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Bought deals: The value of underwriter certification in seasoned equity offerings ☆

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ABSTRACT

The bought deal is the predominant method of underwriting SEOs in Canada. Offer prices are set and underwriters commit to purchase offerings several days earlier for bought deals than for firm commitment issues, implying stronger underwriter certification for bought deal issues. Consistent with the certification hypothesis, this study finds a significantly smaller negative stock price reaction around the announcement of bought deals compared to firm commitment issues. Bought deals are further shown to have smaller offer price discounts and smaller underwriting fees, implying superior pricing and thus, higher quality offerings. These findings suggest that investment banks' underwriting method of choice is informative of issue quality.

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1. Introduction

A public company seeking to make a seasoned equity offering (SEO) must pay significant direct and indirect costs. Direct costs include the offer price discount, underwriting fee, and the time required to complete an equity offering. Indirect costs include the negative stock price reaction at the announcement of an equity offering. To the extent that corporations maximize net proceeds, the choice of flotation method can have large bearing on equity issuance costs.

As discussed in Myers and Majluf (1984), information asymmetries between insiders of the issuing firm and outside investors give rise to issue costs, since insiders will favor a seasoned equity issue if the firm is overvalued. A plethora of empirical studies document these costs, finding negative announcement-day stock price reactions (e.g. Asquith and Mullins, 1986; Masulis and Korwar, 1986; Eckbo and Masulis, 1992; Heron and Lie, 2004; Bethel and Krigman, 2008; Elliott et al., 2009) and economically large offer price discounts (e.g. Altınkılıç and Hansen, 2003; Corwin, 2003; Mola and Loughran, 2004) for seasoned public equity offerings.

The presence of information asymmetries between the issuer and outside investors drives a demand for more expensive selling mechanisms, allowing higher quality firms to reduce costly information asymmetry. For example, Booth and Smith (1986) and Eckbo and Masulis (1992) presume that underwriters provide a valuable service by certifying that the issuing firm's shares are not mispriced, implying a less negative announcement effect price decline. Denis (1991) demonstrates that the *lack* of underwriter certification for US shelf registered equity offerings results in a larger negative announcement-day impact on the issuing firm's stock price than the non-shelf procedure. These findings suggest that underwriter certification can lower the costs of issuing equity.

In this paper, the value of underwriter certification is examined through the study of two underwriting methods used in Canada: firm commitment offerings and bought deals. The bought deal is an alternative underwriting method available to some issuers. Unlike firm commitments (and best efforts underwritings), the underwriter in a bought deal commits to the price and the size of the issue at the very beginning of the issuance process, even before the underwriter gauges market demand and canvasses potential clients. A bought deal therefore places the underwriter at risk several days earlier in the underwriting process than in a firm

commitment issue. I argue that an underwriter would not rationally agree to do a bought deal unless its private valuation of the firm's stock price is consistent with the offer price. The underwriter's willingness to accept such a risk reveals that its private information is favorable, certifying the equity issue.

The SEO literature has documented a recent dramatic increase in accelerated underwritings in both the US and Europe. For example, Bortolotti et al. (2008) note that only around 4% of the underwritten SEOs in the early 1990s were accelerated compared with over half of US deals a decade later and two-thirds of European deals.[1] In Canada however, bought deals have been the predominant method of underwriting SEOs since the early 1980s, over 10 years prior to these recently reported findings.[2] Perhaps even more interesting is the fact that at about the same time that bought deals originated in Canada, the US regulators also took steps, in 1982, to expedite the equity offering process by introducing shelf registrations. As is well documented, the shelf system was rarely used, due mainly to a lack of underwriter certification (Denis, 1991). Only recently has there been a documented resurgence in shelf equity issues.[3]

Why did bought deals come to dominate Canadian equity underwritings? This paper shows that the greater underwriter certification in a bought deal leads to significant savings in equity issuance costs compared to the traditional, marketed, firm commitment underwriting, leading to the bought deals dominance as the underwriting method of choice for Canadian equity issuers. This research is of particular interest because firm commitment underwritings are still widely used in other markets, especially in the US, where similar pressures for expedited offerings also developed but never gained popularity until only recently.

