1985, the empirical test using analyst recommendations covers the period 1995-2014 while test using analyst price targets cover the period 2000-2014.

3.3 Empirical Tests

In order to explore to what extent the predictions of the model presented in Section 2 can be confirmed empirically, I have performed three types of tests.

First, in Section 4, I do one dimensional sorts on each of the nine variables proxying for hard to value and create quintile samples. Portfolios are constructed monthly. As customary breakpoints are calculated using NYSE firms only. Within each quintile sample, I apply Fama-MacBeth regressions (Fama and MacBeth (1973)) to determine whether issuance is significantly associated with next month returns for the "hard to value" quintile sample as well as for the "easy to value" quintile sample.

Second, in Section 5, I create five by five double sorted portfolios. One of the sort variables is *NetIssue*, sorted into portfolios as described in Section 3.1, the other is one of the variables proxying for hard to value. With nine different proxy variables, this gives nine different sets of five by five portfolios. For each of the double sorted portfolios, value-weighted monthly return is calculated and regressed on conventional market and factor returns reported on the Kenneth French website. This is to determine whether the spread in regression intercept between repurchasers (*issue1*) and larger issuers (*issue5*) differs between firms which are "easy to value" and firms which are "hard to value".

Third, in Section 6, I focus on firms which, according to the Thomson SDC database, have carried out a SEO. For SEO firms, there has been an SEO announcement, with an associated event return ER. ER can be decomposed into its positive component, denoted $ER^+ = max(ER, 0)$ and its negative component, denoted $ER^- = max(-ER, 0)$. I interpret ER as a proxy for the information conveyed in the SEO announcement. On average, it will be negative, but in the cross-section of firms it will differ, and for some issuers it will be positive. By regressing one-year buy and hold abnormal returns ($BHAR$), calculated from two weeks after the SEO to one year after the SEO, on ER^+ and ER^-, I test whether bad news (ER^-) and positive news (ER^+), respectively, predict one-year abnormal returns. Finally, I construct monthly updated value-weighted calendar-time portfolios of issuers with positive event return and issuers with negative event returns. Portfolio returns are regressed on conventional market and factor returns and I test whether regression intercepts differ from zero and between the two portfolios.

4 Fama-MacBeth Regressions

Table 2 reports full-sample Fama-MacBeth regressions of next month return on firm characteristics expected to explain return including the characteristics *Issue* and *Repurchase*. Two market models are considered: a minimal model with only the logarithm of ratio between book value and market value (bm) and the logarithm of market value[5] (mv) and a comprehensive model which also includes return over the past 12 months excluding the last month (*MOM*), return on equity (*ROE*), and asset growth (AG). All regressors, except for mv and *MOM* are winsorized at their 1% and 99% fractiles, respectively.

[Insert Table 2 about here]

As expected, *ROE* and AG are highly significant. With both market models *Issue* is also highly significant, with a coefficient of about -0.8. This implies that a 10% increase in *Issue* is associated with a 8 bps reduction in next month return. *Repurchase* is less significant but with a higher regression coefficients (2.5 with bm and mv as independent variables and 1.3 if *MOM*, *ROE* and AG are included). Pontiff and Woodgate (2008), who do not decompose *NetIssue* into *Issue* and *Repurchase*, report that in a univariate regression a 15% increase in *NetIssue* is associated with a 33 bps

[5] i.e. $bm = log(BM)$ and $mv = log(MV)$

decrease in next month return. This is equivalent to a regression coefficient of (numerically) 2.2 in my regressions.

In the rest of this section, firm-month observations are sorted in quintile portfolios based on variables proxying for hard to value. For each quintile porfolio, I run separate value-weighted Fama-MacBeth regressions using the same firm characteristics as in Table 2. The purpose is to determine for which samples *Issue* and *Repurchase* significantly predict return.

With nine different proxies for "hard to value", five portfolios for each of these and two market models, the number of regressions is 90. Table 3 provides a summary of the level of significance of *Issue* and *Repurchase* for the most easy and most hard to value quintile samples. In 15 of the 18 cases *Issue* is significant for the most "hard to value" quintile samples but never for the most "easy to value" quintile samples. Repurchase is significant in eight cases for the hard to value samples and twice for the easy to value samples. Table 4 reports the details of all 90 regressions.

[Insert Table 3 about here]

[Insert Table 4 about here]

The results reported are consistent with the predictions of the model discussed in Section 2. *Issue* only predicts return significantly for hard to value firms. Further, *Issue* is more frequently able to predict future return than *Repurchase*. The latter is consistent with the prediction that price discovery will be slower after bad news (stock issues) than after good news (stock repurchases).

Fama-MacBeth regressions impose an affine relationship between expected return and the independent variables, including *Issue* and *Repurchase.* If this relationship has another functional form, as the discussion in Section 2.2 and the empirical findings of Fama and French (2008b) suggest, it is not possible to make inferences from differences in regression coefficients between quintile portfolios. To illustrate this point, I show, in Figure 3, the coefficients associated with issue portfolio dummy variables in full-sample Fama-MacBeth regressions. This regression is equivalent to the full-sample regressions reported in Table 2, with the exception that *Issue* and *Repurchase* have been replaced with dummy variables: *issue1* for repurchasers and *issue3*, *issue4* and *issue5* for issuers using the same breakpoints as above. The base category is zero-issuers.

The dummy variable associated with repurchases (*issue1*) as well as small issues (*issue3*) is positive relative to the group of zero-issuers, i.e. repurchases *as well as* small issues are associated with higher returns than zero-issues, in line with findings reported in Fama and French (2008b). Larger issues (*issue4* and *issue5*) are associated with more negative returns. Only estimates associated with *issue5* are significantly different from zero (t-statistics of 2.21 and 2.23 respectively), but the results suggest that the relationship between *NetIssue* and return may not be affine.

[Insert Figure 3 about here]

If easy to value firms are less likely to do large issues than hard to value firms, it would be no surprise that *Issue* significantly predicts return for hard to value firms but not for easy to value firms. Since "cash-flows in the more distant future", i.e. low profitability, low earnings to price ratio, and high growth, are proxies for hard to value, this a very real concern, because these types of firms are more likely to issue than firms with stronger current cash-flows. To address this concern, I repeat the Fama-MacBeth regressions within separate samples sorted on variables proxying for hard to value, using issue dummy variables *issue1*, *issue3*, *issue4*, and *issue5* instead of *Repurchase* and *Issue*.

The results of the issue dummy variable regressions are summarized in Table 5. The table reports whether *issue5* (*Issue* above 15%) and *issue1* (*Repurchase* of at least 0.1%) are significant relative to the base category (zero-issuers). In 12 out of 18 cases of hard to value firms, the return of large issuers (*issue5*) is significantly different from the return of zero-issuers, while this is never the case for easy to value firms. The dummy variable associated with repurchases (*issue1*) is significant in 10 of 18 cases of hard to value firms and three times for easy to value firms. These results are less significant than the results with *Issue* and *Repurchase* as regressors, suggesting that the results reported in Table 3 are biased due to different issuance activity between the easy to value and the hard to value samples for some of the proxies for hard to value.

[Insert Table 5 about here]

5 Double Sorted Portfolio Returns

Another concern with the assumptions of the Fama-MacBeth regressions is that issuance may be correlated with other independent variables, as strongly suggested by Table 1. If this is the case *and* expected return is not affine in these independent variables, inference from comparisons between Fama-

MacBeth regressions on different samples is affected. An alternative to Fama-MacBeth regressions is to construct portfolios and regress portfolio returns on the return on factors known to predict return. Specifically, I use the factor returns available from Kenneth French's website. The advantage of this approach is that it does not impose any functional form of the relationship between return and independent variables.

Figure 4 illustrates the importance of the choice of market model in sort portfolio tests. The figure reports monthly α's of the five value-weighted portfolios corresponding to *issue1*, *issue2*, *issue3*, *issue4*, and *issue5* regressed on the market excess return (panel A), the Fama French three factor returns (denoted FF3, panel B), and Fama French five factor returns plus momentum return (denoted FF5+*UMD*, panel C). Market and FF3 α's decrease monotonically from repurchasers to issuers. Controlling for profitability, growth and momentum changes this picture fundamentally. FF5+*UMD* α's for repurchasers and zero-issuers are close to 0, while small and midsized issues are associated with positive abnormal returns and only large issues are associated with negative abnormal returns. This may partly explain why Bessembinder and Zhang (2013) find that SEO underperformance disappears when controls beyond book-to-market ratio and firm size are added. Note, however, that firms with the largest issuance activity are much less affected by the introduction of factors beyond market exposure, and have negative α's in all cases.

[Insert Figure 4 about here]

Since my main interest is whether underperformance by issuers is confined to firms which are hard to value, I have create double sorted portfolios where *NetIssue* is one sort variable and the other sort variable is a proxy for hard to value. For each of the double sorted portfolios, value-weighted monthly return is calculated and regressed on the FF3 and the FF5+*UMD* market models. The regression intercept $\alpha_{i,j}^{k}$ is the abnormal return of the intersection between *NetIssue* portfolio i and portfolio j of sort variable k. For example, $\alpha_{1,1}^{MV}$ is the abnormal return of a portfolio of small cap share repurchasers (*issue1*) and $\alpha_{5,1}^{ROE}$ is the abnormal return on a portfolio of small cap firms with high issuance activity (*issue5*). The variable of interest is the difference in regression intercept between a portfolio of high issuers and a portfolio of repurchasers, within the same quintile of the hard to value variable. This difference is denoted the *issuance spread*

$$\Delta_j^k = \alpha_{1,j}^k - \alpha_{5,j}^k$$

For example, Δ_1^{MV} is the difference in abnormal return between small cap repurchasers and small cap issuers, while Δ_5^{MV} is the same difference for large cap firms. I test whether the issuance spread is significantly different from zero for "hard to value" portfolios as well as for "easy to value" portfolios.

Figure 5 depicts the monthly α's of value-weighted portfolios sorted on *NetIssue* and *MV* regressed on FF5+*UMD*. Within the group of small cap firms, repurchasers have an α of 36 bp, while firms with the largest issuance activity (*issue5*) have an α of -22 bp. The difference between these is the issuance spread $\Delta_1^{MV} = 58$ bps, which is significant with a t-value of 3.13. It can be interpreted as the abnormal return on an investment which is long small cap repurchasers and short small cap large issuers. If α's are measured relative to FF3, $\Delta_1^{MV} = 110$ bps with a t-value of 5.51. For large cap Δ_5^{MV}

is -14 bps for the FF5+*UMD* model and 14 bps for the FF3 model, both of these are insignificant.

Table 6 shows the issuance spread for the most easy to value and the most hard to value firms for each of the nine variables proxying for difficulty to value and the two market models FF3 and FF3+*UMD*. For the easy to value firms, the issuance spread is only significant in one case, while it is significant in 13 out of 18 cases for the hard to value firms. Issuance spreads are uniformly larger when returns are regressed on the FF3 model than when regressed on the FF5+*UMD* model, again confirming that some of the underperformance of issuers is explained by exposure to the *RMW*, *CMA* and *UMD* factors.

[Insert Table 6 about here]

6 Returns Subsequent to SEOs

This section focuses on firms which, according to SDC Platinum, have carried out an SEO. One advantage of focusing on SEOs is that we can calculate event returns. Abnormal event returns can be taken as a proxy for the information conveyed in connection with the issue. Most previous research finds that abnormal event returns on average are negative ((Eckbo *et al.*, 2007)), but occasionally they will be positive. These events convey positive information about the issuing firm. This enables me to test the model prediction, namely that the speed of price discovery is faster for good news than for bad news, cf. Section 2.

In the SDC Platinum database I select all SEOs (`Follow-On` offerings) by non-financial firms between 1985 and 2014 where the proceeds from the offering exceed 3% of the market value before the offering. SDC observations are matched with CRSP and Compustat data using the cusip code and the firm name. Return information must be available in CRSP.

[Insert Figure 6 about here]

Figure 6 shows the value-weighted cumulated return of SEO firms less the market return from 10 trading days before the issue date (T) until 10 trading days after the issue date[6].

Before issues, issuers experience positive abnormal returns (relative to the market) of around 1%. This is not necessarily surprising, as firms may chose to issue when they perceive their own shares to be performing strongly. From the day before the issue to two days after the issue, SEO firms experience negative abnormal event returns of about -1.6% followed by a partial rebound. Motivated by Figure 6, I measure abnormal event returns over the three-day period from close on day $T-2$ to close on day $T+1$, i.e.

$$ER = R^{SEO}_{T-2,T-1} - R^{Mkt}_{T-2,T-1}$$

where R^{SEO} and R^{Mkt} denote the return of the SEO firm and the CRSP value-weighted market return, respectively. Of the 11,481 SEO events, ER is positive in 4,237 cases (37%). As a simple test of whether the news conveyed at issue time is associated with future abnormal returns, I decompose ER into its positive component $ER^{+} = max(ER, 0)$ and its negative component $ER^{-} = max(-ER, 0)$ and regress one-year buy and hold abnormal return

[6] If the issue date is a Saturday or a Sunday, T is the Friday before the issue.

BHAR on ER^+ and ER^-. As the relation between *ER* and *BHAR* may not be piecewise linear, I also sort SEOs into quintiles based on *ER* and regress *BHAR* on dummy variables associated with quintiles 1, 2, 3 and 5. I chose quintile 4 as the base category, as this quintile contains SEOs with zero abnormal event return.

BHAR is the return of the SEO firm over some period less the return of a benchmark investment over the same period. The literature on long run abnormal returns has documented that results are very sensitive to the actual calculation of *BHAR*, i.e. the choice of benchmark (Mitchell and Stafford (2000), Eckbo *et al.* (2007), and Bessembinder and Zhang (2013)). One stream of the literature uses the "matched firm" approach, in which the benchmark of a SEO firm is another firm, which is similar to the issuer usually in terms of market value and book-to-market ratio, but Bessembinder and Zhang (2013) show that issuers and non-issuers differ in several other characteristics known to predict return. According to the authors, these different characteristics explain the observed differences in post-issue return and controlling for these differences there is no abnormal *BHAR*. In the absence of a commonly agreed benchmark for calculation on *BHAR*, I chose the simplest possible approach to calculating one-year *BHAR* as

$$BHAR = R^{SEO}_{T+10,T+1y} - R^{Mkt}_{T+10,T+1y}$$

As this is likely to be a biased estimate of true one-year abnormal return, it is not suitable for inference on the absolute level of *BHAR*. However, it may be more suited for making an inference about the relation between event abnormal returns and long-run abnormal returns. Table 7 shows the result of value-weighted regressions of $BHAR$ on ER^+ and ER^- as well as on ER quintile dummies.

A 1% increase in ER^-, i.e. a 1% decrease in abnormal return event, when abnormal event return is already negative, is associated with a 76 bps decrease in one-year $BHAR$ (t-value -5.78), while ER^+ is insignificant. In the regression with ER^+ and ER^- as regressors, the intercept is 1.55%, indicating that zero or positive event return is associated with small positive $BHAR$. In the regression with ER quintile dummies, issuers with lowest abnormal event returns have a 7.3% lower one-year $BHAR$ (t-value -5.26). Second and third quintiles also have significantly lower $BHARs$ of 5.33% and 1.87% than the base category. Firms with the highest abnormal event returns have positive $BHARs$ of 2.8%. This is significantly different from zero but not from the 1.55% intercept reported in the model with ER^+ and ER^- as regressors. Both regressions support that negative event return is significantly associated with $BHAR$, while positive event returns are not.

[Insert Table 7 about here]

One may be concerned that the results presented above reflect that abnormal event returns are correlated with other firm characteristics known to predict returns. It may, for example, be that the least profitable SEO firms experience the lowest event returns. To address this concern, as well as the methodological issues concerned with $BHAR$ calculations and their distribution, I construct two calendar-time portfolios as suggested by Mitchell and Stafford (2000).

One portfolio consists of firms which have carried out an SEO with positive event returns ER during the past year. The other portfolio consists of negative event return SEO firms. In addition, I construct a long-short zero-investment portfolio which is long SEO firms with positive *ER* and short SEO firms with negative *ER*. The SEO calendar-time portfolios are updated monthly and SEO firms are included from the first complete month after $T + 10$ (10 trading days after the issue) and for a total of 12, 24 or 36 consecutive months. I also construct portfolios of firms which issued 12 to 23 months ago and 24 to 35 months ago, respectively. Value-weighted monthly portfolio returns are regressed on FF3 as well as on FF5+UDM. Table 8 shows the results of these regressions.

[Insert Table 8 about here]

In panels A and B returns are regressed on FF3. The negative *ER* portfolios have significant αs between -49 bps and -56 bps for holdings periods of one, two and three periods. The positive *ER* portfolios also have negative α's but the long-short portfolios have significant positive α's for holding periods of one and two years. However, α is only significant for the first year and insignificant for the second and third year.

In panels C and D returns are regressed on FF5+*UMD*. Controlling for *RMW*, *CMA* and *MOM* increases α for all SEO portfolios, reflecting that all portfolios have significant negative exposure to *RMW* and *CMA*. Again, this confirms the finding that the underperformance of issuers is *partly* explained by their low profitability and high asset growth. When regressed on FF5+*UMD* issuers with positive *ER* have insignificant αs for all holding periods considered. However, negative *ER* issuers experience significant negative abnormal returns for two-year holding periods as well as during the second year. The long-short portfolios also have positive, but insignificant, abnormal returns for all holding periods. Even though t-statistics are less impressive than for the $BHAR$ regressions, these results confirm that underperformance subsequent to SEOs is stronger when the SEO conveyed “bad news” than when it conveyed “good news”.

7 Conclusions

Firms which issue new equity subsequently have low returns. Some of this performance can be explained by exposure to other risk factors beyond the classical three Fama French factors, but some abnormal return remains to be explained.

I propose a model in which some investors are *uninformed*, assuming that the latest observed price reflects fundamental value, whereas *informed* investors receive a noisy value signal. Prices are set in competition between uninformed and informed investors and I show that prices converge to an equilibrium price dependent only on the value signal observed by informed investors. The speed of price discovery depends on the noise embedded in the signals received by informed investors, i.e. how easy the firm is to value, and will, in the presence of shorting constraints or limitations, be slowest for “bad news”. I have applied this model to the case of issuance and derive two predictions.

First, the model predicts that underperformance subsequent to stock issues will be strongest for the firms which are hardest to value. As proxies for “hard to value”, I use measures of information available, analyst disagreement, and more distant cash-flows. Empirically, I show that firms with these characteristics do indeed underperform subsequent to issues, whereas firms without these characteristics do not underperform.

Second, the model predicts that underperformance will be strongest when stock issues convey negative news. I use SEO event returns as proxy for the news conveyed at issue, and empirically show that the negative component of abnormal event returns is significantly associated with negative buy and hold abnormal returns, whereas the positive component of abnormal event returns does not predict buy and hold abnormal returns. Moreover, I show that a calendar-time portfolio of SEO firms with negative abnormal event returns have significant negative abnormal return over some holding periods, whereas a calendar-time portfolio of SEO firms with positive abnormal event returns have insignificant or numerically lower abnormal return subsequent to the SEO.

References

Baker, M. and Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives*, *21*(2), 129 – 151.

Barberis, N., Shleifer, A., and Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics*, *49*(3), 307 – 343.

Bessembinder, H. and Zhang, F. (2013). Firm characteristics and long-run stock returns after corporate events. *Journal of Financial Economics*, *109*(1), 83 – 102.

Daniel, K. and Titman, S. (2006). Market reactions to tangible and intangible information. *Journal of Finance*, *61*(4), 1605 – 1643.

Duffie, D. (2010). Presidential address: Asset price dynamics with slow-moving capital. *Journal of Finance*, *65*(4), 1237 – 1267.

Eckbo, E. B., Masulis, R. W., and Norli, O. (2007). *Handbook of Corporate Finance*, Elsevier, vol. 1, chap. Security Offerings.

Fama, E. F. and French, K. R. (2008a). Average returns, b/m, and share issues. *Journal of Finance*, *63*(6), 2971 – 2995.

Fama, E. F. and French, K. R. (2008b). Dissecting anomalies. *Journal of Finance*, *63*(4), 1653 – 1678.

Fama, E. F. and French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, *116*(1), 1 – 22.

Fama, E. F. and MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, *81*(3), 607.

Fu, F. and Huang, S. (2015). The persistence of long-run abnormal returns following stock repurchases and offerings. *Management Science*.

Hong, H., Lim, T., and Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *Journal of Finance*, *55*(1), 265 – 295.

Hong, H. and Stein, J. C. (1999). A unified theory of underreaction, momentum trading, and overreaction in asset markets. *Journal of Finance*, *54*(6), 2143 – 2184.

Loughran, T. and Ritter, J. R. (1995). The new issues puzzle. *Journal of Finance*, *50*(1), 23 – 51.

Lyandres, E., Le, S., and Lu, Z. (2008). The new issues puzzle: Testing the investment-based explanation. *Review of Financial Studies*, *21*(6), 2825 – 2855.

McKeon, S. B. (2015). Employee option exercise and equity issuance motives. SSRN.

McLean, D. R., Pontiff, J., and Watanabe, A. (2009). Share issuance and cross-sectional returns: International evidence. *Journal of Financial Economics*, *94*(1), 1 – 17.

Mitchell, M. L. and Stafford, E. (2000). Managerial decisions and long-term stock price performance. *Journal of Business*, *73*(3), 287.

Myers, S. C. and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187 – 221.

Peyer, U. and Vermaelen, T. (2009). The nature and persistence of buyback anomalies. *Review of Financial Studies*, *22*(4), 1693 – 1745.

Pontiff, J. and Woodgate, A. (2008). Share issuance and cross-sectional returns. *Journal of Finance*, *63*(2), 921 – 945.

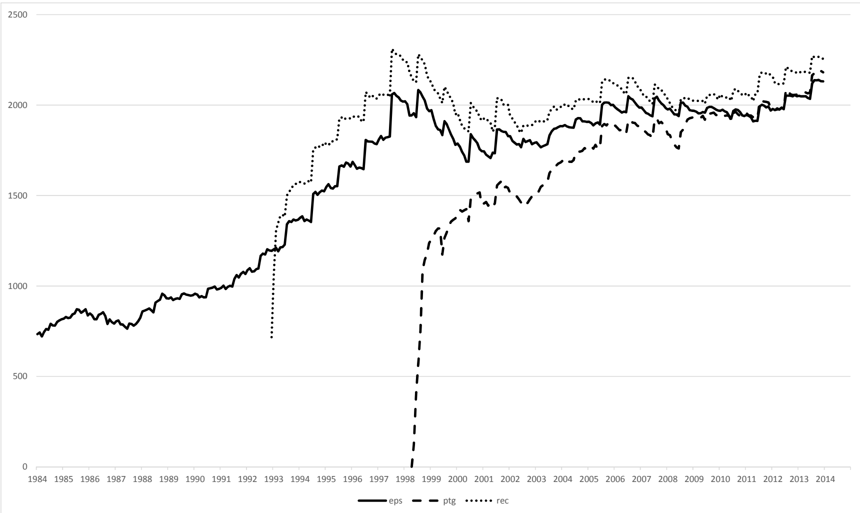


Figure 1: Analyst coverage in IBES. The figure shows the number of firms with at least one analyst estimate of next quarter earnings per share (*eps*), price target (*ptg*) and recommendation (*rec*).

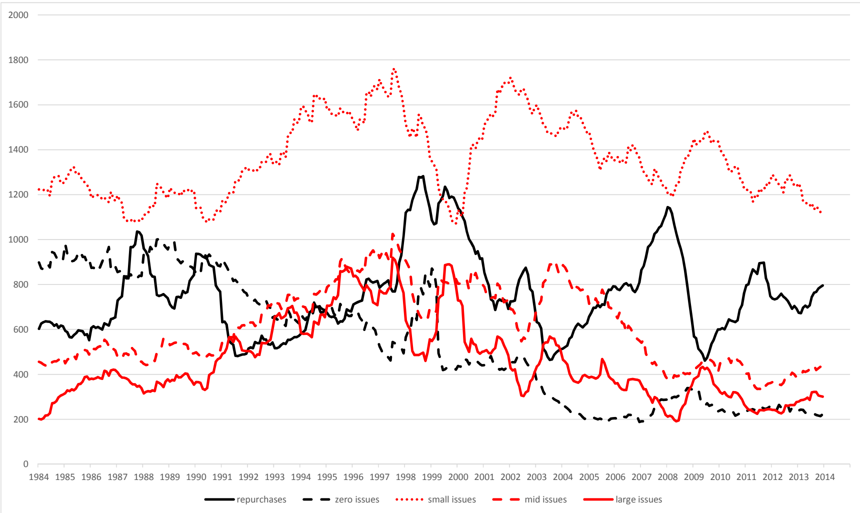


Figure 2: Number of firms per *NetIssue* group. Repurchasers have *NetIssue* below -0.1%, "zero-issuers" have *NetIssue* between -0.1% and 0.1%. Small issues, mid issues and large issues, are net issuers, with *NetIssue* of at least 0.1%, 3%, and 15%, respectively. During most of the period small issuer are the largest group. The number of "zero-issuer" has gradually declined over the period, while the number of repurchasers has been highly volatile.

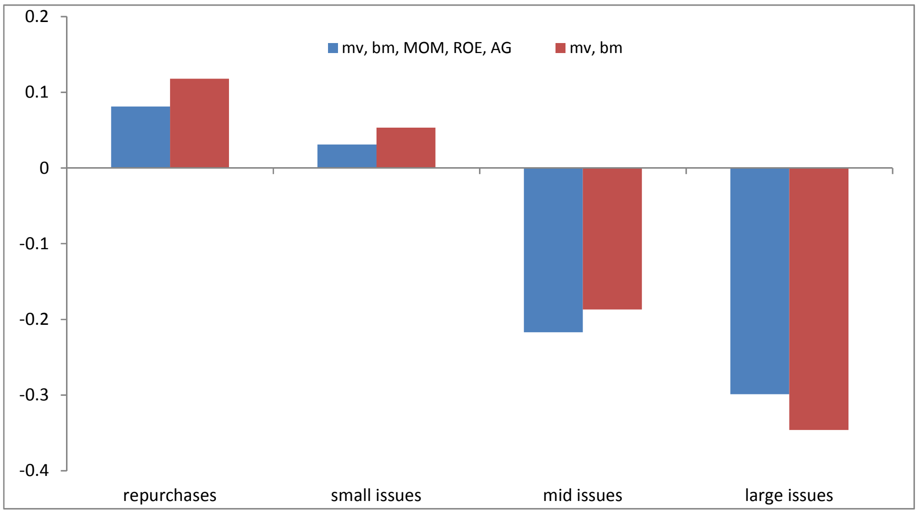
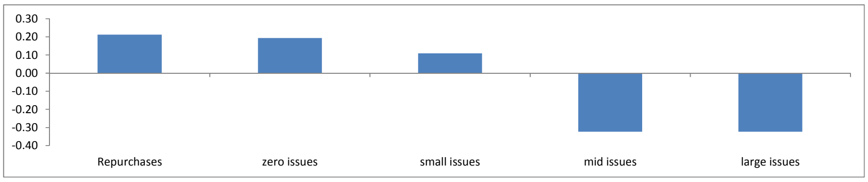
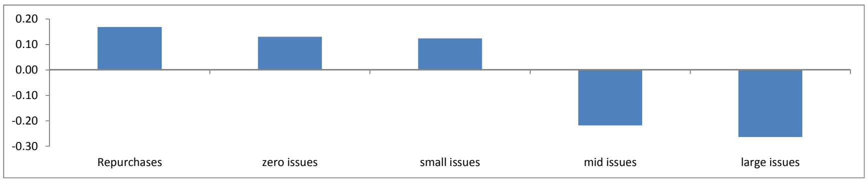


Figure 3: Coefficient estimates in percentage of dummy variables associated with *issue1*, *issue3*, *issue4* and *issue5* in Fama-MacBeth regressions. The value shows the monthly excess return, relative to the base category *issue2* ("zero-issuers"). Control variables are log market value *mv* and log book-to-market ratio *bm* (red bars) and *mv*, *bm*, past year return *MOM*, return on equity *ROE*, and past year asset growth *AG* (blue bars). Regardless of controls, repurchasers and small issuers have insignificantly higher returns than "zero issuer". Mid issuers have insignificantly lower returns while the largest issuers have significantly lower returns of about 30 bps monthly (*t*-value -2.2 in both specifications).

Panel A: α of portfolios sorted on *NetIssue* regressed on the CRSP value-weighted market return.



Panel B: α of portfolios sorted on *NetIssue* regressed on the market return, *SMB*, and *HML* returns (FF3).



Panel C: α of portfolios sorted on *NetIssue* regressed on the market return, *SMB*, and *HML*, *RMW*, *CMA* and *UMD* returns (FF5+*UMD*).

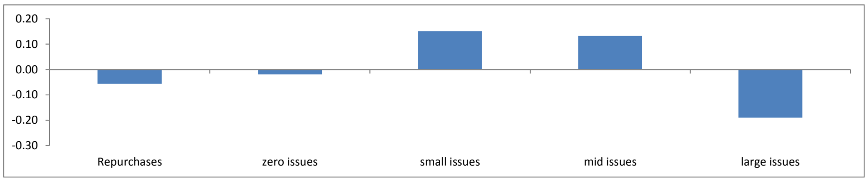


Figure 4: Monthly α in per cent of value-weighted portfolios based on sorts on *NetIssue*. Portfolios are formed monthly and portfolio excess returns are regressed on the market return (panel A), FF3 returns (panel B), and FF5+*UMD* returns (panel C.). Repurchasers have *NetIssue* below -0.1%, "zero-issuers" have *NetIssue* between -0.1% and 0.1%. Small issues, mid issues and large issues, are net issuers with *NetIssue* of at least 0.1%, 3%, and 15%, respectively. α decreases uniformly in issue group when controlling for market (panel A) and FF3 factors (panel B). When controlling for FF5+*UMD*, α is highest for small issuers and lowest for large issuers.

