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A Review on IPO Withdrawal

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Abstract

This study reviews and analyses the empirical and theoretical literature on IPO withdrawal. VOSviewer techniques are used to identify relationships of citations, authorship, themes and patterns of the research conducted in this area. My perspective on the current state of IPO withdrawal research is threefold. First, I believe that the phenomenon of IPO withdrawal is not specific to a country, jurisdiction or vintage. Second, considering its economic significance, there is a surprising scarcity of research on IPO withdrawal. Third, existing research predominantly focuses on market level determinants which do not fully explain IPO withdrawal. I argue that promising research will come from non-rational and agency conflict based explanations.

Keywords: Review, Initial Public Offering, Withdrawal

JEL Codes : G15; G32

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1. Introduction

In the early 1980s the global Initial Public Offering (IPO) volume kicked off. Since, IPO volume and numbers have increased throughout the globe with daily IPO filings. Starting in the mid 1990s we see a particular phenomenon: a company files for an IPO but does not follow through, the IPO company cancels and withdraws from the IPO. Figure 1 depicts the global volume of IPO and indicates that IPO withdrawals are a side effect of the IPO mechanisms. The aggregated global IPO volume since 1980 is USD 4.36 trillion, about 12% are IPO withdrawals which constitute foregone investment opportunities of around USD 0.54 trillion. Comparing Figures 1 and 2 the IPO withdrawal pattern of number and volume is similar over time and follows the overall IPO filing pattern.

Insert Figure 1 and Figure 2 about here

One might argue that IPO withdrawal is a phenomenon specific to a certain jurisdiction or country. In Figure 3 the global numbers and USD volume of IPO filings against IPO withdrawals from 1980 to 2017 are contrasted by region. Asia shows the highest number of IPO filings, followed by North America, Europe and Australia. The lowest IPO numbers are in the Middle East, Africa and Latin America. The global withdrawal rate seems steady at 10-15% while a higher rate is witnessed for North and Latin America. Europe has the highest IPO volume in USD, with a lower number of IPO filings compared to Asia and North America but a similar withdrawal rate. While the IPO numbers and volume may vary from region to region, the phenomenon of IPO withdrawal is evident everywhere.

Insert Figure 3 and Figure 4 about here

Furthermore breaking down the main drivers of the IPO market, USA and Canada dominate the North American region while China and Japan are the major players for Asia and the UK for Europe (see Figure 4). Most

IPO volume and quantity is attracted by few countries - though all show the phenomenon of IPO withdrawal. An IPO withdrawal poses a puzzling event as the company incurs the cost of filing for an IPO² and possibly further costs when withdrawing from the same IPO intent.

In this article, the status quo of knowledge about IPO withdrawal is summarised and critically reviewed. I focus on contrasting the theoretical and empirical evidence on the motivation of going public with the motivation to withdraw from the IPO while highlighting the implications of IPO withdrawal. Using VOSviewer techniques, I find that, firstly, the phenomenon of IPO withdrawal is underrepresented in research, especially outside the major equity markets. Secondly, research findings are not unanimous. Thirdly, I identify non-rational and agency conflict based explanations to be a promising and insightful research area on IPO withdrawal.

The remainder of the paper is structured as follows: Section 2 reviews the decision to go public and the IPO process, Section 3 introduces the framework of IPO withdrawal contrasting theory and empirical evidence. Section 4 sheds light on a bibliometric perspective on IPO withdrawal research. Finally, the paper is concluded with a brief summary and discussion about the implication in Section 5.

2. The motivation for an IPO

Arguably, the decision to go public, to launch an initial public offering (IPO), is one of the most important undertakings in a company's life cycle. This phenomenon has attracted much attention in academic research. This includes the arrays of the going public decision, IPO valuation, IPO underpricing, IPO underperformance, and IPO withdrawal beyond others.

Understanding the motivation of companies to file for an IPO in the first

²hiring underwriters, lawyers, auditors, public relations; paying fees, dedicating vast resources to going public, beyond others

place holds valuable insights in understanding the motivation of companies to revoke the very same decision and withdraw from the IPO. In order to undertake an IPO, the company must notice its intent with the respective authority and generally is required to prepare a filing prospectus³ (Lowry and Schwert, 2004). The company files for an IPO when the benefits of being publicly traded exceed the insiders' private benefits (Loughran and Ritter, 1995). Most explanations to uncover the decision to go public draw from life cycle, market timing or agency cost based theories.

The life cycle framework entails that at some stage in a company's life cycle it becomes optimal to have a more dispersed ownership structure. The company goes public in consequence. Early in the company's life cycle it is beneficial to be private. Once the company becomes sufficiently large, it goes public (Chemmanur and Fulghieri, 1999). Bernstein (2015) posits that companies choose to go public after innovation breakthroughs.

An IPO can be an attractive exit for insiders such as for venture capitalists or founders. Insiders can (partially) cash out at the IPO. Insiders retain a certain level of ownership to be converted into cash at a future date. Such transactions can be easily executed given the high level of liquidity of publicly traded shares (Ritter and Welch, 2002). An IPO facilitates future acquisition activity in general (Brau and Fawcett, 2006). In particular, Zingales (1995) evidences that insiders, founders or for instance venture capitalists, sell the company at a higher value when being public.

In the presence of asymmetric information, there will be divergence from the optimum price resulting in temporary over- and undervaluations of the company's equity. Companies will aim to exploit this 'window of opportunity' and consequently file for an IPO in times of favourable market overvaluation (Lowry, 2003). Companies will stay private when unfavourable market conditions result in an undervaluation. Henceforth, when the mar-

³it is noted that there is a considerable amount of variation in the IPO process requirements from country to country

ket offer price is below a fundamental value from insiders, the company remains private (Loughran and Ritter, 1995).