Using a sample of SEOs issued between January 1/1993 and December 31/2005 I first examine the announcement-day stock price reaction. After controlling for firm and offer characteristics, consistent with the certification hypothesis, I show that there is a significantly smaller negative stock price reaction around the announcement of bought deals compared to firm commitment issues. This indirect cost saving for bought deals is about $29.3 million for a sample issuing firm with an average market value of about $987.9 million.

Second, I examine two direct costs of issuing equity: (1) the offer price discount, and (2) the underwriting fee. The offer price discount represents a dimension of underwriter's risk, since the higher the offer price, the higher the probability that the stock price on the closing date is lower than the offer price and the underwriter is stuck with unsold shares. The underwriting fee compensates the underwriter for certification, marketing/placement, and risk bearing. I show that bought deals are associated with smaller offer price discounts and smaller underwriter fees. These empirical findings are consistent with the certification story. If bought deals certify the equity issue and thus lower the issuers' informational cost of capital, then bought deals should be associated with superior pricing (i.e. smaller offer price discounts), reflecting a higher quality issue. The smaller underwriting fee for bought deals is also intuitive. In a bought deal, the underwriter commits to purchase all of the shares for resale to the secondary market. Therefore, there is no book-building or road show. If the reduced marketing and distribution costs in a bought deal out-

weigh the greater price risk assumed by the underwriter, then underwriting fees would be lower for bought deals than for firm commitment offerings (see Gao and Ritter, forthcoming). Also, if bought deal issuing firms are better quality firms, then controlling for the sample selection, we should observe lower fees for bought deals.

After controlling for firm and offer characteristics, total direct costs (the sum of the discount and the underwriting fee) are shown to be lower for bought deals by about $5.8 million for a sample issuing firm with average gross proceeds of $99.3 million.

One can argue that underwriter reputation is an alternative explanation for these results. That is, more reputable underwriters are the ones carrying out the bought deals, leading to the smaller negative stock price reaction and the lower direct costs for bought deals. I therefore include a measure of underwriter reputation as a control in my multivariate tests and show that results continue to hold, independent of underwriter reputation.

My results are robust to various empirical methodologies. In addition to univariate tests and multivariate regressions, I control for a possible self-selection bias by examining issue costs for a sub-sample of issuers that conduct both bought deal and firm commitment underwritten offerings. These sub-sample results also confirm that bought deals significantly reduce the negative announcement effect associated with SEOs and that bought deals are associated with lower direct costs than firm commitment offerings.

The empirical literature on Canadian SEOs and the underwriting process is not large. In a small exploratory study of only 41 common equity underwritings from 1984 to 1992, Schwartz (1994) provides a univariate comparison between Canadian underwriting methods. He finds that smaller transaction sizes, lower average fees, and similar stock volatilities characterize bought deals in relation to firm commitment issues. His findings on announcement effects, however, are rather inconclusive, likely due to the extremely small sample size. Also, Schwartz (1994) does not examine offer price discounts

Carpentier et al. (2005) examine how public and private placement equity issuers differ in terms of issue costs in the Canadian market. The authors find that the average offer price discount for SEOs is 5.33% over the period 1993–2003. Their study is different from this paper for three reasons. First, Carpentier et al. (2005) do not study announcement effects. Second, they do not control for the underwriting method. Third, they do not explore the certification hypothesis for SEOs.

Bortolotti et al. (2008) study accelerated equity underwritings globally, including a sample of Canadian bought deals, and show that accelerated deals have become popular with issuers because they are faster and cheaper than marketed deals. Their paper examines announcement effects and offer price discounts, but unlike this paper they do not explore underwriting fees. Since Bortolotti et al. (2008) pool Canadian offerings with their sample of non-US and non-European SEOs, their findings are general and contrary to the findings in this paper. Specifically, the authors find more negative announcement effects for their sample of non-US and non-European accelerating underwritings compared to marketed SEOs. In contrast, this paper finds that the announcement effects are significantly less negative for bought deals than for firm commitment offerings, consistent with the certification hypothesis.