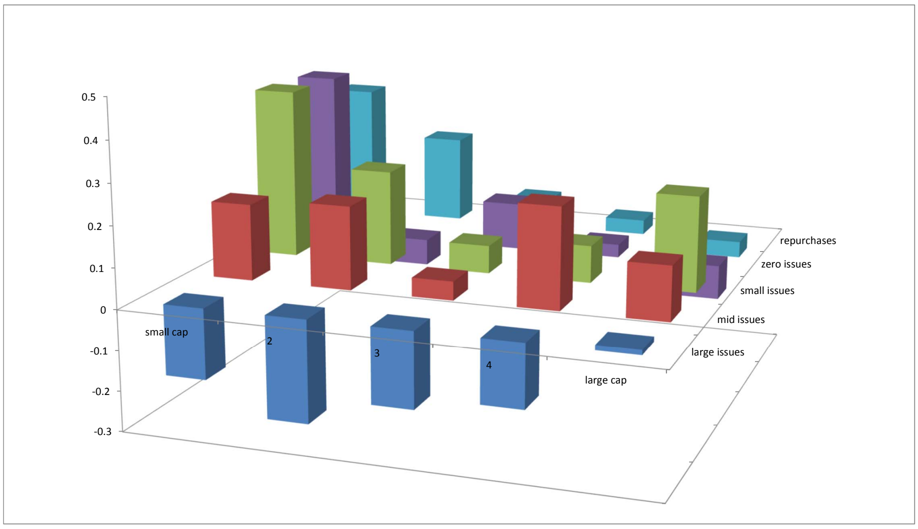


Figure 5: Monthly α of value-weighted portfolios sorted independently on *NetIssue* and *MV* regressed on the FF5+*UMD* factors. Repurchasers have *NetIssue* below -0.1%, "zero-issuers" have *NetIssue* between -0.1% and 0.1%. Small issues, mid issues and large issues, are net issuers with *NetIssue* of at least 0.1%, 3%, and 15%, respectively. The sort on *MV* is based on quintiles for NYSE firms. Small cap repurchasers have an α of 36 bps, while small cap firms with the largest issuance activity have an α of -22 bps. The difference between these is the issuance spread $\Delta_1^{MV} = 58$ bps. For large cap Δ_5^{MV} is -14 bps.

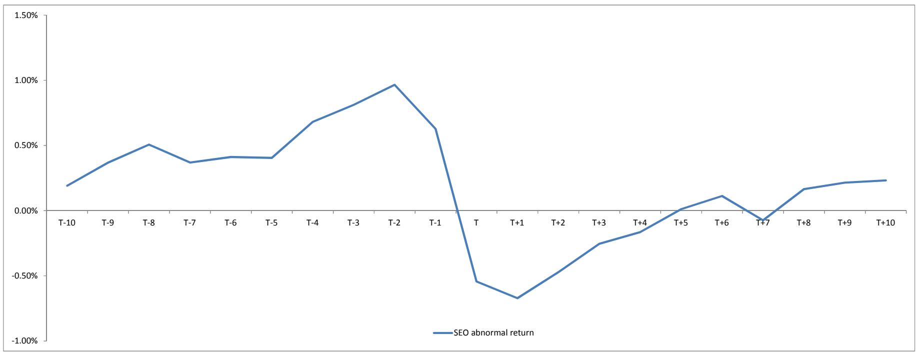


Figure 6: Value-weighted average cumulative abnormal return of SEO firms before and after the issue date (T). Abnormal returns are calculated as SEO firm return less market return. On average issues occur on the backdrop of almost 1% abnormal return between $T - 10$ and $T - 2$. During the event window from close on $T-2$ to close on $T+1$, issuers have negative abnormal returns of -1.6%. Subsequently, there is a partial recovery.

Table 1: Firm characteristics for value-weighted portfolios sorted on *NetIssue*. Repurchasers have *NetIssue* below -0.1%, "zero-issuers" have *NetIssue* between -0.1% and 0.1%. Small issues, mid issues and large issues, are net issuers with *NetIssue* of at least 0.1%, 3%, and 15%, respectively. *bm* is the logarithm of book-to-market ratio, *Yield* is the past year dividend yield, *AG* past year asset growth, *ROE* past year return on equity, *EP* earning-price ratio, and *MV* market value in million USD. Portfolio averages are value-weighted, except for *MV*.

NetIssue group	N	*NetIssue*	*bm*	*Yield*	*AG*	*ROE*	*EP*	*MV*
Repurchasers	271992	-0.033	-1.37	2.2%	9.9%	22.6%	5.6%	4.82
Zero issuers	196354	0.000	-1.17	2.9%	11.7%	15.9%	4.4%	0.98
Small issuers	488819	0.010	-1.34	1.9%	17.7%	13.2%	3.1%	1.95
Mid issuers	220901	0.068	-1.57	1.4%	30.6%	8.0%	2.3%	1.47
Large issuers	163997	0.387	-1.74	1.5%	48.0%	4.2%	0.9%	1.07

Table 2: Full-sample Fama-MacBeth regression 1985-2014. Each month firm excess return is regressed on firm characteristic expected to explain return. *bm* is the logarithm of the book-to-market ratio, *mv* is the logarithm for firm equity market value, *MOM* is past year return excluding the last month, *ROE* is return on equity, and *AG* is past year asset growth. Reported coefficient estimates are time series averages with t-statistics reported in parenthesis. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively.

bm	-0.02	0.07
	(-0.17)	(0.9)
mv	-0.04	-0.04
	(-1.02)	(-1.02)
MOM		0.49**
		(2.05)
ROE		0.41***
		(2.94)
AG		-0.34***
		(-2.79)
Issue	-0.89***	-0.77***
	(-2.91)	(-2.83)
Repurchase	2.46*	1.32
	(1.86)	(1.17)
Adj. R^2	4.85%	8.01%

Table 3: Level of significance of *Issue*, i.e. the positive component, of *NetIssue* and *Repurchase*, i.e. the negative component of *NetIssue*, in Fama-MacBeth regressions with 1-month return as dependent variable. In addition to *Issue* and *Repurchase* the independent variables are log book-to-market ratio bm, log market value mv, past year return MOM, return on equity ROE, and past year asset growth AG where "all" is specified. "Easy" and "Hard" refers to the most easy to value quintile and the most hard to value quintile, respectively, for the given sort variable. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively. Details of regressions are reported in Table **??**

	Issue				Repurchase			
Quintile	Easy		Hard		Easy		Hard	
Independent variables	all	$bm+mv$	all	$bm+mv$	all	$bm+mv$	all	$bm+mv$
MV			***	***				
$Yield$			***	***				**
AG			***	***	*	**		
ROE			**	***			*	**
EP			***	***				**
D_{eps}				**				
$\#Analysts$			**	***			***	***
D_{rec}			**					
D_{ptg}			**	***			**	**

Table 4: Fama-MacBeth regressions with 1-month return as dependent variable. For each of the nine variables proxying for hard to value, firm-month observations are sorted in quintile samples, and Fama-MacBeth regressions are carried out for each quintile separately. Each sort variable is reported in separate panels (Panel A to I) In addition to *Issue* and *Repurchase* independent variables are log book-to-market ratio *bm*, log market value *mv*, past year return *MOM*, return on equity *ROE*, and past year asset growth *AG*. *t*-statistics are reported in parenthesis. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively. The significance of *Issue* and *Repurchase* reported in this table are summarized in Table 3.

	Panel A: Portfolios sorted by *MV*									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	0.15	0.04	0.07	-0.03	-0.06	0.27***	0.13	0.18*	0.12	0.06
	(1.51)	(0.31)	(0.58)	(-0.3)	(-0.52)	(3.04)	(1.38)	(1.85)	(1.22)	(0.64)
mv	-0.03	-0.15	-0.24	-0.08	-0.08	-0.03	-0.14	-0.25	-0.05	-0.05
	(-0.35)	(-1.13)	(-1.48)	(-0.72)	(-1.42)	(-0.41)	(-1.17)	(-1.53)	(-0.51)	(-1.06)
MOM						0.63***	0.4**	0.52**	0.52**	0.52
						(4.58)	(2.34)	(2.56)	(2)	(1.62)
ROE						0.12	0.21	0.23	0.7***	0.63**
						(0.99)	(1.36)	(1.27)	(2.74)	(2.17)
AG						-0.68***	-0.54***	-0.44***	-0.19	-0.26
						(-6.88)	(-4.51)	(-3.12)	(-1.31)	(-1.4)
Issue	-2.39***	-1.32***	-1.47***	-1.12**	-0.11	-1.83***	-1.1**	-1.19***	-0.97**	-0.32
	(-5.72)	(-2.62)	(-3.08)	(-2.41)	(-0.21)	(-5.68)	(-2.42)	(-2.73)	(-2.2)	(-0.71)
Repurchase	1.17	3.38***	1.43	4.58***	2.5	0.02	2.65**	0.75	3.94***	0.78
	(1.03)	(2.65)	(1.22)	(3.18)	(1.37)	(0.02)	(2.22)	(0.66)	(2.91)	(0.46)
Adj. R^2	1.5%	1.8%	2.3%	2.5%	5.4%	2.7%	3.5%	4.8%	6.0%	10.5%

	Panel B: Portfolios sorted by *Yield*									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	-0.15	-8.93	0.14	-0.03	0.12	0.04	0.46**	0.25**	0.12	0.29***
	(-1.22)	(-1.03)	(1.01)	(-0.29)	(1.07)	(0.34)	(2.29)	(1.98)	(0.88)	(2.59)
mv	0.04	-0.01	-0.05	-0.08*	-0.02	0.04	0.16	-0.04	-0.04	-0.01
	(0.65)	(-0.11)	(-0.85)	(-1.71)	(-0.48)	(0.67)	(1.61)	(-0.77)	(-0.94)	(-0.22)
MOM						0.76***	3.36**	0.51	0.22	0.39
						(4.06)	(2.11)	(1.41)	(0.64)	(1.13)
ROE						0.29**	-0.54	1.03**	0.92**	1.18***
						(2.42)	(-0.76)	(2.23)	(2.26)	(2.62)
AG						-0.41***	-0.15	-0.21	-0.24	-0.08
						(-3.86)	(-0.36)	(-0.95)	(-0.94)	(-0.33)
Issue	-1.85***	-2.62	-0.9	-0.25	-0.15	-1.71***	-3.26*	-0.72	0.34	-0.21
	(-4.86)	(-1.29)	(-1.17)	(-0.25)	(-0.24)	(-4.68)	(-1.71)	(-0.94)	(0.37)	(-0.38)
Repurchase	4.6**	13.11	5.81**	0	3.1	2.15	18.42	3.18	0.42	1.65
	(2.47)	(0.84)	(2.19)	(0)	(1.38)	(1.28)	(1.26)	(1.27)	(0.18)	(0.8)
Adj. R^2	5.0%	10.8%	7.9%	9.7%	9.0%	7.5%	17.8%	13.5%	14.9%	16.4%

Panel C: Portfolios sorted by *AG*										
Quintile	1	2	3	4	5	1	2	3	4	5
bm	0.11	-0.02	-0.01	0.01	-0.21	0.16*	0.07	0.12	0.21*	0.06
	(1.02)	(-0.16)	(-0.06)	(0.06)	(-1.64)	(1.78)	(0.65)	(1.06)	(1.88)	(0.56)
mv	-0.02	-0.09*	-0.08*	-0.04	0.04	-0.02	-0.09**	-0.05	-0.06	0.06
	(-0.39)	(-1.76)	(-1.69)	(-0.89)	(0.78)	(-0.35)	(-1.98)	(-1.16)	(-1.18)	(1.17)
MOM						0.31	0.21	0.27	0.42	0.9***
						(1.48)	(0.74)	(0.94)	(1.47)	(3.27)
ROE						0.04	0.85**	0.8*	1.29***	0.54**
						(0.27)	(2.09)	(1.84)	(3.53)	(2.53)
AG						0.56	-1.65	1.1	-0.05	-0.42***
						(1)	(-0.57)	(0.38)	(-0.04)	(-4.08)
Issue	-0.02	-1.05	-1.33*	0.04	-1.3***	-0.33	-0.92	-0.83	0	-0.97***
	(-0.03)	(-1.37)	(-1.78)	(0.07)	(-3.36)	(-0.6)	(-1.26)	(-1.28)	(0)	(-2.62)
Repurchase	3.79**	3.86*	-0.68	2.35	3.23	3.3*	2.44	-1.01	1.37	1.84
	(2.01)	(1.74)	(-0.32)	(1.03)	(1.08)	(1.89)	(1.16)	(-0.52)	(0.64)	(0.68)
Adj. R^2	7.1%	8.2%	7.8%	7.3%	7.3%	10.6%	13.0%	13.2%	11.7%	11.3%

	Panel D: Portfolios sorted by *ROE*									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	0.02	-0.1	0.06	0.15	0.06	0.21*	0.01	0.18	0.24	0.2*
	(0.2)	(-0.6)	(0.36)	(0.82)	(0.51)	(1.93)	(0.08)	(1.15)	(1.39)	(1.71)
mv	-0.04	-0.11**	-0.07	-0.04	-0.03	-0.02	-0.11**	-0.04	-0.04	0
	(-0.79)	(-1.99)	(-1.34)	(-0.82)	(-0.53)	(-0.32)	(-2.06)	(-0.81)	(-0.9)	(-0.08)
MOM						0.79***	0.43	0.29	0.55*	0.57*
						(4.16)	(1.55)	(0.96)	(1.95)	(1.88)
ROE						0.07	2.98	-2.5	1.86	0.66
						(0.51)	(1.17)	(-0.58)	(0.61)	(1.22)
AG						-0.54***	-0.29*	-0.37*	-0.24	0.25
						(-4.35)	(-1.88)	(-1.76)	(-0.93)	(0.89)
Issue	-1.19***	-0.98*	-0.65	-0.83	0.05	-0.93**	-0.6	-0.57	-0.76	-0.24
	(-2.73)	(-1.75)	(-1.07)	(-1.05)	(0.07)	(-2.17)	(-1.21)	(-1)	(-1.1)	(-0.38)
Repurchase	4.83**	3.35	3.35	1.25	1.2	3.77*	3.42*	2.86	0.48	0.86
	(2.25)	(1.54)	(1.59)	(0.62)	(0.58)	(1.84)	(1.7)	(1.36)	(0.25)	(0.47)
Adj. R^2	5.4%	7.5%	7.5%	9.0%	7.1%	8.6%	11.6%	12.6%	14.0%	13.4%

Panel E: Portfolios sorted by *EP*										
Quintile	1	2	3	4	5	1	2	3	4	5
bm	-0.02	-0.14	-0.08	-0.15	0.05	0.2*	-0.05	0.47*	0.43	-0.08
	(-0.2)	(-1.34)	(-0.67)	(-1.21)	(0.37)	(1.93)	(-0.29)	(1.89)	(1.47)	(-0.49)
mv	-0.06	-0.02	-0.07	-0.07	0	-0.04	-0.01	-0.07	-0.06	-0.03
	(-0.99)	(-0.45)	(-1.47)	(-1.36)	(-0.02)	(-0.63)	(-0.3)	(-1.42)	(-1.28)	(-0.5)
MOM						0.84***	0.61**	0.2	0.03	0.53
						(4.42)	(2.37)	(0.56)	(0.08)	(1.28)
ROE						0.03	0.15	3.28**	3.11**	-0.39
						(0.26)	(0.16)	(2.49)	(2.06)	(-0.55)
AG						-0.35***	-0.29	-0.44*	-0.07	-0.43*
						(-2.62)	(-1.51)	(-1.79)	(-0.26)	(-1.76)
Issue	-1.23***	-0.85	0.78	-2.88**	-0.48	-1.13***	-0.63	0.7	-2.11**	-0.19
	(-3.18)	(-1.54)	(0.95)	(-2.23)	(-0.55)	(-2.95)	(-1.24)	(0.92)	(-2.14)	(-0.22)
Repurchase	6.03**	-1.35	3.25	2.87	-0.02	3.86	-1.31	1.84	2.63	-0.48
	(2.37)	(-0.48)	(1.49)	(1.18)	(-0.01)	(1.62)	(-0.52)	(0.86)	(1.26)	(-0.29)
Adj. R^2	6.0%	6.2%	7.4%	8.1%	8.0%	9.5%	10.8%	12.7%	13.9%	14.2%

						Panel F: Portfolios sorted by D_{eps}				
Quintile	1	2	3	4	5	1	2	3	4	5
bm	-0.11	0.17	0.43***	0.35***	0.04	0.09	0.37***	0.47***	0.26**	0.01
	(-0.69)	(1.4)	(3.52)	(2.79)	(0.23)	(0.55)	(2.94)	(3.82)	(2.25)	(0.07)
mv	-0.12**	-0.13**	-0.06	-0.02	-0.02	-0.08	-0.12**	-0.09	-0.03	-0.03
	(-2.06)	(-2.31)	(-1.12)	(-0.29)	(-0.19)	(-1.47)	(-2.28)	(-1.62)	(-0.58)	(-0.36)
MOM						0.79***	0.47	0.16	-0.15	-0.01
						(2.92)	(1.48)	(0.5)	(-0.48)	(-0.02)
ROE						0.58	1**	0.76*	-0.05	0.2
						(1.11)	(2.21)	(1.83)	(-0.15)	(0.92)
AG						0.14	-0.33	-0.79***	-1.07***	-0.84***
						(0.59)	(-1.5)	(-3.77)	(-4.87)	(-3.59)
Issue	-0.19	-0.07	-0.9	-0.75	-1.53**	-0.69	0.21	-0.12	-0.2	-1.05
	(-0.22)	(-0.09)	(-1.13)	(-1.03)	(-2.03)	(-0.95)	(0.28)	(-0.17)	(-0.27)	(-1.41)
Repurchase	0.1	4.25**	2.48	3.81	5.31	0.33	2.33	1.47	3.93*	3.43
	(0.04)	(2.15)	(1.06)	(1.62)	(1.6)	(0.12)	(1.29)	(0.67)	(1.67)	(1.11)
Adj. R^2	8.8%	8.0%	8.0%	7.4%	8.1%	15.1%	13.7%	13.0%	11.8%	12.5%

	Panel G: Portfolios sorted by #*Analysts*									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	-0.04	-0.08	0.05	0	0	0.06	0.02	0.19*	-0.01	0.14
	(-0.28)	(-0.65)	(0.42)	(0.03)	(0.01)	(0.55)	(0.23)	(1.65)	(-0.12)	(1.41)
mv	-0.14**	-0.18**	-0.13*	-0.11	-0.08	-0.13**	-0.17**	-0.12*	-0.11	-0.08
	(-2.01)	(-2.37)	(-1.83)	(-1.54)	(-1.46)	(-2.05)	(-2.29)	(-1.82)	(-1.62)	(-1.51)
MOM						0.6***	0.37*	0.31	0.25	0.79**
						(3.39)	(1.75)	(1.14)	(0.88)	(2.48)
ROE						0.29*	0.14	0.28	0.15	0.66**
						(1.84)	(0.58)	(0.96)	(0.57)	(2.41)
AG						-0.71***	-0.5***	-0.69***	-0.49***	-0.36
						(-4.16)	(-2.92)	(-3.69)	(-2.78)	(-1.61)
Issue	-1.79***	-0.73	-0.62	-1.27**	-0.81	-1.16**	-0.55	0.04	-1.04*	-0.96
	(-2.94)	(-1.19)	(-1.01)	(-2.22)	(-1.14)	(-1.99)	(-0.93)	(0.07)	(-1.94)	(-1.48)
Repurchase	5.84***	3.63**	1.14	5.43***	1.64	4.76***	3.23*	0.24	4.15**	0.45
	(3.66)	(2.02)	(0.61)	(2.99)	(0.83)	(3.14)	(1.88)	(0.14)	(2.49)	(0.24)
Adj. R^2	6.2%	6.8%	6.2%	7.2%	6.2%	8.7%	9.7%	9.7%	11.0%	11.3%

	Panel H: Portfolios sorted by D_{rec}									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	-0.01	-0.16	0.03	0.14	0.2	0.04	-0.08	0.21	0.16	0.24
	(-0.05)	(-0.8)	(0.17)	(0.99)	(1.14)	(0.24)	(-0.54)	(1.59)	(1.2)	(1.47)
mv	-0.11	-0.04	-0.11	-0.02	0.03	-0.12	-0.04	-0.09	-0.02	0.01
	(-1.34)	(-0.48)	(-1.58)	(-0.36)	(0.33)	(-1.42)	(-0.5)	(-1.37)	(-0.25)	(0.13)
MOM						-0.06	0.56	0.48	0.22	0.45
						(-0.21)	(1.55)	(1.2)	(0.52)	(1.08)
ROE						0.42*	0.16	0.59	-0.09	0.31
						(1.68)	(0.54)	(1.56)	(-0.25)	(0.85)
AG						-0.31	-0.31	-0.29	-0.29	0.17
						(-1.35)	(-1.33)	(-1.23)	(-1.02)	(0.58)
Issue	-0.33	-1.05	-0.9	-2.11**	-1.15	-0.16	-1.19*	-1.02	-2.12***	-1.71**
	(-0.42)	(-1.6)	(-1.13)	(-2.32)	(-1.16)	(-0.22)	(-1.76)	(-1.46)	(-2.64)	(-2)
Repurchase	3.6	5.56	2.09	1.84	3.1	2.27	3.54	1.26	1.47	3.07
	(1.45)	(1.62)	(0.63)	(0.68)	(0.91)	(0.99)	(1.09)	(0.4)	(0.56)	(0.88)
Adj. R^2	7.5%	9.5%	8.3%	7.6%	9.2%	11.6%	14.5%	14.0%	13.3%	14.2%

	Panel I: Portfolios sorted by D_{ptg}									
Quintile	1	2	3	4	5	1	2	3	4	5
bm	0.15	0.26	0.28*	0.09	-0.02	0.19	0.32*	0.3*	0.21	-0.06
	(1.02)	(1.62)	(1.69)	(0.43)	(-0.07)	(1.15)	(1.92)	(1.8)	(1.15)	(-0.27)
mv	-0.16**	-0.14**	-0.07	-0.01	-0.23*	-0.16**	-0.13**	-0.08	-0.02	-0.31**
	(-2.37)	(-2.16)	(-0.8)	(-0.12)	(-1.87)	(-2.48)	(-2.01)	(-1.13)	(-0.17)	(-2.47)
MOM						-0.21	0.27	0.04	0.21	-0.36
						(-0.45)	(0.56)	(0.08)	(0.44)	(-0.6)
ROE						0.49	0.83	1.01*	0.46	0.14
						(0.84)	(1.47)	(1.86)	(1.32)	(0.42)
AG						-0.27	-0.66**	0.12	-0.48*	-0.47
						(-1)	(-2.39)	(0.38)	(-1.75)	(-1.58)
Issue	-1.25	-0.19	-1.4	-0.07	-2.7***	-0.53	-0.22	-1.47*	0.42	-2.5**
	(-1.57)	(-0.23)	(-1.44)	(-0.06)	(-2.63)	(-0.64)	(-0.26)	(-1.67)	(0.38)	(-2.46)
Repurchase	0.8	-4.01	1.54	6.8	11.73**	-0.32	-6.97**	0.25	6.61	11.96**
	(0.22)	(-1.25)	(0.4)	(1.42)	(2.05)	(-0.09)	(-2.2)	(0.07)	(1.58)	(2.39)
Adj. R^2	9.7%	7.5%	8.2%	9.9%	7.4%	14.9%	13.5%	14.0%	14.7%	12.6%

Table 5: Level of significance of the dummy variables associated with *issue1* (repurchases) and *issue5* (*NetIssue* of at least 15%), respectively, in Fama-MacBeth regressions with 1-month return as dependent variable. This table is equivalent to Table 3 except that Table 3 reports the significance of the continuous *Issue* and *Repurchase* variables while this table reports the significance of the dummy variables *issue5* (large issues) and *issue1* (repurchases). In addition to *Issue* and *Repurchase* the independent variables are *bm*, *mv*, *MOM*, *ROE*, and *AG* where "all" is specified. "Easy" and "Hard" refers to the most easy to value quintile and the most hard to value quintile, respectively, for the given sort variable. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively.

	issue5 (Large issues)				*issue1* (Repurchases)			
Quintile	Easy		Hard		Easy		Hard	
Independent variables	All	*bm* +mv	All	*bm* +mv	All	*bm* +mv	All	*bm* +mv
MV			***	***			**	**
Yield			**	***		*	*	**
AG			*	***				
ROE			*	***				
EP				**				
D_{eps}				*				
#Analysts			*	**			*	**
D_{rec}					**	**	*	*
D_{ptg}							***	**

Table 6: Value-weighted returns on double sorted portfolios are regressed on FF3 and FF5+*UMD* factors. First sort variable is *NetIssue* while the second sort variable is one of the nine proxies for "hard to value". Figures reported are the monthly issuance spreads in per cent for the most easy to value and the most hard to value quintiles of the second sort variable, i.e. Δ_1^k and Δ_5^k, where k is the second sort variable. An example may be 1.10 (first row to the right) $\Delta_1^{MV} = \alpha_{1,1}^{MV} - \alpha_{5,1}^{MV}$, i.e. the difference in abnormal return between a portfolio of small cap repurchasers (*issue1*) and a portfolio of small cap issuers (*issue5*) when return is regressed on FF3 factors. When regressed on FF5+*UMD* this issuance spread is 58 bps, as illustrated in Figure 5. t-statistics are reported in parenthesis and *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively.

	Easy to value		Hard to value	
Second sort variable	FF5+*UMD*	FF3	FF5+*UMD*	FF3
MV	-0.14	0.14	0.58***	1.10***
	(-0.59)	(0.62)	(3.13)	(5.51)
Yield	-0.15	-0.07	0.8***	1.01***
	(-0.61)	(-0.31)	(3.49)	(4.53)
AG	0.17	0.47*	0.34	0.62**
	(0.6)	(1.68)	(1.27)	(2.4)
ROE	-0.01	0.1	0.11	0.57**
	(-0.03)	(0.39)	(0.4)	(2.08)
EP	0.36	0.41	0.41	0.72***
	(1.24)	(1.44)	(1.51)	(2.72)
D_{eps}	-0.37	-0.04	0.54	0.98***
	(-1.26)	(-0.14)	(1.5)	(2.79)
#Analysts	-0.02	0.21	0.4	0.81***
	(-0.08)	(0.85)	(1.42)	(2.88)
D_{rec}	0.22	0.52	1.07***	1.24***
	(0.61)	(1.48)	(2.67)	(3.19)
D_{ptg}	-0.07	0.07	1.38**	1.69***
	(-0.22)	(0.23)	(2.57)	(3.28)

Table 7: Value-weighted regressions of SEO one-year buy and hold abnormal returns ($BHAR$) regressed on event return (ER), decomposed into its positive and negative component, i.e. $ER^+ = max(ER, 0)$ and $ER^- = max(-ER, 0)$ and on event return dummies $ER1$, $ER2$, $ER3$ and $ER5$, corresponding to first, second, third and fifth quintile of event returns. Fourth quintile is chosen as base category because it contains issuers with zero. t-statistics are reported in parenthesis. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively. ER

Intecept	1.55**	
	(2.18)	
ER^+	-0.02	
	-0.15	
ER^-	-0.76**	
	(-5.78)	
$ER1$		-7.3***
		(-5.26)
$ER2$		-5.33***
		(-4.83)
$ER3$		-1.87**
		(-1.98)
$ER5$		2.8***
		(2.13)
Adj. R^2	0.33%	0.53%
N	10351	10351

Table 8: Monthly SEO portfolio returns regressed on FF3 (panel A and B) and FF5+UMD (panel C and D) factors. $ER > 0$ is the portfolio of SEO firms with positive event returns, whereas $ER < 0$ is the portfolio of SEO firms with negative event return. Pos-Neg is a zero-investment portfolio long SEO firms with positive event return and short SEO firms with negative event return. Period refers to the period during which a SEO firm is included in the portfolio, for example [1, 12] means that SEO firms are included in the portfolio from the month after issue until and including the twelfth month after issue. t-statistics are reported in parenthesis. *, ** and *** indicates significance in a two-sided test at a 10%, 5% and 1% significance level, respectively.

Panel A: One-, two- and three-year SEO portfolio returns regressed on FF3.