It is suggested that an IPO is undertaken to finance future endeavours, to raise capital (Benninga et al., 2005). Likewise companies may go public to adjust their capital structure given a favourable equity market timing environment (Baker and Wurgler, 2002). Over the last decade it has become more common for companies to operate a 'dual track' approach (see Field and Karpoff (2002), or more recently Aktas et al. (2017)) whereby, concurrent with the IPO filing, trade sale opportunities are also sought. Boeh and Dunbar (2016) argue that firms in positive cash requirement should pursue a private placement alongside the IPO filing. However, in most cases the existence of a dual track approach is only observable ex-post.

Principal-agent models play an important role when separating ownership and control (Jensen and Meckling, 1976). Potential agency conflicts arise not only between potential investors (principals) and management (agents) in public companies with a more dispersed ownership structure, but also between the IPO company and its underwriter(s) or risk capital providers such as private equity or venture capital sponsors. In their study, Brau and Fawcett (2006) ask chief financial officers about the reasons for remaining private. Interestingly they find that most companies stay private due to decision-making control and ownership reasons.

Bancel and Mittoo (2009) argue that, once public, the company is exposed to outsider monitoring which can both be a substantial benefit or cost. The equity market mechanism can act as a corporate control in reducing agency costs. On the downside, public companies must adhere to strict reporting, monitoring, and listing standards which can be seen as a cost burden (Bessler et al., 2017).

Non-financial reasons such as increased publicity as well as reputation which in consequence can enhance firm value only play a subordinated role (Ritter and Welch, 2002).

In summary, there are vast financial and non-financial reasons for companies to go public, to undertake an initial public offering. Most likely, the reason for going public will affect the decision to withdraw from the IPO to establish if an IPO withdrawal is a negative or positive event. For instance, if a company files for an IPO to finance an investment, a dual track private placement might be more beneficial and henceforth leaves the company to withdraw (Boeh and Dunbar, 2016).

3. The motivation for an IPO withdrawal

Despite clearly understood benefits, there are costs to the decision to pursue an initial public offering⁴. Overt and hidden costs of going public, such as increased oversight for instance, can lower the number and volume of IPOs (Bessler et al., 2017). In consequence, it is by all means not surprising to see a certain proportion of IPO withdrawals.

An IPO withdrawal is universally defined as an event when a company files for an IPO but does not follow through. An IPO withdrawal can either be done actively or passively. Having filed for an IPO the company can *actively* cancel the IPO filing. Or *passively* not list in due time after filing for an IPO. Despite the involvement of multiple other parties along the way to go public, it is assumed that the ultimate decision to withdraw from the IPO resides with the CEO (Busaba, 2006). Interestingly, there is divergence as to the regulatory requirement of an IPO withdrawal. For instance, in the United States of America, the company must file its IPO withdrawal with the SEC (Form RW, SEC 2001 harbor Rule 155, Rule 457 and Rule 477). In Europe, there is no such requirement, in fact the event of an IPO withdrawal is not even mentioned in the EU or country directives.

At an initial public offering, the company is valued for the first time.⁵

⁴hiring underwriters, lawyers, auditors, public relations; paying fees, dedicating vast resources to going public, beyond others

⁵The process of an IPO involves an underwriter to conduct the price discovery process.

Due to the limited information nature of private companies, information asymmetries are identified during the price discovery process. Potential investors and IPO insiders might come to diverging IPO valuations which leaves the IPO company to withdraw its IPO (Loughran and Ritter, 1995).

The valuation of an IPO company is influenced by a variety of firm and non-firm specific characteristics (Allen and Faulhaber, 1989). Status signalling as well as a combination of resource and information transfer is identified by Owen-Smith et al. (2015) to influence this valuation. The IPO company and underwriter must consider the optimal level of information revelation in conjunction with the desired accuracy of price discovery (Sherman and Titman, 2002). The equilibrium offer price can be noisy. Introducing signalling theory, potential investors value the IPO company based on a subjective *probability* of expectation of future success. Owen-Smith et al. (2015) suggest that this valuation is influenced by a network of strong and weak positive and negative signals represented by firm and non-firm characteristics.

If no signal is sent to the market, asymmetric information will result in adverse selection in the IPO market (Leland and Pyle, 1977). While effective signalling depends on a 'sufficient' number of signals (Spence, 1973). Signalling can incur potential welfare costs, henceforth a key efficiency assumption is that signals must be too costly to be imitated in order to be reliable and credible (Leland and Pyle, 1977).

Benveniste et al. (2002) argue that signalling generally decreases the ex ante uncertainty about the IPO company. With this principle, strong positive signals such as *certification* increase, negative ones decrease the aggregate demand for the IPO shares (Brau and Fawcett, 2006). IPO companies that intrinsically face higher uncertainty have higher evaluation costs

The interested reader can consult Benveniste and Spindt (1989), Busaba et al. (2001), Jenkinson and Jones (2004), Sherman and Titman (2002) and Busaba and Chang (2010) for a discussion on bookbuilding in the IPO process.

as valuation is more difficult (Chemmanur and Fulghieri, 1999). At any time of the IPO process, the IPO company can change course and withdraw the IPO. The issuer reserves an option of IPO withdrawal before its completion. A company becomes more likely for IPO withdrawal in particular when the ex ante uncertainty around its value is high followed by a higher propensity for negative information perception (Busaba et al., 2001).

As information can be revealed directly through the IPO prospectus or indirectly through the price (Rock, 1986), the IPO company can (falsely) influence the unobservable quality to the potential investors (Connelly et al., 2010). However, research on the IPO bookbuilding process and its role in the information revelation calls into question the actual information production (Jenkinson and Jones, 2004, Lowry and Schwert, 2004). The benefits and costs of information revelation are traded-off by the IPO company and underwriter (Sherman and Titman, 2002). If the information acquisition costs are too high for the potential investors, the company is assumed to remain private (Allen and Faulhaber, 1989).

It is suggested that the IPO company must likewise trade-off the costs of underpricing against the probability of IPO withdrawal since Edelen and Kadlec (2005) argue that underpricing decreases the probability of IPO withdrawal. As a consequence, IPO withdrawals occur when the certain issuer's fundamental value threshold is not met with the equilibrium price (Chemmanur and Fulghieri, 1999).