Finally, Cooney et al. (2003) examine the certification hypothesis in the context of Japanese SEOs where the offer price is set several days prior to the issue date, similar to Canadian bought deals. The authors report positive announcement effects and substantial discounts. The institutional environment for raising public equity financing in Japan, however, is much different than in North America. It has been shown that managers of Japanese firms are

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[1] Bortolotti et al. (2008) specifically define accelerated underwritings as seller-initiated underwritten SEOs that are completed very rapidly and which do not involve a road show, the pre-issue publication of a detailed prospectus, or anything other than minimal registration with regulatory authorities and exchanges.

[2] Several articles in the early 1980s document the popularity of the bought deal in Canada. See for example McNish (1985) and Slocum (1985a, 1985b). DuVal (1995–96) also points out that about two-thirds of underwritten SEOs in Canada are done as bought deals.

[3] See for example Autore et al. (2008).

motivated differently than US managers (Kang and Stulz, 1996), driving some of these positive announcement effects. Moreover, Cooney et al. (2003) compare two flotation methods unique to Japan, the fixed-priced method and the formula-price method, which have since been eliminated in favor of the book-building method, resembling firm commitment offerings.

Therefore, unlike previous research, this paper provides a straightforward comparison to the commonly used firm commitment offering method, providing new insights into the underwriter certification story.

The remainder of the paper is organized into the following sections. Section 2 provides a background on underwriting SEOs in Canada. Section 3 discusses the theory and develops my hypotheses. Section 4 describes the data and reports descriptive statistics. Section 5 presents my empirical findings. Conclusions are drawn in Section 6.

2. Background on underwriting SEOs in Canada

In Canada, there are three ways for an investment banker to sell an SEO: firm commitment, best efforts and bought deal. As in the US, best efforts underwriting is typically used to sell equity for small, risky companies, since the underwriter uses their best effort to sell the offering and makes no commitment to purchase the offering from the issuer. Since only a small number of SEOs are sold using best efforts underwriting in Canada, this paper focuses on firm commitment and bought deal underwritings.

In a firm commitment underwritten equity offering the issuer and underwriter determine the basic terms of the issue and then prepare and file a preliminary prospectus with regard to the proposed offering for approval by the relevant securities commission. The preliminary prospectus provides details about the issue and the issuer's business, structure, ownership and financial situation, but omits the price and size of the proposed issue. Once the preliminary prospectus is filed, the underwriter canvasses its clients and other sources of market information to determine the size and price of the issue. After this marketing period, the underwriter and issuer enter into the underwriting agreement and the final prospectus is filed.

The underwriting agreement is a contract between the underwriter and the issuer establishing among other things the offer size and price. The underwriter also agrees to purchase, from the issuer, all of the shares of the issue. Firm commitment issues contain a "market-out" clause allowing the underwriter to cancel the issue if market conditions decline.

Prior to 1982, the process of issuing equity was lengthy and would take at least three to six weeks to complete. Increased volatility in the capital markets in the 1970s and 1980s exposed issuers to considerably more risk, primarily that market conditions would decline during the marketing process and as a result the issue would have to be altered or withdrawn completely. In response to this, in 1982, the Canadian Securities Administrators (CSA) established the Prompt Offering Qualification system (the POP system) permitting large issuers to raise capital in a more expedited manner. Those issuers qualifying for the POP system and wishing to raise capital file an initial Annual Information Form (AIF) describing the structure and affairs of the company. They thereafter file, annually, a Renewal AIF updating financial statements and providing other relevant information since the previous filing. With these filings in place, the issuer making an SEO need only file a "short-form" prospectus containing information about the issue but omitting detailed information about the issuer which has already been publicly recorded in the AIF documents. To be eligible for the POP system an issuer must be a "reporting issuer" for at least 12 months and must have an aggregate market value of equi-

ty securities in its public float of at least $75 million.[4] Issuers ineligible for the POP system must continue to use the pre-1982 process of issuing equity, which requires the filing of a "long-form" prospectus, as it is now called.