Period		[1, 12]			[1, 24]			[1, 36]	
	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg
α	-0.06	-0.49**	0.43**	-0.32*	-0.56***	0.25*	-0.31**	-0.50***	0.20
	(-0.28)	(-2.31)	(2.09)	(-1.89)	(-3.33)	(1.73)	(-2.02)	(-3.15)	(1.60)
Mkt	1.12***	1.19***	-0.07	1.13***	1.17***	-0.04	1.14***	1.18***	-0.04
	(22.43)	(24.64)	(-1.53)	(29.13)	(30.06)	(-1.12)	(32.73)	(32.28)	(-1.43)
SMB	0.47***	0.54***	-0.07	0.40***	0.48***	-0.08*	0.34***	0.45***	-0.11***
	(6.75)	(7.97)	(-1.03)	(7.44)	(8.84)	(-1.68)	(7.06)	(8.85)	(-2.77)
HML	-0.46***	-0.21***	-0.25***	-0.40***	-0.20***	-0.19***	-0.34***	-0.20***	-0.14***
	(-6.34)	(-3.01)	(-3.65)	(-7.04)	(-3.60)	(-4.12)	(-6.80)	(-3.78)	(-3.53)
Adj. R^2	74.7%	75.8%	5.6%	82.2%	82.0%	6.3%	84.7%	83.8%	5.8%

Panel B: Second- and third-year SEO portfolio returns regressed on FF3						
		[13, 24]			[25, 36]	
	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg
α	-0.59***	-0.73***	0.14	-0.24	-0.27	0.03
	(-2.97)	(-3.83)	(0.74)	(-1.24)	(-1.29)	(0.16)
Mkt	1.14***	1.15***	-0.01	1.12***	1.17***	-0.05
	(25.05)	(26.30)	(-0.13)	(25.10)	(23.92)	(-1.04)
SMB	0.33***	0.35***	-0.01	0.19***	0.45***	-0.26***
	(5.26)	(5.70)	(-0.21)	(3.11)	(6.68)	(-3.81)
HML	-0.25***	-0.19***	-0.06	-0.13**	-0.21***	0.08
	(-3.77)	(-2.98)	(-0.97)	(-1.99)	(-2.92)	(1.09)
Adj. R^2	75.4%	76.7%	0.4%	73.4%	74.1%	7.4%

Panel C: One-, two- and three-year SEO portfolio returns regressed on FF5+*UMD*

	[1, 12]			[1, 24]			[1, 36]		
	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg
α	0.06	-0.20	0.25	-0.08	-0.28*	0.20	-0.05	-0.17	0.12
	(0.27)	(-0.99)	(1.19)	(-0.45)	(-1.71)	(1.36)	(-0.33)	(-1.13)	(0.95)
Mkt	1.10***	1.11***	-0.02	1.06***	1.08***	-0.02	1.06***	1.08***	-0.02
	(20.92)	(23.22)	(-0.32)	(26.00)	(27.30)	(-0.60)	(29.49)	(29.26)	(-0.49)
SMB	0.34***	0.35***	-0.02	0.29***	0.35***	-0.06	0.23***	0.32***	-0.09**
	(4.69)	(5.39)	(-0.24)	(5.21)	(6.52)	(-1.26)	(4.60)	(6.33)	(-2.17)
HML	-0.15	0.26***	-0.40***	-0.10	0.16**	-0.26***	-0.08	0.13*	-0.21***
	(-1.48)	(2.83)	(-4.11)	(-1.34)	(2.12)	(-3.83)	(-1.14)	(1.91)	(-3.60)
RMW	-0.50***	-0.72***	0.22**	-0.45***	-0.51***	0.07	-0.45***	-0.52***	0.08
	(-4.93)	(-7.78)	(2.20)	(-5.72)	(-6.77)	(0.96)	(-6.48)	(-7.42)	(1.28)
CMA	-0.30**	-0.56***	0.26*	-0.40***	-0.51***	0.11	-0.36***	-0.49***	0.13
	(-2.14)	(-4.38)	(1.88)	(-3.70)	(-4.85)	(1.14)	(-3.73)	(-4.94)	(1.54)
UMD	0.21***	0.21***	0.00	0.08**	0.10***	-0.02	0.05*	0.04	0.00
	(4.84)	(5.21)	(0.08)	(2.28)	(2.94)	(-0.66)	(1.65)	(1.45)	(0.19)
Adj. R^2	77.6%	81.0%	6.7%	84.3%	85.0%	6.3%	86.8%	86.7%	6.8%

Panel D: Second- and third-year SEO portfolio returns regressed on FF5+*UMD*

	[13, 24]			[25, 36]		
	$ER > 0$	$ER < 0$	Pos-Neg	$ER > 0$	$ER < 0$	Pos-Neg
α	-0.20	-0.51***	0.30	-0.04	0.08	-0.12
	(-1.03)	(-2.6)	(1.55)	(-0.22)	(0.35)	(-0.54)
Mkt	1.01***	1.06***	-0.05	1.07***	1.06***	0.00
	(21.12)	(22.43)	(-1.02)	(21.87)	(20.46)	(0.04)
SMB	0.26***	0.34***	-0.08	0.11	0.35***	-0.25***
	(3.93)	(5.29)	(-1.30)	(1.62)	(4.97)	(-3.29)
HML	0.00	-0.02	0.02	-0.07	-0.08	0.02
	(-0.02)	(-0.20)	(0.17)	(-0.72)	(-0.86)	(0.17)
RMW	-0.35***	-0.10	-0.25***	-0.29***	-0.37***	0.09
	(-3.80)	(-1.08)	(-2.76)	(-3.05)	(-3.72)	(0.81)
CMA	-0.51***	-0.43***	-0.08	-0.05	-0.22	0.17
	(-3.96)	(-3.40)	(-0.62)	(-0.39)	(-1.62)	(1.19)
UMD	-0.10**	-0.07*	-0.03	-0.06	-0.14***	0.08*
	(-2.56)	(-1.79)	(-0.80)	(-1.45)	(-3.18)	(1.73)
Adj. R^2	78.1%	78.0%	3.3%	74.4%	76.4%	9.0%

Appendix A

Proposition 1.

If $\mu_{i,t} = \mu_i$ for all $t \geq T$ then $P_t \to P^*$ for $t \to \infty$

The rate of convergence is $\frac{\Sigma(1-\tau)}{\Sigma(1-\tau)+\tau}$.

Proof

Let $P^* = \mu_i - \Sigma a \sigma_u^2$ define the equilibrium price. By (2) the market clearing price is $P_t = \mu_t + \frac{s_t\tau - \Sigma a\sigma_u^2}{\Sigma(1-\tau)+\tau}, \forall t \geq T$. Since $s_{t+1} = \mu_{i,t+1} - \mu_{u,t+1} = \mu_i - P_t - a\sigma_u^2$ and $\mu_{u,t+1} = P_t + a\sigma_u^2$ insertion in (2) yields

$$P_{t+1} = \mu_{t+1} + \frac{s_{t+1}\tau - \Sigma a\sigma_u^2}{\Sigma(1-\tau)+\tau} = P_t + a\sigma_u^2 + \frac{(\mu_i - P_t - a\sigma_u^2)\tau - \Sigma a\sigma_u^2}{\Sigma(1-\tau)+\tau}$$

with the definition $\Lambda = \Sigma(1-\tau)+\tau$

$$\begin{aligned} P_t - P^* &= \mu_t + \frac{s_t\tau - \Sigma a\sigma_u^2}{\Lambda} - \left(\mu_i - \Sigma a\sigma_u^2\right) \\ &= (\mu_t - \mu_i) + s_t\left(\frac{\tau}{\Lambda}\right) + \Sigma a\sigma_u^2\left(1 - \frac{1}{\Lambda}\right) \\ &= s_t\left(\frac{\tau}{\Lambda} - 1\right) + \Sigma a\sigma_u^2\left(1 - \frac{1}{\Lambda}\right) \end{aligned}$$

and

$$\begin{aligned}
P_{t+1} - P^* &= P_t + a\sigma_u^2 + \frac{(\mu_i - P_t - a\sigma_u^2)\tau - \Sigma a\sigma_u^2}{\Lambda} - \left(\mu_i - \Sigma a\sigma_u^2\right) \\
&= P_t\left(1 - \frac{\tau}{\Lambda}\right) + a\sigma_u^2\left(1 + \Sigma - \frac{\Sigma + \tau}{\Lambda}\right) + \mu_i\left(\frac{\tau}{\Lambda} - 1\right) \\
&= \left(\mu_t + \frac{s_t\tau - \Sigma a\sigma_u^2}{\Lambda}\right)\left(1 - \frac{\tau}{\Lambda}\right) + a\sigma_u^2\left(\Sigma - \frac{\Sigma\tau}{\Lambda}\right) - \mu_i\left(1 - \frac{\tau}{\Lambda}\right) \\
&= \left(-s_t + \frac{s_t\tau - \Sigma a\sigma_u^2}{\Lambda}\right)\left(1 - \frac{\tau}{\Lambda}\right) + \Sigma a\sigma_u^2\left(1 - \frac{\tau}{\Lambda}\right) \\
&= \left(1 - \frac{\tau}{\Lambda}\right)\left(s_t\left(\frac{\tau}{\Lambda} - 1\right) + \Sigma a\sigma_u^2\left(1 - \frac{1}{\Lambda}\right)\right)
\end{aligned}$$

The rate of convergence is defined as

$$\gamma_t = \frac{|P_{t+1} - P^*|}{|P_t - P^*|} = 1 - \frac{\tau}{\Lambda} = \frac{\Sigma(1-\tau)}{\Sigma(1-\tau)+\tau}$$

Since γ_t is constant for $t \geq T$, P_t converges linearly to P^* provided that $|\gamma_t| < 1$ which is the case for all $\tau \in]0,1[$. $\square$

The Issuance Effect in International Markets

Niklas Kohl*

Abstract

Equity issuance predicts future low returns, but the reasons for this underperformance are disputed. I use an international sample and show that the underperformance by issuers is smaller in developed markets than in other markets. This empirical result is consistent with the "hard to value" theory which holds that underperformance is strongest for firms which are "hard to value" because informed investors are more constrained in their ability to express negative information (Kohl, 2016). However, the result contradicts the findings of McLean *et al.* (2009), who argue that the underperformance of issuers is strongest in developed markets because lower issue costs induce issuers to exploit mispricings more frequently. To analyze this, I have developed a model with issue costs and information asymmetry between issuer and investors, where opportunistic issuers, to some extent, manage to sell overpriced equity. The model predicts that issuer underperformance is increasing in issue cost in line with the findings in this paper.

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1 Introduction

Firms which issue new equity underperform subsequently, relative to other firms. This phenomenon was first studied in the context of seasoned equity offerings (Loughran and Ritter (1995)). Later research has generalized this result to issuance in general and shown that firms which issue equity, on average, subsequently underperform (Daniel and Titman (2006), Pontiff and Woodgate (2008), Fama and French (2008b), Fama and French (2008a)). McLean *et al.* (2009) show that this result also applies in international markets.

While the *issuance effect*, i.e. the underperformance by issuers, is well documented, the reasons for underperformance are disputed. The classical behavioral explanation suggested by Loughran and Ritter (1995) is that firms announce issues when their equity is "grossly overvalued" and "the market does not revalue the stock appropriately, and the stock is still substantially overvalued when the issue occurs." Pontiff and Woodgate (2008), more cautiously, conclude that "... it appears doubtful that these results can be explained solely by a risk-based asset pricing model" but do not suggest any particular behavioral explanation and do not rule out that the underperformance could be explained by a transaction cost model.[1]

A risk-based explanation is given by Bessembinder and Zhang (2013) who find that SEO underperformance is explained by risk factors including idiosyncratic volatility, liquidity, momentum and investment. When controlling for these factors, the issuance effect becomes insignificant. A related

[1]Unfortunately, Pontiff and Woodgate (2008) do not specify what transaction cost model they have in mind. In this paper, I show that issue transaction costs increase subsequent underperformance, but only in the presence of a deviation from rational expectations on the side of investors.

result is Lyandres *et al.* (2008) who report that about 75% of SEO underperformance is explained by an investment factor. Fu and Huang (2015) report negative, but insignificant, abnormal returns following SEOs during the period of 2003-2013. The authors suggest that this is because the pricing of stocks has become more efficient and firms less opportunistic in their issuance behavior.

McLean, Pontiff, and Watanabe (2009), in the following MPW, study the issuance effect in the cross-section of countries. According to MPW, the issuance effect is strongest "in countries with greater issuance activity, greater stock market development, and stronger investor protection". The authors propose that this is because stock issuance and repurchases are cheaper in these more developed markets. This enables firms to be more opportunistic in their issuance activity, whereas "In less developed markets where share issuance is more costly, the benefits of market timing are exceeded by issuance costs, and share issuance occurs only for primary reasons".

Regardless of whether one views the issuance factor as a priced risk or a mispricing, it may be a surprise that it is stronger in more developed, and presumably more efficient, markets than in less developed markets. This surprise is the starting point of the present paper.

The empirical contribution of this paper is to reconfirm the existence of the issuance factor in an international sample and, more importantly, to show that the issuance factor is *stronger* in non-developed markets than in developed markets. In order to do this, I proceed as follows. First, I reproduce some of MPW's findings, which appear to document that the issuance effect is strongest in developed markets. Second, I discuss and demonstrate how these results are not robust to changes in methodological choices. With other specifications, results become insignificant or even change sign. Finally, I suggest another methodology, which arguably is more appropriate to analyze the issuance effect in the cross-section of countries. I show that the issuance effect is indeed stronger in non-developed markets than in developed markets, as predicted by the model discussed above.

This result is consistent with the "hard to value" explanation advocated in my paper, Kohl (2016), which holds that underperformance by issuers is strongest for firms that are harder for investors to value. Here I show that the issuance effect, in the US market, is strongest for "small cap firms, firms with high dispersion in analyst estimates and recommendations, and firms with more distant cash-flows, such as firms with low profitability, low dividend yield, or high asset growth". In the current paper I show that the issuance factor is also stronger in "hard to value" non-developed markets than in developed markets.

The theoretical contribution of this paper is to present an alternative or complementary explanation for the stronger issuance factor in less developed markets. Inspired by MPW's heuristic analysis of the relationship between the ease at which equity can be issued and long-run issuer underperformance, I extend the Myers and Majluf (1984) model of firms' issuance decision with issue costs. In addition, I augment the model with a deviation from rational expectations on the side of investors.[2] Not surprisingly, the model shows that the introduction of issue costs reduces the frequency at which issues occur. However, when issues occur, higher levels of issue costs *increase* long-run issuer underperformance. The model predicts that less developed markets

[2]Although this is not in the spirit of Myers and Majluf (1984) investor mispricing is necessary in order to be able to generate non-zero long-run returns in the model.

with higher issue costs, financial or otherwise, will have fever equity issues (as shown by MPW) and larger underperformance subsequent to issue. These predictions are in line with the empirical results obtained.

The remainder of this paper is organized as follows. In Section 2 an extension of the Myers and Majluf (1984) model of firms' issuance decision is presented and analyzed. Section 3 describes and defines data and variables used in the empirical study. The empirical results are presented in Section 4. Section 5 concludes.

2 A Model of the Issuance Decision

In this Section I augment the Myers and Majluf (1984), henceforth MM, model with *issue costs* and *investor overvaluation*. Issue costs should be thought of as a proxy for market development and measure all costs, financial or otherwise, associated with raising new equity. The underlying assumption is that issue costs, on average, will be lower in more developed markets than in less developed markets. Investor overvaluation is a necessary addition to the model to generate long-run underperformance of issuers. I make no assumptions on differences in the level of overvaluation between markets.

MM consider a firm with assets in place with value $a \geq 0$ and an investment opportunity with net present value of $b \geq 0$, which cannot be postponed and which must be financed with new equity $E > 0$, raised from new investors.[3] Without loss of generality, I assume that the firm has one share outstanding and can issue new shares in any fraction. Firm management acts

[3]In MM, firms may have financial slack S. E is the equity to be raised in excess of S to undertake the investment. Since financial slack plays no role in my model, I have omitted this detail.

in the interests of old investors. Before event time, firm management knows the realizations of a and b, while investors only know the distribution of these. The firm's decision on whether or not to issue, and consequently forfeit the investment opportunity, depends on the price p at which new equity can be issued.

If the firm does not issue, the per share fundamental value is a. If the firm does issue and invest, the number of shares increases with a factor $\frac{p+E}{p}$ and fundamental value per share will be $\frac{p(a+b+E)}{p+E}$. The firm will issue if and only if it increases per share fundamental value, i.e. the firm issues if and only if $b > \frac{E}{p}a - E$. This situation is depicted in Figure 1. The firm will issue if $(a, b) \in M'$, the region to the left and not issue if $(a, b) \in M$. In MM, investors have rational expectations. Hence, the equilibrium price must satisfy $p^* = \mathbb{E}(a + b \mid (a, b) \in M')$.

[Insert Figure 1 about here]

The model predicts that event returns will be negative, except for degenerate cases where issue always or never occurs, because the decision to issue reveals negative information about the distribution of $a + b$, but, on average, investors get a fair deal and purchase new equity at its expected fundamental value.[4] Consequently, long-run returns will be zero. I introduce two innovations to the MM model.

First, to model costs in connection with the issue, monetary or otherwise,

[4] To see that event returns are negative, consider that the pre-event equilibrium price p^0 is the issue probability weighted average of the price p^* if an issue has been announced and the price p^- once it is known that an issue will not be announced. As shown in Figure 1, no issue implies that the expected value of a exceeds issue price, i.e. $p^- > p^* \Rightarrow p^* < p^0$ which shows that event return will be strictly negative, except for degenerate cases, with issue probability 0 or 1, where event return will be zero.

I introduce an issue cost of c. In order to raise new equity E issue proceeds must be $E + c$. E and c are known by the firm as well as investors. c affects the firm's issuance decision as firms will only issue when $b > \frac{E+c}{p}a - E$, i.e. for fixed a, b must be $\frac{ca}{p}$ higher than without issue costs for an issue to occur. Issue costs will also affect the equilibrium price as investors will take c into consideration. Every thing else being equal, issue costs will reduce the equilibrium price which in turn will further reduce the issue probability.

Second, to enable the model to generate long-run negative returns, a deviation from rational expectations is necessary. One way to achieve this is to introduce a systematic bias in investors' valuation of assets in place and the investment opportunity. In particular, I introduce the overvaluation parameter $\mu \geq 1$. While the true density function of $x = a + b$ is $f(x)$ investors believe the density function is $f^{\mu}(x)$ where $f^{\mu}(\mu x) = \frac{1}{\mu} f(x)$, i.e. investors systematically overvalue $a + b$ by a factor μ. I denote the investors' expected value $\mathbb{E}^{\mu}$, where the true expectation is $\mathbb{E}$, i.e. $\mathbb{E}^{\mu}(x) = (1+\mu)\,\mathbb{E}(x)$. μ is known by the firm and aside from the systematic overvaluation, investors are rational. With overvaluation and issue costs, the equilibrium price is

$$p^* = \mathbb{E}^{\mu}(ab) \mid (a, b) \in M') - c = \mu \mathbb{E}((a + b) \mid (a, b) \in M') - c$$

The MM model corresponds to the special case where $c = 0$ and $\mu = 1$. Overvaluation changes the right-hand side of the equilibrium equation. This will increase equilibrium price and incite firms to issue more frequently.

In general, closed form expressions for equilibrium price p^* cannot be derived but for any particular density function f, the equilibrium price can be found iteratively, as described in MM. The idea is to guess an issue price, use this to calculate the firm's issuance policy (the definition of region *M'*) and use this to calculate, possibly through simulation, the investors' expected valuation conditioned on issue. In the next iteration, this valuation is used as issue price guess. This procedure will converge to an equilibrium price. For some density functions, simulation can be omitted because investor valuations can be expressed in closed form, i.e. a closed form solution exists for $\int_{M'}(a+b)\, f(a+b)\, da\, db$. As an example, I have chosen to consider the case where a and b are independent and uniformly distributed on $[a_{min}, a_{max}]$ and $[0, b_{max}]$ respectively.

Figure 2 panel A considers the case with issue costs but without overvaluation, where the value of assets in place a is between 20 and 40, the value of the investment opportunity b between 0 and 10 and a new issue, if any, must raise $E = 20$ plus issue costs c. The Figure shows issue price p^*, issue probability, and - conditional on issue - event return, expected long-run return, expected value of a and expected value of b as function of issue costs c.[5] In panel B $\mu = 1.1$, i.e. investors overvalue assets in place and the value of the investment opportunity by 10% and otherwise the same parameters as in panel A.

As expected, issue price and issue probability decreases with increasing issue costs and are at higher levels when investors overvalue the firm. Event return also decreases in issue costs because an issue is almost certain when c is low, while an issue is more of a surprise at higher levels of c. Long-run returns are zero without overvaluation. With overvaluation (panel B) and no issue costs, long-run returns are around 9%. As issue costs increase

[5]The price before event time is $\int_{M'}(\mu(a+b)-c)\, f(a+b)\, da\, db + \int_{M}(\mu a)\, f(a+b)\, da\, db$. Event return is the relative price change once an issue is announced. Long-run return is relative price change once the realizations of a and b are revealed.

from 0 to 5 long-run underperformance increases to around 11%. This is no coincidence. For any realization of $(a, b) \in M'$ investors expect per share fundamental value to be $\mu(a+b)-c$ while true value is $a+b-c$. Consequently, long-run return is

$$\frac{(a+b-c)-(\mu(a+b)-c)}{\mu(a+b)-c} = \frac{(1-\mu)(a+b)}{\mu(a+b)-c}$$

which is decreasing in c for all $\mu > 1$. Qualitatively similar results are obtained with other a and b intervals, and other values of E and μ.[6]

[Insert Figure 2 about here]

The model shows that the introduction of issue costs will decrease issue probability. When issues occur, the value of the investment opportunity b will, on average, be higher. At a first glance, this may suggest that issues more frequently occur for "primary reasons", as suggested by MPW. However, the average value of assets in place a is decreasing in issue costs. In fact, the combined effect is that $a + b$ is decreasing in issue costs. This results in more negative event returns when issues are announced and in more negative long-run returns in the presence of investor overvaluation at event time.

3 Data and Variables

This study covers US as well as international markets. For US firms, stock return data and other stock data were obtained from the monthly CRSP files

[6] For some parameter configurations event returns are positive and increasing in issue costs with as well as without investor overvaluation. This happens when E is very small relative to c. In these cases, the choice to issue may primarily signal good news about b. Long-run returns remain decreasing in issue costs with investor overvaluation.

and accounting data were obtained from Compustat. For international firms, these data were obtained from Thomson Datastream. The international sample consists of all firms followed by Worldscope.[7] To determine the country of firms in the Datastream sample the variable `ISIN_ISSUER_CTRY` is used. Firms for which this variable is not available and firms for which it is US are discarded from the Datastream part of the sample. All calculations are in USD.

Some firms have issued more than one class of ordinary equity. For these firms only the share class with highest aggregate market value is used, but the market value of the firm is calculated as the sum of market values for all issued classes of ordinary shares.

Following Daniel and Titman (2006), Pontiff and Woodgate (2008), and McLean *et al.* (2009), I calculate net issue over the past year as

$$NetIssue_{t,t-12} = ln(AdjustedShares_t) - ln(AdjustedShares_{t-12})$$

where $AdjustedShares_{\,t}$ is the time t adjusted number of shares. For US data, the adjusted number of shares is calculated using the the CRSP variables `shrout` and `cfacshr` whereas the adjusted number of shares in the international sample is calculated from the Datastream variables `nosh` and `af`. In both cases, the number of shares is adjusted for stock splits, stock dividends as well as other corporate actions such as rights issues. Net issue over the past two and three years, denoted $NetIssue_{\,t,t-24}$ and $NetIssue_{\,t,t-36}$, respectively, is similarly calculated.

McKeon (2015) shows that the majority of issues are small *investor-*

[7]Worldscope is an international database of accounting and other fundamental data provided by Thomson Reuters.

initiated issues, for example in connection with the exercise of employee stock options. These issues are less likely to convey any information about the future stock return than *firm-initiated* issues. He suggests distinguishing between investor- and firm-initiated issues using a 3% threshold. Previous research shows that this is indeed important. Fama and French (2008a) document that firms conducting small issues have slightly higher returns than zero-issuers while firms with large issuance activity underperform significantly. Consequently, I define the indicator variables $issuer_i$ as 1 if net issue exceeds 0.03 over the past i years, and 0 otherwise.

In addition to *NetIssue*, a number of variables are known to predict future return. *MOM* is the return over the past year excluding the past month. *cap* is the logarithm of firm market value.[8] *bm* is the logarithm of the ratio between book equity and market value. In some cases, I include observations for which *bm* cannot be calculated. To facilitate this, I follow MPW and define $bm = 0$ and $bm_{dummy} = 1$ when *bm* cannot be calculated while $bm_{dummy} = 0$ for firms with known *bm* value. Asset growth *AG* is calculated as the relative change in book value of assets over the past year and return on equity *ROE* is calculated as the net income relative to book equity for US data. For international data, the Worldscope ROE variable `wc08301` is used. All accounting variables are lagged by at least six months and only annual accounting values are used.[9]

Throughout this paper, it is required that *cap*, *MOM*, *NetIssue* and next month return can be calculated. (firm, month) observations for which this is not possible are discarded from the sample. In some cases, observations

[8] In general, lower case variables are the logarithm of the original variable.

[9] Since `wc08301` reports current fiscal year ROE it is lagged by 18 months.

without bm, AG and ROE are also discarded.

Figure 3 shows the number of firms in the full sample per month while Figure 4 shows the distribution between the largest countries. In the 80s US firms accounted for around three quarters of the all firms and six developed markets (US, Japan, UK, Germany, France, and Canada) accounted for 95% of all firms. By 2014 the US accounted for less than 15% of all firms while the six mentioned countries accounted for a total of about 40%. This development primarily reflects the growing coverage of the Datastream and Worldscope databases and shows that the early part of the sample is heavily biased toward a small number of markets.

[Insert Figure 3 about here]

[Insert Figure 4 about here]

MPW study the relationship between the issuance factor and a number of country-specific variables proxying for market development and investor protection, including the frequency of stock issues, stock market liquidity, GDP per capita, and a number of proxies for investor protection and earnings management. I use some of these variables as reported by MPW. Moreover, I distinguish between *developed markets*, which are the markets identified as MSCI as developed and *non-developed markets*, which are all other markets.[10]

[10] MSCI define the following markets as developed; Canada, United States, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Australia, Hong Kong, Japan, New Zealand, and Singapore. The majority of the other, i.e. non-developed, markets considered in this study are classified as *emerging* by MSCI.

4 Empirical Results

The empirical analysis consists of three parts. First, I reproduce some of MPW's results on the issuance effect in the cross-section of markets. The purpose is to demonstrate that, through the use of my dataset, I can largely reproduce their results. Second, I show how the significance and even sign of the results presented by MPW are sensitive to particular methodological choices. Finally, I propose a different methodology, which arguably is more suited to analyze the issuance effect in the cross-section of countries. Using this methodology, I show that the issuance effect is stronger in non-developed countries than in developed countries.

4.1 Reproduction of Selected Results from MPW

According to MPW, the issuance effect is stronger in developed markets than in other markets. To show this, they use proxies for market development and corporate governance. They report Fama-MacBeth regressions with next month and next year return as dependent variables and factors known to predict return, *cap*, *bm*, bm_{dummy} and *MOM*, as well as *NetIssue*, a proxy for market development or corporate governance and an interaction term (*NetIssue* times the proxy for market development or corporate governance).

The regressor of primary interest is the interaction term. MPW show that it estimates the marginal impact of the proxy in the issuance effect. If, for example, a proxy for market liquidity times *NetIssue* is negative and significant, the inference is that an increase in the proxy for market liquidity is associated with a significantly stronger (more negative) issuance effect. In MPW, the interaction term is generally significant; for example, market liquidity times *NetIssue* is significantly negative. The inference is that the issuance effect is more negative (stronger) in countries with higher market liquidity.

In the reproduction, I follow MPW and winzorize regressors *within country* at the 1st and 99th percentiles. These percentiles are calculated for each time period.[11] For international data, but not US data, observations with return below the 1st or above the 99th percentile are trimmed, i.e. removed from the sample. McLean *et al.* (2009) motivate this with "... many of these extreme observations appear to be the result of coding errors."

The time period is June 1981 to July 2006. As MPW, for each (country, date) combination, I require at least 50 observations. Otherwise, the observations associated with the (country, date) combination are discarded. This concentrates the sample even further than suggested by Figure 4. In fact, the early sample, in my reproduction, consists of only eight developed countries and, by 1990, these eight countries still correspond to more than 96% of the sample. MPW report a broader initial sample including five more countries of which two (Philippines and South Africa) are not developed markets. One reason for this difference may be that I have limited the sample to firms covered by Worldscope.

MPW propose a number of variables, broadly categorized under the headings issuance activity, market development and governance, which may be related to the magnitude of the issuance effect. I reproduce their results using most of these with values as reported in MPW.[12] *Percentage with non-zero issuance* is the fraction of (firm, month) observations with non-zero *NetIs-*

[11]McLean *et al.* (2009) do not specify whether they calculate the 1st and 99th percentiles for each time period or for all observations for each country.

[12]McLean *et al.* (2009), Table 7.

sue and is considered a proxy for the cost of share issuance. A number of marked development variables were originally introduced by La Porta *et al.* (2006). *Liquidity* is the value of stocks traded scaled by GDP for the period of 1996-2000 while *Turnover* is the value of stocks traded scaled by the total market value. *GDP* is the logarithm of GDP per capita.

Governance variables used have their origin in La Porta *et al.* (1998). *Common law* is an indicator variable with the value 1 for common law countries and 0 otherwise, measuring the degree of investor protection. *accounting* is an index of accounting standards, where a higher value implies higher standards, *liability* and *criminal* measure how easily accountants, directors and distributors can be pursued in civil and criminal courts, respectively. Higher values indicate that this is easier. *Investor protection* is compiled from several measures with higher values indicating higher levels of investor protection. Higher values of *earnings management* indicate less reliable accounts.

MPW show that these measures, except for *earnings management*, are almost uniformly positively correlated, while earnings management is negatively correlated to the other measures. Countries with more developed markets (more issuance activity, higher liquidity, higher turnover, and higher per capital GDP) have higher legal standards, higher levels of investor protection and less earnings management.

Table 1 reports the results of Fama-MacBeth regressions with next month return as dependent variable and the same regressors as in MPW. Consistent with MPW I find *cap*, *bm* and *MOM* to be significant in all regressions. The regressor of primary interest is the interaction between *NetIssue* and variables proxying for market development and corporate governance.

Figure 5 compares the t-value of the interaction variable reported by

MPW with my findings. As MPW, I find the interaction between *NetIssue* and market development variables - fraction of non-zero issuers, market liquity, market turnover and gdp - to be negative. Though my t-statistics are lower, the interaction is also significant in my sample except for non-zero issuance. This suggests that higher level of market development is associated with a stronger (more negative) issuance effect.

[Insert Table 1 about here]

[Insert Figure 5 about here]

In contrast to MPW, I do not find common law and accounting standards to be significant. For the legal variables *Criminal* and *Liability* as well as for *investor protection* and *earnings management* my results have same sign as those of MPW but only *Criminal* and *investor protection* are significant.[13] Taken in their entirety, the results are qualitatively aligned with the results of MPW.

4.2 Sensitivity of the MPW results

The second part of my empirical results examine the impact of a number of the methodological choices in MPW. The purpose is to demonstrate that results, and consequently inference, is sensitive to these choices. Alternative choices, which may be as justifiable as those made by MPW, destroy the significance, and in some cases even reverses the sign of results.

[13] The interaction between *NetIssue* and *Criminal* is positive and significant in MPW as well as my findings. This implies, that the issuance effect is weaker (less negative) in countries where directors etc. can more easily can be pursued in criminal court. This result is inconsistent with the predictions of MPW.