In agency theory, IPO companies face principal-agent conflicts between management and the potential investors. While management represents the controlling party of the firm's resources and the shareholders own the firm's resources (Jensen and Meckling, 1976). Within this framework, to understand the decision of IPO withdrawal managerial, firm, and environmental risk factors need to be examined (Latham and Braun, 2010). This is enforced by Boulton and Campbell (2016) who find evidence that managerial overconfidence is associated with higher underpricing.

3.1. Overview on the IPO withdrawal research

An emerging literature examines the theoretical implications, determinants, and the afterlife of IPO withdrawal starting with Welch (1992) who argues that issuers withdraw from the IPO when market valuations falls below a certain level. Benveniste and Busaba (1997) and Dunbar (1998) document the presence of IPO withdrawal in North America and identify a puzzle as only a small fraction returns to the IPO market. The working paper of Lewis et al. (2001) contrasts market timing considerations with IPO withdrawal. Benveniste et al. (2003) assume that the issuer goes public to generate funds for a project. Through the conditional information in the bookbuilding process, the issuer learns about the positive or negative nature of the project. Henceforth, considering information spillovers, they argue that the issuer can either fund the project privately or cancel the very same project. Companies withdraw from IPO based on unfavourable market conditions. In a survey conducted by Brau and Fawcett (2006), most chief financial officers justify the IPO withdrawal with unfavourable market conditions.

Focusing on the bookbuilding and underwriting process Busaba et al. (2001) and Busaba (2006) identify the event of IPO withdrawal as a real option, testing the determinants of IPO withdrawal. The role of the underwriter and its influence on pricing to avert IPO withdrawal is examined in Busaba et al. (2018). This is extended by Dunbar and Foerster (2008) who broaden the set of possible market and firm level explanatory variables. Lian and Wang (2009) examine the negative effect of IPO withdrawal into subsequent IPO pricing focusing on acquisition valuations of withdrawn IPOs on a consequent paper (Lian and Wang, 2012). While Chen et al. (2010) contemplate IPO withdrawal from a Bayesian point of view. They focus on the motivation for withdrawn IPO companies to consequently retry in Chen et al. (2017).

Latham and Braun (2010) contrast the CEO ownership with the decision

to go public and to withdraw from the IPO, finding a U-shaped relationship. Boeh and Southam (2011) evidence a negative effect of financial intermediation with IPO withdrawal such as venture capitalist involvement or prestige of underwriter. Under the agency conflict framework they explore the relationship between the CEO and the prestige of underwriters - which in consequence is hypothesised to affect IPO withdrawal.

The post IPO withdrawal outcomes are examined in Boeh and Dunbar (2013) while the authors emphasise the capital issuance in Boeh and Dunbar (2016)⁶. Focusing on the wave-like nature of IPO markets, Boeh and Dunbar (2014) argue that past decisions convey private information about the collective issuers' view on the IPO market. Dunbar (2011) attests a positive effect of IPOs in registration on IPO withdrawals based on US IPO filings from 1998 to 2007. Hao (2011) takes a different perspective and examines the positive relationship between IPO withdrawal and litigation risk.

Mantecon and Thistle (2011) challenge the public equity market as a screening device for IPOs, while Bergbrant et al. (2015) scrutinise the debt capital market perspective and IPO withdrawal suggesting that credit conditions are directly affecting the IPO market. A more theoretical approach is undertaken by Owen-Smith et al. (2015) who lobby for network effects in explaining IPO withdrawal. Bernstein (2015) analyses the effect of going public on innovation and finds no evidence for underwriter certification but market condition effects on the probability of IPO withdrawal.

In a European context IPO withdrawal is first mentioned in Lucey et al. (2018) and extended to the first pan-European study by Helbing and Lucey (2018). Most recently, Fan and Yamada (2017) and Fan and Yamada (2018) examine the relationship between ownership structure and IPO withdrawal in Japan (working papers).

⁶SSRN working papers

3.2. *IPO withdrawal frameworks*

Most theoretical frameworks on initial public offerings are implicitly or explicitly assuming that the market valuation of the IPO company is always higher than the fundamental value from issuers. The IPO company is accepting any IPO price from the price discovery process (Welch, 1992, Benveniste and Busaba, 1997). The position is unanimous that a company withdraws from the IPO when the information revealed is sufficiently negative, while negative information is more probable for IPO companies with a higher ex ante uncertainty (Benveniste and Spindt, 1989).

Indeed, the IPO company can cancel the IPO filing at any time up until the selling has started (Busaba, 2006). There are only a handful of papers exclusively discussing, in different contexts, the phenomenon of IPO withdrawal (see Busaba et al. (2001), Busaba (2006), Dunbar and Foerster (2008), Owen-Smith et al. (2015), Helbing and Lucey (2018), Fan and Yamada (2018)).

Building on a strong bookbuilding framework, Busaba et al. (2001) evidence that IPO withdrawal is not specific to a particular period of time, industry or firm size. The authors examine 2,150 IPO companies from 1984-1994 in the USA. They set up a binary framework of the firm specific reservation value and the market investor valuation which both are influenced by firm and market specific variables. In case an IPO company disagrees with the market valuation, it can cancel the IPO at any time during the marketing process. The authors examine how the IPO company's choice to withdraw from the IPO affects the IPO outcome and hypothesise that IPO withdrawal induces an *option* into the IPO process. They find that this option of IPO withdrawal has a negative correlation with IPO underpricing and henceforth claim that underpricing is an incentive payment for information revelation (Busaba et al., 2001). The empirical evidence suggests that venture capital involvement or better market conditions decrease the probability of IPO withdrawal. The availability of other forms of funding

(debt), or the offer size increase same. Within the bookbuilding framework, the option to withdraw induces a strengthened bargaining position of the IPO company.

