

IFRS Adoption and performance of Dutch IPOs

A. Dorsman ^a, D. Gounopoulos*^b, D. Wildeboer ^{c1}

Abstract

In this paper, we analyze the effect of the introduction of IFRS standards on the performance of IPOs, and more precisely on the short and long term. Findings clearly indicate reduced level of underpricing in the IFRS standards era and marginally better adjusted long-term underperformance. Measuring these returns in calendar time, we find statistical significance with several of the benchmarks employed. Using buy and hold abnormal returns, we confirm the low underpricing level of Dutch IPOs. Cross-sectional regressions of short- and long-run performance disclose several significant factors. An underwriter's reputation and market (hot) condition prove to be significant in both short- and long-term cases. In contrast to many studies, we attribute long-run underperformance to IPOs listed during cold market periods. Results associated with pricing during the "hot IPO period" indicate better long-term (3-year) performance.

Does the introduction of IFRS results in reduction of the level of underpricing in the Netherlands

Keywords: Initial Public Offerings, Long-run Stock Market Performance, Market Efficiency

JEL classification: G12, G14, G24

¹ Andre Dorsman is from Vrije University Amsterdam, Amsterdam, The Netherlands, Dimitrios Gounopoulos is from Surrey Business School, University of Surrey, UK., Duco Wildeboer is the Director of IPOs in NYSE-Euronext Amsterdam, The Netherlands. We are gratefully to Anjo Koeter, Jay Ritter, Frank Skinner, Stavros Thomadakis, seminar participants in Vrije University of Amsterdam and NYSE Euronext seminar series presentation for stimulating comments. We would like to thank NYSE-Euronext Stock Exchange for providing entrance to our researcher on collecting data. Special thanks to Anastasios Psarros for the very good research assistance. Corresponding author: Dimitrios Gounopoulos, University of Surrey, School of Management, Guildford, Surrey, GU2 7XH, Tel: +447980158254, email:d.gounopoulos@surrey.ac.uk

1. Introduction

The global application of IFRS²³ and its consequences on firms' financial reporting has provoked a highly active debate among researchers. Empirical evidence has largely focused on measurements of accounting quality subsequent the application of IFRS and its economic consequences. However, these studies failed to examine the role of IFRS in the performance of IPOs.

It has been since 2005 that all EU-listed firms are required to prepare their consolidated accounts under IFRS. In this way, the European Union attempted to improve financial reporting quality and increase comparability of financial statements in Europe. With the mandatory introduction of IFRS the achieved quality of accounts challenged researchers to explore how accounting and finance phenomena have been affected. In this paper, we examine empirically to what extent IFRS implementation contributes in the flatter of underpricing phenomenon and whether IPOs after adopting IFRS do perform better in the long term by presenting lower level of the existing reported severe underperformance.

There is an endless number of theories trying to explain the level of underpricing—the phenomenon of a large positive gain to a new issue (relative to its offering price) immediately after listing—that has been reported in many markets. Ibbotson and Jaffe (1975), who spoke about the hot issue markets, were the first. Baron (1982) assumes in his principal agent model that investment banks act as agents of the issuers, which could build a moral hazard situation. Ritter (1984) defines ex ante uncertainty theory while Beatty and Ritter (1986) argue that the amount of ex ante uncertainty about

² In June 2002, the European Union (EU) Council of Ministers approved a regulation requiring EU-listed companies to prepare consolidated financial statements in accordance with IFRS for years beginning on or after January 1, 2005. The Act was approved by the European Parliament and enacted into law on September 11, 2002, as Regulation (EC) No. 1606/2002 of the European Parliament and of the Council of July 19, 2002, on the Application of International Accounting Standards (IAS).

³ IFRS are the accounting principles prepared and published and written by the International Accounting Standards Board (IASB). These accounting principles have the explicit objective of creating a single set of accounting principles that are intended to result in the improved comparability of financial statements by reducing differences among countries' accounting practices (i.e., Financial Accounting Standards Board (1996)). In many cases the implementation of IFRS results in a smaller set of choices within generally accepted accounting practices and thus can be viewed as increasing overall disclosure by firms. The reduction of choices within generally accepted accounting practices generates higher quality public information for firms implementing IFRS.

true firm value is the main determinant of the level of underpricing in IPOs. The latter researchers build on Rock (1986), who interprets underpricing as a premium for uninformed investors for the winner's curse problem they face vis-à-vis informed investors. This is from where the best-known underpricing explanation, asymmetric information, comes, with Booth and Smith (1986), Carter and Manaster (1990), and Michaely and Shaw (1994) pointing out that the specific way to reduce information asymmetry is to hire prestigious underwriters. Further, Booth and Smith (1986), Chemmanur and Fulgheri (1994), Purnanandam and Swaminathan (2004),⁴ Derrien (2005), Edelen and Kadlec (2005), and Kutsuna et al. (2009) focus on how offer prices relate to long-run or intrinsic value.

There is extensive evidence of short-term underpricing as well as convincing international evidence of long-term underperformance. This is where the long-run return of the new public company has a lower performance than the benchmark. Studies in numerous countries have confirmed underperformance after one (Aggarwal and Rivoli, (1990); Lee et al. (1996); Chan et al., (2004),⁵ three (Ritter (1991); Lee et al., (1996); Chan et al., (2004)), and five years (Loughran and Ritter, (1995)). Aggarwal and Rivoli (1990); attribute underperformance to a temporary overvaluation of the IPO firm at the offering date, the so-called fads theory. After a while, the over-optimism disappears, and the value of the new share will be downwardly adjusted. Ritter (1991) has further advanced the fads theory and showed that IPO firms with a high-risk profile (i.e., younger, smaller, and active in certain sectors) are subject to shareholder sentiment sooner, the so-called fads of the stock market.

Based on those theories, we will make an effort to address a number of questions associated with the introduction of IFRS standards. We start with the main one: Does the introduction of IFRS results in reduction of the level of underpricing in the Netherlands? Do Dutch IPOs present lower underperformance over the long term after the adoption of IFRS? How do various benchmarks affect long-term performance in the Netherlands? What are the determinants that affect short- and long-term

⁴ Purnanandam and Swaminathan (2004) on the relation between underpricing and overpricing on the aftermarket indicate a fair pricing at IPO and overpricing after that.

⁵ Surprisingly, Katsuna et al. (2009) report 1-year holding-period returns in excess of 200%.

performance? Has the use of IFRS improved the reliability of public offering procedure? How did Dutch IPOs react during the Internet bubble at the end of the '90s?

A part of the period we cover is characterized by the formation of the Internet bubble that induced a large number of growth (new economy) firms to go public, resulting in a hot issue market from 1997 to 2000.⁶ The IPO literature focuses on the phenomenon of “hot issue markets,” i.e., periods that are characterized by a large number of offerings and a high average underpricing (Ritter, 1984; Derrien (2005); Ljungqvist et al. (2006); Derrien and Kecskes, (2007). Big differences in IPO underpricing occur during the hot/cold periods, depending on the time period a firm selects to go public.

During the study period covered, many changes happened in the international arena that affected the Dutch market and the flow of IPOs as well. Most important is the central theme of our study, the mandatory adoption of IFRS by listed and firms aiming to list in Euronext Amsterdam. Further, but not of minor importance there were two big crises in recent times: the 2000 Internet bubble crisis that affected the stock market and the number of listings and the 2008 global housing bubble that raised questions regarding bank solvency and damaged investor confidence, creating an impact on global stock markets, which suffered large losses during late 2008 and early 2009.

Our motivation relies on discovering the Dutch market reaction on IFRS accounting practice and the returns to shareholders under various benchmarks. On this issue, Dimson and Marsh (1986) and Fama and French (1996b) provide considerable evidence that benchmark selection can have an important impact on the scale of abnormal returns. We compare abnormal returns under a number of alternative benchmarks and compute abnormal returns up to three years after the offering. Our study employs the basic capital asset pricing model (CAPM), the Fama and French (1996) three factors model, and the Carhart (1997) FF3F-type model extended for the momentum.

⁶ Gajeski and Gresse (2006) report that, for some countries (France, Belgium, Sweden, Poland), the hot period started in 1997. There have been four countries that do not match the general pattern. For the Polish, Turkish, and, to a lesser extent, the Greek markets, 1995 and 1996 were also active periods.

We employ a sample of 141 Dutch IPOs listed over the period 1990-2011. The findings indicate that Dutch IPOs' returns in the short term are among the lowest in the world. IFRS adoption further assists on reducing the level of underpricing and contributes in markets disclosure transparency. In the long term, IPOs in the Netherlands underperform and provide negative returns to their investors. The study provide evidence that underperformance is marginally lower following the introduction of IFRS. On the determinants side, we find, according to our predictions, a positive and significant relationship between the size of the firm and returns to the investors in the three-year long-term period. This suggests that large firms perform better and can be a safer investment in the long term. We also find a positive relationship between market condition (hot/cold) and returns in the long aftermarket. This relationship holds strong irrespective of the period (one, two, or three years) of study. Finally, in contrast to expectations, non-reputable underwriters are associated with better returns in the very long term (up to 36 months).

Our study makes several contributions to the IPO literature. Initially, this is the first study in international level to explore the IPOs short and long term returns using two balanced samples, before and after the introduction of IFRS. Second, this is the first Dutch study that explores long-term returns through Fama and French's (1996) (extended) value weighted three factors model. Third, it examines the determinants that affect the underpricing and long-term performance in Euronext Amsterdam. Fourth, this study provides additional evidence on the performance in the long term of Dutch IPOs in 'hot' market periods. Fifth, we make an effort to position the Dutch results among the other developed global markets.

The remainder of this paper is organized as follows. Section 2 reviews the international literature and discusses the application of IFRS in the Dutch market. Section 3 formulates the hypothesis while section 4 presents the data and analyses the methodology. Section 5 shows the results

for the long-term performance of IPOs and section 6 presents the regression results. Finally, Section 7 concludes the paper.