I consider the following empirical choices; First, MPW only report equal-weighted Fama-MacBeth regressions. Since the vast majority of firms are small, especially in the MPW sample which includes firms outside the Worldscope universe, equal-weighted results may reflect phenomena which only or primarily exist for small cap firms.

Second, the early sample is dominated by US firms and the representation of firms from non-developed economies is particularly low in the early sample. For this reason, it is natural consider whether the results hold in a later period with broader international coverage.

Third, the winzorization methodology employed by MPW may be disputed. Though winzorization is justified to eliminate the impact of outliers and coding errors, it is not given that winzorization should be performed independently for each country. A particular concern is that winzorization at the 1st and 99th percentiles will have no impact on samples (countries) with at most 100 observations. This also holds for the trimming of the sample at the 1st and 99th percentile next month return applied to non-US data. Trimming is justified as Ince and Porter (2006) show that Datastream contains errors, resulting in implausibly large returns, but trimming independently by country does not affect small sample countries. Further trimming of the international data at the 99th percentile is likely to introduce a downwards bias on international returns. On average, international observations are trimmed above a monthly return of about 61%. Though this is a high return, it is far from implausibly high, thus the vast majority of observations removed are likely to be genuine observations.

Fourth, MPW only control for *cap*, *bm* and *MOM*. By now, it is well established that controlling for investment and profitability is appropriate when measuring the issuance effect ((Lyandres *et al.*, 2008), (Bessembinder and Zhang, 2013)) since a part of the issuance effect is explained by these factors[14].

In tests for robustness with respect to the four issues mentioned above, I redo the regressions reported in Section 4.1 changing one issue at a time as well as changing all four. For each regression, three t-statistics are presented: The t-value report by MPV, the t-value reported in subsection 4.1 and t-value with modified methodological choices.

Figure 6 shows results with value-weighted Fama MacBeth regressions as the only change while Figure 7 shows the period January 1990 to December 2014 as the only change (i.e. equal-weighted regressions). Both these changes almost uniformly reduce the significance of results, though the sign generally remains unchanged.

[Insert Figure 6 about here]

[Insert Figure 7 about here]

Several modifications of the winzorization and trimming scheme are possible. In Figure 8, regressors are trimmed at their global 1st and 99th percentiles, instead of national calculation of winzorization values. As above, international return observations are trimmed at their global 1st and 99th percentiles. This approach, which also ensures winzorization and trimming for countries with less than 100 observations, reduces the significance of results.

[14] A fifth debatable choice by MPW is the choice to exclude observations from countries with less than 50 observations. Since country is not used in the Fama MacBeth regressions, there is no particular reason to exclude observations from countries with few observations. However, including these observations only has a minor impact on results.

Changes in trimming methodology may also increase significance. Figure 9 shows results if all countries, including the US, are treated "equally" in the sense that regressors are winzorized at their national 1st and 99th percentiles while return observations are trimmed at their national 1st and 99st next month return percentiles. This approach, which ensures that extreme returns are also trimmed for US data, increases the significance of the interaction variables, in most cases to the levels reported by MPV.[15]

[Insert Figure 8 about here]

[Insert Figure 9 about here]

In Figure 10, the sample is limited to observations for which *bm*, *ROE* and *AG* are known, and these are used as controls in the Fama MacBeth regressions (in addition to the regressors used in the previous regressions). In most cases, this reduces the significance of results.

Finally, in Figure 11, results with four simultaneous changes are reported. Regressions are value-weighted using all controls including *bm*, *ROE* and *AG*. The period spans January 1990 to December 2014. Regressors are winzorized at their global 1st and 99th percentiles and international observations are trimmed at their global 1st and 99th next month return percentiles. With these choices, the sign of all interaction variables, except one, is reversed relative to the results reported by MPW and the only significant result is that higher levels of earnings management are associated with a more negative (stronger) issuance effect.

[15]Since percentiles are calculated per country no winzorization and trimming takes place for countries with less than 100 observations, as discussed above.

[Insert Figure 10 about here]

[Insert Figure 11 about here]

4.3 The Issuance Effect in the Cross-section of Countries

Aside from the issues raised above, the full sample Fama-MacBeth methodology may not be the best suited to explore how the differences in national market characteristics interact with the issuance effect. One concern is that the results are dominated by a relatively small sample of countries consisting of the largest developed countries and China, India, Korea and Taiwan. Consequently, the results are driven by as few as ten country observations. With this small sample size, causal inference about the relationship between country specific variables and the issuance effect is problematic.

Another concern is to what extent the proxies for market development and corporate governance are indeed relevant proxies. As an illustration of the latter topic, Figure 12 shows the turnover measure used by MPW as a proxy for market development by MPV while Figure 13 shows the investor protection proxy. One may argue that Taiwan, Pakistan, South Korea, Spain and Turkey may not be the most developed markets in the world and some may be surprised to learn that the markets with lowest investor protection are Germany, Belgium, Mexico, Austria and Italy.

[Insert Figure 12 about here]

[Insert Figure 13 about here]

A different approach is to treat each country as one data point and to replace the market development and corporate governance proxies with the somewhat simpler MSCI market classification. For each country, I estimate the issuance effect with country-specific value-weighted Fama-MacBeth regressions in which I regress next month return on *cap*, *bm*, *MOM*, *AG*, *ROE* as well as an indicator variable which takes the value 1 if the firm's *NetIssue* $_{1,12}$ is at least 0.03. Motivated by McKeon (2015), I chose the value 0.03 to distinguish between small investor-initiated issues and firm-initiated issues, which are more likely to convey information. I include *AG* and *ROE* as investment and profitability, by now, are known to predict return and because Bessembinder and Zhang (2013), Lyandres *et al.* (2008), and Kohl (2016) show that these factors partly explain the underperformance of issuers.

The time period is from January 1990 to December 2015. To be included in the analysis, observations must have values for all regressors. Regressors are winzorized at their global 1st and 99th percentiles and international observations are trimmed at their global 1st and 99th next month return. For each (country, month) combination, I require at least 50 observations, of which at least 10 must be issuers with *NetIssue* of at least 0.03. Moreover, I require countries to have at least 120 monthly estimates to participate in the sample. In robustness tests, I change some of these requirements.

Figure 14 reports the estimated issuance effect, i.e. the estimate associated with $issue_1$, for the 34 countries with sufficient observations. For developed countries, past year issuance is associated with a significant reduction in next month return of 18 bps (t-value 3.70) while the reduction for non-developed countries is 35 bps (t-value 4.66). The difference between developed and non-developed countries of 17 bps is significant in a two-sided test on a 10% level with a t-value of 1.86. The nonparametric Mann-Whitney rank-sum test has a z-score of 1.79.

[Insert Figure 14 about here]

Table 2 reports results of robustness tests. With equal-weighted regressions the estimated underperformance of issuers increase to 32 bps for developed countries and 48 bps for non-developed countries, reflecting that the issuance effect is stronger for small cap than for large cap. The difference is significant, though not in the non-parametric test where the z-score drops to 1.52. The country sample size can be increased either by including all countries with at least 60 months observations or by measuring issue over the past two or three years. Estimates of underperformance range from 9 to 15 bps for developed market issuers, while issuers in other markets underperform by 29 to 39 bps. In all cases, the difference is strongly significant. If $issue_1$ measures *NetIssue* above 0.01 more firms are considered issuers. As shown by McKeon (2015) many of these issues are not firm-initiated, thus decreasing the informational content of $issue_1$. This is reflected in the results, in particular the difference between developed and non-developed countries becomes insignificant. Conversely, if $issue_1$ is restricted to firms with *NetIssue* above 0.05, the difference between developed and other countries becomes strongly significant. The difference is also strongly significant if issue is measured over the past three years with a 5% threshold. Finally, if I do not control for AG and ROE or if issue is measured with the continuous *NetIssue* variable instead of an indicator variable, the difference between developed and other markets becomes insignificant.

For all specifications, issuers underperform significantly relative to other firms and underperformance is always stronger in non-developed markets than in developed markets. The difference is significant in the baseline specification and significance increases if issuance is measured over two or three years or if the threshold for being issuer is increased to 5%.

[Insert Table 2 about here]

5 Conclusions

This paper analyzes the issuance effect in international markets. This is important because it provides an out of sample test of the issuance effect documented in the US market but also because the strength of the issuance effect may vary systematically in the cross-section of countries. In particular, I explore whether there is a difference in issuance effect between developed markets and non-developed markets. The underlying assumption is that developed markets, on average, are more efficient and with fewer frictions, and that this may have impact on firms' issuance decisions as well as on market prices.

I extend the Myers and Majluf (1984) model of firms' issuance decisions with issue costs and investor overvaluation. Theoretically, this shows that, with higher issue costs, firms will issue less frequently and only when they have more valuable investment opportunities relative to markets with lower issue costs. Perhaps more surprisingly, the model reveals that higher levels of issue costs, in the presence of investor overvaluation, also reduces issuer long-run returns, i.e. increases the issuance effect. This predicts that issues will be most frequent in the most developed markets and that issuer long-run underperformance will be strongest in non-developed markets. Empirically, I show that the issuance effect is indeed significantly stronger in non-developed markets than in developed markets.

These results are at odds with findings reported by McLean *et al.* (2009) who report that the issuance effect is stronger in more developed markets because lower issue costs will induce firms to be more opportunistic in their issuance and repurchase behavior. I show how these findings are not robust to methodological changes and propose an alternative test which, arguably, is more suited to exploring variation in the issuance effect in the cross-section of countries.

My findings are consistent with the "hard to value" theory, developed in my paper, Kohl (2016), which holds that issuer underperformance is strongest when informed investors are more constrained in their ability to express negative information because of uncertainty about fundamental value. In Kohl (2016), I show that issuer underperformance is strongest for firms with the least information available, with cash-flows in the more distant future and where dispersion in analyst opinions is highest. This paper shows that issuer underperformance is stronger in "hard to value" less developed markets than in more developed, and presumably more efficient, markets.

References

Bessembinder, H. and Zhang, F. (2013). Firm characteristics and long-run stock returns after corporate events. *Journal of Financial Economics*, *109*(1), 83 – 102.

Daniel, K. and Titman, S. (2006). Market reactions to tangible and intangible information. *Journal of Finance*, *61*(4), 1605 – 1643.

Fama, E. F. and French, K. R. (2008a). Average returns, b/m, and share issues. *Journal of Finance*, *63*(6), 2971 – 2995.

Fama, E. F. and French, K. R. (2008b). Dissecting anomalies. *Journal of Finance*, *63*(4), 1653 – 1678.

Fu, F. and Huang, S. (2015). The persistence of long-run abnormal returns following stock repurchases and offerings. *Management Science*.

Ince, O. S. and Porter, R. B. (2006). Individual equity return data from thomson datastream: Handle with care!. *Journal of Financial Research*, *29*(4), 463 – 479.

Kohl, N. (2016). Stock issuance and the speed of price discovery. SSRN.

La Porta, R., Lopez-de Silanes, F., and Shleifer, A. (2006). What works in securities laws?. *Journal of Finance*, *61*(1), 1 – 32.

La Porta, R., Lopez-de Silanes, F., Shleifer, A., and Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113.

Loughran, T. and Ritter, J. R. (1995). The new issues puzzle. *Journal of Finance*, *50*(1), 23 – 51.

Lyandres, E., Le, S., and Lu, Z. (2008). The new issues puzzle: Testing the investment-based explanation. *Review of Financial Studies*, *21*(6), 2825 – 2855.

McKeon, S. B. (2015). Employee option exercise and equity issuance motives. SSRN.

McLean, D. R., Pontiff, J., and Watanabe, A. (2009). Share issuance and cross-sectional returns: International evidence. *Journal of Financial Economics*, *94*(1), 1 – 17.

Myers, S. C. and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187 – 221.

Pontiff, J. and Woodgate, A. (2008). Share issuance and cross-sectional returns. *Journal of Finance*, *63*(2), 921 – 945.

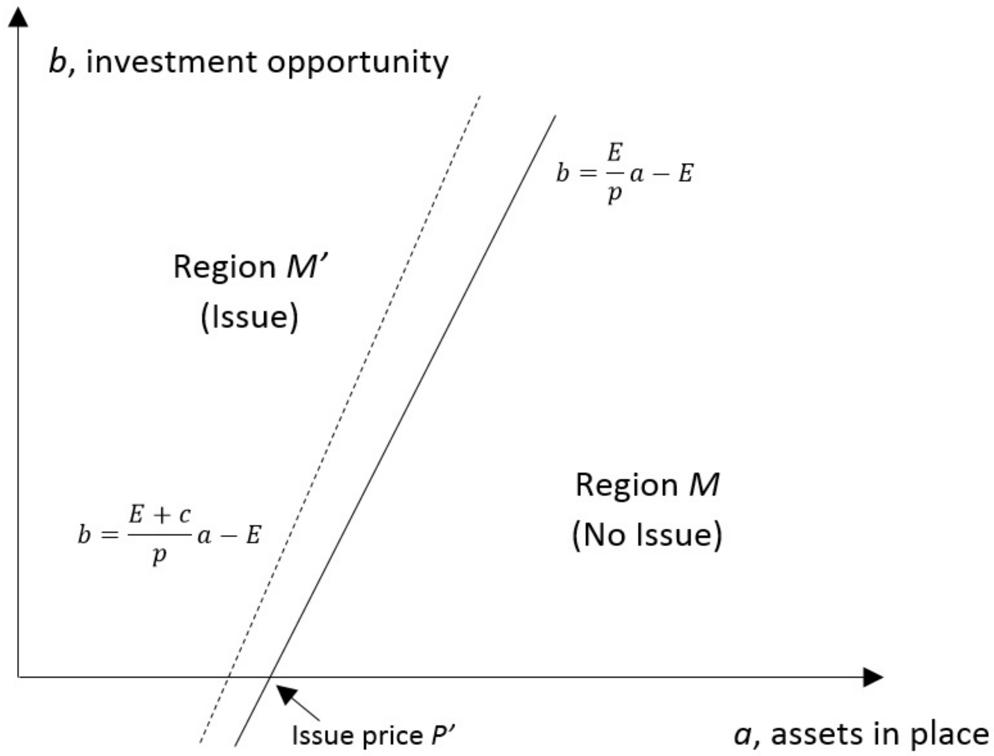
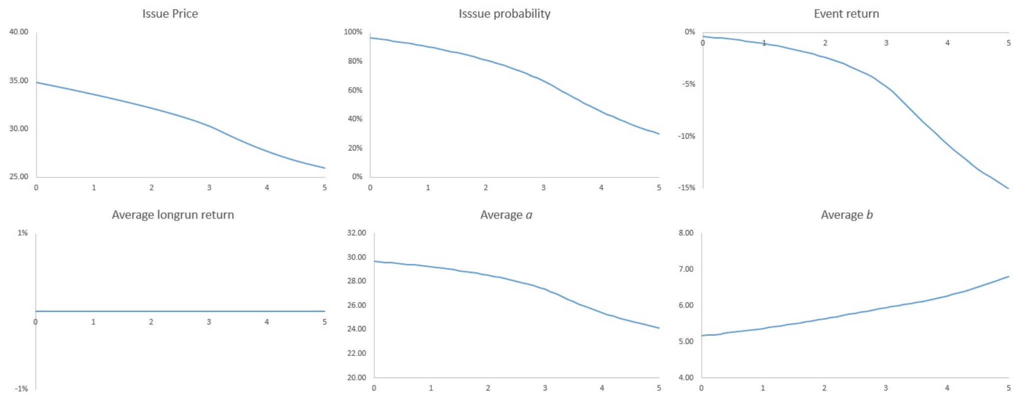


Figure 1: The issuance decision when firm management knows the per share value of assets in place a and the investment opportunity b and investors only know the distribution of these (Myers and Majluf, 1984). The solid line depicts the case without issue costs. The issue price is p and the equity to be raised to invest is E. The firm issue if $b > \frac{E}{p}a - E$, the upper-left region *M'* and do not issue otherwise (region *M*). If $b = 0$, the firm will issue if $a < p$. The dashed line depicts the case with issue cost c. Everything else being equal, the value of the investment opportunity must be higher than in the case without issue costs before the firm choses to issue.

Panel A



Panel B

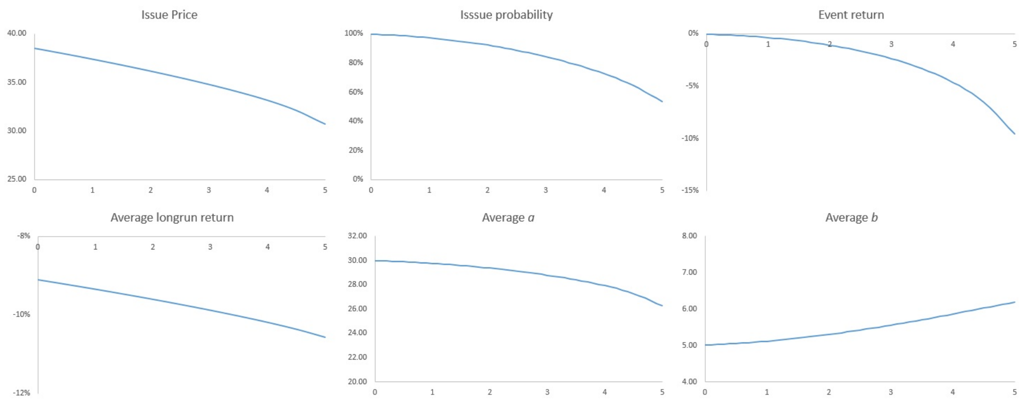


Figure 2: Equilibrium issue price p^*, probability of issue, event return, average long-run return, and average a and b if the firm issues, all as function of issue costs c (on the x-axis). a is uniformly distributed on $[20, 40]$, b on $[0, 10]$, and equity to be raise in the issue $E = 20$. Qualitatively similar results are obtained with different a and b intervals and different E values.

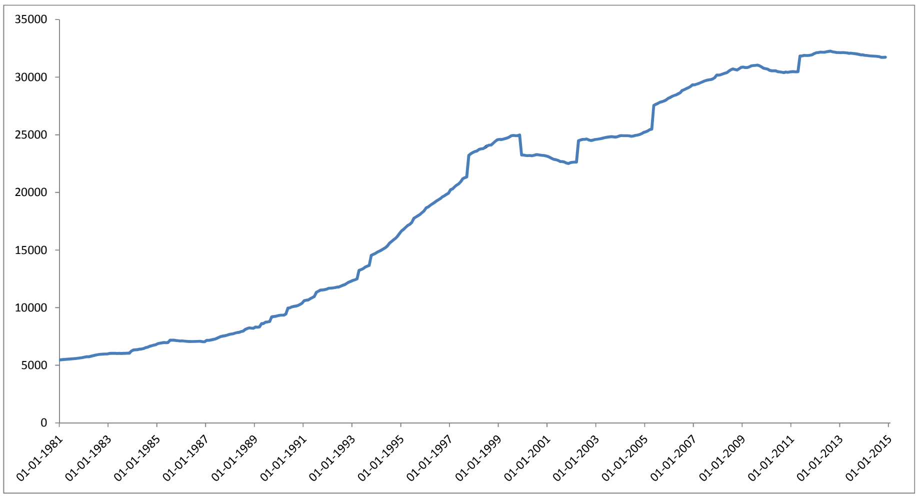


Figure 3: Number of monthly firm observations in the full dataset.

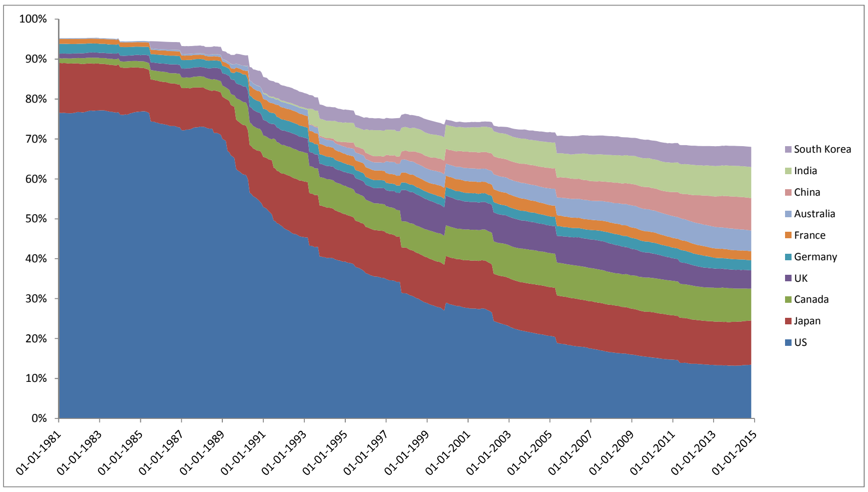


Figure 4: The largest countries as fraction of the full sample.

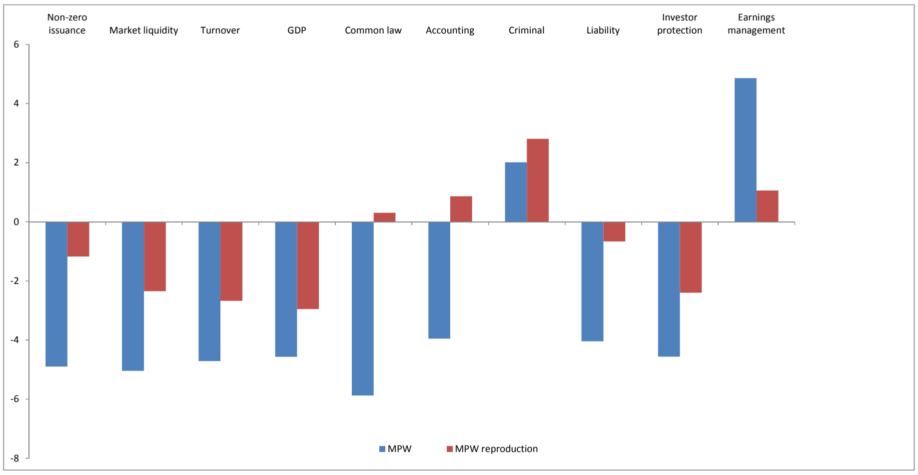


Figure 5: Comparison of t-statistics of the interaction between *NetIssue* and variables proxying for issuance activity, market development and corporate governance reported by MPW and the results reported in this paper in Table 1 (where details of the regressions are reported). Taken in their entirety, the findings of MPW are confirmed.

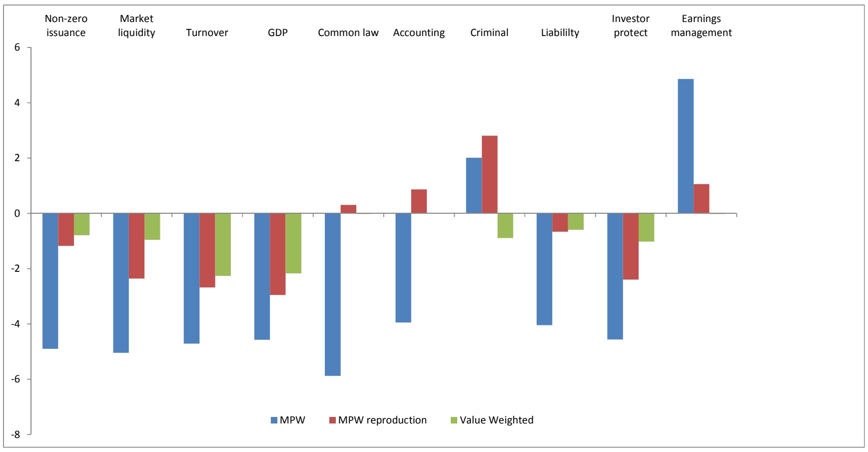


Figure 6: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction with value-weighted observations otherwise identical to the reproduction of Table 1. Value weighting generally reduces the significance, but not the sign, of results.

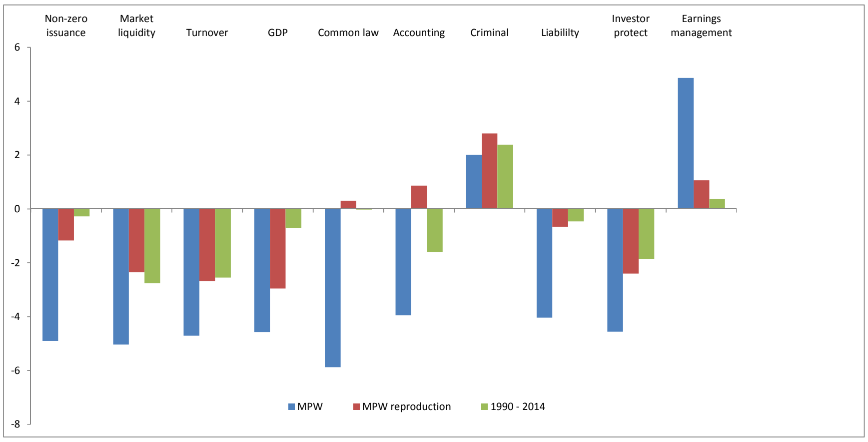


Figure 7: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction using only data from the period of 1990-2014 (where international coverage is broader) and otherwise identical to the reproduction of Table 1. Using a broader sample and shorter time period generally reduces the significance, but not the sign, of results.

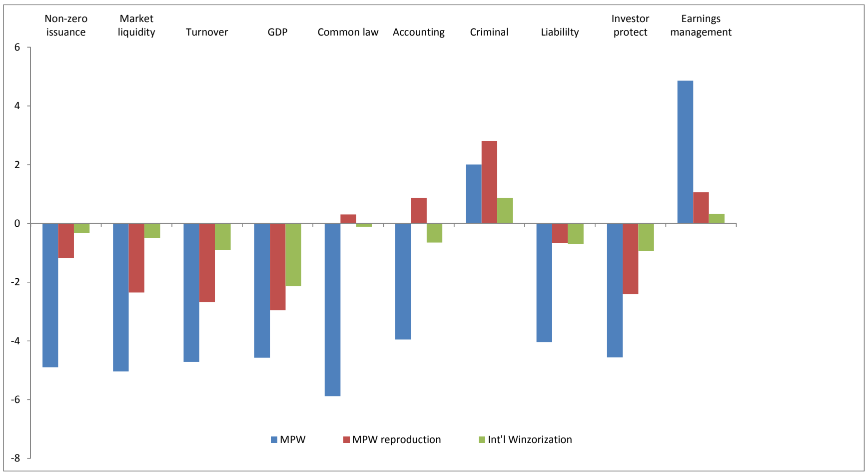


Figure 8: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction where regressors for international observations are winzorized at their global (instead of national) 1st and 99th percentiles and otherwise identical to the reproduction of Table 1. This generally reduces the significance, but not the sign, of results.

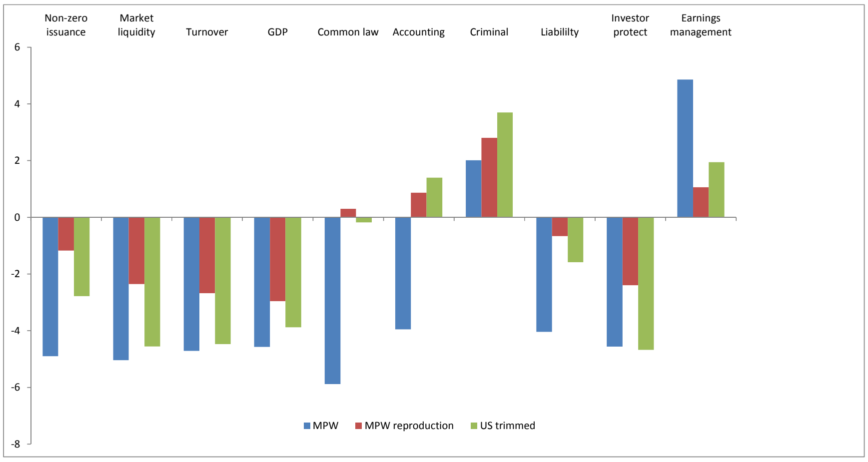


Figure 9: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction where all regressors, also for US observations, are winzorized at their national 1st and 99th percentiles and returns are trimmed at their national 1st and 99th percentiles, and otherwise identical to the reproduction of Table 1. In most cases this restores significance to the level reported by MPW.

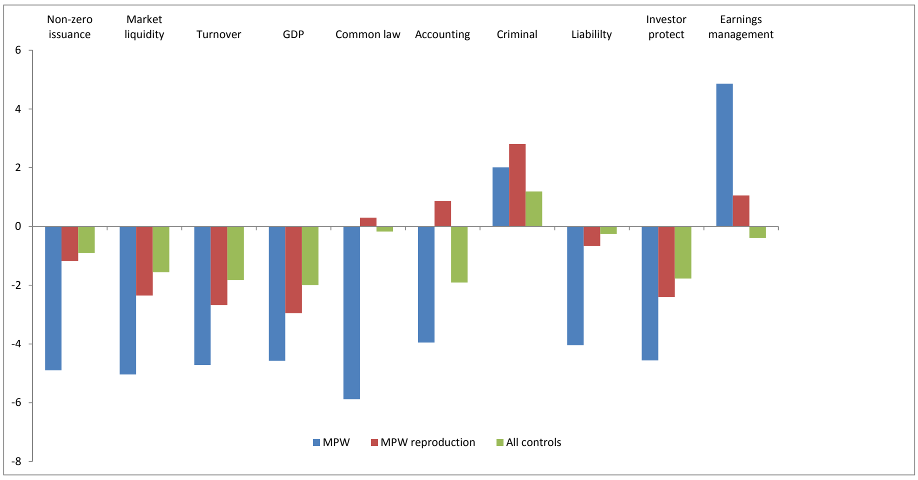


Figure 10: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction limited to observations with known bm, ROE, and AG where the latter two are included in the set of regressors, and otherwise identical to the reproduction of Table 1. This generally reduces the significance, but not the sign, of results.