Competitive pressures on the underwriters and the introduction of the POP system motivated the commitment by underwriters to purchase offerings at much earlier times in the offering process. This evolved to what is known as the "bought deal" underwriting. In a bought deal, the signing of the underwriting agreement, including the offer price and size, and the obligation by the underwriter to purchase all of the issued shares occurs either before, or simultaneously, with the filing of the preliminary prospectus. That is, the underwriter agrees to buy the whole issue prior to any public notification of the offering and before the underwriter has had an opportunity to canvass potential purchasers. Therefore, bookbuilding only begins to take place after the underwriter has already purchased the offering from the issuer, and the underwriter must sell the shares to investors at the same offer price at which the underwriter purchased the shares from the issuer. In addition, unlike firm commitment underwritings, the underwriting agreement in a bought deal typically does not contain a market-out clause. Accordingly, the underwriter has no retreat from a deal which becomes unattractive after the signing of the underwriting agreement. Therefore, risk is completely transferred from the issuer to the underwriter. Fig. 1 provides a timeline of the firm commitment and bought deal underwriting methods.[5]

It is worthwhile to note that similar competitive pressures arose in the United States and the Securities and Exchange Commission (SEC) also took steps, in the early 1980s, to expedite the offering process for large, seasoned issuers. In particular, the SEC introduced Rule 415 (the "shelf prospectus") in 1982.[6] The introduction of shelf filings in the US also led to accelerated underwritings. Indeed, all US accelerated underwritings are made from shelf filings (Autore et al., 2009). Interestingly, Gao and Ritter (forthcoming) examine US accelerated offers including bought deals and accelerated book-built offers. However, they define US block trades as bought deals, not to be confused with Canadian bought deals in this paper. Bortolotti et al. (2008) on the other hand refer to bought deals in Canada as bought deals and bought deals in the US as block trades.

3. Hypotheses

3.1. Indirect costs

Myers and Majluf (1984) and others recognize the information asymmetry inherent between insiders and outsiders in the corporate setting.[7] This informational advantage by insiders enables them to exploit situations where outsiders have overvalued corporate shares, motivating a new share issue by insiders. In the absence of a credible signal by insiders, there is a negative response to the announcement of new equity issues.

Several empirical studies in the US document a significant negative average stock price reaction to the announcement of public

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[4] Technically, these eligibility rules apply between 1993 and 2005, the sample period of interest in this paper. They have changed over time. Between 1982 and 1993 a POP eligible issuer required the same $75 million public float but had to be a reporting issuer for at least 36 months. More recently, as of 2006, the 12 month reporting issuer and public float requirements were eliminated, greatly expanding eligibility for the short-form prospectus.

[5] For a more complete description of the evolution of the bought deal, see DuVal (1995–96), on which the above discussion is largely based.

[6] Contrary to bought deals in Canada, shelf equity issues were seldom made in the 1980s, mainly due to a lack of underwriter certification (Denis, 1991).

[7] See Rock (1986), Miller and Rock (1985), Ross (1977) and Leland and Pyle (1977) for analyses of issues related to the information asymmetry problem between insiders and outsiders.

Timeline for Canadian equity offerings

Firm Commitment

Fig. 1. Timeline for Canadian equity offerings. This figure displays a timeline of the Canadian equity offering process using the firm commitment and bought deal underwriting arrangements. The timeline for the firm commitment arrangement includes both the short-form and the long-form prospectus procedures.

seasoned equity issues. For example, earlier studies by Asquith and Mullins (1986), Masulis and Korwar (1986), and Eckbo and Masulis (1992) report two-day average abnormal returns of about −2.0% for public seasoned equity issues. Recent studies by Altınkılıç and Hansen (2003), Heron and Lie (2004), Bethel and Krigman (2008), and Elliott et al. (2009) also document negative announcement effects of similar magnitudes.