The IPO company exercises control over the degree of underpricing. This idea is followed up on and extended in Busaba (2006). The exercise price of the *real option* equals to the issuer's reservation value. Using the same dataset of 2,150 IPO companies from 1984-1994 in the USA, Busaba (2006) argues that the IPO company can benefit from bookbuilding at the full expected value with the inherent option value. In particular the IPO company benefits from bookbuilding when the ex ante uncertainty about the issuer's market value is high.

Dunbar and Foerster (2008) examine the issuers withdrawing an IPO that return later for a successful offering. The dataset includes 7,442 IPO companies in the USA and spans from 1985-2000. The authors hypothesise that the probability of IPO withdrawal is positively related to the probability of a successful return which in turn has an impact on the pricing of the IPO. Taking into account firm and non-firm specific characteristics, the authors argue that IPO companies expected to withdraw, with a low chance to return, lower the offer price to follow through. They find that financial intermediaries, such as prestigious underwriters and venture capital investors, as well as better market conditions increase the likelihood of a successful return for a withdrawn IPO company.

Dunbar and Foerster (2008) evidence that such IPO companies in consequence face higher underpricing. This framework is opposed to Busaba et al. (2001) who posit that IPO companies exert control over underpricing with the *option* to withdraw and hence see less pronounced underpricing. Dunbar and Foerster (2008) furthermore argue that second time IPO companies would be perceived riskier by investors due to the inherent 'lemon' problem (Akerlof, 1970). Therefore, they find that financial intermediators such as reputable underwriter and venture capitalist serve as a strong and

positive certification for the IPO company's future success. Non-rational and agency conflict based aspects, such as suggested by Brau and Fawcett (2006), are not considered.

A different framework is provided by Owen-Smith et al. (2015) in an interdisciplinary journal focusing on the network effects of organisational decision-making. The authors examine network effects of high-technology IPOs in the USA from 1997-2000. They place the IPO withdrawal within a network, shaped by social and economic co-occurring mechanisms. They claim that all networks show some mix of information transfer, status signalling, and social influence processes. The authors extend the firm and non-firm explanations and, for the first time, challenge non-rational as well as status signalling explanations for IPO withdrawal. It is argued that IPO companies and *managers* have disincentives to withdraw from the IPO. However, the authors fail to uncover further theoretical and empirical ideas about non-rational decision making influencing IPO withdrawal. Owen-Smith et al. (2015) moreover find evidence for the positive certification of underwriter and VC partners consonant with Dunbar and Foerster (2008) and Boeh and Southam (2011).

The first European research on IPO withdrawal is conducted by Helbing and Lucey (2018) with a unique dataset of 2,808 IPO companies in the largest European countries from 2001-2015. The authors show that the empirical validity of previous knowledge cannot be applied in the European context, based on the different regulatory environment in Europe (for differences in the regulatory and listing standard consult Ritter (2003), Johan (2010) and Takahasi and Yamada (2015)). To the contrary, they show that the strong certification effects of financial intermediators are non-existent in the European IPO context. While the effect for private equity and venture capital sponsors even has a positive influence on the probability of withdrawal.⁷ Helbing and Lucey (2018) introduce agency based explanations for

⁷The different role, reputation, and performance of venture capital and private equity

IPO withdrawal. They argue that the lack of appropriate control mechanisms increases the probability of IPO withdrawal. The presence of CEO duality decreases same as non-rational behaviour of, for instance, the CEO is pushing through a potentially value-decreasing IPO. Boulton and Campbell (2016) find evidence that managerial overconfidence is associated with higher underpricing. However, no further explanation or detailed analysis is provided.

In a nutshell, there are very few papers contributing a conceptual framework on IPO withdrawals while the majority of research on IPO withdrawal is of empirical nature. This is, in a quintessence, what is known about IPO withdrawal:

A company withdraws from the IPO when sufficiently negative (conditional) information is revealed during the price discovery process. The negative information pushes the market valuation below a certain threshold of fundamental reservation value at which point the IPO company withdraws. When the ex ante uncertainty of the IPO company is high, the probability for negative information revelation is assumed to be higher. The ex ante uncertainty of an IPO company's future success is conditioned on various firm, offer, and market conditions which however do not show the same effect over time, location or industry. While the occurrence of IPO withdrawal is independent of time, location or industry. In the end, the final decision on IPO withdrawal resides with the CEO.

3.3. The afterlife of an IPO withdrawal

Another area about IPO withdrawal that has received limited attention concerns the afterlife of an IPO withdrawal. Much of this research has been in the areas of entrepreneurial finance, examples being Brau et al. (2010) and Field and Karpoff (2002).

sponsors is discussed in Tykvova and Walz (2007), Groh et al. (2010) and Chemmanur and He (2011) beyond others.

More recent work by Dunbar (2011) and Boeh and Dunbar (2013) begins to evaluate the afterlife of withdrawn firms, surfacing the determinants of different post-withdrawal outcomes. In Figure 5 the event of an IPO withdrawal is further deciphered by Boeh and Dunbar (2013). They argue that companies withdraw from IPO either because they are 'bad' IPO candidates and get rejected by the market or they are 'good' IPO companies. In the latter case, the IPO companies withdraw from the IPO intentionally. Either as they get acquired or as the IPO market valuation is lower than its fundamental reservation value. They also find that an IPO withdrawal has a positive reaction effect on the industry. In a further analysis, Boeh and Dunbar (2016) focus on the dual track of a private placement for IPO companies. They assume that most IPOs are motivated by capital requirements and henceforth argue that IPO companies should pursue a dual track. Companies consequently withdraw from the IPO once the private placement becomes more beneficial.

Insert Figure 5 about here

Lian and Wang (2009) and Lian and Wang (2012) apply the Akerlof 'lemon' problem to withdrawn IPO companies returning to the IPO market. They argue that withdrawn IPO companies face a valuation penalty as they are perceived riskier. However, companies can withdraw from the IPO in favour of a superior financial alternative. Lian and Wang (2009) define merger and acquisition activities as such a superior alternative to an IPO, while a benefit exists only when the IPO company is acquired before formally withdrawing.