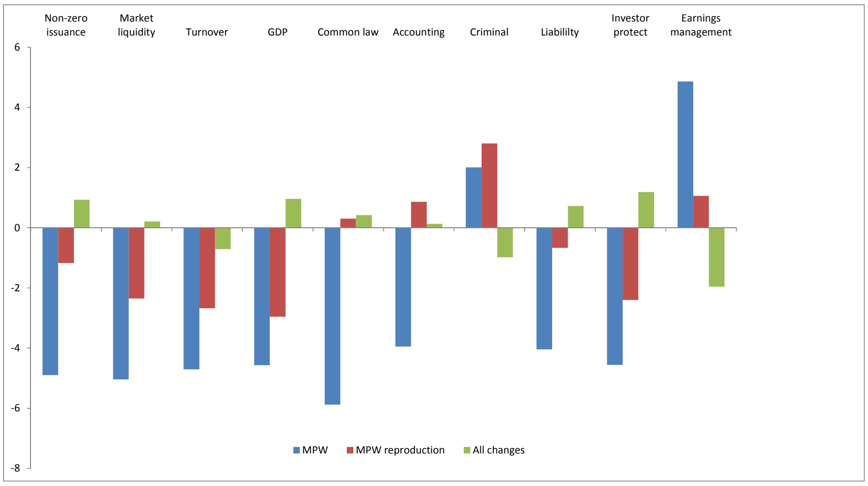


Figure 11: Comparison of t-statistics for the interaction term, as reported by MPW, from the reproduction of MPW reported in Table 1 and from a reproduction with four simultaneous changes. Regressions are value-weighted as in Figure 6. The time period is 1990-2014 as in Figure 7. Regressors are winzorized at their global 1st and 99th percentiles as in Figure 8. The sample is limited to observations with known bm, ROE, and AG where the latter two are included in the set of regressors as in Figure 10. Except for one case this reverses the sign of results and except for one case results are insignificant.

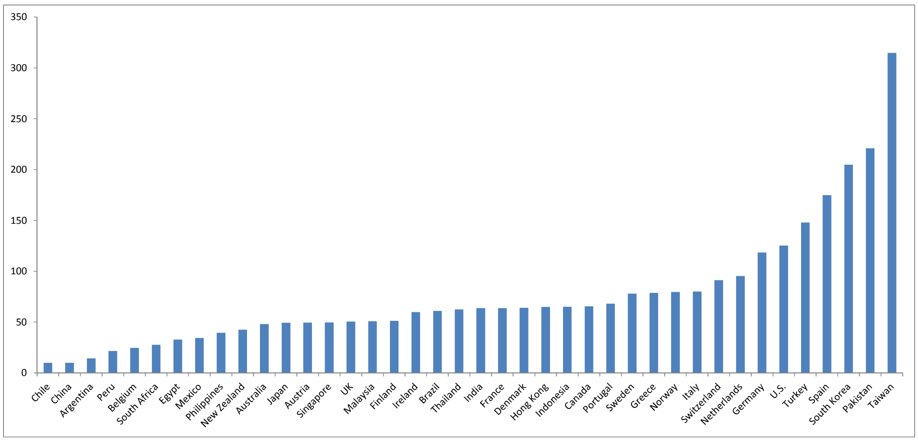


Figure 12: *Turnover* per country, as reported by MPW. *Turnover* is presumably a proxy for market development.

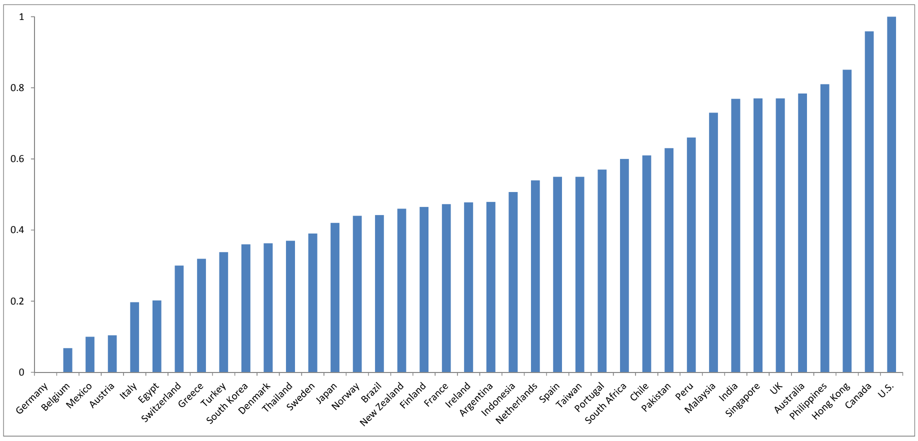


Figure 13: *Investor protection* per country, as reported by MPW.

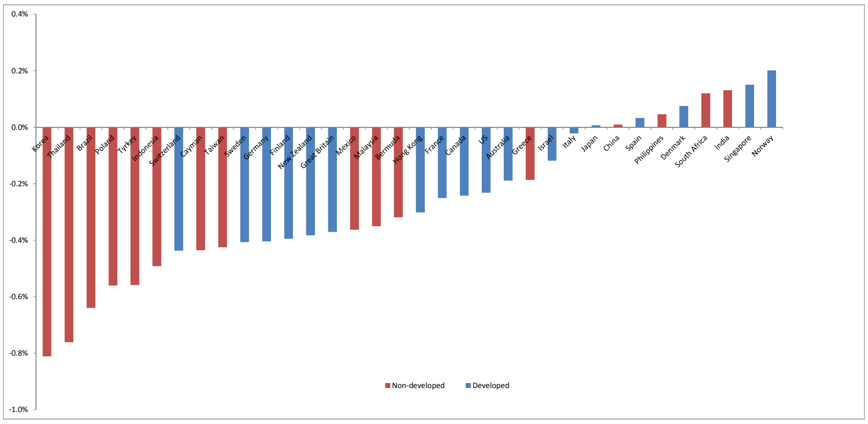


Figure 14: The issuance effect for different countries. The Figure shows the estimated increase in next month return associated with $issue_1$, i.e. for firms with $NetIssue_{\ 1,12} \geq 0.03$ when controlling for cap, bm, MOM, AG and ROE. The issuance effect is most negative (strongest) for non-developed markets but significant for non-developed as well as developed markets. The difference between non-developed and developed markets is significant on a 10% level with a t-value of 1.86 and a Mann-Whitney rank-sum test z-score of 1.79

Table 1: Reproduction of selected results reported in McLean *et al.* (2009) Table 8 panels A and C. Equal-weighted Fama-MacBeth regressions of next month return on log market value *cap*, log book-to-market ratio *bm*, dummy associated with missing book-to-market ratio bm_{dummy}, past year return *MOM*, *NetIssue*, a variable proxying for issuance activity, market development or governance, and the interaction (product) between the proxy variable and *NetIssue*. The interaction variable is the variable of main interest since it measures the marginal impact of the proxy on the issuance effect. The sample covers up to countries over the period from July 1981 to June 2006. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level. *t*-statistics are given in parentheses.

Proxy variable	Non-zero issuance	Market liquidity	Turnover Turnover	GDP GDP	Common law	Accounting	Criminal	Liability	Investor protection	Earnings management
cap	-0.21***	-0.22***	-0.21***	-0.20***	-0.21***	-0.21***	-0.21***	-0.21***	-0.22***	-0.21***
	(-4.08)	(-4.07)	(-3.93)	(-3.44)	(-4.00)	(-3.81)	(-3.73)	(-4.01)	(-4.09)	(-3.86)
bm	0.46***	0.46***	0.44***	0.44***	0.47***	0.43***	0.44***	0.44***	0.45***	0.48***
	(6.81)	(6.66)	(6.19)	(6.01)	(6.74)	(5.70)	(5.76)	(6.17)	(6.52)	(6.57)
bm_{dummy}	-0.29***	-0.30***	-0.30**	-0.25**	-0.35***	-0.32**	-0.37***	-0.34***	-0.32***	-0.36***
	(-2.64)	(-2.65)	(-2.36)	(-2.07)	(-2.99)	(-2.54)	(-2.85)	(-2.93)	(-2.99)	(-3.18)
MOM	0.007***	0.007***	0.008***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.008***
	(5.37)	(5.6)	(5.76)	(5.57)	(5.46)	(5.32)	(5.52)	(5.30)	(5.40)	(5.53)
NetIssue	-0.21	-0.26	0.11	9.85***	-0.90***	-1.72*	-1.87***	-0.62*	-0.48***	-0.92***
	(-0.59)	(-1.08)	(0.31)	(2.79)	(-3.38)	(-1.65)	(-4.61)	(-1.88)	(-2.95)	(-3.87)
Proxy variable	-0.0003	-0.0006	-0.0014	-0.0311	-0.1689	-0.0153	-0.5025	0.0677	0.0001	0.0002
	(-0.06)	(-0.35)	(-0.55)	(-0.17)	(-0.63)	(-1.18)	(-0.9)	(0.18)	(0.49)	(0.01)
Proxy variable	-0.01	-0.01**	-0.01***	-1.03***	0.09	0.01	1.74***	-0.27	-0.001**	0.02
x *NetIssue*	(-1.17)	(-2.35)	(-2.68)	(-2.95)	(0.30)	(0.87)	(2.81)	(-0.66)	(-2.40)	(1.06)
Average R^2	3.5%	3.5%	3.3%	3.1%	3.5%	2.9%	3.6%	3.1%	3.5%	3.8%

Table 2: The issuance effect is estimated for each country with Fama MacBeth regressions. The first line reports the baseline value-weighted regression, corresponding to Figure 14, where next month return is regressed on log market value *cap*, log book-to-market ratio *bm*, return on equity *ROE*, asset growth *AG* and the binary variable $issuer_1$ which is one for firms with *NetIssue* of at least 3% over the past year. A country is included in the sample during month with at least 50 observations with at least 10 issuers provided that this condition is met at least during 120 months in the period January 1990 to December 2015. Subsequent lines report regressions each with one change relative to the baseline regression. The Table reports the average estimate associated with $issuer_1$, i.e. the reduction in next month return for past year issuers, for developed and non-developed countries. The t-value of the difference between developed and non-developed countries is reported along with the non-parametric Mann-Whitney z-score.

			Developed		Non-developed		Difference	
	countries	observations	issuer	t-value	issuer	t-value	t-value	z-score
Baseline	34	5302734	-0.18%	-3.70	-0.35%	-4.66	1.86	1.79
Equally weighted regressions	34	5302734	-0.32%	-8.59	-0.48%	-5.94	1.85	1.52
60 monthly observations (insted of 120)	37	5333062	-0.15%	-2.56	-0.39%	-5.15	2.51	2.28
$issuer_2$ (measured over 2 years)	35	5208577	-0.10%	-2.42	-0.29%	-5.63	2.76	2.34
$issuer_3$ (measured over 3 years)	36	4887225	-0.09%	-2.44	-0.33%	-8.00	4.21	3.48
1% issuer (instead of 3%)	34	5329743	-0.16%	-4.56	-0.29%	-4.06	1.70	1.48
5% issuer (instead of 3 %)	34	5281182	-0.17%	-2.76	-0.53%	-6.57	3.63	3.42
$issuer_3$ 5% (instead if $issuer_1$ 3%)	36	4885282	-0.10%	-2.46	-0.35%	-7.82	4.29	3.29
No control for *AG* and *ROE*	34	5753697	-0.20%	-3.88	-0.33%	-5.28	1.56	1.62
NetIssue (instead of $issuer_1$)	34	5302734	-0.008	-5.72	-0.013	-4.21	1.50	1.04

Does Information Asymmetry Explain Issuer Underperformance?

Niklas Kohl*

Abstract

Firms which issue new equity have lower returns than other firms subsequent to issue. A prominent behavioral explanation holds that opportunistic firms exploit *information asymmetry* at issue time to sell overvalued equity (Loughran and Ritter, 1995). However, this paper shows that the most overvalued issuers, and those which are least constrained in the sense that they do not need to issue to continue operations or service current debt, have as high or higher long-run run returns than other issuers. Instead, I show that event returns, and in particular negative evnet returns ("bad news") at event time predicts long-run abnormal return. This result is consistent with investor underreaction to *available* information, rather than information asymmetry at event time.

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1 Introduction

Listed firms which issue new equity subsequently have low returns. This has been documented in numerous studies, initially by Loughran and Ritter (1995), in the context of seasoned equity offerings (SEOs), and later in the broader context of firms which issue or retire equity, regardless of reason ((Daniel and Titman, 2006), (Pontiff and Woodgate, 2008), (Fama and French, 2008b), (Fama and French, 2008a), (McLean *et al.*, 2009)).

The reasons for the low returns are, however, disputed. Loughran and Ritter (1995), suggest that firms announce issues when their equity is "grossly overvalued" and "the market does not revalue the stock appropriately, and the stock is still substantially overvalued when the issue occurs". According to the authors, their "... evidence is consistent with a market where firms take advantage of transitory windows of opportunity by issuing equity when, on average, they are substantially overvalued". Several more recent papers, including Pontiff and Woodgate (2008), also fail to find risk-based explanations for low returns post-issue.

A competing stream of literature argues that the apparent underperformance subsequent to issue is due to exposure to known risk factors or at least known priced factors, which may or may not proxy for risk. Examples include Eckbo *et al.* (2000), Lyandres *et al.* (2008), and Bessembinder and Zhang (2013).

Billett *et al.* (2011) find that repeating issuers, regardless of the type of security issued, underperform significantly, while rare issuers do not. A recent paper by Fu and Huang (2015) argues that significant issuer underperformance has ceased to exists during the period of 2003-2012 because "firms become less opportunistic in stock repurchases and offerings" due to "more efficient pricing of stocks".

This paper contains two main results. First, I show that a large portion of issuer long-run performance is explained by exposure to priced factors beyond the Fama-French three factor model (Fama and French (1992), Fama and French (1993)). However, some significant underperformance remains unexplained.

Second, and more importantly, I investigate whether issuer long-run underperformance, as suggested by Loughran and Ritter (1995), is due to opportunistic firms' exploitation of *information asymmetry* at event time. If information asymmetry is high at event time opportunistic firms may attempt to exploit this and, unless investors have rational expectations, firms may be successful at it. Thus, information asymmetry *in combination* with opportunistic issues and deviation from rational expectations at event time may explain long-run underperformance.

As an alternative to this explanation, I consider the possibility that information asymmetry is low at event time. If information asymmetry is low at event time, firms will have less opportunity to be opportunistic in their issuance behavior. Nonetheless, long-run underperformance is possible due to *investor underreaction* at event time. There may be several reasons for investor underreaction. Barberis and Thaler (2003) survey a number of psychological biases which may affect how investors form their beliefs. In particular, conservatism, belief perseverance, and anchoring may all explain why investors do not fully incorporate new information in prices immediately. Alternatively, delayed price reactions (under- as well as overreaction) can occur in models with gradual diffusion of information (Hong and Stein, 1999) and models with inattentive investors (Duffie, 2010). Empirically delayed price reaction is found in a number cases, including post earnings announcement drift (Bernard and Thomas, 1989) and post dividend change announcement drift (Michaely *et al.*, 1995).

For these two possibilities, *information asymmetry* and *investor underreaction*, I derive testable implications. Empirical results are consistent with the investor underreaction hypothesis but not the information asymmetry hypothesis. I find no empirical evidence of the exploitation of information asymmetry because the most overvalued issuers and the least constrained issuers, which do not need to issue to finance operations or service current debt, overperform or have similar performance compared to less overvalued issuers and more constrained issuers. In contrast, I find that the market does not fully absorb information conveyed at event time, in particular "bad news" at event time. This causes long-run return predictability, in particular when event returns are negative. To the best of my knowledge, this is a new finding.[1]

While early research focused on the performance of seasoned equity offering (SEO) firms, most recent work on the relation between issuance and return considers the full cross-section of firms to capture the impact of equity issues and repurchases, regardless of reason. This approach has the advantage of a much larger sample than studies focused on SEOs and, according to Pontiff and Woodgate (2008), "... results are essentially unaffected by data associated with seasoned equity offerings ...", documenting that the low returns subsequent to SEOs "is part of a broader issuance effect".

[1]Apart from the preliminary version of this result found in the first paper of this dissertation.

However, McKeon (2015) shows that in around 90% of firm-quarters where new equity is issued, the firm itself did not initiate any stock issues. These are issues due to, for example, utilization of employee options and other decisions beyond the control of the firm. McKeon denotes these *investor-initiated* issues as opposed to *firm-initiated* issues, typically in the form of SEOs, where the firm takes initiative to issue new equity. McKeon (2015) shows that relative issue size, i.e. proceeds of the issue relative to firm market value, is an empirically strong indicator of firm-initiated issues since quarters with a relative issue of at least 3% "nearly always contain a firm-initiated issue" whereas quarters with a relative issue of less than 2% "almost never include a firm-initiated component".

Since the objective of this paper is to test whether information asymmetry explain subsequent issuer performance, I limit the sample to situations where this may possibly have occurred, i.e. to firm-initiated issues. Limiting the sample to SEOs has the further advantage that an announcement event can be clearly identified. I reconfirm that SEO announcements do, in fact, convey information, since event returns are, on average, strongly significantly negative. To measure the "sign" of the information conveyed, I interpret negative event return as "bad news" and the less frequent positive event return as "good news". This enables me to determine to what extent information conveyed at event time is fully incorporated in prices at event time.

The outline of the remainder of the paper is as follows. In Section 2, I discuss what could drive issuer underperformance. I show how information asymmetry at event time can cause underperformance at event time and subsequently, and I present an alternative - that underperformance is caused by underreaction to news at event time. Section 3 presents data and variables used. Section 4 presents average issuer returns before and after issue, confirming high abnormal return pre-issue, negative abnormal event return, and negative abnormal return post-issue. In Section 5, event returns are regressed on characteristics hypothesized to explain event return. Section 6 examines the explanations behind issuer long-run abnormal returns. Two different methodologies are applied. First, buy and hold abnormal returns, calculated relative to different factor models, are regressed on characteristics hypothesized to explain long-run return. Second, issuers are sorted on these characteristics and calendar-time portfolios of issuers, and long-short calendar-time portfolios of issuers matched with non-issuers, are constructed. Finally, Section 7 concludes.

2 What Drives Issuer Underperformance?

This section discusses possible reasons for issuer underperformance. Section 2.1 explains how information asymmetry at event time may drive subsequent negative abnormal returns, while Section 2.2 explores how investor underreaction, in the absence of information asymmetry, may drive subsequent underperformance. Based on these two sections, hypotheses are presented in Section 2.3. Two of the hypotheses concern the relation between issuer overvaluation and whether the issuer is constained, respectively, and long-run abnormal return. Proxies for issuer overvaluation and issuer constrainedness are presented in Section 2.4 and 2.5.

2.1 Information Asymmetry

Information asymmetry as a driver of returns in connection with stock issues was first proposed by Myers and Majluf (1984), henceforth MM, and is also the driver for negative long-run returns in Loughran and Ritter (1995).[2] To understand the relationship between information asymmetry, issuance event return and long-run return, consider the MM model. Firms have assets in place with per share value $a \geq 0$ and an investment opportunity with per share net present value $b \geq 0$, which cannot be postponed and which must be financed with equity E, per share, raised from new investors.[3] Firm management acts in the interest of old shareholders. At event time firm management knows the realization of a and b, while investors only know the distribution of a and b.

Figure 1 depicts the firms' issuance decision. The firms' choice of whether to issue or not depends on a linear combination of the realization of a and b. In particular, firms will issue if a is sufficiently low or b is sufficiently high. It is natural to think of this as two different reasons to issue: to exploit overvaluation *or* to pursue attractive investment possibilities. The issue price is P' and new investors will experience positive post-issue returns if $a + b$ exceeds P' (the region in M' above the dotted line) and negative post-issue returns otherwise (the region in M' below the dotted line). If investors have rational expectations, the equilibrium price P' must be $\mathbb{E}(a+b|(a,b) \in I)$ and

[2]While these two papers share the assumption that firm management knows much more than investors at event time, i.e. after an issue has been announced, they differ in terms of whether investors realize this. In MM investors realize their ignorance and purchase new equity at its expected value, taking into account that firms are more likely to issue when they are overvalued than when they are undervalued. In Loughran and Ritter (1995) investors do not fully realize their ignorance and overpay for new equity.

[3]In MM, these values are not per share but for the entire firm. Without loss of generality, I assume the firm has one share outstanding before issue and that the firm can issue any fraction of shares.

average post-issue abnormal return will be 0. Accordingly, the MM model predicts negative event return because the expected value of $a+b$ conditioned on $(a,b) \in I$ is lower than the unconditional expectation of $a+b$, but does not predict negative long-run returns because investors have rational expectation.

In order to generate long-run underperformance due to information asymmetry, a deviation from rational expectations is required, i.e. if average post-issue return is negative, it implies that investors pay too much for new equity and, consequently, that the marginal investor does not fully incorporate the impact of information asymmetry. Several behavioral biases may generate this result including those which may generate underreaction, as discussed in Section 1. Regardless of whether issuers, on average, underperform, the MM model predicts that long-run return will be lowest for issuers with low $a+b$, i.e. overvalued issuers.

Moving beyond the MM model, some issuers may also have the ability to issue during periods where the market value of their equity is particularly high, as suggested by Loughran and Ritter (1995), McLean *et al.* (2009) and Greenwood and Hanson (2012). Empirically, these issuers have particularly low subsequent returns.

[Insert Figure 1 about here]

2.2 Investor Underreaction

In the above model information asymmetry, in combination with opportunistic issuers and some deviation from rational expectations on the side of investors, explains negative average post-issue return. However, what if information asymmetry between firm management and issuers is low when issues occur? There are both theoretical and empirical reasons to consider this possibility.

Miller and Rock (1985), henceforth MR, consider a situation where investors know the distribution of current earnings but firm management know the actual realization. Future earnings depend on current investments and the production function is concave. They develop a fully revealing signaling equilibrium where firms signal earnings with payouts.[4] Since stock issues are negative payouts, an issue signals low earnings. Investors interpret the signal correctly and announcement returns will be positive or negative, depending on whether the earnings signaled are higher or lower than investors' (unobserved) expectations.

In terms of issuance, MR and MM differ in two important ways. First, while MM always predicts negative event returns, event returns may by positive in MR provided that the issue is smaller than expected by investors. In this case, MR investors will interpret the issue as "god news". Second, while both models are rational expectations models with on long-run issuer underperformance, the equilibrium in MR is *fully revealing* in the sense that

[4]Period t earnings are given by $X_t = f(I_{t-1}) + \epsilon_t$, where f is the production function, I_{t-1} previous period investments and ϵ_t a random increment with zero mean. $I_t = X_t + B_t - D_t$ where B_t is time t financing and D_t payouts (dividends, stock repurchases or stock issues), respectively. At time t firm management knows X_t but investors know only $f(I_{t-1})$. Firm management acts partly in the interest of investors who will sell their equity before X_t is revealed, i.e. those who want to maximize current share price, and partly in the interest of investors who will stay invested, i.e. those who want the firm to invest optimally. In the fully revealing equilibrium firms use D_t to signal X_t. Payouts will be higher and investments lower than under the Fisher rule, but because $f'' < 0$ smaller deviations from the Fisher rule will be cheaper, in term of lost future earnings, than larger deviations. Hence, it will not be optimal for firms with low earnings to pay as large payouts as firms with high earnings.

firm management successfully eliminates the information asymmetry at event time. This is not possible in the MM model.

Moving beyond MR, low or no information asymmetry at event time and subsequent issuer underperformance can be reconciled if investors do not fully incorporate available information in prices immediately. In this case, there will be post announcement drift and event returns will predict long-run returns. Moreover, among firms with the most negative signals (largest issues), firms which fall short of investors' expectations will outnumber firms which exceed investors' expectations. Consequently, larger issues will be associated with more negative event and long-run returns.[5]

Issues rarely occur without other news being released. Hence, payout (issue size) is not the only signal captured by investors. First, there are legal and stock exchange filing, disclosure and prospectus requirements on information which must be released in connection with an issue.[6] Second, in addition to the required information, firms have an incentive to reduce the information asymmetry as this will improve the pricing or probability of success of the new issue. Roadshows and investor meetings are used for this purpose. Even when firms have some ability to conceal negative information, doing so may not be optimal if the firm expects to raise equity at future occasions. Moreover, concealing information or failure to supply relevant information may lead to future lawsuits. Third, often issues involve investment banks who underwrite or place the issue with their clients. These are hurt financially or reputationally if the issue is overpriced. Consequently, they will conduct

[5]The prediction that larger issues are perceived more negatively than smaller issues is not unique for the MR model. Krasker (1986) extends the MM with variable issue size and shows that event returns will be more negative for larger issues. A liquidity based model would also predict that a larger issue would carry a larger price impact.

[6]See Eckbo *et al.* (2007) for a comprehensive review of the security offering process.

independent research on the issuer. Fourth, when an issue occur investors will be particularly keen on acquiring available information and doing their own independent research.

2.3 Hypotheses

Table 1 summarizes the two pathological cases of a world where all event and post-event return is driven by information asymmetry at event time, as discussed in Section 2.1, and a world without information asymmetry at event time where all event and post-event return is driven by investor underreaction to the issue, and possibly other news at event time, as discussed in Section 2.2.

[Insert Table 1 about here]

Both situations considered in Table 1 may, to some extent, explain empirical findings. Firms may have some ability to credibly signal fundamental value and investors some ability to reduce the information asymmetry. Some information asymmetry may remain, and opportunistic firms may try to exploit this and some may be successful at it. The empirical predictions of the two situations can be used to test which best describes the real world. I formalize this in the following hypotheses.

Hypothesis 1

If information asymmetry is high at event time and opportunistic issuers are able to exploit this, then proxies for *issuer overvaluation* will be negatively related to long-run abnormal return.

Hypothesis 2

If information asymmetry is high at event time and opportunistic issuers are able to exploit this, then proxies for *issuer constrainedness* will be positively related to long-run abnormal return.

Hypothesis 3

If investors underreact at event time, then *event return* and, in particular, its negative component will be positively related to long-run abnormal return.

Hypothesis 4

If information asymmetry is large at event time *or* if investors underreact at event time, then *larger issues* will be negatively related to long-run abnormal return.

If the empirical results support Hypothesis 1 and 2, this can be taken as evidence for information asymmetry as explanation for issuer underperformance. If the empirical results support Hypothesis 3, this can be taken as evidence for investor underreaction as explanation for issuer underperformance. Hypothesis 4 does not enable to distinguish between these two explanations as both predicts larger issues to be associated with lower long-run returns.

In order to test these hypotheses, a measure of long-run abnormal return is needed. This is discussed in Section 3. Hypothesis 1 requires a proxy for issuer valuation. This is the topic of Section 2.4. Proxies for issuer constrainedness used to test Hypothesis 2 are discussed treated in Section 2.5.[7]

[7] Overvaluation and constrainedness are characteristics which are clearly difficult to

Event return and the decomposition of event return into its positive and negative component (Hypothesis 3) as well as the measure of large issues (Hypothesis 4) is covered in Section 3.

2.4 Proxies for Overvaluation

Testing Hypothesis 1 requires a proxy for issuer overvaluation. Previous research has suggested a number of proxies but no consensus seems to have emerged.[8] Lee *et al.* (1999), Dong *et al.* (2006), and Dong *et al.* (2012) use the residual income model of Ohlson (1995) to measure overvaluation. The residual income model states that the value of the equity of the firm is its book value plus the discounted value of any future income in excess of the cost of equity of book value. [9] The calculated fundamental value is compared to market value to determine the level of overvaluation. Dong *et al.* (2012) use analyst expectations for the next three years' income and required return is calculated with the CAPM model using market β estimated over the past five years and 30 years past market excess return. Since 30 years market excess return is not very volatile and the firms' market value may incorporate expected residual income for much more than three years, innovations in the Dong *et al.* (2012) overvaluation measure will be highly correlated with past return and the level of overvaluation will be highly correlated with the market-to-book ratio.

observe. Results will depend on the quality of the proxies used. If empirical tests to not support Hypothesis 1 or 2, one cannot rule out, that this is due to inadequate proxies.

[8]This is hardly surprising. If it was easy to detect overvaluation, creating abnormal returns would be much easier than empirical evidence suggests that it is.

[9]$V_t = B_t + \sum_{s=1}^{\infty} \frac{\mathbb{E}_t(RI_{t+s})}{(1+k)^s}$, where V_t and B_t are fundamental value and book value, respectively and k is required return on equity. $\mathbb{E}_t(RI_{t+s})$ is the time t expectation of residual income defined as $RI_t = NI_t - kB_{t-1}$, where NI_t is time t net income.

Fu *et al.* (2013), using a method developed by Rhodes–Kropf *et al.* (2005), run annual industry-specific cross-sectional regressions where the logarithm of market value is regressed on the logarithm of log book value, net income and firm leverage measured in market values. The estimated regression coefficients are used to calculate the fundamental value of individual stocks and determine to what extent they are overvalued.[10]

Carlson *et al.* (2010) develop a model in which stock prices depend on fundamental value, market-wide mispricing and stock-specific mispricing. In their model, the normalized time t price of stock i, denoted P_{it} is the sum of three independent components

$$P_{it} = b_i F_t + S_t + u_{it}$$

Here, b_i is a parameter summarizing the importance of fundamentals relative to sentiment for stock i, F_t and S_t are the marketwide fundamental and sentiment factors, respectively, and u_{it} the idiosyncratic misprising. They use this model to make predictions for market β dynamics before and after issue, but it may also be used to motivate that price P_{it} innovations is a proxy for mispricing innovations (market-wide S_t *or* idiosyncratic u_{it}) and that abnormal return is a proxy for innovations in idiosyncratic mispricing u_{it}.

The market-to-book ratio is used as proxy for overvaluation in DeAngelo *et al.* (2010) and Dong *et al.* (2006). The former also uses abnormal stock return, calculated as issuer return less market return, prior to issue as proxies for overvaluation. Akbulut (2013) uses managers' insider trading activity to

[10]Rhodes–Kropf *et al.* (2005) show that mergers occur in waves contemporaneous with market-wide overvaluations.

measure overvaluation. Some papers (DeAngelo *et al.* (2010), Loughran and Ritter (1995), Baker and Wurgler (2002)) also use future stock return as a proxy for overvaluation. Though this may be the ultimate measure of overvaluation in other contexts, it can clearly not be used to predict future abnormal return.