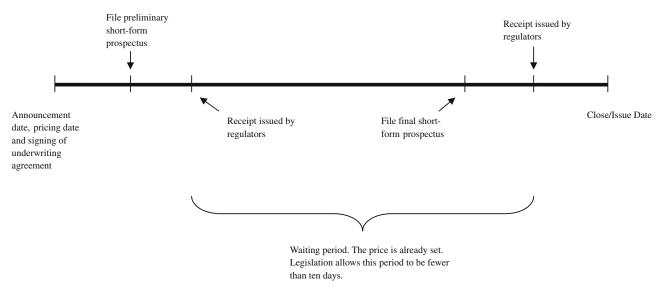Booth and Smith (1986) and Eckbo and Masulis (1992) presume that underwriters provide a valuable service by certifying that an issuing firm's shares are not mispriced. Consequently, the market reaction to the announcement of a less well certified issue should be more negative than the market reaction of a more certified is-

sue, ceteris paribus. In support of this, Cooney et al. (2003) document a positive stock price reaction to the announcement of new equity issues by a sample of Japanese firms where certification is potentially more valuable because the offer price is determined several days earlier in the underwriting process than in the US, similar to the Canadian bought deal. Denis (1991) explores the certification hypothesis using a sample of US shelf registrations. He shows that because of a lack of underwriter certification in shelf-registered issues, the announcement of a shelf equity offering results in a larger negative impact on the issuing firm's stock price than the non-shelf procedure. Autore et al. (2008) and Bethel and Krigman (2008) more recently show that shelf equity offerings

are associated with smaller market penalties relative to non-shelf issuers due to the changes in how firms use shelf registration and the types of firms choosing to use the shelf procedure.

Unlike firm commitment issues in Canada and the US, the underwriter in a bought deal commits to the offer price and the size of the issue at the very beginning of the issuance process, even before the preliminary prospectus is filed, and before the underwriter gauges market demand and canvasses potential buyers. Therefore, the underwriter faces considerably more risk in a bought deal. A decline in the stock price between the signing of the underwriting agreement and the sale of new shares can impose significant losses on the underwriter.[8] I argue that the underwriter would be unwilling to do a bought deal unless it assessed a low likelihood of such a price decline. Within this context, the underwriter, by agreeing to a bought deal, certifies that its private valuation of the firm's stock price is favorable, resulting in a smaller announcement-day stock price decline. Therefore, the first basic hypothesis for indirect costs is:

H1: Bought deals are associated with a smaller negative announcement-day stock price reaction than firm commitment offerings.

In the framework of Myers and Majluf (1984) and in the absence of quality certification, greater information asymmetry between firm insiders and outside investors leads to more negative announcement effects. According to the certification hypothesis presented here, bought deals reduce the effect of information asymmetry, leading to less negative announcement effects associated with SEOs, ceteris paribus. Furthermore, since greater certification is more likely to have an impact on the market's reaction when information asymmetry is higher, I expect the effect of bought deals in reducing the negative announcement-day stock price reaction to be most important when information asymmetry is highest. The second hypothesis is therefore:

H2: The announcement-day stock price reaction is more positive for higher levels of information asymmetry for bought deals than for firm commitment offerings.

3.2. Direct costs

Direct costs to the issuer include the offer price discount and the underwriting fee. The offer price discount compensates investors (who buy at the offer price) for uncertainty about the firm and the underwriting fee compensates the underwriter for their certification, marketing/placement, and risk bearing functions.

Altınkılıç and Hansen (2003) find that discounting of the offer price in US firm commitment SEOs is economically large and common, remaining stable around 3.0% throughout the 1990s. Similarly, Mola and Loughran (2004) document an average discount of 3% for a sample of 4814 SEOs during 1986–1999. Corwin (2003) also documents a significant average discount for US SEOs, averaging 2.2% between 1980 and 1998, and increasing substantially over time.