2. Empirical studies on initial performance of initial public offerings

2.1. Long and short-term evidence of IPO performance in international developed markets

In this subsection, studies on major international markets are reviewed. We emphasize providing evidence from the dominant markets on each continent, except Europe, where we had the opportunity to review the neighbors of the Netherlands, the developed markets of France, Germany, and the United Kingdom (UK). Further, we explore all previous studies conducted on Dutch IPOs.

Loughran et al. (1995) provide a very good summary of the average initial returns of 1,103 IPOs in Australia covering a period of thirty years (between 1977 and 2007). The evidence, which was built on many studies, indicates initial underpricing of 19.8%.⁷ The result is consistent with the view that unique institutional characteristics may have overwhelmed previous tests of equilibrium models of IPO underpricing. The results by Lee et al. (1996) reveal that Australian IPOs significantly underperform market movements as the IPOs provide negative returns of -18.76%, -35.60%, and -51.58%, one, two, and three years subsequent to listing, respectively. The main explanatory variables for the one year market adjusted returns as Dimovski and Brooks (2004) report are excess return, market sentiment and limited liability⁸. Across the Pacific Ocean, Chi et al. (2010) on a fifteen years (1991-2005) for New Zealand indicate mean raw initial return of 6.67%.

Tian and Megginson (2007) report that the Chinese stock market has grown very rapidly, but is often distorted by government regulation, and this is especially true for the initial public offering market. The average underpricing of Chinese IPOs is 247%, the highest of any major world market. The sample covers 1,397 IPOs listed on the Shanghai and Shenzhen stock exchanges between 1991 and

⁷ Lee et al. (1996a), on a sample of 266 Australian IPOs, present underpricing of 16.41%.

⁸ The positive coefficient on the excess return (Month) variable supports indicate that any overoptimism and price support at the time of the float, subsides from the first month. One more finding by Dimovski and Brooks (2004) suggest that Limited Liability IPOs exhibit a superior one year return performance to no liability IPOs.

2004.⁹ Chen et al. (2000)¹⁰, Chan et al. (2004)¹¹ and Cai et al.(2008) examine the long-term performance. Cai et al.(2008) in the most recent evidence find poor long-run performance of Initial Public Offerings (IPOs). Initial overoptimism and the size of the offer are important explanatory factors for this underperformance. Additional variables include the earnings per share prior to listing, the decision to switch investment banks at the time of issue and whether the firm issues shares that can be purchased by foreign investors. These factors suggest that firms in China are able to manipulate the issue process.

Jenkinson et al. (2005) document that, for a sample of 740 European IPOs, European underpricing is, on average, 22.3% (15.2% for 174 French IPOs, 47.5% for 224 German IPOs, 4.8% for 51 Italian IPOs, 9.0% for 124 UK IPOs, and 14.3% for 50 Dutch IPOs). If Germany is excluded from the European sample, the average underpricing relative to the initial price range falls to 15.1%. Jenkinson et al. report that the infrequency in Europe of revisions to initial price ranges, and the clustering of offer prices at the top of the initial ranges, appears inefficient. Gajewski and Gresse (2006) confirm the medium European underpricing level and report average initial returns of 22.06% for 2,104 IPOs from 15 countries (5.36% for 363 French IPOs, 38.93% for 415 German IPOs, 10.26% for 135 Italian IPOs, 21.27% for 454 UK IPOs, and 22.92% for 47 Dutch IPOs). The authors take a step forward and provide evidence on the long-term performance of European IPOs.¹² Evidence of

⁹ The pricing of IPO shares in China is subject to a cap set by the government, and the supply of IPO shares allowed in the market is also set by the government through the Chinese quota system. The government regulator even controls the timing of floating of shares onto the stock exchange (after the initial public offering is executed), and there is usually a long time lag between the IPO and the actual listing of shares for trading.

¹⁰ Chen et al. (2000) find that B-share IPOs underperform A-share IPOs (and the market) during the post-issue periods for up to three years. The results of multivariate regression analyses strongly suggest that economic factors determining the post-issue performance of IPOs differ across the A-share and B-share samples.

¹¹ Chan et al. (2004) based on a one- to three-year period report that Chinese A-share IPOs slightly underperform their non-IPO benchmarks with the wealth relatives. In contrast to the result for A shares, B-share IPOs outperform the market as the wealth relatives are always greater than 1.00 during these 36 months after listing. The buy-and-hold returns for Chinese IPOs indicate average percentage returns during the six months and one, two, and three years of 5.74%, 11.55%, 30.66%, and 75.07%.

¹² Gajewski and Gresse (2006) split their sample based on market segments, period of listing, and floatation mechanism. The 821 IPOs listed in traditional markets present first-day initial returns of 11.58% while the 947 listed in the new markets have initial returns of 28.46%. IPOs listed during the 'hot' period of 1998-2000 have initial returns of 27.18% while the returns are much lower at 15.86% and 12.195 for those listed during the 1995-1997 and 2001-2004 periods, respectively.

underperformance at the one-year term is unclear (the average first-year CAR equals -21.59%, but the average first-year buy-and-hold abnormal return [BHAR] is only -1.52%), while they find a significant three-year underperformance of -32.61% for the BHAR benchmark, and -87.19% for CAR. Individual countries' BHAR one- and three-year returns are 11.44% and -36.33% for France, -19.57% and -53.69% for Germany, -7.01% and -30.47% for Italy, and, finally, for the UK, -10.96% and -27.74%.

Ritter (2009) in a sample of 12,022 US IPOs (issued between 1960 and 2008) and gross proceeds of \$650 billion reports that initial public offerings are significantly underpriced by 16.9%. The level of underpricing was extremely high during the Internet bubble period of 1999-2000, 64.1%, and significantly lower since after, 11.5%. Valero et al. (2009) on foreign issuers of U.S. IPOs report they are prominent firms in their home countries, they are larger and of better quality than domestic issuers, their U.S. IPOs are underwritten by prestigious underwriters, and they enjoy greater analysts' coverage. Cai et al. (2010) examine the underpricing of U.S. firms that went public globally (global IPOs) and report mean first-day returns for 797 IPOs of 46.20%.¹³ The increased underpricing of globally listed US IPOs was motivated by expanding investor demand under favorable overseas market conditions and increasing visibility through global placement. In an earlier study, Jenkinson et al. (2005) point out differences in regulations and practice between the U.S. and Europe. Consistent with partial adjustment to positive news from investors (Benveniste and Wilhelm, (1990); Hanley, (1993); Sherman and Titman (2002), Chan et al (2007)¹⁴), U.S. IPOs are commonly priced above the upper bound of the indicative price range and still exhibit large first-day returns. Ritter (1991) has been the first researcher to provide evidence on the long-term performance of IPOs. Using various robustness benchmarks, he reports average three-year holding period returns of 34.47%. Ritter (2009), in an

¹³ Cai et al. (2010) report pre-bubble (1986-1997) underpricing of 11.97%, Internet bubble (1998-2000) first-day returns of 81.85%, and post-bubble initial returns of 14.21%.

¹⁴ Chan et al (2007) find that the offer price valuation efficiency for global IPOs exceeds that of IPOs with purely domestic offers by 3.1%. In particular, the global offering approach is most appropriate to those IPO firms, which offer larger proportion of new shares to international investors, underwritten by less prestigious investment banks and with larger firm-specific return variance. Their findings are consistent with the demand inelasticity, certification effect and investor recognition arguments that account for the benefits of global offering.

update of the initial sample and in 7071 IPOs, reports an average BHAR of 21.8%. Once the returns are adjusted for the market, the returns turn negative at -20.3%.

Champers and Dimsons (2009) provide the longest period study in the field of IPOs for the United Kingdom as these authors cover 4,540 firms listed from 1917 to 2007. The overall proceeds UK IPOs managed to explore was £131 billion while the mean initial return was 14.57%. There has been an increasing trend in the initial returns over the decades that peak over the 2000-2007 period at 19.86%.¹⁵ This mainly reflects the growth of London's alternative investment market, which facilitated numerous IPOs by very small companies; there were even higher average levels of underpricing. The overall post-WWII rise in underpricing cannot be attributed to changes in firm composition, and occurred in spite of improvements in regulation, disclosure, and the prestige of IPO underwriters. Coakley et al. (2009) for a sample of 591 IPOs report a high combination between venture capitalists and prestigious underwriters and report that the 1998-2000 bubble years featured significant increases in underpricing, money left on the table, and a decline in operating quality. Levis (1993),¹⁶ Espenlaub et al. (2000), and Goergen et al. (2007) examine the long-term performance of IPOs listed on the London Stock Exchange. Levis (1993), for his sample during 1980-88, shows that initial public offerings in the UK underperformed a number of relevant benchmarks in the 36 full months of public listing following the firms' first day of trading. The magnitude of underperformance is more pronounced when account is taken of the superior performance of smaller companies. Espenlaub et al. (2000), in a sample of 588 IPOs, find substantial negative abnormal returns to an IPO after the first three years while, over the five years after an IPO, abnormal returns exhibit less dramatic underperformance.¹⁷

¹⁵ Champers and Dimson (2009) report it can be seen that from 8.96% (1917-1929) and 5.43% (in the 1930s) in the interwar decades, the equally weighted mean level of underpricing subsequently rose to 11.86% (in the 1950s) and then 14.01% (in the 1960s). After a narrowing to 8.65% in the 1970s, the equally weighted mean level of underpricing averaged 15.80% in the 1980s.

¹⁶ Using a sample of 712 IPOs listed on the London Stock Exchange in 1980 to 1988, this study documents an average first-day return of 14.3%.

¹⁷ Levis (1993) reports CAARs of -11% for the zero-one FTA benchmark. By contrast in Espenlaub et al. (2000) CAAR over 36 months ranges from -15.9% for the CAPM to -28.155 for the FF model.