As the discussion above suggests, most proxies for overvaluation are closely related to the market-to-book ratio or issuer return prior to issue. Some proxies measure overvaluation relative to the market, while others consider the possibility that the market may also be overvalued. In this paper, I decompose issuer return before issue into return explained by exposure to priced factors, market excess return, as well as other factors, and other return, which, for convenience I denote abnormal return. High market return will be interpreted as a market-wide reduction in required return, which, in turn, implies that investment opportunities, all else being equal, become more attractive. Abnormal return will be interpreted a proxy for idiosyncratic overvaluation.

Two salient empirical facts are consistent with these proxies. If idiosyncratic overvaluation is independent of marketwide overvaluation, as in the Carlson *et al.* (2010) model, the number of firms with idiosyncratic overvaluation is approximately constant over time, while the number of firms with attractive investment opportunities is positively related to aggregate market valuation. This implies that aggregate issuance activity should be positively related to past market return. Figure 2 shows the trailing 12-month number of issuers and trailing 12-month market excess return. The number of issuers is clearly increasing during the period. As noted by Pontiff and Woodgate (2008), the relatively low number of SEOs in the early part of the sample may reflect limited coverage in SDC before approximately 1990. Despite this the correlation between market excess return and number of issuers is 0.40 (t-value 9.1). Second, since overvalued firms are more likely to issue, issuers will, on average, have past positive abnormal returns. In Section 4, I show that issuers have, on average, very high abnormal returns before issue. Both these patterns have been known since Loughran and Ritter (1995).

[Insert Figure 2 about here]

2.5 Proxies for Constrainedness

Testing Hypothesis 2 requires a proxy for issuer constrainedness. Constrainedness implies that the issuers had to issue to continue operations, i.e. to finance operations or to service current debt. At the extreme, these firms must raise new equity to avoid bankruptcy and protect some value for current shareholders. I denote these *defensive issuers* because they must issue to survive, whereas other issuers choose to issue to pursue attractive investment possibilities or exploit overpricing. In Section 3, I present a number of measures for the extent to which an issuer is defensive. Most of these consider to what extent the firm can pay off current debt with existing cash and cashflow from operations and the level of cashflow from operations.[11]

Hypothesis 2 implies that defensive issuers will have higher long-run abnormal returns than other issuers. One may be concerned that other return-predicting characteristics of defensive issuers systematically differ from non-defensive issuers. In particular, defensive issuers may have lower profitability. Since high profitability, for example, measured as exposure to the Fama and

[11]Current debt is debt due within a year.

French (2015) RMW factor, is a strong return predictor, it is essential to control for this in abnormal return calculations. Another concern with the testability of Hypothesis 2 is that Baker *et al.* (2003) show that "... the effects of stock market valuations (efficient or otherwise) on investment are greater for more financially constrained ("equity dependent") firms". Since firms which issue when market valuations are high subsequently have particular low returns (Loughran and Ritter, 1995), this could drive underperformance of defensive issuers. Therefore, it is important to control for past market return when the relation between defensiveness of the issuer and long-run return is analyzed.

3 Data and Variables

3.1 SEO Sample

Daily and monthly stock returns are sourced from CRSP. Only ordinary equity is selected.[12] The CRSP Compustat merge was used to obtain accounting data. Only annual accounting data are used and all accounting data are lagged by at least six months. Daily and monthly market excess returns as well as factor returns (SMB, HML, RMW, CMA, and WML), were collected from Kenneth French homepage.

SEO events were gathered from the SDC Platinum database available through Thomson One Banker. The sample contains all completed SEOs (in SDC denoted Follow-On offerings) with issue date in 2015 or earlier. The relative issue size, i.e. proceeds raised divided by the market value before the

[12] First digit of the CRSP `shrcd` code is 1.

offer, both as reported in SDC, is denoted *Issue*.[13] Observations where *Issue* cannot be calculated are discarded. Moreover, I require *Issue* to be at least 3%. This is to eliminate very small issues with limited information content. It reduces the sample by around 8%, with limited impact on empirical results.

Issuers with pre-offer valuation of less than $100 million in CPI adjusted December 2015 prices are removed from the sample. This is to eliminate phenomena which only exist in micro caps. It reduces the sample by around 11% with limited impact on most empirical results. Finally, financials and insurance companies are eliminated from the sample.[14]

The SEO announcement date is the `Original date` reported by SDC. I have, for a small sample of records, verified that this date is indeed the day the issue was announced. Occasionally, SDC records more than one SEO event for a given firm with a given announcement date. These different records typically represent issues in different markets, to different investor groups or using different issuance methods. In any case, these records are merged into one SEO observation. CRPS and SDC observations are matched based on their cusip number. The matched sample consists of 11,106 SEO observations. Figure 2 shows how the number of observations, satisfying the criteria mentioned, has evolved since 1980.

3.2 Abnormal return

Issuer abnormal returns are used in a number of sorts and regressions as a dependent as well as an explanatory variable. In all cases, abnormal return

[13] *Issue* is calculated using the SDC variables `Proceeds__Amt___sum__of_all_Mkts` and `Market_Value_Before_Offer____mil`. The latter is also used together with the CRSP `CPIIND` variable to calculate firm market value at December 2015 prices.

[14] Issuers with Standard Industrial Classification Code between 6000 and 6499.

over period p is calculated as

$$r^p_{abn,MM} = r^p_{excess} - \sum_{i \in MM} \hat{\beta}^p_i r^p_i \qquad (1)$$

r^p_{excess} is the return in excess of the risk-free rate. Market model MM is a set of return-predicting factors, r^p_i is the return of factor i over period p and $\hat{\beta}^p_i$ is the estimated exposure to factor i. I primarily consider the Fama-French five factor model (Fama and French, 2015), denoted FF5, but occasionally also consider other models including the Fama-French three factor model, denoted FF3, and CAPM.

For abnormal returns before and at issuance announcement event time, factor loadings $\hat{\beta}^p_i$ are estimated using daily excess returns from one year before announcement to one month before announcement. For abnormal returns after issue, factor loadings are estimated using data from one month after announcement to one year after announcement.[15] In both cases, excess returns are regressed on factor returns with three daily lags and the estimated loading $\hat{\beta}^p_i$ is the sum of estimated loadings on the contemporaneous factor return and the three lagged factor returns (the Dimson (1979) method). Factor loadings are only estimated with at least 200 degrees of freedom in the regressions, i.e. when firm returns are available "almost daily".[16]

Table 2 reports average FF5 estimated factor loadings before and after issue. Consistent with Loughran and Ritter (1995), issuer market betas are slightly above 1. $\hat{\beta}_{Mkt}$ is 1.10 before issue, increasing to 1.13 after. The increase of 0.03 is small but statistically significant, suggesting that issuers,

[15]In most cases the issue date is either the announcement data or the day after.

[16]Estimating FF5 loadings requires 221 observations: one for the model intercept, five for contemporaneous factor returns, 15 for lagged factor returns plus 200 degrees of freedom.

on average, do not issue to strengthen their balance sheet but rather to invest. Consistent with results reported by Greenwood and Hanson (2012), the average issuer is small cap. Issuers load heavily on SMB with $\hat{\beta}_{SMB}$ of 0.81 before and 0.76 after. The decrease is as expected, since issues increase the market value of the firm. $\hat{\beta}_{HML}$ decreases from -0.07 to -0.13, again suggesting that issuers invest rather than strengthen their balance sheet. This also applies to the decrease in the asset growth factor $\hat{\beta}_{CMA}$ from -0.07 to -0.15, i.e. issuers become more aggressive post-issue. Greenwood and Hanson (2012) also report low issuer profitability. The table reflects this, with $\hat{\beta}_{RMW}$ loadings of -0.31 before and -0.40 after issue.

[Insert Table 2 about here]

3.3 Dependent and Explanatory Variables in Regressions

In the event regressions, Section 5, the dependent variable is abnormal event returns, $r_{abn,FF5}^{event}$ calculated using equation 1 and event excess return r_{excess}^{event}. Regressors are past market excess return ($r_{Mkt}^{-n\,year}, n \in \{1,2,3\}$), measured from one, two and three years before announcement to one month before announcement and issuer abnormal return prior to announcement ($r_{abn,FF5}^{-n\,year}, n \in \{1,2,3\}$), measured from one, two and three years before to one month before announcement. Further regressors are $issue = log(1 + Issue)$ and the logarithm of equity market value (denoted mv).

In long-run abnormal return regressions reported in Section 6.1 one-, two- and three-year post-announcement abnormal returns, denoted $r_{abn,FF5}^{1year}$,

$r^{2year}_{abn,FF5}$ and $r^{3year}_{abn,FF5}$, respectively, are regressed on factors hypothesized to explain (and predict) long-run return. The abnormal returns are calculated from one month after announcement to one, two and three years after announcement using factor exposures estimated post-announcement and market models FF5. In addition to the regressors mentioned above, abnormal event return is used as regressor in long-run abnormal return regressions. Further abnormal event return is decomposed into its positive and negative component $r^{event+}_{abn,FF5} = max(r^{event}_{abn,FF5}, 0)$ and $r^{event-}_{abn,FF5} = max(-r^{event}_{abn,FF5}, 0)$. The purpose of this is to determine whether positive event returns, i.e. "good news" conveyed at event time, affect long-run returns differently than negative event returns, i.e. "bad news" conveyed at event time. In the entire sample, 26% of the events have positive event return and the annual fraction is almost always between 20% and 40% with a downward sloping trend over the past 15 years.

In Section 6.1.2 long-run abnormal return is regressed on proxies for being a defensive issuer, in addition to the explanatory variables mentioned above. Table 3 summarizes characteristics related to whether the issue is likely to be defensive. In all cases, low values are associated with more defensive issues. The cash ratio *CR* measures the ratio between cash and current debt, i.e. debt due within one year.[17] To eliminate the impact of extreme observations, the calculated cash ratio is projected on the interval $[0, 5]$. *CR1* is a binary variable measuring whether cash exceeds current debt.

[Insert Table 3 about here]

[17] *CR* is calculated using the Compustat variables `ch` and `dlc` lagged by at least six months.

The cash and cashflow ratio CCF is the ratio between cash plus operating cashflow and debt.[18] CCF is projected on the interval $[-5, 5]$. The binary variable $CCF1$ is one if cash plus operating cashflow exceeds current debt, and zero otherwise. The cashflow yield *CFY* is the ratio between operating cashflow and issuer market value. The binary variable *PosCF* is 0 if operating cashflow is negative, and 1 otherwise.

Firms without any long-term debt are also likely to be defensive issuers because the lack of any debt may be caused by inability to borrow. The binary variable *LTDebt* is 0 for issuers without any long-term debt and 1 otherwise.[19] Finally, dividend paying issuers, i.e. issuers which have paid a dividend over the year before issue, are likely to be less defensive than non-dividend paying issuers. *PosDiv* is 0 for issuers which have not paid a dividend, and 1 otherwise.

A substantial number of issuers delist within three years after issue. In long-run abnormal regressions, proceeds including delisting returns, as reported by CRSP, is assumed to be reinvested in the market portfolio. In unreported results, delisting firms were omitted from the sample. This does not change the results substantially. In the calendar-time portfolios, delisting issuers are removed from portfolios at the first monthly rebalancing after the delisting. Delisting returns, as reported by CRSP, are included in the last monthly return.

[18] *CCR* is calculated using the Compustat variables `ch`, `dlc`, and `oancf` lagged by at least six month.

[19] The Compustat variable `dltt` is used for long-term debt.

4 Returns Before and After Issue

This section briefly reviews average issuer abnormal return before and after issue, confirming previous findings of high abnormal returns before issue and negative abnormal returns post-issue. Figure 3 shows the average cumulated abnormal return, using CAPM as market model, of issuers from 20 trading days before announcement (day -20) to 20 trading days after announcement (day 20). From day -20 to the day before announcement, cumulated abnormal returns exceeds 5%. On the two subsequent days, i.e. the announcement date and the day after, average abnormal returns are below -2% followed by a rebound of about 0.75% over the next two weeks. All these results are strongly significant and the pattern does not change much if abnormal return is calculated with respect to FF3 or FF5. The figure motivates calculating event returns over the two-day time window consisting of the announcement date and the subsequent day.[20]

[Insert Figure 3 about here]

Figure 4 shows the abnormal return index of issuers, i.e. issuers hedged with their exposures to the CAPM, FF3 and FF5 factors, respectively, from 12 months before announcement to 36 months after announcement normalized at 100 on announcement date. Abnormal returns are almost 60% (from around index 63 to index 100) the year before announcement regardless of market model. After issue performance depends on market model. Controlling for market exposure only, issuers record abnormal returns of -22% on average over three years in line with results reported by Loughran and Ritter

[20] In some cases, the announcement was made after close on the announcement date. Hence, the negative return on day $t+1$ cannot be interpreted as a delayed reaction.

(1995), but adding further controls, in particular the CMA and RMW factors of FF5 changes the picture somewhat. Over one year issuer abnormal returns are insignificant 1% relative to FF5 and "only" -10% over three years. As hinted by Table 2, the difference is chiefly explained by issuers negative loading on the profitability factor RMW.

[Insert Figure 4 about here]

5 Event Returns

As motivated in Section 3, abnormal announcement event returns $r_{abn,FF5}^{event}$ are calculated as the abnormal return on the announcement date and the subsequent trading day. Table 4 shows the results of regressions of abnormal event returns (specification 1 to 6) as well as excess event returns (specification 7) on 1, 2, and 3 past years' market excess return, 1, 2 and 3 past years' issuer abnormal return as well as log relative issue size *issue* and log market value *mv*. Since event return periods may overlap, standard errors are calculated using the Newey-West correction of standard errors for heteroscedasticity and autocorrelation using three lags. All regressors are normalized (z-scores), hence regression intercepts can be interpreted as event abnormal return.

Across specifications (1) to (6), FF5 abnormal event return is about -2.3% and highly significant. Past years' market excess return is only significant for market excess return over three years (specification (3)) with a coefficient estimate of 0.2, i.e. a one standard deviation change in past three-year market excess return is associated with about 20 bps higher event returns. If high market return pre-issue is a proxy for attractive investment possibilities, one would expect the coefficient to be positive, as it is in all specifications.

Past years' abnormal return is significant in most specifications with coefficient estimates around 0.15, showing that one standard deviation higher past year(s) abnormal return is associated with about 15 bps higher event returns.

Relative issue *issue* is insignificant in all specifications, i.e. proceeds raised relative to market value is not significantly related to event return. Issuer market value is significant, with estimates between 0.32 and 0.35, i.e. larger issuers have higher (less negative) event returns. This is consistent with larger issuers being more analyzed, hence, on average, less information is conveyed at announcement time.

All these conclusions are largely unchanged in regressions of raw event returns (specification 7) instead of abnormal event returns.

[Insert Table 4 about here]

6 Long-run Returns

This section analyzes to what extent issuer long-run returns can be explained and predicted. There are two different approaches frequently applied in the literature. The *Buy and Hold Abnormal Return (BHAR) method* involves measuring the buy and hold abnormal return issue by issue and trying to explain these by issuer characteristics and other variables in regressions or sorts. Issuer *BHAR* is either measured as the return difference between the issuer and a comparable firm (the *matched firm* approach) or between the issuer and a portfolio with the same risk characteristics as the issuer (equation 1). In Section 6.1, I calculate BHAR using the latter approach, with FF5 as market model and factor exposures estimated from one month after announcement to one year after announcement because the matched firm approach, as pointed out by Eckbo *et al.* (2000) and Bessembinder and Zhang (2013), makes it difficult to control for exposure to factors beyond the usual matching criteria of size and book-to-market ratio.

The *calendar-time portfolio method* involves forming portfolios, for example, monthly, of firms which have carried out an issue during the past year (or two or three years). Portfolio excess returns are calculated and regressed on factor excess returns to determine factor loadings and possible abnormal returns. In Section 6.2, I construct long portfolios of all issuers as well as long portfolios sorted on issuer characteristics. In Section 6.3, I construct long-short portfolios, where each long position in an issuer is matched with a short position in a non-issuer matched on market value and book-to-market ratio.

With the calendar-time portfolio method, the weight assigned to each issue depends on the number of contemporaneous issues. In particular, observations during a period with few issues receive a disproportionally high weight and phenomena which are particularly strong during periods of heavy issuance activity may not be significant. For this, and other, reasons, Loughran and Ritter (2000) discard the calendar-time portfolios for having low power. Fama (1998) and Mitchell and Stafford (2000) strongly advocate the calendar-time approach due to inherent methodological problems in the BHAR approach including skewness of individual long-run returns and overlapping return periods. Without taking a stance on this debate, I apply long-run

BHAR regressions in Section 6.1 and the calendar-time portfolio approach in Section 6.2. However, results do not differ qualitatively between the two approaches, but the calendar-time portfolio approach show lower power, as expected.

6.1 Long-run BHAR Regressions

In this section, the BHAR method is applied. In 6.1.1, abnormal return is regressed on past market and past issuer abnormal return. Other explanatory variables are event return, log market value and log issue size. This is to test hypotheses 1, 3 and 4 which predict a relationship between long-run abnormal return and issuer overvaluation, event return and relative issue size, respectively. In 6.1.2, abnormal return is regressed on proxies for defensive issues to determine whether defensive issuers, as Hypothesis 2 would suggest, fare better than non-defensive issuers.

6.1.1 Past Market and Abnormal Returns

This section reports equally weighted regressions with BHAR one, two and three years after announcement as dependent variable. Table 5 reports results using the FF5 market model for abnormal return calculation. Due to overlapping return intervals and possibly heteroscedastic errors, standard errors are calculated using the Newey and West (1987) correction. The number of lags is calculated using the West (1994) approximation, which yields ten lags.

[Insert Table 5 about here]

Panel A specification (1) to (5) displays the result of one-year abnormal return after issue $BHAR_{FF5}^{1year}$ regressed on market excess return and issuer abnormal return one, two and three years before announcement($r_{Mkt}^{-n\,year}$ and $r_{abn,FF5}^{-n\,year}$ respectively, $n \in \{1, 2, 3\}$), in both cases excluding the last month before announcement. Regressors are normalized, hence the intercept can be interpreted as abnormal return. Consistent with Figure 4, one-year abnormal return is not significantly different from zero. While past market excess return is insignificant, past abnormal return over one and two years is significant, with coefficient estimates between 2.46 and 2.93 showing that a one standard deviation increase in pre-issue abnormal return is associated with 2.46% to 2.93% higher abnormal return the following year.

Specification (6) shows that event abnormal return $r_{abn,FF5}^{event}$ is significant with a size comparable to pre-issue abnormal return. Relative issue *issue* is insignificant, and log market value *mv* is strongly significant. In specification (7) event return is decomposed into its positive and negative component. This reveals a positive but insignificant relation between positive event return and post-issue abnormal return and a strong significant relation between negative event return and post-issue abnormal return.[21]

Two- and three-year abnormal return regressions are reported in Panel B and C. Abnormal return is significantly negative, 4-5% over two years and about 12% over three years. One- and two-year pre-issue excess market return becomes gradually more significant. Two years after issue, past market performance (r_{Mkt}^{-1year} and r_{Mkt}^{-2year}) is negatively significant in most specifications and three years after issue it is almost always significant at the 1% level.

[21]The regression intercept in specification (7) differs substantially from specification (1) to (6) and cannot be interpreted as abnormal return due to the calculation of $r_{abn,FF5}^{event+}$ and $r_{abn,FF5}^{event+}$. This applies to Panels B and C as well.

Event return, but only its negative component, and log market value remain significant three years after issue. Relative issue, which was not significant after one year, becomes significant and negative after two and three years, i.e. large issues are associated with lower abnormal return during the second and third year after issue.

If abnormal return pre-issue is a proxy for overvaluation and Hypothesis 1 holds, then positive abnormal return pre-issue should predict negative abnormal return post-issue. However, the empirical evidence contradicts this. Cross-sectional momentum (Jegadeesh and Titman, 1993) may explain why abnormal return one year before issue is positively related to abnormal return one year after issue, but the persistence of this relationship three years after issue cannot be explained by momentum due to the long-term reversal effect first documented by De Bondt and Thaler (1985). Consequently, the results do not confirm Hypothesis 1.

If high market excess return before issue is a proxy for low return requirement, then the evidence suggests that firms which issue, and possibly invest, when required return is particular low subsequently underperform. The underperformance is associated with, and possibly explained by, overvaluation; not over-valuation of the issuer, but rather over-valuation at the market level.

While Table 5 provides no support for information asymmetry as an explanation for issuer long-run underperformance, the significant relationship between event abnormal return and long-run abnormal return confirms Hypothesis 3 and suggests some delayed reaction to information conveyed at event time. Moreover, the fact that only the negative component of event return significantly predicts long-run abnormal return, supports the underreaction explanation since "good news" is absorbed by prices faster than "bad news". This is consistent with other research showing that negative information is reflected less readily than positive information (Hong *et al.* (2000)). The significant relationship between relative issue size *issue* and two- and three-year abnormal return confirms Hypothesis 4.

In unreported regressions $BHAR$ and past abnormal return $r_{abn}^{-n\,year}$ has been calculated using the FF3 and CAPM market models. As suggested by Figure 4 abnormal return is significantly negative over one, two, and three years for FF3 as well as CAPM. Past market return remains negative and significant. Past issuer abnormal return is less significant. Event return, but only its negative component, remains strongly significant. Issuer market value is significant at a 1% level in all specifications while relative issue size is highly significant for three-year $BHAR$ but insignificant for one-year $BHAR$ in line with Table 5.

6.1.2 Defensive versus non-Defensive Issues

If opportunistic issuers exploit information asymmetry to issue overvalued equity, they must have some ability to time their issues to a period where they are overvalued. Accordingly, Hypothesis 2 predicts that less constrained issuers subsequently underperform relative to issuers which are more constrained. Constrainedness is not directly observable. Instead I distinguish between issuers who appear to be forced to issue to avoid bankruptcy (denoted *defensive issuers*) and issuers without this constraint (denoted *non-defensive issuers*).

Table 6 reports regressions of one, two and three years buy-and-hold abnormal returns on proxies for being being defensive, cf. Table 3, as well as the regressors used in specification (7) in Table 5, i.e. past-year market excess return, past-year issuer abnormal return, the positive and negative component of event return, *issue*, and *mv*. Over one year (Panel A) none of the defensive issuer characteristics are significant, but all have positive coefficient estimates, indicating that non-defensive issuers have higher returns than defensive issuers over the year after issue. Over two years (Panel B) and three years (Panel C), this pattern becomes clearer. Coefficient estimates remain positive, and over three years all characteristics with some relation to operating cashflow are significant. Issuers with sufficient cash plus operating cashflow to cover current debt have 14% higher returns than issuers with insufficient cash and cashflow, over the following three years. Issuers with positive operating cashflow have an 18% higher return than issuers with negative cashflow over the following three years. These results contradicts that defensive issuers fare better than non-defensive issuers over the three years after issue. Hence, there is no empirical evidence of Hypothesis 2.

[Insert Figure 6 about here]

Using FF3 or CAPM as market model increases the significance of the results reported in Table 6. Cashflow related characteristics are generally significant for one-, two-, and three-year *BHAR* and longterm debt *LTDebt* as well as dividend payments *PosDiv* is significant for all *BHAR* periods and in most cases on a 1% level. The stronger results using the FF3 and CAPM market models is no surprise. Defensive issuers are likely to have weaker profitability, and possibly faster asset growth, than other issuers. Without controlling for these factors, the underperformance of defensive issuers becomes even stronger.

6.2 Issuer Calendar-time Portfolios

The results reported in Section 6.1 are consistent with Hypothesis 3, i.e. investor underreaction to news at event time explain long-run underperformance of issuers. Hypotheses 1 and 2, i.e. information asymmetry and opportunistic issues as an explanation for long-run issuer underperformance, found no empirical support. The results also support Hypothesis 4, which is consistent with informations asymmetry as well as with investor underreaction. The purpose of this section is to confirm these findings using the calendar-time method. Section 6.2.1 considers the calendar-time portfolio of all issuers while calendar-time portfolios constructed based on sorts on issuer characteristics are reported in Section 6.2.2.

6.2.1 The Portfolio of All Issuers

Issuers are assigned to the calendar-time portfolio of all issuers from the second month after announcement, i.e. if announcement date is January 29, the firm will be assigned to a portfolio from March. Portfolios are equal-weighted, with monthly rebalancing and issuers remain in portfolios for one, two and three years. Since the dataset contains relatively few issues prior to 1980, portfolios are formed from January 1980. Figure 5 shows how $100 invested in a portfolio consisting of all issuers, with holding periods of one, two and three years, respectively, has evolved. For comparison, the evolution of $100 in the market portfolio is shown. While the value of an investment in the market portfolio almost 50-doubles over the 36 years from 1980 to 2015, the return on the issuer portfolios is between 574% and 1038%.

[Insert Figure 5 about here]

Figure 5 suggests that issuers have negative abnormal return, but Table 7 shows that this depends on the market model used. Consider the one-year holding period portfolio. Specification (1) and (2) show that relative to CAPM and FF3 underperformance is strongly significant at -44 bps and -35 bps monthly, respectively. Controlling for profitability (RMW) and asset growth (CMA) underperformance drops to an insignificant -15 bps, cf. specification (3). The portfolio has a significant negative loading on the momentum factor (WML). Controlling for this further reduces underperformance to -10 bps. Two- and three-year holding period portfolios are considered in Panel B and C. Consistent with Figure 4, issuer abnormal return is lower for longer holding periods. Underperformance relative to FF5 is significant at -27 bps and -25 bps, respectively.

[Insert Table 7 about here]

These results are consistent with Lyandres *et al.* (2008) and Bessembinder and Zhang (2013), who report that issuer underperformance, to a large extent, disappears when controlling for appropriate factors known to predict return. The regressions also show that issuers on average have market βs above one and are small cap, consistent Table 2. Loadings on RMW, CMA, and WML are negative and strongly significant.

The BHAR regressions of Section 6.1.1 showed that past market excess return is negatively related to long-run issuer performance. Past market excess return is not a suitable portfolio sort variable because all issues at the same time will simultaneously have the same past market excess return. Instead past market excess return, measured over the past year excluding the last month, is included as an explanatory variable in the all issuers portfolio return regressions reported in Table 8. For all holding periods, past market excess return significantly predicts issuer portfolio excess returns. An increase in past year market excess return of 10% is associated with a 14 bps lower monthly return in the portfolio where issuers are held for one year, 16 bps monthly if issuers are held for two years and 21 bps monthly if issuers are held for three years. These results are in line with the BHAR return regressions reported in Table 5, though the significance of past market return is stronger in the calendar time portfolio regressions for the shorter holding periods.

[Insert Table 8 about here]

6.2.2 Portfolios Sorted on Issuer Characteristics

This section considers portfolios constructed by sorts on issuer characteristics shown to predict post-issue return in Section 6.1. For each characteristic, the monthly median value for issuers is calculated. Issuers with a characteristic value below or at the median value are assigned to the "low" portfolio while issuers with a characteristic value above the monthly median are assigned to the "high" portfolio. This approach ensures that the low and high portfolios contain approximately the same number of firms, but the threshold for "being high" varies over time. The exceptions to this is event return, where 0 is used as breakpoint instead of median event return in order to create a "good news" and a "bad news" portfolio, and CCR 1 where the "low" portfolio consists of issuers with current debt in excess of cash plus operational cashflow and the "high" portfolio consists of issuers with less current debt.

Table 9 reports regressions of sort portfolio returns on the FF5 factors.

Results are reported for the low portfolio, the high portfolio and the self-financing high-low portfolio and for holding periods of one, two, and three years. The characteristics considered are pre-issue abnormal return r_{abn}^{-1year} (Panel A), event abnormal return r_{abn}^{event} (Panel B), relative issue $issue$ (Panel C) and market value mv (Panel D), cash plus cashflow relative to current debt $CCR\,1$ (Panel E), and cashflow yield CFY (Panel F). Firms with several issues appear only once in the portfolio, but could potentially be included in the "high" as well as the "low" portfolio, if the firm, for example, has issued with positive event return as well as with negative event return. Monthly portfolio excess returns are regressed on factor returns to calculate abnormal returns relative to FF5.

Table 9 Panel A, shows that the portfolio of high pre-issue abnormal return issuers has slightly higher abnormal returns than the portfolio of low pre-issue abnormal return issuers. The difference is only significant for one-year holding periods with a t-value of 1.87. If returns are regressed on the momentum factor WML in addition to the FF5 factors, the t-value drops to 1.27 (regression results not shown). The two- and three-year holding period long-short portfolio has insignificant loadings on WML and insignificant abnormal returns with and without WML. These results are in line with the results reported in Section 6.1 and do not support Hypothesis 1.

Panel B confirms that issuers with negative event returns (r_{abn}^{event}) significantly underperform issuers with positive event returns by 29 bps monthly for one-year holding periods. For two- and three-year holding periods underperformance drops to 19 and 12 bps, respectively, but remains significant. These results confirm Hypothesis 3. Panel C confirms that firms with large issues, relative to their market value, underperform relative to firms with smaller issues, as predicted by Hypothesis 4. Results are significant at the 1% level. Panel D shows that larger issuers, in terms of *mv*, have significantly less negative abnormal returns than smaller issuers.

Panel E shows that firms with low cash plus cashflow relative to current debt underperform issues with more cash or higher cashflow. The difference is insignificant for two- and three-year holding periods. Firms with low cash-flow yield (Panel F) have lower risk-adjusted returns but the difference is insignificant except for two-year holding periods. These results are at odds with Hypothesis 2 which holds that the least constrained issuers should have the lowest return. Summing up, the regressions of calendar-time portfolios sorted on issuer characteristics confirm the findings of issuer BHAR reported in Section 6.1, but as expected significance decreases with the calendar-time portfolio approach.

[Insert Table 9 about here]

6.3 Matched Firm Portfolios

As a final robustness check, I consider matched firm portfolios, i.e. portfolios of long positions in issuers and short positions in firms matched with issuers. Following Bessembinder and Zhang (2013), and previous research, issuers are matched based on their market value and their book-to-market ratio. The match is chosen as the firm with the closest deviation in book-to-market ratio among firms with market value of at least 70% and at most 130% of the issuer.