Busaba (2006) analyses the role of bookbuilding within the process of IPO withdrawal and hypothesises that underwriters who are involved in a higher number of IPO withdrawals are expected to lose future business. Dunbar (1998) and Dunbar and Foerster (2008) find empirical evidence that withdrawn IPO companies switch to a more prestigious underwriter when attempting a second IPO.

When analysing the relationship between going public and its effect on innovation, Bernstein (2015) finds that withdrawn IPO companies show a lower rate of external patents acquisitions. But evidence a higher rate of internal patent generation compared to IPO companies that consequently listed. Bernstein (2015) argues that IPO companies that go public can attract human capital better than withdrawn IPO companies.

In general, the afterlife of withdrawn IPO companies, its macroeconomic as well as micro level effects need more research attention to decipher the puzzle of an IPO withdrawal.

4. A bibliometric perspective on IPO withdrawal research

I use VOSviewer techniques⁸ to examine the literature on IPO withdrawal from a bibliometric perspective. Fundamental bibliometric approaches involve surfacing the relatedness between articles, authors, and main research themes. This relatedness can be presented nicely in graphical ways of network models. My sample includes 34 articles that either mention IPO withdrawal or are focused on this phenomenon. A breakdown of the main journals, with eight articles on SSRN, where the articles are published is given in Figure 6.

Insert Figure 6 about here

The most frequent keywords on IPO withdrawal research are depicted in Figure 7. 'Public offering' is in the center, closely linked to 'book building' and 'initial returns'. The outcome is separate but shows high relatedness with acquisition. The papers by Busaba et al. (2001), Busaba (2006), Dunbar and Foerster (2008) and Lian and Wang (2009), Lian and Wang (2012) represent this pattern.

Insert Figure 7 about here

⁸Leiden University: <http://www.vosviewer.com/>

A creation of network maps based on the title and abstract fields is given in Figure 8. An overview is provided on the IPO withdrawal literature contrasting the most frequent themes of the different papers. This network map shows what the IPO withdrawal network is talking about. The main research themes analyse the issuer, the underwriter/ investment bank and the effect on valuation or underpricing.

Insert Figure 8 about here

Contrasting the most frequent themes on IPO withdrawal research over time in Figure 9 it becomes visible that starting in the early 2000s the network was dominated by research themes such as 'underwriter' and 'underpricing', moving in time forward to 'evidence', 'determinants' and 'effect' with a focus on market level information. Lately, research agenda is shifting to a more agency based focused examining 'relationship', 'CEO', and 'influence'. This network map nicely visualises where the IPO withdrawal research is originated and where it is going. As reviewed above, IPO withdrawal was first explained using market level data in connection with financial intermediators. The relationship between IPO withdrawal and IPO pricing, including underpricing and valuation, was tried to be uncovered. The research on IPO withdrawal is gradually moving to a more firm level focus including corporate governance and non-rational observations.

Insert Figure 9 about here

Research on IPO withdrawal is driven by three main researchers: Busaba, Dunbar, and Boeh. This becomes visible in Figure 10 which depicts the citation patterns showing the relatedness based on the number of times cited. This shows who is cited most and who is leading the research agenda. Interestingly, five out of the eight papers on the SSRN are by those three researchers. The authors all focus on the US American market and each have a specific research theme. While Busaba (2006) scrutinises the book-building process, Dunbar and Foerster (2008) analyses the underwriter and

macroeconomic effect of an IPO, Boeh and Southam (2011) in particular examines the financial intermediators such as venture capitalists.

Insert Figure 10 about here

The bibliometric perspective on IPO withdrawal research enforces the conclusions from the review on the existing state-of-the-art literature. IPO withdrawal was first explained using market level data in connection with financial intermediators. It is gradually moving to a more firm level focus including corporate governance and non-rational observations. It still lacks attention on the firm sentiment and afterlife of an IPO withdrawal. Also, current research does not offer ideas on what can be learnt from withdrawn IPOs to practice, future IPO filings, and for instance IPO delistings.

5. Conclusion

In this article, the status quo of knowledge about IPO withdrawal is summarised and reviewed. I focus on contrasting the theoretical and empirical evidence on the decision of going public with the decision to withdraw from the IPO. What can we learn from such a puzzling decision as an IPO withdrawal? My findings of this review are threefold. First, I believe that the phenomenon of IPO withdrawal is not specific to a country, jurisdiction or vintage. Second, I argue that there is a surprising scarcity of research on IPO withdrawal given its economic significance. The existing theoretical and empirical research on IPO withdrawal is not unanimous - in the end an IPO withdrawal is a social phenomenon. Most research focuses on the relationship between IPO withdrawal and IPO pricing. Furthermore, the theoretical frameworks on IPO withdrawal derived from US centered data cannot be applied ubiquitously. Recent extension to the European and Asian markets have questioned the prevailing frameworks (see Helbing and Lucey (2018), Fan and Yamada (2017) and Fan and Yamada (2018)).

Third, I challenge the presumption that market level determinants are the main driver of IPO withdrawal. I believe great insights come from non-rational and agency conflict based explanations uncovering the firm level sentiment leading up to the IPO withdrawal and the afterlife. An area that is, to my best knowledge, not yet explored, mainly given the proprietary data environment, is the relationship between the IPO allocation mechanisms⁹ and IPO withdrawal. Same applies to the relationship between IPO withdrawal and IPO delistings. A more behavioural and non-rational approach on decision making would yield great insights about IPO withdrawal, the determinants and effects on a macro and micro level. This is backed by the bibliometric perspective using VOSviewer techniques.

⁹Jenkinson et al. (2017) examine the IPO allocation mechanisms with proprietary data.