Ljungqvist and Wilhelm (2002) provide evidence for 470 German IPOs coming to the market from 1990 to 2000. The level of underpricing is high at 40.2% for such a mature market. Loughran et al. (1995), on evidence that mainly comes in a collection of studies, report initial returns for 700 German IPOs listed during 1978-2008 of 25.3%. Underpricing in Germany is significantly related to the stock market, macroeconomic conditions, insider retention rates, and the inverse of real gross proceeds. Ljungqvist (1997), Stehle et al. (2000), Gajewski and Gresse (2006), and Bessler and Thies (2007) examine the long-term performance of IPOs listed on the Frankfurt Stock Exchange. Evidence indicates a three-year mean abnormal performance using BHAR of -12.11% (Ljungqvist, (1997), -6% (Stehle et al., (2000), and -31.6% (Gajewski and Gresse, (2006). Once the benchmark changes to CAR, the one- and three-year returns are -31.06 and -171.13. Long-term performance indications confirm Ljungqvist's observation that one-year after-market returns simply follow market movements and the conclusion that "investors can benefit considerably by purchasing shares offered through IPOs." This trading strategy, however, becomes unprofitable if shares are held for more than a year: after three years. To conclude, in the longer term, German IPOs do share the U.S. experience of underperformance, while this experience has a more severe impact on the financial health of German new listed firms' investors.

Van Frederikslust and Van der Geest (2001), Roosenboom and Van der Goot (2005), and Doeswijk et al. (2006) provide evidence on the short-term performance of Netherland IPOs up to 2001 (Panel C, Table 1).¹⁸ Van Frederikslust and Van der Geest (2001) report an average level of underpricing of 13% for 38 private equity-backed Dutch IPOs and 17% for 68 non-private equity-backed IPOs. Roosenboom and Van der Goot (2005) and Doeswijk et al. (2006) find an average initial underpricing level of 11.03% and 17.6%, respectively. Doeswijk et al. (2006) report that, during the

¹⁸ Van Frederikslust and Van der Geest (2001) use a sample of 106 IPOs covering the period 1985-1998, Doeswijk et al.(2006) employs 183 IPOs listed in Amsterdam Stock Exchange between 1977 and 2001, Van der Goot (2003) examines a sample of 92 IPOs listed between 1983 and 1997, and Roosenboom and Van der Goot (2005) use a sample of 118 IPOs during the period 1984-2001.

first three years of listing, Dutch IPOs on average underperformed their benchmark by a cumulative 10.0%. When calendar-time is employed, the returns for the calculation of their IPO sample, long-term performance after one, two, and three years of long-term relative performance, are 6.8%, 6.0%, and 12.9%, respectively. They suggest that investors should always subscribe to an IPO and there is no urgency to sell immediately after listing.

2.2 Application of IFRS in the Dutch Market

As in the majority of developed markets the annual reports of companies listed on Euronext Amsterdam after 2005 are IFRS based. Prior, the annual reports of the Dutch listed companies were following Dutch GAAP (Generally Accepted Accounting Principles). Capstaff et al. (1996) provides a comparative analysis of earnings forecasts in Europe using fourteen countries (including the Netherlands). They compare accounting and the capital market environment under four headings - earnings behaviour, frequency timeliness and quality of accounting disclosure, influence of taxation, and securities markets.

According to their analysis, earnings in the Netherlands have relatively low volatility and show small positive changes. Regarding frequency, timeliness and quality of accounting disclosure, the Netherlands are ranked as second best (after the UK) with respect to the quality of accounting disclosure. On taxation, the Netherlands had an accounting system like Denmark, Ireland and the UK that was relatively free from the influence of taxation. Therefore, Dutch management had no incentive for tax reasons, to depress reported earnings - unlike the systems in Germany and France. Turning to the effects of securities markets, Capstaff et al. (1997) suggested that if value was a function of earnings, the frequency and resources devoted to forecasting and to improving the accuracy of forecasts is likely to be significant.

In the Netherlands, there seemed to be a high degree of association between earnings and share prices¹⁹. According to the classification of Nobes and Parker (2000, p. 59) the Netherlands had an accounting system which is based in business economics (sample room for current cost and market value applications) and is extreme judgmental. In other words, before 2005 the Dutch accounting system was of a high level and comparable with the system used in the UK. The largest advantage of introducing IFRS was from a Dutch perspective that the Dutch annual reports became more comparable with the reports of many other European countries. Also for foreign investor on the Dutch markets made the same IFRS-based annual reports easier to interpret. A higher degree of comparability means a lower risk for the potential investor.

Non-listed companies may use Dutch GAAP or IFRS. Deviation from IFRS means an additional risk (and therefore that company should pay a higher bank interest rate). This is a strong reason why large non-listed Dutch companies use IFRS. Non-listed companies that are preparing themselves for an IPO also use IFRS in the pre-IFRS period. In the case of an IPO the IFRS means that the potential investors are in a better position to value the new-listed company. They can compare it with (foreign) companies working in the same industry. Our hypothesis is that the introduction of the IFRS in 2005 reduces the risk of (potential) investors. Therefore we expect that the underpricing on the day of the IPO will be less after the introduction of the IFRS in 2005 than before.

2.3 The recent global economic crisis in the Netherlands

During the observed period, the financial sector in the Netherlands was a relatively important one. The financial crisis in 2008 hit this sector very strongly. Most of the activities of Fortis, which had together with the Royal Bank of Scotland and Santander just taken over ABN Amro, were sold to the Dutch and

¹⁹ Generally, the accounting and capital market environment in the Netherlands were reasonably comparable to the UK

Belgian governments, and ING has had to accept the financial help of the Dutch government. The price of the interventions by the governments is that the European Union demands that these banks have to sell the main part of their activities. The international networks of the Dutch banks will be substantially reduced, and these banks will become only local players. These developments will influence the IPO market and the place of the stock market Euronext Amsterdam as well. Foreign banks will become more important for IPOs of international companies on the Dutch Stock Exchange. These foreign banks know the Dutch market less well than the locals, which can make the underpricing of an IPO larger.

3. Formulation of hypotheses-determinants of the long-run IPO performance in the Netherlands

We hypothesize that long-run Dutch IPO performance is a combination of the managerial decisions and quality of firms and markets when firms decide to go public. Few prior academic studies have documented the relationship between the long-run performance and the strategic decision made by a firm before its listing. Characteristics such as listing board classification, age of the firm by the time it goes public, size, underwriters' reputations, hot IPO period, given ownership, time lag between the IPO announcement and the first day of trading, and industry classification among others could have an effect on the long-run performance.

In the subsequent paragraphs, we will provide details about the eight variables of our multivariate regression model.

LBC: LBC is expected to proxy for higher IPOs reputation for those firms that can achieve listing on the main market. Consistent with Ljungqvist et al. (2003) and Thomadakis et al. (2011), who reported that IPOs traded in the primary market yield higher returns in the long run, we expect this to exert a positive influence on returns.

H1: IPOs listed in the main market are expected to have better returns (less underperformed) over the long term.

Age: Ritter (1991) documented a more pronounced long-run under-performance for younger IPOs and interpreted this evidence as being consistent with the over-optimism explanation. We anticipate the coefficient on age (AGE) to be positive for the long-run return analysis.

H2: The older the firm, the better the long-run performance after the IPO.

SIZE: IPO size (SIZE) is measured by the logarithm of capital raised by the offering. In previous studies, Keloharju (1993) and Goergen et al. (2007) have shown better long-term performance for large IPOs while Lee et al. (1996) revealed positive returns for small firms in a one-year period. Overall, we expect that size will be associated with better long-term performance.

H3: The larger the firm, the better the long-term performance after the IPO.

Underwriter reputation: Carter and Manaster (1990), Spiess and Pettway (1997), Carter et al. (1998), Kim and Ritter (1999) and Dimovski (2010)²⁰ specify that prestigious underwriters are associated with lower risk offerings and lower initial returns expected from IPOs, which are underwritten by reputable banks. Valero et al. (2009) on foreign issuers of U.S. IPOs report they are of better quality than domestic issuers and are underwritten by prestigious underwriters. In the long-term field, Ljungqvist and Wilhelm (2002), Chemmanur and Paeglis (2005), Johnson and Westberg (2009), and Thomadakis et al. (2011) hypothesize that underwriters' reputation will positively affect long-run returns.

²⁰ Dimovski et al (2010) examines 380 Australian Industrial IPOs and report underpricing. 29.6%.

H4: The better the underwriter's reputation, the most promising the long-run performance after the IPO.

Market Conditions (Hot/Cold): Ritter (1984) suggests that some companies prefer to issue IPOs in 'hot' markets when the general level of the stock market is increasing, while other companies select 'cold' market periods when the general stock market level is stable or declining. Boehme and Colak (2008) report that, relative to cold-market IPOs, on average, hot-market IPOs face higher liquidity frictions, higher information constraints, and higher idiosyncratic risk. Thomadakis et al. (2011) show that IPOs listed during the cold period experience better returns over the long term.

H5: IPOs listed during the cold period are expected to have better long-term performance after the IPO.

Sold Ownership: It measures the percentage of equity issued at the time of the offering. Lee et al. (1996) report an increasingly positive association between levels of initial sold ownership and post listing returns. Similar, Mikkelson et al. (1997) used the proportion of secondary shares sold in the IPO and found it to be positively related to the post-IPO performance. This result contradicted evidence provided by Jain and Kini (1994) and Goergen et al. (2007), who found a significant positive relation between post-IPO operating performance and equity retention by the original shareholders.

H6: The higher the percentage of equity sold, the worse the long-run performance.

Time Lag: The period between the official date of the prospectus announcement (or offer price date) and the listing date of an IPO in developed countries is assumed to be short; however, in less developed

countries, it is expected to be longer. This variable has been well researched by literature related to the short-term performance of IPOs, but there is a gap in studies covering the long term. We believe that a short period between the offer price day and the first day of trading will positively affect the long-term performance.

H7: The shorter the time to listing period, the better the long-run performance.

Industry classification: IPOs are classified in groups based on their sector. Sectors like construction, technology firms, and textiles are found to have beta higher than 1, while housing, commercial and travel firms have beta lower than 1. Industries, which have a factor beta greater than 1, were more risky; therefore, we expect lower returns in the long term.

H8: Non-industrial IPOs are expected to have better long-term performance.²¹

4. Data and methodology

4.1 Data

We collected data on the IPOs date, offering price, the first day closing price and general index historical prices direct from Euronext Amsterdam. Independent variables information was extracted from Thomson Financial Datastream (TFD) and Bloomberg. Overall the study covers 141 new listed companies in NYSE-Euronext Stock Exchange over the 1990 to 2011 period (94 using Dutch GAAP and 47 employing IFRS). To construct the benchmarks, we collected returns for all traded stocks during the observed period.