Match candidates must have been listed for at least five years and must not have issued in a SEO during the past five years. Moreover match candidates must satisfy the same conditions as issuers, cf. Section 3.1. The match is based on firm characteristics at the end of the second month prior to the SEO announcement date. Section 6.3.1 considers portfolios of all issuers matched with non-issuers while Section 6.3.2 considers matched portfolios constructed based on issuer characteristic sorts.

6.3.1 The Matched Portfolio of All Issuers

Figure 6 shows the cumulated return of a self-financing long-short, equally weighted, monthly updated long-short portfolio of SEO firms matched with non-SEO firms, as described above. The issuer and its match are included in the portfolio for one, two or three years unless the issuer or its match is delisted. When this happens, both firms are removed from the portfolio by the end of the month where the delisting occurs. The figure confirms the findings of Figure 5. Issuers have substantially lower returns than other firms. Over the period of 1980-2015 the monthly return differential is between 16 and 29 bps, depending on holding period. Controlling for exposure to the FF5 factors, the underperformance is 12 bps monthly and insignificant for one-year holding periods and 22 bps monthly and highly significant for holding periods of two and three years (Table 10).

[Insert Figure 6 about here]

[Insert Table 10 about here]

6.3.2 Matched Portfolios Sorted on Issuer Characteristics

Table 11 reports on the performance of portfolios constructed as in Section 6.2.2 except that they are self-financed portfolios consisting of long positions in issuers and short positions in matched firms. Compared to Table 9, risk-adjusted returns (regression intercepts) are very similar, and the differences between "high" and "low" issuer characteristics mostly remain. Coefficient estimates change only slightly but, in some cases, significance decreases. This is because standard errors increase for two reasons. The number of issuers in the portfolios decreases because occasionally the match delists and, more importantly, the volatility of the match portfolio increases total volatility.[22]

The spread in risk-adjusted return between issuers with high return before issue and issuers with low return before issue increases by 15 to 20 bps and moves into significant territory (Panel A). The spread between positive event return and negative event return issuers decreases by one to seven bps and moves out of significant territory (Panel B).[23] The spread between issuers with large issues and issuers with small issues increases by around 10 bps and remains significant (Panel C). The overperformance of issuers with large market value relative to issuers with smaller market value decreases by a few bps but remains significant for holding periods of two and three years (Panel D). The spread between issuers with sufficient cash and cashflow to service current debt, and those without, decreases and is only significant for holding

[22]If a portfolio with idiosyncratic volatility σ is hedged with an other portfolio with idiosyncratic volatility σ, volatility of the hedged portfolio is $\sqrt{2}\sigma$. The empirical results show that volatility of the matched portfolios increases by less than a factor $\sqrt{2}$ suggesting that the matches hedge factors beyond those captured by the FF5 model.

[23]The difference between one-year holding period positive and negative event issuers remains significant in the FF3 model (t-value 1.80) as well as over the period 1995 - 2015 (t-statistics 2.12 and 2.55 in the FF5 and FF3 models, respectively).

periods of two years (Panel E). Finally, the spread between high and low cashflow yield issuers only changes for three-year holding periods and only by 7 bps.

All portfolios have small positive market exposure with market β's between 0.02 and 0.24 confirming that issuers have higher market exposure than their matches. By construction, SMB and HML exposure is relatively low and with varying sign. RMW exposure is almost always negative and significant as one would expect because issuers tend to have low profitability. CMA exposure has varying sign and is often insignificant. In aggregate, the results obtained using long-short matched portfolios confirm the findings reported in previous sections.

[Insert Table 11 about here]

7 Conclusions

Firms which issue new equity in seasoned equity offerings subsequently have lower returns than other firms. This is partly explained by exposure to factors beyond the Fama and French (1993) three factor model, in particular negative exposure to the profitability RMW factor of Fama and French (2015). Some significant underperformance remains unexplained. I investigate whether this can be explained by exploitation of information asymmetry by opportunistic issuers, as suggested by Loughran and Ritter (1995).

If this explanation holds, one would expect that the most overvalued issuers, and those which are least constrained in the sense, that they do not need to issue to continue operations or service current debt, have the best opportunities to exploit temporary windows of mispricing. Therefore, issuers with these characteristics should experience the lowest risk-adjusted returns subsequent to SEOs. However, I find no empirical support for this, because the most overvalued issuers and the least constrained issuers, which are most likely to be opportunistic, do not underperform relative to other issuers.

One may be concerned, that this result is due to inadequate proxies for overvaluation and constrainedness. This is a valid critique in the context of overvaluation. For obvious reasons, overvaluation is hard to detect, and there is no consensus on how to measure it in the literature. Constrainedness is easier to identify. Here a concern is that the most constrained issuers, on average, share other characteristics which predict low return. I address this issue, at least partly, by controlling for profitability and asset growth. Even with these controls, there is no evidence of lower returns for firms with more room to decide whether and when to issue.

If there is no evidence of information asymmetry as explanation for long-run performance of SEO firms, it is natural to consider, that information asymmetry may be low at event time. From an empirical point of view, this seems reasonable, because of the information requirements on issuing firms and the incentives of issuers, investors, and intermediaries. If information asymmetry is low, a possible explanation for the low returns subsequent to SEOs is, that the marginal investor does not fully utilize all available information. Empirically, I find that event returns, and in particular negative event returns, are significantly related to issuer long-run returns. This result is consistent with the hypothesis, that investors underreact to information available at event time.

While issuer overvaluation, measured as issuer abnormal return prior to issue, is not associated with long-run negative abnormal return, high market valuation is associated with low returns post issue. High market valuations may be interpreted as low required return or as marketwide overvaluation. In either case, firms which issue when stocks are particularly expensive, subsequently have particularly low returns.

References

Akbulut, M. E. (2013). Do overvaluation-driven stock acquisitions really benefit acquirer shareholders?. *Journal of Financial & Quantitative Analysis*, *48*(4), 1025 – 1055.

Baker, M., Stein, J. C., and Wurgler, J. (2003). When does the market matter? stock prices and the investment of equity-dependent firms. *Quarterly Journal of Economics*, *118*(3), 969 – 1005.

Baker, M. and Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, *57*(1), 1 – 32.

Barberis, N. and Thaler, R. (2003). *Handbook of the Economics of Finance*, Elsevier, chap. A Survey Of Behavioral Finance.

Bernard, V. L. and Thomas, J. K. (1989). Post-earnings-announcement drift: Delayed price response or risk premium?. *Journal of Accounting Research*, *27*(3), 1 – 36.

Bessembinder, H. and Zhang, F. (2013). Firm characteristics and long-run stock returns after corporate events. *Journal of Financial Economics*, *109*(1), 83 – 102.

Billett, M. T., Flannery, M. J., and Garfinkel, J. A. (2011). Frequent issuers' influence on long-run post-issuance returns. *Journal of Financial Economics*, *99*(2), 349 – 364.

Carlson, M., Fisher, A., and Giammarino, R. (2010). Seo risk dynamics. *Review of Financial Studies*, *23*(11), 4026 – 4077.

Daniel, K. and Titman, S. (2006). Market reactions to tangible and intangible information. *Journal of Finance*, *61*(4), 1605 – 1643.

De Bondt, W. F. M. and Thaler, R. (1985). Does the stock market overreact?. *Journal of Finance*, *40*(3), 793 – 805.

DeAngelo, H., DeAngelo, L., and Stulz, R. M. (2010). Seasoned equity offerings, market timing, and the corporate lifecycle. *Journal of Financial Economics*, *95*(3), 275 – 295.

Dimson, E. (1979). Risk measurement when shares are subject to infrequent trading. *Journal of Financial Economics*, *7*(2), 197 – 226.

Dong, M., Hirshleifer, D., Richardson, S., and Siew Hong, T. (2006). Does investor misvaluation drive the takeover market?. *Journal of Finance*, *61*(2), 725 – 762.

Dong, M., Hirshleifer, D., and Teoh, S. H. (2012). Overvalued equity and financing decisions. *Review of Financial Studies*, *25*(12), 3645 – 3683.

Duffie, D. (2010). Presidential address: Asset price dynamics with slow-moving capital. *Journal of Finance*, *65*(4), 1237 – 1267.

Eckbo, B. E., Masulis, R. W., and Norli, O. (2000). Seasoned public offerings:resolution of the 'new issues puzzle'. *Journal of Financial Economics*, *56*(2), 251 – 291.

Eckbo, E. B., Masulis, R. W., and Norli, O. (2007). *Handbook of Corporate Finance*, Elsevier, vol. 1, chap. Security Offerings.

Fama, E. F. (1998). Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics*, *49*(3), 283 – 306.

Fama, E. F. and French, K. R. (1992). The cross-section of expected stock returns. *Journal of Finance*, *47*(2), 427 – 465.

Fama, E. F. and French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3 – 56.

Fama, E. F. and French, K. R. (2008a). Average returns, b/m, and share issues. *Journal of Finance*, *63*(6), 2971 – 2995.

Fama, E. F. and French, K. R. (2008b). Dissecting anomalies. *Journal of Finance*, *63*(4), 1653 – 1678.

Fama, E. F. and French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, *116*(1), 1 – 22.

Fu, F. and Huang, S. (2015). The persistence of long-run abnormal returns following stock repurchases and offerings. *Management Science*.

Fu, F., Lin, L., and Officer, M. S. (2013). Acquisitions driven by stock overvaluation: Are they good deals?. *Journal of Financial Economics*, *109*(1), 24 – 39.

Greenwood, R. and Hanson, S. G. (2012). Share issuance and factor timing. *Journal of Finance*, *67*(2), 761 – 798.

Hong, H., Lim, T., and Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *Journal of Finance*, *55*(1), 265 – 295.

Hong, H. and Stein, J. C. (1999). A unified theory of underreaction, momentum trading, and overreaction in asset markets. *Journal of Finance*, *54*(6), 2143 – 2184.

Jegadeesh, N. and Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance*, *48*(1), 65 – 91.

Krasker, W. S. (1986). Stock price movements in response to stock issues under asymmetric information. *Journal of Finance*, *41*(1), 93 – 105.

Lee, C. M. C., Myers, J., and Swaminathan, B. (1999). What is the intrinsic value of the dow?. *Journal of Finance*, *54*(5), 1693 – 1741.

Loughran, T. and Ritter, J. R. (1995). The new issues puzzle. *Journal of Finance*, *50*(1), 23 – 51.

Loughran, T. and Ritter, J. R. (2000). Uniformly least powerful tests of market efficiency. *Journal of Financial Economics*, *55*(3), 361 – 389.

Lyandres, E., Le, S., and Lu, Z. (2008). The new issues puzzle: Testing the investment-based explanation. *Review of Financial Studies*, *21*(6), 2825 – 2855.

McKeon, S. B. (2015). Employee option exercise and equity issuance motives. SSRN.

McLean, D. R., Pontiff, J., and Watanabe, A. (2009). Share issuance and cross-sectional returns: International evidence. *Journal of Financial Economics*, *94*(1), 1 – 17.

Michaely, R., Thaler, R. H., and Womack, K. L. (1995). Price reactions to dividend initiations and omissions: Overreaction or drift?. *Journal of Finance*, *50*(2), 573 – 608.

Miller, M. H. and Rock, K. (1985). Dividend policy under asymmetric information. *Journal of Finance*, *40*(4), 1031 – 1051.

Mitchell, M. L. and Stafford, E. (2000). Managerial decisions and long-term stock price performance. *Journal of Business*, *73*(3), 287.

Myers, S. C. and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187 – 221.

Newey, W. K. and West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, *55*(3), 703 – 708.

Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, *11*(2), 661 – 687.

Pontiff, J. and Woodgate, A. (2008). Share issuance and cross-sectional returns. *Journal of Finance*, *63*(2), 921 – 945.

Rhodes–Kropf, M., Robinson, D. T., and Viswanathan, S. (2005). Valuation waves and merger activity: The empirical evidence. *Journal of Financial Economics*, *77*(3), 561 – 603.

West, K. D. (1994). Automatic lag selection in covariance matrix estimation. *Review of Economic Studies*, *61*(4), 631 – 653.

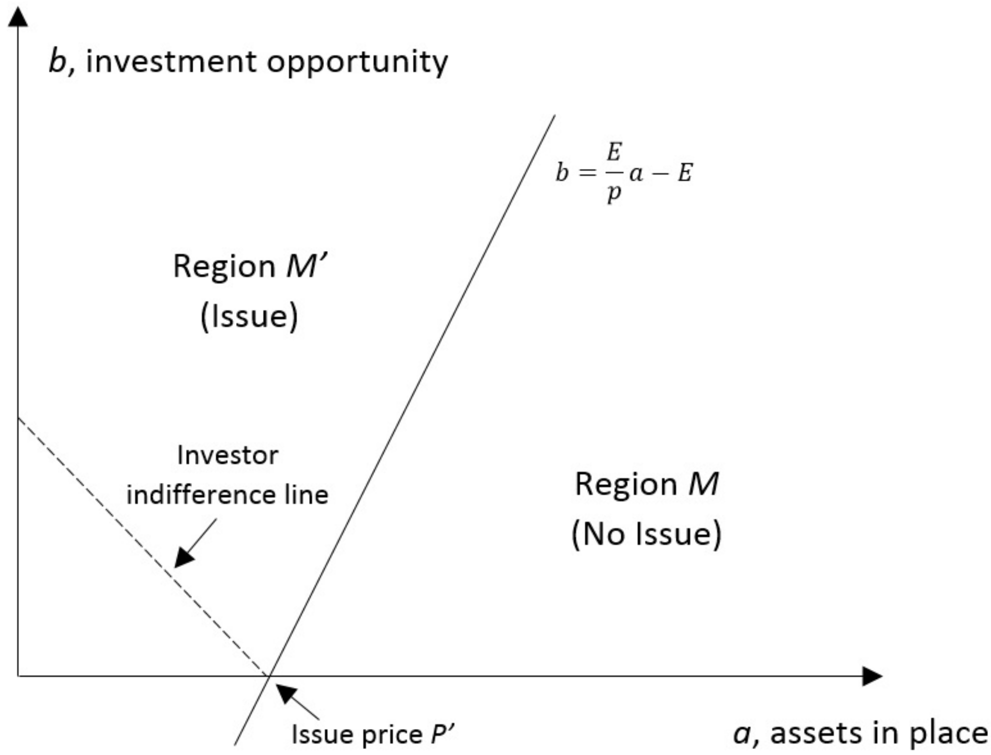

Figure 1: The issuance decision when firm management know the per share value of assets in place a and the investment opportunity b and investors only know the distribution of these (Myers and Majluf, 1984). The firm issue if $(a, b) \in M'$, the upper-left region and do not issue otherwise. The issue price is P'. MM show that the boundary between M and M' is given by the line $b = (E/P')a - E$, where E is the per share equity to be raised to pursue the investment opportunity. The dotted investor indifference line $a + b = P'$ marks the boundary between the realizations of (a, b) where investors get a good deal and a bad deal. If investors have rational expectations, they, on average, purchase equity at its fundamental value, i.e. in equilibrium P' must be the expected value of $a + b$ conditioned on $(a, b) \in M'$. If investors have "less than rational expectations", i.e. the marginal investor does not fully account for the impact of the informations asymmetry, P' and the dotted line will be shifted to the right and the expected value of $a + b$ conditioned on $(a, b) \in M'$ will be less than P' reflecting an average post-issue negative return to investors.

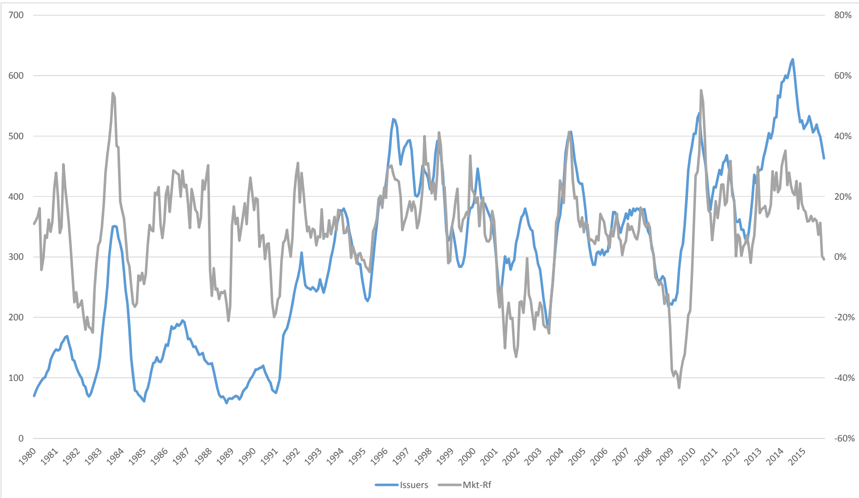

Figure 2: Trailing 12-months number of issuers (left axis) and trailing 12-months market excess return (right axis). The correlation is 0.4 (t-value 9.1). The sample of issuers has been filtered, as described in Section 3.

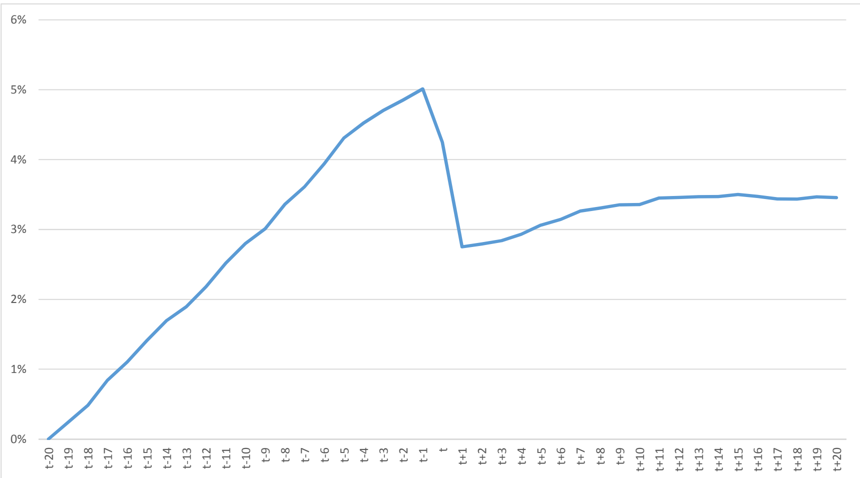

Figure 3: Average cumulated daily abnormal returns (calculated using CAPM as market model) from 20 trading days before announcement to 20 trading days after announcement.

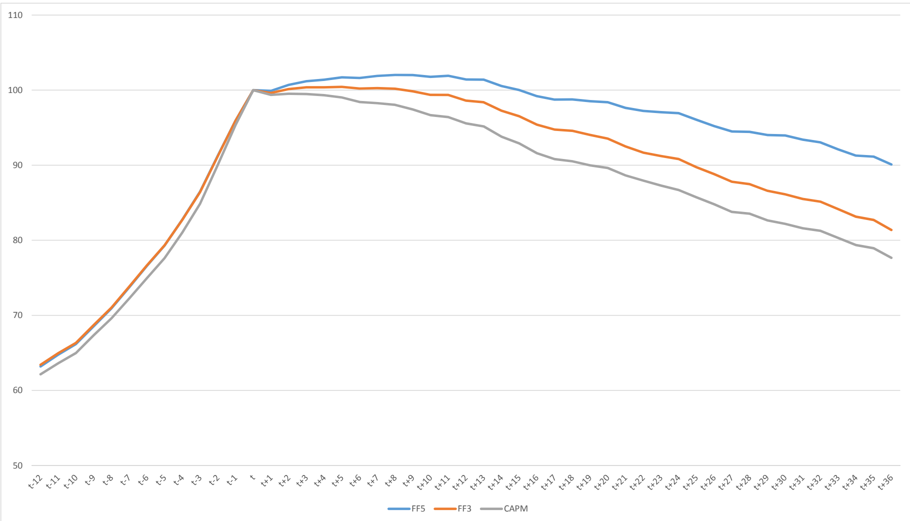

Figure 4: Average abnormal return index (calculated using CAPM, FF3 and FF5 as market models) from 12 months before announcement to 36 months after announcement, normalized at 100 on announcement day.

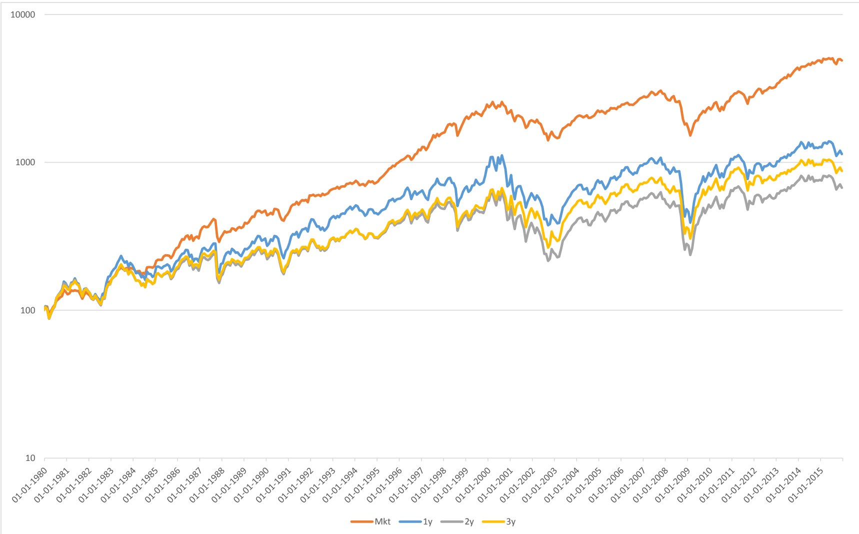

Figure 5: Return index of an equally weighted monthly rebalanced issuer portfolios and for the market portfolio normalized at 100 on January 1, 1980. Issuers are included in the issuer portfolio from the second month after announcement and remain in the portfolio for one, two and three years, respectively.

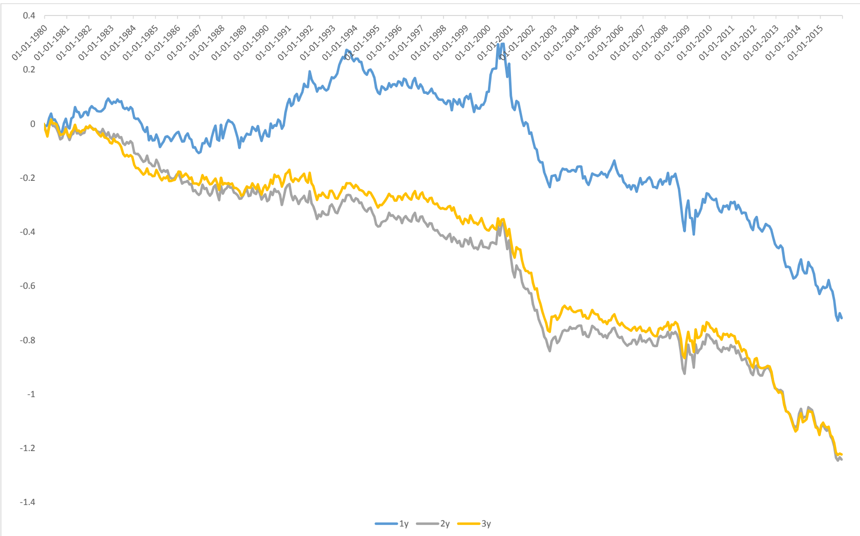

Figure 6: Cumulated return of a self-financing long-short, equally weighted, monthly updated long-short portfolio of SEO firms matched with non-SEO firms. Issuers and their matches are included in the issuer portfolio from the second month after announcement and remain in the portfolio for one, two and three years, respectively.

Table 1: Comparison of the situation where all event and post-event return is driven by information asymmetry (Section 2.1) and the situation without information asymmetry at event time where all event and post-event return is driven by investor underreaction to the issue and possibly other news at event time (Section 2.2).

	High information asymmetry	Low information asymmetry and investor underreaction
Information conveyed at event time	Only issue	Issue and other news
Possible reasons to issue	Investments Overvaluation (opportunistic issues)	Investments To signal level of earnings
How the announcement conveys value	Indirectly. Investors infer that firm value is likely to be low because the firm issues	Directly through information released Indirectly through the size of the issue
Event returns	Negative because investors infer that expected value is low	Depends on news conveyed relative to inveator expectations. Negative if "bad news", positive if "good news"
Which issuers subsequently underperform?	Overvalued issuers Unconstrained issuers Firms with large issues	Issuers with negative event news Firms with large issues

Table 2: Average Fama-French five factor loadings of issuers before and after issue. Loadings are estimated using daily excess returns with three lags (the Dimson (1979) method). Before issue estimates are calculated from 12 months before announcement to one month before announcement while the after issue estimates are calculated using data from one month after announcement to 12 months after announcement. Standard errors are reported in parenthesis. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	Before issue	After issue	Change
$\hat{\beta}_{Mkt}$	1.10***	1.13***	0.03***
	(0.01)	(0.01)	(0.01)
$\hat{\beta}_{SMB}$	0.81***	0.76***	-0.05***
	(0.01)	(0.01)	(0.02)
$\hat{\beta}_{HML}$	-0.07***	-0.13***	-0.06**
	(0.02)	(0.02)	(0.02)
$\hat{\beta}_{CMA}$	-0.07***	-0.15***	-0.09***
	(0.02)	(0.02)	(0.03)
$\hat{\beta}_{RMW}$	-0.31***	-0.40***	-0.09***
	(0.02)	(0.02)	(0.03)
N	9344	10362	

Table 3: Definition of proxies for defensive issuers. In all cases, issuers with lower values are more defensive because they have less cash, lower operating cashflows, no long-term debt or do not pay dividends.

Variable	Explanation	Average	Std. dev.
CR	Cash ratio. Ratio between cash and current debt (projected on $[0, 5]$)	3.01	2.15
CR1	0 if $CR < 1$, otherwise 1	0.68	0.47
CCR	Cash and cashflow ratio. Ratio between cash plus operating cashflow to current debt (projected on $[-5, 5]$)	2.66	3.24
CCR1	0 if $CCR < 1$, otherwise 1	0.73	0.44
CFY	Cash Flow Yield. Ratio between operating cashflow and market value	0.04	0.20
PosCF	0 if operating cashflow negative, otherwise 1	0.68	0.47
LTDebt	0 if no long-term debt, otherwise 1	0.85	0.36
PosDiv	0 if not dividend paying, otherwise 1	0.38	0.49

Table 4: Abnormal event returns $r^{event}_{abn,FF5}$, specification (1) to (6), and event excess return r^{event}_{excess}, specification (7), in percent regressed on past years' market excess return $r^{-n\,year}_{Mkt}$, $n \in \{1,2,3\}$, past years' issuer abnormal return $r^{-n\,year}_{abn,FF5}$, $n \in \{1,2,3\}$, log relative issue size *issue* and log market value *mv*. Past years' market and abnormal return are calculated from 12, 24 and 36 months before announcement to one month before announcement. All regressors are normalized (z-scores). Abnormal returns are calculated relative to the FF5 market model. Newey-West standard errors calculated with three lags are reported in parenthesis. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	$r^{event}_{abn,FF5}$						r^{event}_{excess}
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-2.28***	-2.28***	-2.28***	-2.26***	-2.26***	-2.29***	-2.19***
	(0.08)	(0.08)	(0.08)	(0.09)	(0.09)	(0.08)	(0.08)
r^{-1year}_{Mkt}	0.11			0.06	0.04	0.12	0.15
	(0.13)			(0.14)	(0.16)	(0.13)	(0.13)
r^{-2year}_{Mkt}		0.11					
		(0.12)					
r^{-3year}_{Mkt}			0.20*				
			(0.10)				
$r^{-1year}_{abn,CAPM}$	0.14	0.16*	0.15			0.15*	0.16*
	(0.09)	(0.09)	(0.09)			(0.09)	(0.10)
$r^{-2year}_{abn,CAPM}$				0.18**			
				(0.09)			
$r^{-3year}_{abn,CAPM}$					0.15*		
					(0.09)		
issue						0.00	0.09
						(0.09)	(0.09)
mv						0.33***	0.32***
						(0.08)	(0.08)
N	9288	9288	9288	7756	6760	9288	9288
Adj. R^2 (%)	0.04	0.04	0.09	0.04	0.01	0.22	0.21

Table 5: Buy and hold abnormal returns from one month after announcement to one year (Panel A), two years (Panel B) and three years (Panel C) after announcement, in percent, regressed on past years' market excess return $r_{Mkt}^{-n\,year}$, $n \in \{1, 2, 3\}$, past years issuer abnormal return $r_{abn,FF5}^{-n\,year}$, $n \in \{1, 2, 3\}$, event abnormal return $r_{abn,FF5}^{event}$, the positive component of event abnormal return $r_{abn,FF5}^{event+}$, the negative component of event abnormal return $r_{abn,FF5}^{event-}$, log relative issue size *issue*, and log market value *mv*, Past year market and abnormal return are calculated from 12, 24, and 36 months before announcement to one month before announcement. Return after announcement is calculated from one month after announcement to 12, 24 and 36 months after announcement, respectively. Abnormal returns are calculated relative to the FF5 market model. All regressors, except for r_{abn}^{event+} and r_{abn}^{event+}, are normalized (z-scores). r_{abn}^{event+} and r_{abn}^{event+} is the positive and negative, respectively, component of the normalized r_{abn}^{event} to make them numerically comparable to r_{abn}^{event}. Newey-West standard errors calculated with ten lags are reported in parenthesis. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	Panel A. One-year abnormal return $BHAR_{FF5}^{1year}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	0.21	0.21	0.27	0.12	-0.11	0.11	1.59
	(0.69)	(0.69)	(0.69)	(0.74)	(0.77)	(0.68)	(1.06)
r_{Mkt}^{-1year}	-0.15			0.12	-0.08	-0.07	-0.15
	(0.62)			(0.66)	(0.69)	(0.62)	(0.62)
r_{Mkt}^{-2year}		-0.17					
		(0.68)					
r_{Mkt}^{-3year}			0.97				
			(0.74)				
$r_{abn,FF5}^{-1year}$	2.93***	2.91***	2.88***			2.93***	2.99***
	(0.90)	(0.90)	(0.89)			(0.89)	(0.89)
$r_{abn,FF5}^{-2year}$				2.46***			
				(0.85)			
$r_{abn,FF5}^{-3year}$					0.99		
					(0.89)		
$r_{abn,FF5}^{event}$						2.67**	
						(1.26)	
$r_{abn,FF5}^{event+}$							1.72
							(2.46)
$r_{abn,FF5}^{event-}$							-3.55***
							(1.29)
issue						-1.09	-1.08
						(0.81)	(0.81)
mv						3.14***	3.02***
						(0.65)	(0.66)
N	8649	8649	8649	7310	6389	8649	8649
Adj. R^2 (%)	0.24	0.24	0.27	0.16	0.00	0.84	0.85