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Appendix

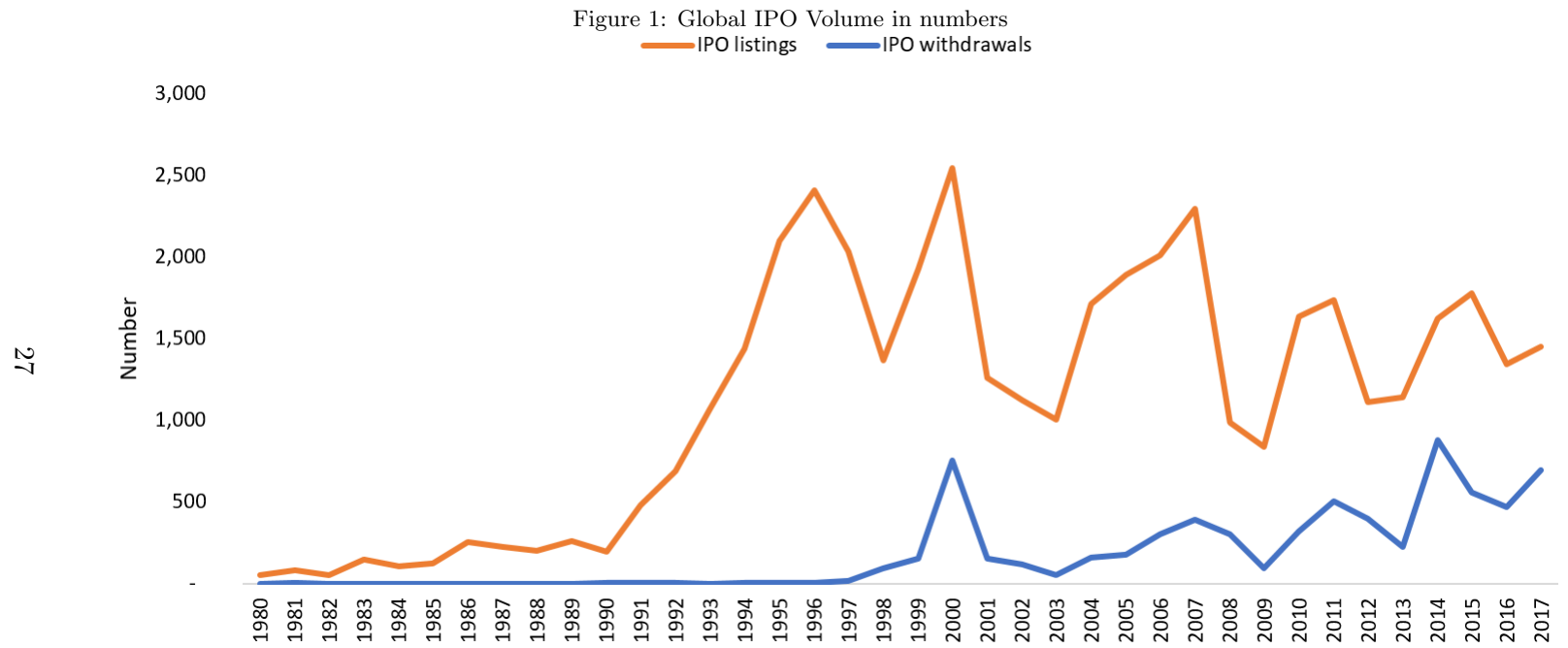


Figure 2: Global IPO Volume in USD mn
■ IPO listings ■ IPO withdrawals

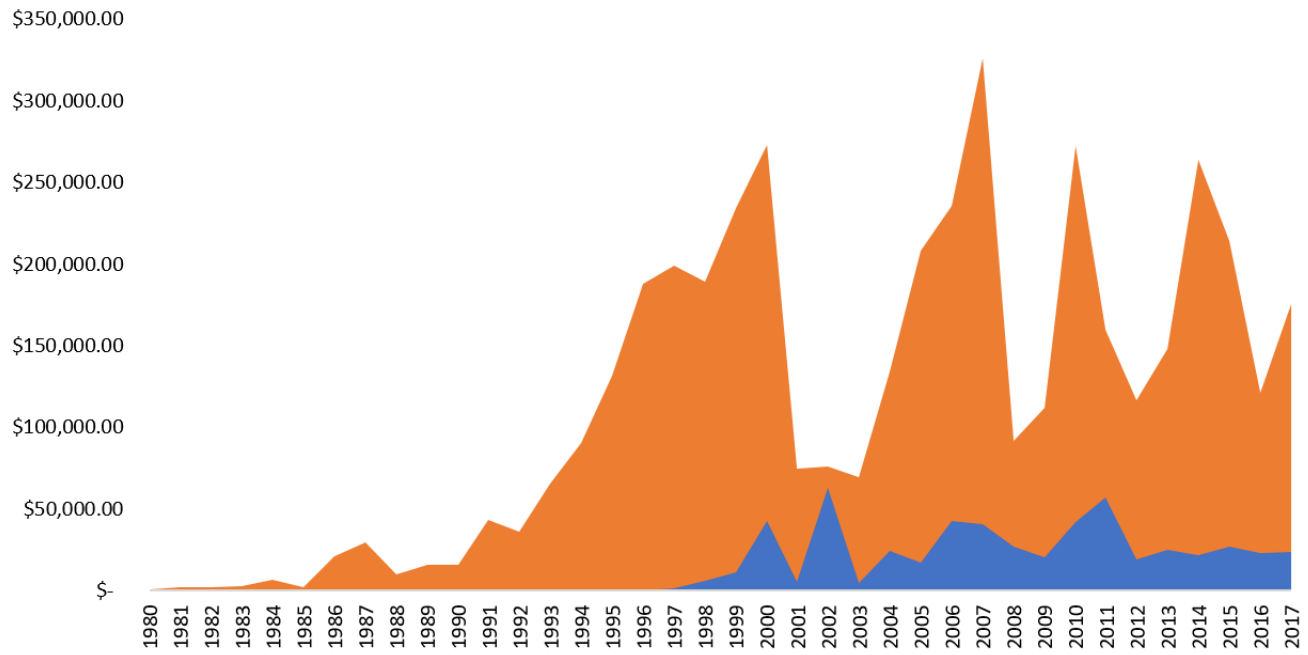
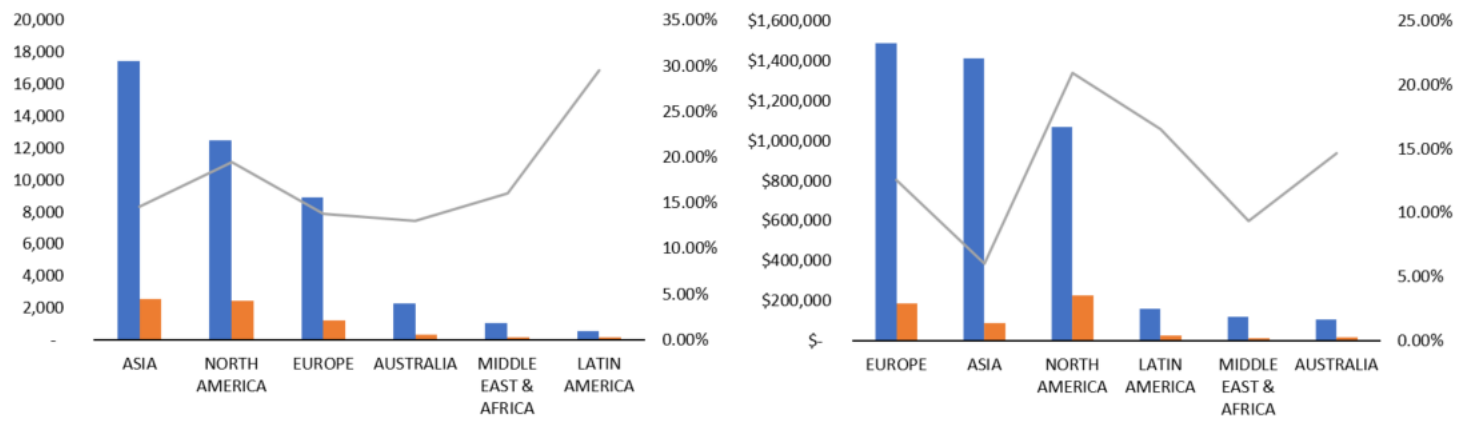