²¹ Industrial are classified those firms that belong in the Chemicals, Industrial (pure), Manufacturing, Metals, Minerals, and Shipyards sub-sectors. No industrial are mainly Conglomerate, Finance, Real Estate/Property, Transportation, Tourism/Hotels, etc.

Table 1, Panel A, clearly shows two peaks during the sample period. The first and major IPO peak occurred during the Dutch GAAP era between 1997 to mid-2000 and is characterized by the large number of IPOs of growth stocks. This period was hot for the entire world as we had the boom of Internet IPOs. The second peak occurred when IFRS was on practice from the beginning of 2006 until the end of 2007. This period is characterized by a second, less intense large number of IPOs going public. A common feature of those two periods is that at the end there was a stock market crash. Especially at the end of the second period, the entire global financial system experienced the second largest crisis after the Great Depression of 1929.

Panels B-C of Table 1 presents summary statistics for 141 Dutch IPOs (94 listed during GAAP and 47 using IFRS). The Dutch firms have average capital raised of €544 million during Dutch GAAP era and 2.97 billion during IFRS period and an average age of 21.87 years during Dutch GAAP era and 34.05 years during IFRS period, indicating that IFRS stricter regulations attracted more firms with long operating history and rejected considerable new firms which did not satisfy the new criteria. It is noteworthy that there has been a firm with a history of 202 years before going public. Time lag, the period between the last date of the public offering and the first day of the stocks' listing average is as low as 4.09 days during GAAP and 1.85 days during IFRS periods respectively) while the average market adjusted initial returns is 16.35% during the GAAP era and only 4.43% during the IFRS period providing a first signal that underpricing is getting reduced after the use of new standards.

Panel C reveal an initial indication of higher underpricing (18.47%) during Dutch GAAP period. Dutch market presents phenomenal low underpricing during IFRS period. (It seems to me that this result is very attractive. Fourthly, during the period 1995-2004 we collected 85 IPOs, while Gajewski and Gresse (2006) have only 47 IPOs in their dataset. It seems that the dataset of Gajewski and Gresse is incomplete. An explanation can be that Gajewski and Gresse only look at IPOs with a constraint, for example minimum amount of capital raised. I think we have to discuss the results we found comparing the results of the other studies, presented in panel C of table 1.

Table 2 describes various features of the IPOs sample across different periods in the aftermarket (one and three years) using both accounting standards. The selected IPOs characteristics are market classification, firm's age at the time of issuance, listing price (issue's offer price) decided between the issuers and underwriters, the reputation effect of the last ones in the long-term returns, and market heat divided into hot and cold periods (each quarter in the periods between 1990-2004 and 2005-2011 are classified as hot or cold based on the general index returns and the number of listed IPOs).

There is evidence that IPOs listed in the secondary market are more likely to be short-sale constrained (SSC) than the ones listed in the main market for Years 2 and 3. Findings reveal that SSCF Percentage for the firms in the "High" underwriters' reputation sample have significant negative six-month returns when the firms are compared with IPOs listed in the "Low" underwriters' reputation sample. This effect is more pronounced during earlier months. Results presented in Table 2 (Market Heat Panel) indicate that hot IPOs provide higher negative results to the IPOs' loyal investors in periods between six months and two years of listing. Everything appears to change in the three-year period after firms go public as IPOs listed during cold periods offer higher losses.

Table 1

Descriptive Statistics of the Dutch IPO Sample

The table presents details of the Dutch IPOs and control samples. Panel A provides the number of listed IPOs in every calendar year this study covers. This panel contains further details on the total annual capital raised by IPOs. Panel B presents statistics of Dutch IPOs specific characteristics. The covered IPO characteristics are the IPO's market classification, age at the time of issuance, the IPO firm's size measure by market capitalization (Market value is computed as the number of listed shares times the offer price), underwriters reputation based on their prestige in the market, proportion of given ownership by pre-IPO shareholders, time lag between the last date of public offering period and first day of stocks' listing (days). Panel C reviews underpricing level from previous studies in the Netherlands

Panel A: Number of observations in The Netherlands based on market listing

Event Year	IPO firms full sample	Event Year	IPO firms full sample
1990	4	2001	1
1991	2	2002	0
1992	2	2003	1
1993	1	2004	2
1994	5	2005	5
1995	6	2006	15
1996	7	2007	15
1997	15	2008	5
1998	22	2009	4
1999	17	2010	1
2000	9	2011	2
		Total	141

Panel B: Summary Statistics of Dutch IPO during GAAP era – 94 IPOs

	Mean	Median	Maximum
Market Adjusted Initial Return	16.35	9.50	113.27
Listing Board Classification	0.53	-	-
The age of the issuing firm (years)	21.87	12.73	114
Capital Raised (€ million)	544m	93.91m	6.04b
Underwriters reputation (dummy)	0.562	-	-
Market Heat	0.656	-	-
Proportion of given ownership by the initial shareholders (%)	23.14	-	50
Time lag between the last date of public offering period and first day of stocks' listing (days)	4.09	2.0	15
IPOs belonging in the industrial sector (dummy)	0.312	-	-
Offer Price	22.78	15.90	90.76

Panel C: Summary Statistics of Dutch IPO listed after introduction of IFRS – 47 IPOs

	Mean	Median	Maximum
Market Adjusted Initial Return	4.43	0.61	65.14
Listing Board Classification	0.59	-	-
The age of the issuing firm (years)	34.05	14	208
Capital Raised (€ million)	2.97 b	466m	29.8b
Underwriters reputation (dummy)	0.431	-	-
Market Heat	0.777	-	-
Proportion of given ownership by the initial shareholders (%)	31.55	21.10	90
Time lag (days)	1.85	1.0	14
IPOs belonging in the industrial sector (dummy)	0.159	-	-
Offer Price	15.39	10.63	99.75

Panel D: Empirical studies on Dutch IPO Performance

Authors	Period	Data Set	Mean Underpricing
Doeswijk et. al. (2006)	1977 - 2001	154	14.9%
Van Frederikslust and Van der Geest (2001)	1985 - 1998	106	16%
Gajewski and Gresse(2006)	1995 - 2004	47	22.92%
Van der Goot (2003)	1983 – 1997	92	15.23%
Roosenboom and Van der Goot (2005)	1984 – 2001	118	11.03%
Roosenboom et al. (2003)	1984 – 1994	64	3.82%

Table 2

Short Sale Constraint in IPO Stocks

The IPOs are grouped into sub-samples that are short sale constrained according to 1) listing board classification (if IPO is listed in the main or secondary market of NYSE-Euronext), 2) age of the firm 3) offer price 4) underwriter reputation, 5) market heat. The results for Dutch GAAP and International IFRS, 1-year and 3-years after the IPO date are presented. The rows 'Prob' presents the probabilities that the test statistics of the nonparametric Wilcoxon two-sample test (equality of the percentages across the groups) are greater than their corresponding critical values (Prob of $Z > jZ_{aj}$). The column named "Num." under each post-IPO period shows the number of IPOs in each group.

Sorting Variable		Year 1 AGAAP		Year 3 AGAAP		Year 1 IFRS		Year 3 IFRS	
		Perc	Num	Perc	Num	Perc	Num	Perc	Num
Listing Board Classification	Main	-15.50%	49	-26.54%	49	2.73%	26	-4.11%	25
	Second	-19.78%	45	-37.00%	45	-0.66%	21	-27.01%	19
	Prob	0.432		0.329		0.371		0.212	
Age	Old	-2.47	56	-13.42%	55	10.45%	28	18.48%	26
	Young	-28.24	38	-52.97%	38	-3.83%	19	-35.69%	18
	Prob	0.228		0.091		0.178		0.078	
Offer Price	Low	-22.1%	41	-17.4%	41	-11.8%	27	-31.87%	26
	High	-14.1%	53	-44.2%	51	18.4%	20	25.9%	19
	Prob	0.364		0.341		0.070		0.000	
Underwriter Prestige	Low	-15.22%	41	5.29%	41	10.49	26	-1.86%	24
	High	-19.26%	53	-65.28%	53	-11.50	21	-20.89%	20
	Prob	0.725		0.071		0.067		0.083	
Market Heat	Cold.	-10.34%	32	9.91%	32	-34.08%	11	-11.32%	11
	Hot	-21.35%	62	-1.24%	62	-32.59%	38	-11.75%	36
	Prob	0.500		0.185		0.464		0.285	

4.2 Methodology

The adjusted return for issue i is defined as the raw return less the corresponding market return for the same time period used for raw return calculation:

$$AR_{it} = (R_{it}) - (R_{mt})$$

where R_{it} is the IPO return i at time t and R_{mt} is the market portfolio return at time t .

The average adjusted return on a portfolio of n stocks for event month t is the equally weighted arithmetic average of the adjusted returns.

$$AR_{it} = \frac{1}{n} \sum_{i=1}^n ar_{it} \quad (1)$$

The abnormal IPO return for a certain period is defined as the cumulative abnormal return over a time period from the offer date, i.e.,

$$CAR_T = \sum_{t=0}^T AR_{it} \quad (2)$$

To calculate the abnormal return $a_{i,t}$ the first benchmark we use is the standard Capital Asset Pricing Model. The second is the Fama and French (1993) three factors model which The third benchmark is another multi-index model where the factors are those specified by Carhart (1997), who extends the Fama and French model for momentum phenomena.

Model 1: CAPM

$$R_{it} - R_{ft} = a_{it} + \beta_i(R_{mt} - R_{ft}) + e_{it} \quad (3)$$

where R_{it} is the monthly return for each security, R_{mt} is the return on the Dutch market in event month t as measured by the return on the NYSE-Euronext Stock Exchange General Index (NYEGI), R_{ft} is the treasury bill (T-bill) return in event month t , and β_i is the CAPM beta of company i .