Panel B. Two-years abnormal return $BHAR^{2year}_{FF5}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Intercept$	-4.33***	-4.44***	-4.37***	-4.78***	-5.22***	-4.55***	-1.63
	(1.36)	(1.36)	(1.38)	(1.36)	(1.34)	(1.35)	(1.76)
r^{-1year}_{Mkt}	-2.36**			-1.82	-2.18*	-2.11*	-2.38**
	(1.19)			(1.22)	(1.23)	(1.19)	(1.18)
r^{-2year}_{Mkt}		-3.37**					
		(1.34)					
r^{-3year}_{Mkt}			-2.13				
			(1.69)				
$r^{-1year}_{abn,FF5}$	4.89***	4.65***	4.68***			4.96***	5.13***
	(1.34)	(1.34)	(1.35)			(1.32)	(1.33)
$r^{-2year}_{abn,FF5}$				1.98			
				(1.32)			
$r^{-3year}_{abn,FF5}$					-0.13		
					(1.65)		
$r^{event}_{abn,FF5}$						3.10**	
						(1.54)	
$r^{event-}_{abn,FF5}$							0.12
							(1.85)
$r^{event+}_{abn,FF5}$							-5.92***
							(2.22)
$issue$						-2.83**	-2.80**
						(1.43)	(1.42)
mv						5.92***	5.57***
						(1.20)	(1.21)
N	8242	8242	8242	6979	6102	8242	8242
Adj. R^2 (%)	0.22	0.28	0.21	0.05	0.03	0.74	0.78

	Panel C. Three-years abnormal return $BHAR_{FF5}^{3year}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Intercept$	-11.49***	-11.67***	-11.49***	-12.70***	-12.22***	-11.81***	-7.35***
	(1.88)	(1.88)	(1.89)	(1.91)	(1.98)	(1.87)	(2.28)
r_{Mkt}^{-1year}	-5.06***			-4.34***	-4.21**	-4.58***	-5.08***
	(1.55)			(1.59)	(1.65)	(1.56)	(1.57)
r_{Mkt}^{-2year}		-6.02***					
		(1.87)					
r_{Mkt}^{-3year}			-2.65				
			(2.12)				
$r_{abn,FF5}^{-1year}$	6.10***	5.56***	5.55***			6.21***	6.55***
	(1.75)	(1.76)	(1.77)			(1.70)	(1.72)
$r_{abn,FF5}^{-2year}$				1.51			
				(1.61)			
$r_{abn,FF5}^{-3year}$					0.95		
					(1.91)		
$r_{abn,FF5}^{event}$						3.73*	
						(2.19)	
$r_{abn,FF5}^{event+}$							-1.29
							(2.16)
$r_{abn,FF5}^{event-}$							-8.61***
							(3.19)
$issue$						-4.34***	-4.26***
						(1.42)	(1.40)
mv						8.69***	8.11***
						(1.67)	(1.66)
N	7759	7759	7759	6574	5761	7759	7759
Adj. R^2 (%)	0.29	0.34	0.18	0.11	0.09	0.94	1.02

Table 6: Buy and hold abnormal returns from one month after announcement to one year (Panel A), two years (Panel B) and three years (Panel C) after announcement, in percent, regressed on proxies for defensive issuers, as defined in Table 3, as well as the regressors in specification (7) in Table 5 (results not reported). Return after announcement is calculated from one month after announcement to 12, 24 and 36 months after announcement, respectively. Abnormal returns are calculated relative to the FF5 market model. Newey-West standard errors calculated with ten lags are reported in parenthesis. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	Panel A. One-year abnormal return $BHAR_{FF5}^{1year}$							
Variable	*CR*	*CR1*	*CCR*	*CCR1*	*CFY*	*PosCF*	*LTDebt*	*PosDiv*
	0.37	0.70	0.17	1.58	3.70	3.08	3.13	0.78
	(0.31)	(1.34)	(0.27)	(1.76)	(4.22)	(2.08)	(2.26)	(1.31)
N	7801	7801	6832	6832	6994	6994	8295	8649
Adj. R^2 (%)	0.83	0.83	0.87	0.88	0.88	0.92	0.88	0.84

	Panel B. Two-year abnormal return $BHAR^{2year}_{abn,FF5}$							
Variable	*CR*	*CR1*	*CCR*	*CCR1*	*CFY*	*PosCF*	*LTDebt*	*PosDiv*
	0.98	2.47	0.78	7.82**	15.30**	4.35	4.95	2.42
	(0.66)	(2.73)	(0.54)	(3.47)	(6.92)	(4.34)	(4.27)	(2.60)
N	7416	7416	6449	6449	6601	6601	7901	8242
Adj. R^2 (%)	0.78	0.75	0.86	0.90	0.89	0.84	0.77	0.78

	Panel C. Three-year abnormal return $BHAR^{3year}_{abn,FF5}$							
Variable	*CR*	*CR1*	*CCR*	*CCR1*	*CFY*	*PosCF*	*LTDebt*	*PosDiv*
	0.83	1.05	1.75**	14.35***	18.82*	12.49**	7.99	4.33
	(0.89)	(3.64)	(0.73)	(4.71)	(9.61)	(5.33)	(5.77)	(3.48)
N	6966	6966	6003	6003	6138	6138	7435	7759
Adj. R^2 (%)	0.95	0.94	1.18	1.22	1.10	1.28	0.97	1.03

Table 7: Monthly excess return of equally weighted portfolio of issuers regressed on factor returns from January 1980 to December 2015. Issuers are included in the portfolio for one year (Panel A), two years (Panel B) and three years (Panel C) starting the second month after announcement. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	Panel A. One-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.44***	-0.35***	-0.15	-0.10
	(0.16)	(0.11)	(0.10)	(0.10)
Mkt-Rf	1.41***	1.25***	1.18***	1.17***
	(0.04)	(0.02)	(0.02)	(0.02)
SMB		0.81***	0.75***	0.76***
		(0.04)	(0.04)	(0.04)
HML		-0.28***	-0.09*	-0.16***
		(0.04)	(0.05)	(0.05)
RMW			-0.27***	-0.23***
			(0.05)	(0.05)
CMA			-0.37***	-0.31***
			(0.07)	(0.07)
WML				-0.10***
				(0.02)
Adj. R^2 (%)	78.43	91.02	92.04	92.37

	Panel B. Two-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.55***	-0.49***	-0.27***	-0.14
	(0.15)	(0.11)	(0.10)	(0.09)
Mkt-Rf	1.37***	1.23***	1.15***	1.13***
	(0.03)	(0.02)	(0.02)	(0.02)
SMB		0.77***	0.71***	0.74***
		(0.04)	(0.04)	(0.03)
HML		-0.23***	0.00	-0.15***
		(0.04)	(0.05)	(0.04)
RMW			-0.26***	-0.19***
			(0.05)	(0.04)
CMA			-0.46***	-0.33***
			(0.07)	(0.06)
WML				-0.21***
				(0.02)
Adj. R^2 (%)	78.90	90.49	91.83	93.56

	Panel C. Three-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.49***	-0.46***	-0.25**	-0.10
	(0.15)	(0.11)	(0.10)	(0.09)
Mkt-Rf	1.34***	1.22***	1.15***	1.12***
	(0.03)	(0.02)	(0.02)	(0.02)
SMB		0.76***	0.69***	0.73***
		(0.04)	(0.04)	(0.03)
HML		-0.14***	0.05	-0.13***
		(0.04)	(0.05)	(0.04)
RMW			-0.27***	-0.18***
			(0.05)	(0.04)
CMA			-0.37***	-0.21***
			(0.07)	(0.06)
WML				-0.26***
				(0.02)
Adj. R^2 (%)	78.96	89.96	91.11	93.87

Table 8: Monthly excess return of an equally weighted portfolio of issuers regressed on factor returns and excess market return over the past year excluding the last month r_{Mkt}^{-1year} from January 1980 to December 2015. Issuers are included in the portfolio for one, two and three years starting the second month after announcement. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

Holding period	1 year	2 years	3 years
Intercept	-0.04	-0.14	-0.08
	(0.11)	(0.11)	(0.11)
Mkt-Rf	1.18***	1.15***	1.15***
	(0.02)	(0.02)	(0.02)
SMB	0.74***	0.70***	0.69***
	(0.04)	(0.04)	(0.04)
HML	-0.08*	0.01	0.06
	(0.05)	(0.05)	(0.05)
RMW	-0.28***	-0.28***	-0.29***
	(0.05)	(0.05)	(0.05)
CMA	-0.38***	-0.47***	-0.38***
	(0.07)	(0.07)	(0.07)
r_{Mkt}^{-1year}	-0.014**	-0.016***	-0.021***
	(0.006)	(0.006)	(0.006)
Adj. R^2 (%)	92.14	91.97	91.36

Table 9: Monthly excess return of equally weighted portfolio of issuers, sorted on characteristics expected to predict return, for the period of January 1980 to December 2015. Returns are regressed on FF5 factors. Firms are included in portfolios in the second month after announcement. The breakpoint between the "low" and "high" portfolio is the median value of the sort variable during the month of the announcement (except for event return r_{abn}^{event} where "low" is negative event return and "high" is positive event return). Firms are included in portfolios from the second month after announcement and remain in the portfolios for for one, two and three years. Panel A reports results on portfolios sorted on past abnormal return $r_{abn,FF5}^{-1year}$, Panel B event returns r_{abn}^{event}, Panel C log relative issue size, Panel D log market value, Panel E cash plus cashflow relative to current debt CCR and Panel D cashflow yield CFY. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

Panel A. Sort variable: $r_{abn,FF5}^{-1year}$

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.29**	-0.05	0.24*	-0.33***	-0.27**	0.06	-0.33***	-0.23**	0.10
	(0.12)	(0.13)	(0.13)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.08)
Mkt-Rf	1.14***	1.21***	0.08**	1.12***	1.20***	0.08***	1.11***	1.20***	0.09***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)
SMB	0.64***	0.82***	0.18***	0.59***	0.81***	0.22***	0.58***	0.77***	0.19***
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)
HML	0.15***	-0.26***	-0.41***	0.19***	-0.14***	-0.33***	0.24***	-0.09*	-0.34***
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)
RMW	-0.19***	-0.25***	-0.07	-0.18***	-0.16***	0.02	-0.17***	-0.17***	0.00
	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)
CMA	-0.20**	-0.29***	-0.09	-0.20***	-0.44***	-0.24***	-0.16**	-0.36***	-0.19***
	(0.08)	(0.09)	(0.09)	(0.07)	(0.08)	(0.07)	(0.07)	(0.08)	(0.05)
Adj. R^2 (%)	86.64	89.57	33.11	88.41	90.75	45.72	88.43	90.82	53.61

Panel B. Sort variable: r_{abn}^{event}

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.26**	0.03	0.29***	-0.35***	-0.17	0.19**	-0.32***	-0.20*	0.12*
	(0.11)	(0.14)	(0.11)	(0.10)	(0.12)	(0.08)	(0.10)	(0.11)	(0.06)
Mkt-Rf	1.19***	1.15***	-0.04	1.17***	1.14***	-0.03	1.16***	1.14***	-0.02
	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)
SMB	0.72***	0.73***	0.01	0.70***	0.69***	-0.01	0.68***	0.66***	-0.02
	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.02)
HML	-0.02	-0.11*	-0.09*	0.05	-0.03	-0.08**	0.11**	0.04	-0.07**
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.03)	(0.05)	(0.05)	(0.03)
RMW	-0.21***	-0.28***	-0.07	-0.15***	-0.23***	-0.08**	-0.16***	-0.22***	-0.05*
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.03)	(0.05)	(0.05)	(0.03)
CMA	-0.27***	-0.19**	0.08	-0.34***	-0.28***	0.06	-0.27***	-0.25***	0.02
	(0.07)	(0.09)	(0.07)	(0.07)	(0.08)	(0.05)	(0.07)	(0.08)	(0.04)
Adj. R^2 (%)	90.56	85.91	2.14	91.11	88.79	3.42	90.66	89.31	3.25

Panel C. Sort variable: *issue*									
	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	0.02	-0.33***	-0.36***	-0.10	-0.44***	-0.34***	-0.10	-0.41***	-0.31***
	(0.12)	(0.12)	(0.11)	(0.11)	(0.11)	(0.08)	(0.11)	(0.11)	(0.07)
Mkt-Rf	1.15***	1.22***	0.07***	1.13***	1.17***	0.04**	1.13***	1.17***	0.04**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)
SMB	0.59***	0.91***	0.32***	0.55***	0.89***	0.34***	0.54***	0.86***	0.32***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)
HML	-0.07	-0.12**	-0.05	0.01	0.00	-0.01	0.05	0.05	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.03)
RMW	-0.38***	-0.14***	0.24***	-0.34***	-0.17***	0.17***	-0.33***	-0.20***	0.13***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.03)
CMA	-0.40***	-0.34***	0.06	-0.44***	-0.48***	-0.04	-0.33***	-0.41***	-0.09*
	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)	(0.06)	(0.07)	(0.08)	(0.05)
Adj. R^2 (%)	89.43	90.77	16.50	89.71	91.45	25.57	89.65	90.68	30.38

Panel D. Sort variable: *mv*									
		1 year			2 years			3 years	
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.29**	-0.01	0.28**	-0.41***	-0.12	0.29***	-0.39***	-0.10	0.29***
	(0.13)	(0.11)	(0.13)	(0.11)	(0.11)	(0.10)	(0.12)	(0.11)	(0.10)
Mkt-Rf	1.22***	1.13***	-0.09***	1.17***	1.13***	-0.04	1.15***	1.14***	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)
SMB	0.98***	0.50***	-0.48***	0.93***	0.48***	-0.45***	0.91***	0.47***	-0.44***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
HML	-0.11*	-0.07	0.04	-0.07	0.08	0.15***	-0.02	0.13**	0.14***
	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
RMW	-0.18***	-0.36***	-0.18***	-0.19***	-0.35***	-0.16***	-0.20***	-0.34***	-0.14***
	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
CMA	-0.25***	-0.50***	-0.24***	-0.32***	-0.61***	-0.29***	-0.28***	-0.47***	-0.19***
	(0.09)	(0.08)	(0.09)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)
Adj. R^2 (%)	89.16	89.37	23.34	90.50	89.37	30.11	89.64	89.12	29.98

Panel E. Sort variable: *CCR* 1 (Cash plus cashflow relative to current debt)

	1 year low	1 year high	1 year high-low	2 years low	2 years high	2 years high-low	3 years low	3 years high	3 years high-low
Intercept	-0.39**	-0.11	0.28	-0.58***	-0.21	0.37***	-0.51***	-0.22	0.29**
	(0.19)	(0.14)	(0.18)	(0.17)	(0.14)	(0.14)	(0.17)	(0.14)	(0.13)
Mkt-Rf	1.19***	1.20***	0.02	1.17***	1.18***	0.01	1.14***	1.20***	0.05
	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
SMB	0.90***	0.69***	-0.21***	0.84***	0.67***	-0.17***	0.80***	0.66***	-0.14***
	(0.07)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.04)
HML	-0.26***	0.06	0.32***	-0.13*	0.11*	0.24***	-0.02	0.12**	0.14**
	(0.09)	(0.07)	(0.08)	(0.08)	(0.06)	(0.07)	(0.08)	(0.06)	(0.06)
RMW	-0.50***	-0.21***	0.29***	-0.38***	-0.17***	0.21***	-0.39***	-0.15**	0.24***
	(0.09)	(0.07)	(0.08)	(0.08)	(0.06)	(0.07)	(0.08)	(0.06)	(0.06)
CMA	0.16	-0.32***	-0.49***	-0.04	-0.35***	-0.30***	-0.08	-0.22**	-0.14*
	(0.13)	(0.09)	(0.12)	(0.11)	(0.09)	(0.09)	(0.11)	(0.09)	(0.08)
Adj. R^2 (%)	83.90	88.46	22.01	85.87	88.74	20.41	85.64	88.67	19.94

Panel F. Sort variable: *CFY* (Cashflow yield)

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.26	-0.12	0.14	-0.43***	-0.19	0.24*	-0.40**	-0.19	0.21
	(0.18)	(0.14)	(0.17)	(0.16)	(0.13)	(0.14)	(0.17)	(0.12)	(0.14)
Mkt-Rf	1.27***	1.11***	-0.17***	1.23***	1.10***	-0.13***	1.24***	1.11***	-0.13***
	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)
SMB	0.93***	0.54***	-0.39***	0.88***	0.54***	-0.34***	0.84***	0.53***	-0.31***
	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.04)	(0.05)
HML	-0.29***	0.29***	0.58***	-0.24***	0.38***	0.61***	-0.16**	0.38***	0.54***
	(0.08)	(0.06)	(0.08)	(0.08)	(0.06)	(0.06)	(0.08)	(0.06)	(0.06)
RMW	-0.54***	0.02	0.57***	-0.44***	0.02	0.45***	-0.39***	-0.01	0.39***
	(0.08)	(0.06)	(0.08)	(0.08)	(0.06)	(0.06)	(0.08)	(0.06)	(0.06)
CMA	-0.14	-0.28***	-0.15	-0.23**	-0.34***	-0.11	-0.20*	-0.21***	-0.01
	(0.11)	(0.09)	(0.11)	(0.11)	(0.09)	(0.09)	(0.11)	(0.08)	(0.09)
Adj. R^2 (%)	88.44	84.70	62.79	88.63	86.27	66.08	87.64	87.14	63.38

Table 10: Monthly excess return of equally weighted portfolio of issuers regressed on factor returns from January 1980 to December 2015. Issuers are included in the portfolio for one year (Panel A), two years (Panel B) and three years (Panel C) starting the second month after announcement. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

	Panel A. One-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.27***	-0.21**	-0.12	-0.19*
	(0.11)	(0.10)	(0.11)	(0.10)
Mkt-Rf	0.17***	0.14***	0.11***	0.12***
	(0.02)	(0.02)	(0.03)	(0.03)
SMB		0.02	-0.03	-0.05
		(0.04)	(0.04)	(0.04)
HML		-0.16***	-0.12**	-0.04
		(0.04)	(0.05)	(0.05)
RMW			-0.17***	-0.22***
			(0.05)	(0.05)
CMA			-0.05	-0.12
			(0.07)	(0.07)
WML				0.12***
				(0.02)
Adj. R^2 (%)	10.81	15.05	17.66	22.60

	Panel B. Two-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.38***	-0.31***	-0.22***	-0.24***
	(0.09)	(0.08)	(0.09)	(0.09)
Mkt-Rf	0.14***	0.11***	0.08***	0.09***
	(0.02)	(0.02)	(0.02)	(0.02)
SMB		-0.02	-0.05*	-0.06*
		(0.03)	(0.03)	(0.03)
HML		-0.17***	-0.10**	-0.08*
		(0.03)	(0.04)	(0.04)
RMW			-0.13***	-0.14***
			(0.04)	(0.04)
CMA			-0.11*	-0.13**
			(0.06)	(0.06)
WML				0.03*
				(0.02)
Adj. R^2 (%)	10.98	17.15	19.83	20.34

	Panel C. Three-year holding period.			
	(1)	(2)	(3)	(4)
Intercept	-0.36***	-0.31***	-0.22***	-0.22***
	(0.08)	(0.08)	(0.08)	(0.08)
Mkt-Rf	0.13***	0.10***	0.08***	0.08***
	(0.02)	(0.02)	(0.02)	(0.02)
SMB		-0.03	-0.06**	-0.06**
		(0.03)	(0.03)	(0.03)
HML		-0.13***	-0.06	-0.06*
		(0.03)	(0.04)	(0.04)
RMW			-0.13***	-0.13***
			(0.03)	(0.04)
CMA			-0.13**	-0.13**
			(0.05)	(0.05)
WML				-0.01
				(0.02)
Adj. R^2 (%)	10.95	15.71	19.28	19.30

Table 11: Monthly excess return of equally weighted long-short portfolio of issuers, sorted on characteristics expected to predict return, matched with non-issuers on market value and book-to-market ratio, for the period of January 1980 to December 2015. Returns are regressed on FF5 factors. Firms are included in portfolios in the second month after announcement. The breakpoint between the "low" and "high" portfolio is the median value of the sort variable during the month of the announcement (except for event return r_{abn}^{event} where "low" is negative event return and "high" is positive event return). Firms are included in portfolios from the second month after announcement and remain in the portfolios for for one, two and three years. Panel A report results on portfolios sorted on past abnormal return $r_{abn,FF5}^{-1year}$, Panel B event returns r_{abn}^{event}, Panel C log relative issue size, Panel D log market value, Panel E cash plus cashflow relative to current debt CCR and Panel D cashflow yield CFY. * indicates significance on a 10% level, ** on a 5% level, and *** on a 1% level.

Panel A. Sort variable: $r_{abn,FF5}^{-1year}$

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.37***	0.05	0.42***	-0.41***	-0.15	0.27**	-0.37***	-0.12	0.25**
	(0.13)	(0.14)	(0.15)	(0.11)	(0.11)	(0.12)	(0.10)	(0.09)	(0.10)
Mkt-Rf	0.09***	0.15***	0.06	0.05**	0.13***	0.08***	0.05**	0.12***	0.07***
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
SMB	-0.11**	0.08	0.19***	-0.12***	0.05	0.17***	-0.13***	0.03	0.16***
	(0.05)	(0.05)	(0.06)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
HML	-0.06	-0.25***	-0.19***	-0.05	-0.17***	-0.13**	-0.02	-0.11***	-0.10**
	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)
RMW	-0.16***	-0.14**	0.01	-0.13***	-0.10**	0.03	-0.16***	-0.07*	0.09**
	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
CMA	0.04	0.02	-0.02	0.04	-0.19***	-0.23***	0.02	-0.25***	-0.27***
	(0.09)	(0.10)	(0.10)	(0.07)	(0.07)	(0.08)	(0.07)	(0.06)	(0.07)
Adj. R^2 (%)	5.84	19.71	9.36	4.75	27.40	18.82	6.72	29.85	22.38

Panel B. Sort variable: r_{abn}^{event}

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.24**	-0.02	0.22	-0.33***	-0.18	0.15	-0.29***	-0.17	0.11
	(0.12)	(0.17)	(0.16)	(0.09)	(0.13)	(0.11)	(0.09)	(0.11)	(0.10)
Mkt-Rf	0.12***	0.11***	-0.01	0.09***	0.09***	0.00	0.08***	0.07***	-0.01
	(0.03)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
SMB	-0.01	-0.05	-0.04	-0.01	-0.09**	-0.08*	-0.02	-0.11***	-0.08**
	(0.04)	(0.06)	(0.06)	(0.03)	(0.05)	(0.04)	(0.03)	(0.04)	(0.04)
HML	-0.09*	-0.27***	-0.17**	-0.08*	-0.15***	-0.08	-0.02	-0.12**	-0.10**
	(0.06)	(0.08)	(0.08)	(0.04)	(0.06)	(0.05)	(0.04)	(0.05)	(0.04)
RMW	-0.16***	-0.16**	0.00	-0.11***	-0.14**	-0.02	-0.13***	-0.11**	0.03
	(0.05)	(0.07)	(0.07)	(0.04)	(0.06)	(0.05)	(0.04)	(0.05)	(0.04)
CMA	-0.06	0.21*	0.27**	-0.11*	-0.01	0.10	-0.14**	-0.06	0.08
	(0.08)	(0.11)	(0.11)	(0.06)	(0.09)	(0.08)	(0.06)	(0.07)	(0.07)
Adj. R^2 (%)	14.57	8.33	1.85	15.57	10.02	1.32	16.19	11.30	2.83

Panel C. Sort variable: *issue*

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	0.03	-0.33**	-0.36**	-0.08	-0.49***	-0.41***	-0.04	-0.48***	-0.43***
	(0.13)	(0.15)	(0.16)	(0.10)	(0.12)	(0.12)	(0.09)	(0.10)	(0.10)
Mkt-Rf	0.10***	0.15***	0.05	0.07***	0.11***	0.04	0.06***	0.11***	0.05**
	(0.03)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
SMB	-0.05	0.03	0.08	-0.10***	0.02	0.12***	-0.09***	0.00	0.09**
	(0.05)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)
HML	-0.16***	-0.13*	0.04	-0.16***	-0.04	0.11**	-0.12***	0.02	0.14***
	(0.06)	(0.07)	(0.07)	(0.05)	(0.05)	(0.06)	(0.04)	(0.05)	(0.05)
RMW	-0.21***	-0.09	0.13*	-0.18***	-0.04	0.14**	-0.20***	-0.02	0.18***
	(0.06)	(0.07)	(0.07)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
CMA	0.00	0.05	0.05	-0.03	-0.14*	-0.11	-0.07	-0.18**	-0.11
	(0.09)	(0.10)	(0.11)	(0.07)	(0.08)	(0.08)	(0.06)	(0.07)	(0.07)
Adj. R^2 (%)	14.18	8.65	1.27	15.95	9.97	3.83	18.70	10.77	7.40

Panel D. Sort variable: *mv*

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.26*	-0.04	0.22	-0.38***	-0.18*	0.20*	-0.39***	-0.11	0.28***
	(0.15)	(0.12)	(0.16)	(0.12)	(0.10)	(0.12)	(0.11)	(0.09)	(0.10)
Mkt-Rf	0.16***	0.09***	-0.07*	0.10***	0.08***	-0.02	0.10***	0.06***	-0.04
	(0.04)	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
SMB	0.00	-0.03	-0.03	-0.02	-0.07*	-0.05	-0.03	-0.08**	-0.05
	(0.05)	(0.04)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)
HML	-0.14**	-0.16***	-0.02	-0.09*	-0.12***	-0.03	-0.03	-0.08**	-0.05
	(0.07)	(0.06)	(0.07)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)
RMW	-0.09	-0.22***	-0.13*	-0.04	-0.19***	-0.15***	0.00	-0.23***	-0.23***
	(0.07)	(0.06)	(0.07)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)
CMA	0.17*	-0.12	-0.30***	0.00	-0.15**	-0.16*	-0.03	-0.20***	-0.17**
	(0.10)	(0.08)	(0.11)	(0.08)	(0.07)	(0.08)	(0.07)	(0.06)	(0.07)
Adj. R^2 (%)	7.91	18.11	4.13	6.49	21.50	4.63	5.75	26.24	9.93

Panel E. Sort variable: *CCR* 1 (Cash plus cashflow relative to current debt)

	1 year			2 years			3 years		
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.22	-0.20	0.02	-0.60***	-0.22**	0.38**	-0.50***	-0.26**	0.24
	(0.23)	(0.14)	(0.22)	(0.17)	(0.11)	(0.17)	(0.15)	(0.11)	(0.15)
Mkt-Rf	0.12**	0.07**	-0.05	0.09**	0.03	-0.06	0.07*	0.07**	0.00
	(0.06)	(0.04)	(0.06)	(0.05)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)
SMB	0.04	-0.05	-0.09	-0.01	-0.08**	-0.07	-0.02	-0.11***	-0.09*
	(0.08)	(0.05)	(0.08)	(0.06)	(0.04)	(0.06)	(0.05)	(0.04)	(0.05)
HML	-0.36***	0.00	0.36***	-0.22***	-0.01	0.21***	-0.10	0.00	0.11
	(0.10)	(0.06)	(0.10)	(0.08)	(0.05)	(0.08)	(0.07)	(0.05)	(0.07)
RMW	-0.12	-0.02	0.10	-0.06	0.00	0.06	-0.09	0.02	0.11
	(0.10)	(0.06)	(0.10)	(0.08)	(0.05)	(0.08)	(0.07)	(0.05)	(0.07)
CMA	0.52***	-0.11	-0.63***	0.28**	-0.09	-0.37***	0.12	-0.05	-0.17*
	(0.15)	(0.09)	(0.15)	(0.11)	(0.07)	(0.11)	(0.10)	(0.07)	(0.10)
Adj. R^2 (%)	8.95	4.13	9.27	5.32	3.67	6.57	3.91	6.34	5.64

Panel F. Sort variable: *CFY* (Cashflow yield)									
		1 year			2 years			3 years	
	low	high	high-low	low	high	high-low	low	high	high-low
Intercept	-0.26	-0.12	0.14	-0.42***	-0.18	0.24*	-0.44***	-0.15	0.29**
	(0.20)	(0.14)	(0.19)	(0.16)	(0.12)	(0.14)	(0.14)	(0.10)	(0.13)
Mkt-Rf	0.24***	0.04	-0.20***	0.17***	0.03	-0.14***	0.17***	0.02	-0.15***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)
SMB	0.06	-0.12**	-0.18***	0.07	-0.14***	-0.21***	0.05	-0.16***	-0.21***
	(0.07)	(0.05)	(0.07)	(0.06)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)
HML	-0.28***	0.00	0.27***	-0.25***	0.02	0.27***	-0.16**	0.03	0.19***
	(0.09)	(0.07)	(0.09)	(0.07)	(0.05)	(0.07)	(0.06)	(0.05)	(0.06)
RMW	-0.34***	0.03	0.37***	-0.25***	0.01	0.26***	-0.18***	-0.05	0.13**
	(0.09)	(0.07)	(0.09)	(0.07)	(0.05)	(0.07)	(0.06)	(0.05)	(0.06)
CMA	0.22*	-0.10	-0.32**	0.06	-0.09	-0.15	-0.04	-0.09	-0.05
	(0.13)	(0.09)	(0.13)	(0.10)	(0.08)	(0.09)	(0.09)	(0.07)	(0.09)
Adj. R^2 (%)	26.47	3.87	29.76	27.57	5.97	35.07	26.18	7.44	30.73

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