Figure 3: Global IPO Volume and Number by Region



Note: The chart shows the absolute numbers (left) and volume (right) of IPO filings vs. IPO withdrawals by region between 1980 and 2017. The withdrawal rate is given in grey.

Figure 4: Global IPO Volume by Major Countries

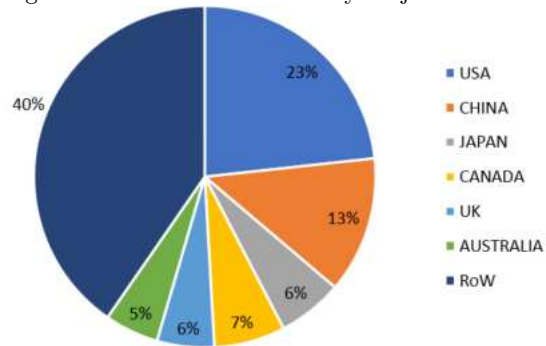


Figure 5: Why Firms Withdraw from IPO's, Boeh and Dunbar (2013)

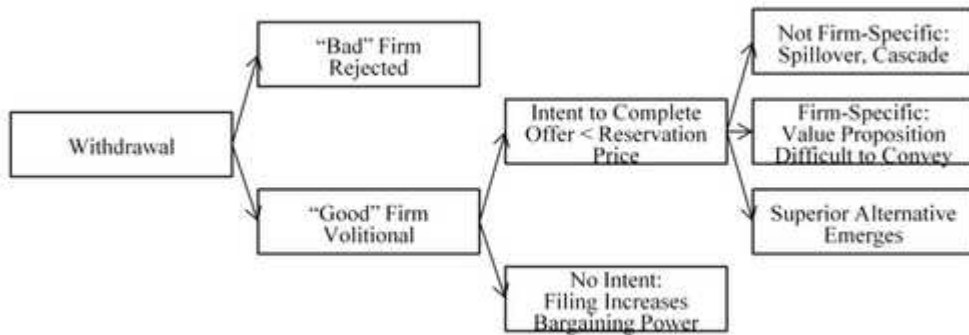