Fama and French (1993) show that when the standard three-factor model (without the momentum factor in Eq. (5)) is estimated in randomly chosen sample firms with small size and low

book-to-market ratio, the null hypothesis of zero abnormal performance is overrejected. In Section 2, we show that the majority of our sample consists of small and growth firms, thus this potential problem can be particularly severe. Mitchell and Stafford (2000) also raise the possibility that the intercept under the null hypothesis may be biased under the standard calendar-time approach.

Model 2: *Fama and French (1996) three Factors model (FF3F)*

$$(R_{pt} - R_{ft}) = a_p + \beta_p (R_{mt} - R_{ft}) + \gamma_p SMB_t + \delta_p HML_t + e_{pt} \quad (4)$$

The portfolio excess returns are regressed onto the four factors as introduced by Carhart (1997).

Model 3: *Carhart four factors model (1997) extension of the Fama-French model, containing an additional momentum factor (FF4F)*

$$(R_{pt} - R_{ft}) = a_p + \beta_p (R_{mt} - R_{ft}) + \gamma_p SMB_t + \delta_p HML_t + \varepsilon_p UMD_t + e_{pt} \quad (5)$$

where R_{pt} is the calendar-time portfolio return, R_{ft} (risk-free return rate) is the return of 1-month Treasury Bill, $(R_{mt} - R_{ft})$ is the return on the value-weighted portfolio, SMB_t stands for "small (market capitalization) minus big" during month t , HML_t is the return differential of "high (book-to-price ratio) minus low" value-weighted portfolios firms in a month, and UMD_t is the difference between returns of portfolios of high-and-low momentum stocks.

We estimate a series of multiple-regression models, using buy-and-hold abnormal returns (BHAR) as dependent variables for a period up to three years after going public. The regression model is as follows:

$$(BHAR) = a + \beta_1 (MAR) + \beta_2(AGE) + \beta_3 \text{Log}(\text{SIZE}) + \beta_4 (\text{UND}) + \beta_5 (H/V) + \beta_6 (\text{GO}) + \beta_7 (\text{TLAG}) + \beta_8 (\text{IND}) + \varepsilon_i \quad (6)$$

5. Descriptive statistics

In Table 3, we show the average BHARs of IPOs undertaken during the period 1990-2011. Panels A and B present the unadjusted returns as those were calculated from the offer price day and the end of the first day of trading. Panel C shows the adjusted returns,²² which are calculated based on the listing price of new issues and the closing price of the NYSE-Euronext General Index (NYEGI) on the last day of the public offering period. Panels D and E report the BHARs that are calculated, based on closing price at the end of the first day (month) of trading and the closing price of NYEGI on the same date.

The initial excess return received by investors was low at 12.65%, indicating that Dutch stock market is mature and everyone involved in the IPO procedure is delivering a very good outcome. As already mentioned the application of new standards manages to reduce underpricing which has always been the desire of issuers and underwriters as it drops from 16.35% to 4.43%. This result indicates that IFRS offers a solution to the underpricing phenomenon and loyal implementation of IAS by potential listing companies can alleviate the problem and reduce the amount of money left on the table.

Moreover, the one-year mean-adjusted return calculated based on the listing price, the first-day closing price, and the sixth-month closing price reached -2.72%, -13.10%, and 37.15%, respectively. The two-year returns were -12.52%, -23.54%, and 1.45%. Finally, the corresponding three-year returns were -21.13%, -29.53%, and -22.82%. These results reveal that new issues in the Netherlands stock market offer investors negative long-run adjusted returns even before the completion of one year after listing. The situation is different when our calculations start from the sixth month of trading as the

²² The adjusted returns have been calculated as the raw returns minus returns of the General Index of the A.S.E. for the same time period used for raw returns calculation.

returns remain positive for the following two years (until 30 months after going public) and then turn severely negative.

Concentration on GAAP and IFRS samples indicate that underperformance remains after the alteration of the standards but with less intense mode as -17.43%, -31.20% and -33.22% returns one-, two- and three years after listing (counting from the end of first day of trading) with Dutch GAAP standards is reduced into -2.37%, -15.17% and -19.75% once IFRS came on board. Investors which decide to place their money six months after going public continuously enjoy positive returns in the future in the IFRS period.

Table 3Buy-And-Hold Adjusted Returns²³ for IPOs from the Euronext Amsterdam Time Period 1990-2011

Buy-And-Hold Adjusted Returns are defined as the unadjusted returns less the corresponding market returns: returns of the General Index of the NYSE-Euronext (value-weighted index) for the same time period used for unadjusted returns calculation. IPO-adjusted returns taken in a three-year period (from beginning of first day of trading until 36 months after going public) are based on IPO prices of offer price period and end of first trading day. The differences in the number of firms in each panel are due to not having the data for the period of analysis to estimate three- and five-year returns. Total returns include both capital gains and dividends.

Panel A: Unadjusted Buy-And-Hold Returns based on the listing price						
	Total Sample		Before IFRS		After IFRS	
Return of	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations
1st day	12.72	141	18.47	94	3.15	47
6 months	4.73	141	5.97	94	1.74	47
12 months	-1.33	135	-5.71	94	2.22	41
24 months	-19.53	131	-8.40	94	-35.41	37
36 months	-20.30	129	-17.34	94	-27.41	35
Panel B: Unadjusted Buy and Hold Returns based on the first day closing price						
Return of	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations
6 months	-0.54	141	-4.64	94	2.13	47
12 months	-5.68	135	-8.94	94	-4.97	41
24 months	-13.38	131	-12.59	94	-16.38	37
36 months	-22.04	129	-21.83	94	-24.16	35
Panel C: Excess or Adjusted Buy and Hold Returns based on the listing price						
Return of	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations
1 st day	12.65	141	16.35	94	4.43	47
6 months	2.12	141	4.39	94	-2.23	47
12 months	-2.72	135	-2.23	94	-4.02	41
24 months	-12.54	131	-12.78	94	-12.20	37
36 months	-21.13	129	-22.16	94	-17.35	35
Panel D: Excess or Adjusted Buy and Hold Returns based on the first day closing price						
Return of	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations
6 months	-5.42	141	-9.18	94	1.34	47
12 months	-13.10	135	-17.43	94	-2.37	41
24 months	-23.54	131	-31.20	94	-15.17	37
36 months	-29.53	129	-33.22	94	-19.75	35
Panel E: Excess or Adjusted Buy and Hold Returns based on the six month closing price						
Return of	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations	Mean Return (%)	Number of observations
12 months	37.15	135	36.26	94	40.12	41
24 months	1.45	131	0.43	94	3.42	37
36 months	-22.82	129	-23.51	94	19.31	35

²³ The IPO price changes that give the adjusted returns include dividends and repurchases on their (**ambiguous) final formation

Table 4

Abnormal returns for initial Public Offerings in 1990-2011

Post-listing average-adjusted returns (AR_t) with associated t statistics and cumulative average returns (CAR_t) for the 36 months (where month one represents the market index-adjusted return from the last sale price on the day of listing to the end of that calendar month) after going public, excluding the initial return. Our final sample constitutes 141 Dutch initial public offers of ordinary equity made between January 1990 and June 2011, calculated on the basis of an equal euro investment in each issue.

Month	No of firms trading	AR_t (%)	t -stat	CAR_t (%)
1	141	0.672	0.631	0.672
2	141	0.414	0.382	1.083
3	141	0.093	0.080	1.174
4	141	-0.092	-0.083	0.254
5	138	-1.247	-1.172	-0.997
6	135	-1.063	-0.982	-2.272
7	135	-0.933	-0.872	-2.992
8	134	-1.437	-1.363	-4.429
9	134	0.174	0.140	-4.255
10	133	-0.579	-0.496	-4.834
11	132	-0.215	-0.175	-5.048
12	132	0.129	0.096	-4.491
13	132	-1.094	-0.967	-6.009
14	131	-1.292	-1.142	-7.301
15	131	-1.844	1.702*	-9.145
16	131	-1.682	-1.592	-10.825
17	130	-2.172	-1.931*	-12.997
18	129	-1.245	-1.129	-14.242
19	129	-1.743	-1.639*	-15.982
20	129	-1.165	-1.048	-17.147
21	128	-1.821	-1.716*	-18.968
22	128	-0.521	-0.470	-19.446
23	127	-1.668	-1.572	-21.115
24	127	-1.994	-1.862*	-23.109
25	127	-2.162	-2.031**	-25.271
26	127	-1.603	-1.495	-26.874
27	127	-0.978	-0.903	-27.852
28	126	-0.231	-0.173	-28.082
29	125	0.674	-0.616	-27.408
30	125	1.131	1.054	-26.277
31	124	0.081	0.072	-26.193
32	121	-0.198	-0.145	-27.392
33	121	-1.057	-0.981	-27.442
34	121	-0.413	-0.364	-27.028
35	121	-0.815	-0.770	-27.843
36	121	-1.051	-0.972	-28.937

Table 5

Calendar-time regression for alternative benchmark models

Time-series models are the Capital Asset Pricing Model, Fama and French 3 Factors Model, and the Carhart (1997) extension of Fama and French (1993) model. Figures in brackets are the t statistics. The regressions in each case are estimated using monthly observations, with the dependent variable being either the return on a 12-, 24-, and the 36-month portfolio of IPOs minus the risk-free rate and the independent variables being the benchmark factors. Alpha is the intercept term; Beta is the sensitivity of the excess returns on the company to the excess return in the market (NYSEGI); Gamma is the sensitivity of the excess returns on the company to the “small firms premium”, which is taken as $(R_{sc}-R_{mt})$, and as SML for FF3F&FF4F; Delta is the sensitivity to the HML factor in the FF3F&FF4F models; and Epsilon is the sensitivity to the momentum factor in the FF4F model. In the case of the FF4F model, the dependent variable $(R_{pt}-R_{ft})$ is the excess return on an equally weighted ($\tau=12, 24$ or 36 months) portfolio of IPOs that were issued up to month t ;

Panel A: 12-month portfolio			
	CAPM	FF3F	FF4F
Alpha	0.0008	0.0003	0.0008
t-stat	(0.141)	(0.027)	(0.161)
Beta	0.261	0.274	0.239
t-stat	(2.110)	(2.130)**	(1.685)*
Gamma		0.005	0.029
T-stat		(0.034)	(0.191)
Delta		0.174	0.159
t-stat		(1.261)	(1.128)**
Epsilon			-0.086
t-stat			(-0.605)**
Adj R ²	0.068	0.098	0.103
Panel B: 24-month portfolio			
	CAPM	FF3F	FF4F
Alpha	-0.00743	-0.00637	-0.00603
t-stat	(-2.325)	(-1.626)	(-1.598)
Beta	0.011	0.221	0.378
t-stat	(0.078)	(1.420)	(2.197)**
Gamma		-0.409	-0.431
T-stat		(-2.607)***	(-2.815)***
Delta		-0.111	0.215
t-stat		(0.830)	(1.523)
Epsilon			0.309
t-stat			(1.931)**
Adj R ²	0.032	0.096	0.210
Panel C: 36-month portfolio			
	CAPM	FF3F	FF4F
Alpha	-0.00422	-0.00275	-0.00273
t-stat	(-1.264)	(-0.841)	(-0.837)
Beta	0.051	0.005	-0.010
t-stat	(0.793)	(-0.023)	(-0.046)
Gamma		0.024	0.030
T-stat		(0.113)	(0.140)
Delta		0.310	0.302
t-stat		(1.595)	(1.462)
Epsilon			-0.031
t-stat			(0.148)
Adj R ²	0.012	0.095	0.104

Table 4 gives the average monthly AR returns and CAR returns with the associated t-statistics for the 36 months after going public. The results show that the Dutch IPOs consistently underperformed during the studied period. Both the AR and CAR show that the underperformance was much more severe in the second year after the IPO. All the returns are negative and suffer a continuous decline. A sharp fall starts after the 14th month and continues until the end of study's 26th month. At the end of the 36th month, the cumulative adjusted monthly returns stood at 28.93%.

Table 5 reports the times series estimates of the Fama-French three factor model in equation (4), the restricted version of the model (corresponding to the CAPM), and the extended version of Carhart (1997) including the momentum in equation (5). The results are quite revealing, as they show significant differences among periods and among benchmarks.

As in the event-time regressions, the FF4F benchmark produces marginally statistically significant underperformance, but the negative excess returns are now also insignificant for the CAPM and the FF3F case. In all cases, the intercept term is negative, with abnormal returns for the 36-month portfolio of -0.42% per month under the CAPM, -0.27% per month for the FF3F, and -0.27% per month under the FF4F model. But in none of the cases is the underperformance statistically significant.

It appears significant in the 24-month portfolio under the CAPM with abnormal returns of -0.74%. Market effects are significant in FF3F and FF4F in the 12- and 24-month portfolios, and there is a tendency for the beta coefficient to drift downwards over time in each of the models. Size effect is also significant in the Fama and French four factors models. Finally, the momentum effect is significantly different from zero for the 12- and 24-month portfolios but not for the 36-month portfolios.

The implication of the results in Table 5 is that much of the underperformance in the long term occurs because a large proportion of the sample firms went public in periods (such as 1997-1999 and in 2006-2007) that were subsequently associated with highly negative abnormal returns. Averaging the

event time returns across IPOs therefore creates high underperformance for the sample as a whole. However, according to Espenlaub et al. (2000), in the calendar-time approach, which involves equal weighting of the IPO returns in each monthly rolling portfolio, this underperformance is much less spectacular.

6. Cross-sectional regression

In the estimation of the cross-sectional regression, we use BHARs, which are computed on closing prices after the first day of trading. In Table 6, regressions (1, 2) show the results on the short-term period using MAIR/IR as dependent variables and regressions (3, 6) show the long-term returns. Because the dependent variable on the BHAR long-term returns is skewed, the residuals are also highly non-normal; bootstrapped p-values are reported.²⁴

The results show the listing board classification variable is statistically significant in the long run (six-month period) and confirms the positive returns taken for those IPOs listed in the main market of the stock exchange. The result is consistent with Ljungqvist et al. (2003) and Schlag and Wodrich (2004), who report that IPOs traded in the primary market yield significantly high returns in the long run, whereas those that are listed in the secondary market tend to underperform their market benchmarks by more negative results.

The coefficient for AGE_i is negative and statistically significant for MAIR, indicating that IPOs with a short operating history before going public are highly associated with short-term initial returns/underpricing. The result turns exactly the opposite in the long term, and consistent with Ritter

²⁴ Barber and Lyon (1997) document that positive skewness leads to negatively biased t-statistics. To conduct significance tests for initial returns, we apply the skewness-adjusted t-statistic. Lyon, Barber, and Tsai (1999) argue that only the bootstrapped application of this skewness-adjusted test statistic yields well-specified test statistics. We follow their approach and report the adjusted t-statistics based on the distribution of bootstrapped resamples. The hypothesis is that the number of observed positive initial returns equals the number of negative returns. The bootstrapping procedure described by Noreen (1989) creates a coefficient vector under the null hypothesis of no relation by randomly reordering the 254 dependent variable observations and running an OLS regression. This is repeated many times, creating a distribution of least square coefficient vectors. The bootstrapped p-values are calculated by finding the location of the original coefficient vector in the ranked empirical distribution, variable by variable. The bootstrapped p-values that are reported are similar to the ordinary least squares values.

(1991), older IPOs experience better returns in a period up to six months after going public. Surprisingly, the evidence turns insignificant in longer periods.

The firm size, a proxy for ex ante uncertainty, is measured by the capital raised during the offering. To be consistent with Miller (1977) prediction (i.e., a negative relationship between the long-run performance and uncertainty), regressions should yield positive coefficients for *Log(Size)* because the ex ante uncertainty is inversely related to a firm's size. Our findings using BHAR as a dependent variable in Table 6 reveal that small IPOs have significantly better long-term adjusted returns in the six-month period but large IPOs perform better up to three years. The last result aligns with previous studies (Keloharju (1993) and Goergen et al. (2007), which predict better long-term performance for large IPOs.

The coefficient for underwriter reputation in the short term is positive, indicating that IPOs listed on the NYSE-Euronext Stock Exchange with a reputable underwriter will immediately reward their investors with positive returns. The results reveal exactly the opposite in the long term as there is a negative determinant in two regressions out of four (one and three years). The finding suggests the possibility that reputable underwriters foster high aftermarket prices in the short run (i.e., in the first month of trading), producing more pronounced subsequent negative returns.

Further, a factor that proves to affect the newly listed firms' is hot/cold market conditions during the listing period. In the short term, we find a strong association between IPOs listed during the cold period and positive returns. In the long term, the findings show that 'hot' IPOs have significantly better returns. A positive sign indicates that IPO issuers should be very careful with the timing of the listing, and they should decide to go public only when bullish periods are prevailing in the market. Our finding opposes Loughran and Ritter's (1995) results that firms going public during 'hot markets' have more severe long-term underperformance than other firms.

An interesting finding of this study relates to the time lag variable: contrary to the hypothesis, the short period between the IPO announcement and the first day of trading indicates a high level of

underpricing. In the long-term field, there is no significant evidence in the six-month and one-year periods. Everything seems to change in the two holding years where the high statistical significance indicates that a short period in waiting to go public is an indication for good long-term returns. Any delay in the start trading decision after the completion of the shares allocation may cause damage in the long-term performance of the IPO as this signals that management is not ready for this big step in the firm's history.

Table 6

Results of multivariate regression analysis of cross sectional variation in MAIR as dependent variable for 141 IPOs listed on NYSE-Euronext over the 1990-2011 period (end of 1st day of trading)

MAIR is market adjusted initial returns $MAIR = [(CP_{i,1} - OP_{i,0}) / P_{i,0} - (M_{i,1} - M_{i,0} / M_{i,0})]$, ER1Y1D, Adjusted returns from first day price to first year after going public, ER2Y1D - Adjusted returns from first day price to two years after going public, ER3Y1D - Adjusted returns from first day price to three years after going public, MAR, Listing Board Classification which gets the value '1' if listed in 'main market', '0' if listed in 'parallel market', Ln (1+AGE) the natural log of the total of one plus the age of the company in years on the listing date, Size – market capitalization, log of the total number of listed shares during the IPO multiplied by price per share, UR, Underwriters reputation which gets the value '0' for non reputable and '1' for reputable underwriters, H/C, IPO listed in Hot Periods '1' and IPOs listed during Cold periods gets '0', GO, proportion of given ownership during the going public process, TLAG, Time lag between the date of prospectus and first day of trading, IND, identify the sector of IPOs. Industrial are classified those firms which belong in Chemicals, Industrial (pure), Manufacturing, Metals, Minerals & Shipyards sub-sectors. No industrial are mainly Conglomerate, Finance, Real Estate/Property, Transportation, Tourism/Hotels etc *, **, *** indicate the level of significance at 1, 5 and 10 percent respectively.

Specifications	(1) - MAIR	(2) – IR	(3) ER6M1D	(4) ER1Y1D	(5) ER2Y1D	(6) ER3Y1D
Constant	(1.914)	(1.690)	(1.841)	(-1.096)	(-0.802)	(-2.145)
MAR	-0.036 (-0.220)	-0.045 (-0.334)	0.329 (2.332)**	0.011 (0.009)	-0.149 (-1.524)	-0.132 (-1.295)
AGE	-0.342 (-2.430)**	-0.079 (-0.679)	0.531 (3.633)***	0.078 (0.675)	0.041 (0.261)	0.048 (0.273)
SIZE	-0.105 (-0.996)	-0.194 (-1.645)	-0.247 (-1.918)**	0.042 (0.351)	-0.044 (-0.261)	0.193 (1.691)*
UND	0.361 (2.622)**	-0.051 (-0.390)	-0.037 (-0.252)	-0.213 (-1.791)*	0.085 (-0.710)	-0.312 (-2.245)**
H/C	-0.287 (-2.049)**	0.019 (0.087)	-0.243 (-1.966)**	0.306 (2.236)**	0.486 (3.494)***	0.287 (2.128)**
GO	-0.066 (-0.573)	0.033 (0.202)	-0.157 (-1.572)	0.096 (0.898)	-0.014 (-0.065)	-0.027 (-0.159)
TLAG	-0.276 (-2.042)**	-0.082 (-0.775)	0.016 (0.184)	0.052 (0.472)	-0.171 (-1.676)*	-0.069 (-0.599)
IND	-0.113 (-1.116)	-0.197 (-1.728)	-0.041 (-0.197)	0.013 (0.009)	0.343 (2.430)**	0.128 (1.292)
R ² Adjusted	0.194	0.161	0.313	0.103	0.254	0.179
N	141	141	138	136	129	118

Table 7

Results of multivariate regression analysis of cross sectional variation in MAIR as dependent variable for 94 IPOs listed during 1990-2004 period under GAAP and 47 IPOs listed during 2005-2011 period under IFRS in NYSE-Euronext.