Figure 6: Journals - VOSViewer

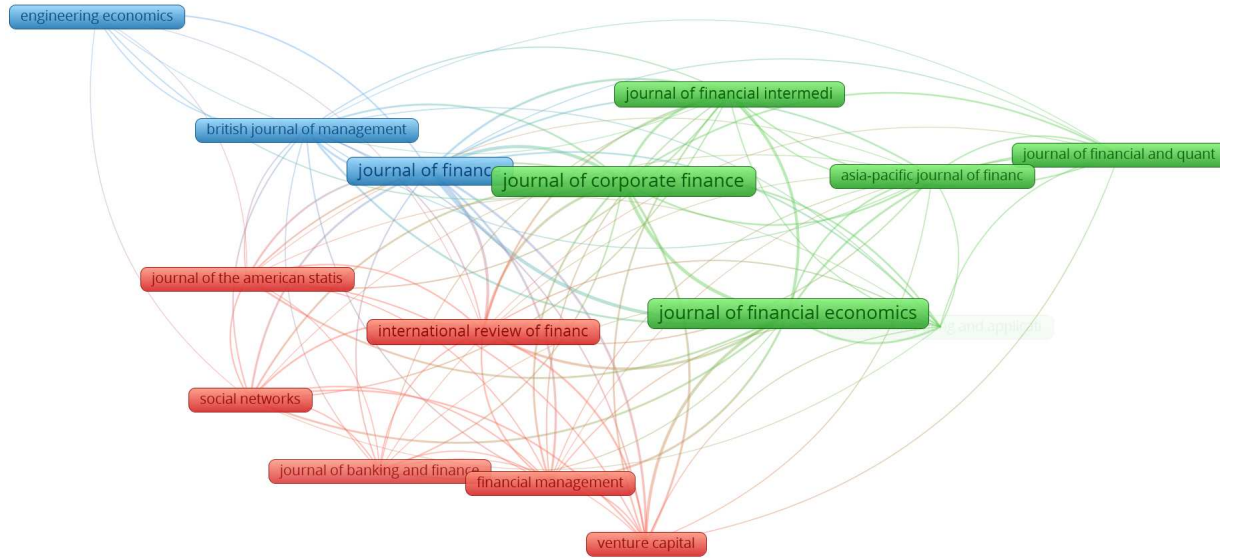


Figure 7: Most Frequent Keywords on IPO Withdrawal - VOSViewer



Figure 8: Most Frequent Research Themes on IPO Withdrawal - VOSViewer

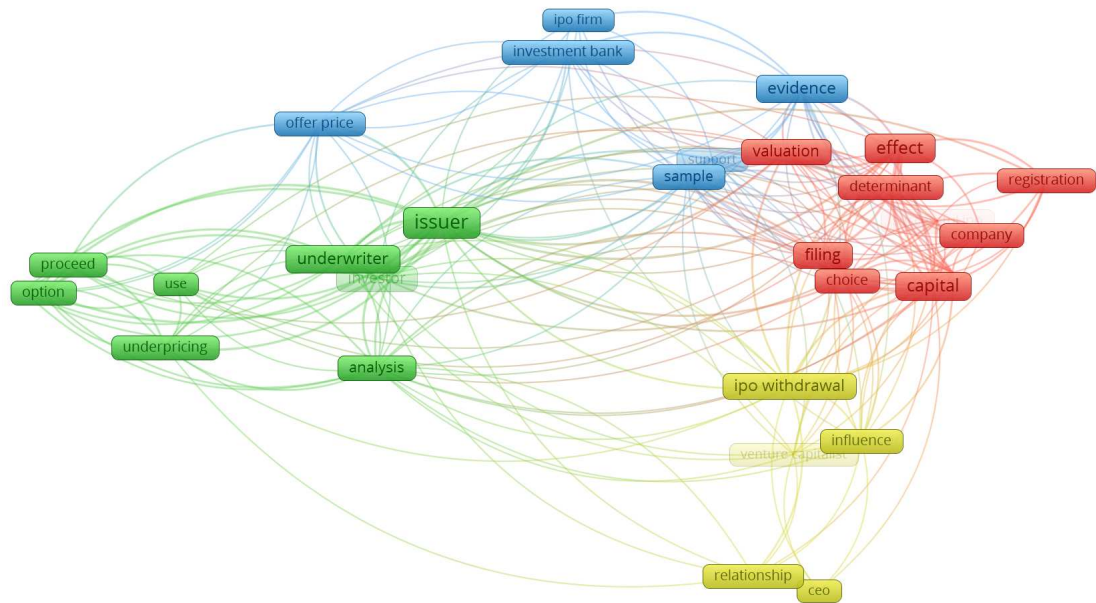


Figure 9: Most Recent Research Themes on IPO Withdrawal - VOSViewer

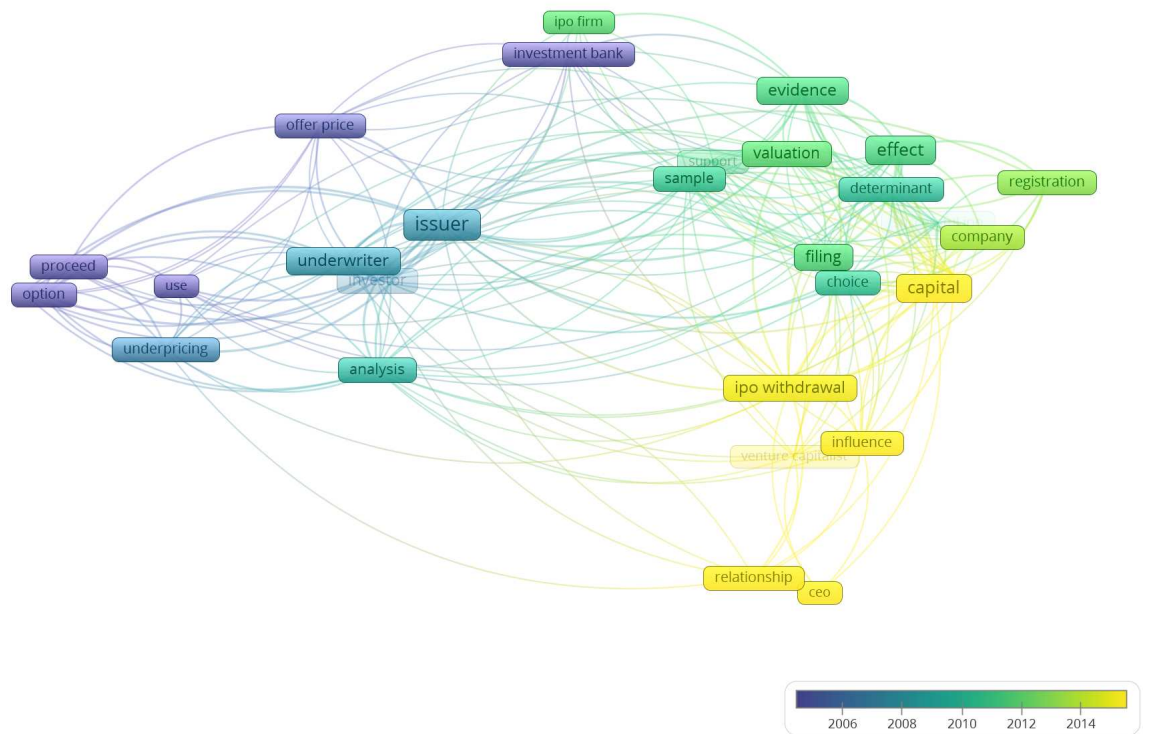


Figure 10: Citations by Author - VOSviewer