Specifications	(1)-MAIR Dutch GAAP	(2) ER1Y1D Dutch GAAP	(3) ER2Y1D Dutch GAAP	(4) ER3Y1D Dutch GAAP	(5)-MAIR After IFRS	(6) ER1Y1D After IFRS	(7) ER2Y1D After IFRS
Constant	(0.730)	(0.225)	(0.0252)	(0.593)	(0.716)	(0.189)	(0.630)
MAR	-6.343 (0.831)	22.65 (0.297)	-53.13 (0.257)	9.75 (0.881)	-27.38** (0.0238)	55.93 (0.259)	35.55 (0.336)
AGE	0.204 (0.638)	1.55 (0.000)	-1.114* (0.0881)	-0.871 (0.328)	-0.143 (0.256)	0.368 (0.168)	0.025 (0.948)
SIZE	4.536 (0.505)	0.836 (0.837)	-19.44** (0.0284)	-6.017 (0.610)	1.214 (0.591)	-10.53 (0.158)	-6.48 (0.352)
UND	66.80*** (0.00271)	4.14 (0.855)	-75.26*** (0.00111)	-120.67** (0.027)	-15.57* (0.0553)	18.46 (0.683)	22.23 (0.449)
H/C	-80.14*** (0.00616)	14.69 (0.504)	-11.53 (0.845)	-5.66 (0.938)	-3.399 (0.841)	-70.68 (0.225)	17.61 (0.575)
GO	0.0741 (0.790)	-0.475 (0.088)	0.746 (0.104)	1.26** (0.041)	-0.104 (0.519)	-0.125 (0.804)	-0.202 (0.621)
TLAG	-2.022 (0.395)	5.16 (0.019)	-8.074* (0.0819)	-2.17 (0.718)	-6.924*** (0.00469)	6.60* (0.095)	6.11*** (0.003)
IND	-21.09 (0.492)	7.70 (0.709)	-16.93 (0.575)	5.11 (0.902)	33.49* (0.0828)	82.60** (0.046)	59.46*** (0.004)
R ² Adjusted	0.288	0.394	0.361	0.339	0.418	0.396	0.354
N	94	94	94	94	47	47	47

7. Conclusion

This study aims to examine the performance of IPOs in the Dutch stock market using 141 IPOs launched on the NYSE-Euronext Stock Exchange over the 1990-2011 period under two different regulatory regimes, the traditional Dutch GAAP and the improved financial reporting quality IFRS. It provides new evidence from a developed market on the extent in which IFRS implementation contributes in the flattering of underpricing phenomenon and investigates whether IPOs after adopting IFRS do perform better in the long term.

We can summarize the results in five basic findings. First, there is strong evidence that switch to IFR standards helps on reducing the underpricing phenomenon and contributes on market efficiency.

Second, underperformance remains after the transformation of the standards but with less intense mode. This leaves a window for regulators to fight one of the most robust phenomena in the finance literature in order IPOs to gain the trust of long term oriented investors. Further, our third finding shows that Dutch IPOs underperform the market, as most international studies confirm in three-year long-term period. Fourth, IFRS proves to be a useful tool in the hands of underwriters and issuers as it reduces information asymmetry and facilitates accounts transparency.

We have tested the stability of our results using alternative estimates of excess returns, alternative benchmark models (CAPM, Fama-French-Carhart models), and alternative constructions of time series (event-time versus calendar-time). Such extensive testing has not been performed before on Dutch data. We are satisfied that our results have passed the test of stability, and that our main findings do not depend on the alternative benchmarks and variable specifications.

Cross-sectional analysis points up five factors that affect long-term performance. Listing of a firm with large raised capital is a signal for higher firm quality. Our measure of underwriter reputation indicates a negative influence on performance in one of our models. Although the result is sensitive to the benchmark model used, it casts doubt on the role of “reputable underwriters” in the Netherlands as certifiers of firm quality. Further, crucial evidence, in our view, is the strong relationship between the extremely short waiting period in the pre-listing period and the associated low positive (underpricing) aftermarket returns to the investors.

Individual results on Dutch GAAP sample indicate that IPOs with small raised capital, short operating history being advised by non-reputable underwriters are better for investment purposes. On the other hand IPOs listed following IFRS with the luxury of few additional days between the date of prospectus and first day of trading offer better returns. The explanation behind the last result is that IPOs need extra time to adopt precise IFR standards and finally set up the right issuing price.

Our fifth finding relates to pricing during the “hot IPO period.” Since an unprecedented amount of capital was sought and raised by IPOs in the Netherlands during the ‘hot period,’ it is seen that the features of these IPOs affected the results, as shown by our regressions. In our opinion, during hot periods, there are not only tendencies of short-term overpricing due to investor sentiment but also strong countering of the tendencies of underpricing due to strong issuer competition, as an “IPO wave” developed.

To understand the Dutch IPO market in depth and the influence of IFR standards, further study should be implemented on the relationship between initial pricing and allocation mechanisms. This will help us understand in depth some of the findings of this study and will mainly shed light on the low underpricing that appears at the end of the first trading day after the adoption of IAS. It is advisable for other developed and emerging markets to follow the Dutch experience with the small gap between the offering and the listing day, good investor protection mechanisms, companies’ improved disclosure system, and overall enforced market efficiency.

A question we had to address is why the Dutch case differs and provides such early negative long-term returns to its investors. One interpretation might be the lower information asymmetry compared with other cases, causing the market to be pragmatic about the initial public offerings. This fact contradicts Ritter’s view (1991) that investors pay too much in the immediate aftermarket period for an IPO and then discover their “mistake” in the following years. Another interpretation might be the ability of managers to judge the suitable timing for listing of their firms’ stocks by observing the willingness of the market to pay too much for their stocks. The strong negative three-year returns for those IPOs listed in the hot market period support this argument.

APPENDIX A. Variables Definitions

Variable Name in Abbreviation	Variable Definition	Type of Measure	Expected Sign
Panel A: Measures of Abnormal Returns			
RIR	Measures the returns at the end of the first day of trading.	Continuous	
MAIR	Returns to investors in the end of first day of trading adjusted with the returns of the market. Raw initial returns (RIR) are adjusted for market changes taking into account the NYSE-Euronext Stock Exchange General Index between the offer price closing date and the end of first day of trading.	Continuous	
ER1Y1D,	Adjusted returns from first day price to first year after going public	Continuous	
ER2Y1D	Adjusted returns from first day price to two years after going public	Continuous	
ER3Y1D	Adjusted returns from first day price to three years after going public	Continuous	
Panel B: Definition of Accounting Standards			
GAAP	Dutch Generally Accepted Accounting Principles (GAAP) refer to the standard framework of guidelines for financial accounting used in The Netherlands, generally known as accounting standards. GAAP includes the standards, conventions, and rules accountants follow in recording and summarizing, and in the preparation of financial statements.		
IFRS	International Financial Reporting Standards (IFRS) are principles-based standards, interpretations and the framework adopted by the International Accounting Standards Board. In order to be approved for use in The Netherlands, standards must be endorsed by the Accounting Regulatory Committee (ARC), which is advised by a group of accounting experts known as the European Financial Reporting Advisory Group.		
Panel C: IPOs Characteristics			
MAR	Dummy variable: 1 if an IPO is listed in Main Market and '0' if listed in Parallel or New Market.	Discrete	-
AGE	Age of the firm starting from the year of its establishment until the year it goes public.	Continuous	-
UR	Dummy variable: 1 for reputable underwriters, 0 otherwise	Discrete	+
H/C	IPO listed in Hot Periods '1' and IPOs listed during Cold periods gets '0'	Discrete	+
TLAG	Period between IPO announcement (the date of prospectus) and first day of trading.	Continuous	+
SIZE	Market capitalization measured by log of the total number of outstanding shares after the IPO multiplied by price per share.	Continuous	-
IND	Dummy variable: 1 for industrial classified companies, 0 otherwise. This research defined as 'industrial' IPOs those firms which belong to Chemical, Industrial (pure), Manufacturing, Metals, Minerals & Shipyards sub-sectors and attached to them a value of one. Those not industrial are mainly Conglomerate, Real Estate/Property, Transportation, Tourism/Hotels etc and get the value of zero	Discrete	-

References

- Aggarwal, R., and P. Rivoli, 1990, Fads in the ipo market?, *Financial Management* 22, 42-53.
- Barber, B., and J. Lyon, 1997, Detecting long-run abnormal stock returns: The empirical power and specification of test statistics, *Journal of Financial Economics* 43, 341-372.
- Baron, D., 1982, A model of the demand for investment banking advising and distribution services for new issues, *Journal of Finance* 37, 955-976.
- Beatty, R., and J. Ritter, 1986, Investment banking, reputation, and the underpricing of initial public offerings, *Journal of Financial Economics* 15, 213-232.
- Benveniste, L., and W. Wilhelm, 1990, A comparative analysis of ipo proceeds under alternative regulatory environments, *Journal of Financial Economics* 28, 173-207.
- Bessler, W., and S. Thies, 2007, The long-run performance of initial public offerings in germany, *Managerial Finance* 33, 420-441.
- Boehme, R., and G. Colak, 2008, Idiosyncratic risk, short-sale constraints, and other market frictions in ipo stocks, *Working Paper*.
- Booth, G., and R. Smith, 1986, Capital raising underwriting and the certification hypothesis, *Journal of Financial Economics* 15, 261-281.
- Cai, K. N. , H. W. Lee, and M. Valero, 2010, Changing underwriting practices on underpricing of u.S. Global initial public offerings, *Journal of Business Research* 63, 1317-1323.
- Cai, X. , G. Liu, and B. Mase, 2008, The long-run performance of initial public offerings and its determinants: The case of china *Review of Quantitative Finance and Accounting* 30, 419-432.
- Capstaff, J. , K. Paudyal, and W. Rees, 1997, A comparative analysis of earnings forecasts in europe, *Working Paper, University of Glasgow*.
- Carhart, M., 1997, On persistence in mutual fund performance, *Journal of Finance* 52, 57-82.
- Carter, B., F. Dark, and R. Singh, 1998, Underwriter reputation, initial returns, and the long run performance of ipo stocks, *Journal of Finance* 53, 285-311.
- Carter, B., and S. Manaster, 1990, Initial public offerings and the underwriter reputation, *Journal of Finance* 45, 1045-1067.
- Chambers, D., and E. Dimson, 2009, Ipo underpricing over the very long run, *Journal of Finance* 64, 1407-1443.
- Chan, K., J. Wang, and K. C. J. Wei, 2004, Underpricing and long-term performance of ipos in china, *Journal of Corporate Finance* 10, 409-430.
- Chan, Y.C. , C. Wu, and C.C.Y. Kwok, 2007, Valuation of global ipos: A stochastic frontier approach, *Review of Quantitative Finance & Accounting* 29, 267-284.
- Chemmanur, T., and P. Fulghieri, 1994, Investment bank reputation information production and financial intermediation, *Journal of Finance* 49, 57-79.
- Chemmanur, T., and I. Paelgis, 2005, Management quality, certification, and initial public offerings, *Journal of Financial Economics* 76, 331-368.
- Chen, G., M. Firth, and J.B. Kim, 2000, The post-issue market performance of initial public offerings in china's new stock markets, *Review of Quantitative Finance & Accounting* 14, 319-339.
- Chi, J. , M. McWha, and M. Young, 2010, The performance and the survivorship of new zealand ipos, *International Review of Financial Analysis* 19, 172-180.
- Coakley, J., L. Hadass, and A. Wood, 2009, Uk ipo underpricing and venture capitalists *European Journal of Finance* 15, 421-435.
- Derrien, F., 2005, Ipo pricing in "hot" market conditions: Who leaves money on the table, *Journal of Finance* 60, 485-521.
- Derrien, F., and A. Kecskes, 2007, The initial public offerings of listed firms, *Journal of Finance* 62, 447-479.
- Dimovski, W. , S. Philavanh, and R. Brooks, 2010, Underwriter reputation and underpricing: Evidence from the australian ipo market *Review of Quantitative Finance & Accounting*.
- Dimovski, W., and R. Brooks, 2004, Initial public offerings in australia 1994 to 1999, recent evidence of underpricing and underperformance, *Review of Quantitative Finance & Accounting* 22, 179-198.
- Dimson, E., and P. Marsh, 1986, Event study methods and the size effect: The case of uk press recommendations, *Journal of Financial Economics* 17, 1-29.
- Doeswijk, R. Q., H.S.K. Hemmes, and R. Venekamp, 2006, 25 years of dutch ipos – an examination of frequently cited ipo anomalies within main sectors and during hot and cold issue periods, *De Economist* 154.
- Edelen, R., and G. Kadlec, 2005, Issuer surplus and the partial adjustment of ipo prices to public information, *Journal of Financial Economics* 77, 347-373.
- Espenlaub, S., A. Gregory, and I. Tonks, 2000, Re-assessing the long-term underperformance of uk initial public offerings, *European Financial Management* 6, 319-342.

- Fama, E., and K. French, 1993, Common risk factors in the returns on bonds and stocks, *Journal of Financial Economics* 33, 3-56.
- Fama, E., and K. French, 1996b, The capm is wanted, dead or alive, *Journal of Finance* 51, 1947-1958.
- Franzke, S., and C. Schlag, 2004, Over-allotment options in ipos on germany's neuer markt– an empirical investigation., *CFS Working Paper Series*.
- Gajewski, J. F., and C. Gresse, 2006, A survey of the european ipo market, *ECMI Paper*.
- Goergen, M., A. Khurshed, and R. Mudambi, 2007, The long run performance of ipos: Can it be predicted, *Managerial Finance* 33, 401-419.
- Hanley, K., 1993, The underpricing of initial public offerings and the partial adjustment phenomenon, *Journal of Financial Economics* 34, 231-250.
- Ibbotson, R., and J. Jaffe, 1975, Hot issue markets, *Journal of Finance* 30, 1027-1042.
- Jain, B., 1994, The underpricing of 'unit' initial public offerings, *The Quarterly Review of Economics and Finance* 34, 309-325.
- Jenkinson, T., A Morrison, and Wilhelm J., 2005, Why are european ipo's so rarely priced outside the indicative price range?, *Journal of Financial Economics*.
- Johnson, W., and J.M. Westberg, 2009, Universal banking, asset management, and stock underwriting *European Financial Management* 15, 703-732.
- Keloharju, M., 1993, The winner's curse, legal liability, and the long-run price performance of initial public offerings in finland, *Journal of Financial Economics* 34, 251-277.
- Kim, M., and J. Ritter, 1999, Valuing ipos, *Journal of Financial Economics* 53, 409-437.
- Kutsuna, K., J. Smith, and R. Smith, 2009, Public information, ipo price formation, and long-run returns: Japanese evidence, *Journal of Finance* 64, 505-546.
- Lee, P., S.L. Taylor, and T.S. Walter, 1996, Australian ipo pricing in the short and long-run, *Journal of Banking & Finance* 20, 1189-1210.
- Lee, Philip J., Stephen L. Taylor, and Terry S. Walter, 1996, Australian ipo pricing in the short and long run, *Journal of Banking & Finance* 20, 1189-1210.
- Levis, M., 1993, The long-run performance of ipos: The uk experience 1980-1988, *Financial Management* 22, 28-41.
- Ljungqvist, A., 1997, Pricing initial public offerings: Further evidence from germany, *European Economic Review* 41, 1309-1320.
- Ljungqvist, A., T. Jenkinson, and W. Wilhelm, 2003, Global integration in primary equity markets: The role of u.S. Banks and u.S. Investors, *Review of Financial Studies* 16, 63-99.
- Ljungqvist, A., V. Nanda, and A. Singh, 2006, Hot markets, investor sentiment, and ipo pricing, *Journal of Business* 79, 1667-1702.
- Ljungqvist, A., and Jr. Wilhelm, W., 2002, Ipo allocations: Discriminatory or discretionary?, *Journal of Financial Economics* 65, 167-201.
- Loughran, T., and J. Ritter, 1995, The new issues puzzle, *Journal of Finance* 50, 23-51.
- Loughran, T., J. Ritter, and K. Rydqvist, 1995, Initial public offerings: International insights, *Pacific-Basin Finance Journal (updated 2009)* 2, 165-199.
- Lyon, J., B. Barber, and C. Tsai, 1999, Improved methods for tests of long-run abnormal stock returns, *Journal of Finance* 54, 165-201.
- Michaely, R., and W. Shaw, 1994, The pricing of initial public offerings: Tests of adverse-selection and signaling theories, *Review of Financial Studies* 7, 279-319.
- Mikkelsen, W., M. Partch, and K. Shah, 1997, Ownership and operating performance of companies that go public, *Journal of Financial Economics* 44, 281-307.
- Miller, R., 1977, Risk, uncertainty and divergence of opinions, *Journal of Finance* 32, 1151-1168.
- Mitchell, M.L., and E. Stafford, 2000, Managerial decisions and long-run stock price performance, *Journal of Business* 73, 287-320.
- Noreen, B., 1989. *Computer intensive methods for testing hypotheses: An introduction*. (New York).
- Purnanandam, A., and B. Swaminathan, 2004, Are ipo's really underpriced?, *Review of Financial Studies* 17, 811-848.
- Ritter, J., 1984, Signaling and the valuation of unseasoned new issues: A comment, *Journal of Finance* 39, 1231-1237.
- Ritter, J., 1991, The long performance of initial public offerings, *Journal of Finance* 46, 3-28.
- Ritter, J., 2009, Some factoids about the 2008 ipo market, *Continuously Working Paper*.
- Rock, K., 1986, Why new issues are underpriced, *Journal of Financial Economics* 15, 187-212.
- Roosenboom, P., and T. van der Goot, 2005, The effect of ownership and control on market valuation: Evidence from initial public offerings in the netherlands, *International Review of Financial Analysis* 14, 43-59.
- Roosenboom, P., T. van der Goot, and G. Mertens, 2003, Earnings management and initial public offerings: Evidence from the netherlands, *International Journal of Accounting* 38, 243-266.

- Sherman, A., and S. Titman, 2002, Building the ipo order book: Underpricing and participation limits with costly information, *Journal of Financial Economics* 65, 3-29.
- Spiess, D., and R. Pettway, 1997, The ipo and first seasoned equity sale: Issue proceeds, owner/managers' wealth, and the underpricing signal, *Journal of Banking & Finance* 21, 967-988.
- Stehle, R., O. Ehrhardt, and R. Przyborowsky, 2000, Long-run stock performance of german initial public offerings and seasoned equity issues, *European Financial Management* 6, 173-196.
- Thomadakis, S., D. Gounopoulos, and C. Nounis, 2011, The long term performance of initial public offerings in the athens stock exchange *European Financial Management* Forthcoming.
- Tian, L., and W. Megginson, 2007, Extreme underpricing: Determinants of chinese ipo initial returns *Working Paper*.
- Valero, M., H.W. Lee, and N. Cai, 2009, Cross-listing pursuit of unseasoned foreign firms after going public in the u.S, *Journal of Business Research* 62, 797-804.
- Van der Goot, T., 2003, Risk, the quality of intermediaries and legal liability in the netherlands ipo market, *International Review of Law & Economics* 23, 121-140.
- Van Frederikslust, R.A.I. , and R.A. Van der Geest, 2001, Initial returns and long-run performance of private equity-backed initial public offerings on the amsterdam stock exchange, *Working Paper, Rotterdam School of Management*.