Fang (2005) shows that underwriter reputation serves as a certification for the quality of issues and that more reputable underwriters obtain lower yields (i.e. higher prices) for issuers' bond offerings. In this paper, I argue that the underwriter is at risk for a considerably longer time period in a bought deal issue, thus cer-

tifying the equity issue and lowering the issuers' informational cost of capital. If bought deals provide greater certification than firm commitment offerings, and thus reflecting a higher quality issue, then bought deals should be associated with superior pricing (i.e. smaller offer price discounts). Therefore, my hypothesis for the offer price discount is:

H3: Bought deals are associated with smaller offer price discounts than firm commitment offerings.

Several studies have examined underwriting fees across various flotation methods. For example, Eckbo and Masulis (1992) find that standby rights are associated with lower underwriting fees than firm commitment offerings. Bhagat et al. (1985) find that underwriting fees for shelf offerings are smaller than firm commitment, book-built, offerings. Blackwell et al. (1990) also document a cost differential in favor of shelf offerings, on average. Denis (1993), however, finds there is no issuance cost advantage once controlling for sample selection. Consistent with this, Sherman (1999) develops a model showing that shelf registration causes both an increase in underwriter competition and a reduction in due-diligence investigation so that underwriting fees seem essentially the same for shelf and non-shelf issuers.

At first glance, one might expect that since underwriters assume greater price risk in a bought deal, that they should also charge higher fees. However, this fails to consider the fact that in a bought deal, the underwriter commits to purchase all of the shares for resale to the secondary market. Therefore, there is no book-building or road show. If the reduced marketing and distribution costs in a bought deal outweigh the greater price risk assumed by the underwriter, then underwriting fees would be lower for bought deals than for firm commitment offerings. Consistent with this, Gao and Ritter (forthcoming) compare underwriting fees between fully marketed offerings, bought deals and accelerated book-built offerings in the US and find that fully marketed offerings pay the highest fees, followed by accelerated book-built offerings, with bought deals being made with the smallest underwriting fees. Similar results are also reported by Bortolotti et al. (2008).[9] Competitive pressures for bought deals also suggest lower underwriting fees. For example, Coxe (1987) reports that when Gordon Capital initiated bought deals to gain a foothold in the Canadian underwriting market, it charged fees that were a fraction of the traditional fee.[10]

Furthermore, differences in observable and unobservable firm and offer characteristics between the different underwriting methods may impact underwriting fees. If bought deal issuing firms are better quality firms, which presumably they are since the underwriter is willing to take on greater price risk in a bought deal, then controlling for the sample selection, we should observe lower fees for bought deals. This leads to the following hypothesis for underwriting fees:

H4: Bought deals are associated with smaller underwriting fees than firm commitment offerings.

The offer price negotiated between the issuer and the underwriter stated on the prospectus does not include any expenses related to underwriter compensation. However, from the issuer's

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[8] There are several cited cases of underwriters losing money on bought deals. For example, a 1998 *Globe and Mail* article reports that in late April 1998, investment dealer Peters & Co. led a syndicate of six investment houses that bought six million shares of Newport Petroleum at $6.90 each. Four days later, Newport was hit with a law suit, and the stock price dropped to $6.40. The share price fell further in the coming months, closing at $5.20 on June 16, 1998. That drop meant that investment dealers had several million dollars in losses (Willis, 1998).

[9] This was also confirmed in conversations I had with an investment dealer. The dealer noted that once they have agreed to do a bought deal, bought deals are so much faster and easier to execute than fully marketed, firm commitment offers, that the required fee is smaller.

[10] This is further supported in a 1998 *Globe and Mail* article: "Goldman Sachs turned heads because, in addition to flying solo on a hefty Magna bought deal done in a choppy market, the New York-based investment dealer discounted its fee, charging the auto parts maker just 2.5% of the $355-million underwriting. By cutting fees for a client every dealer wants, Goldman Sachs is signaling that the Street just got more competitive" (Willis, 1998).

perspective, the effective offer price is net of the underwriting fee. This is because the fee is a fixed portion of the offer price. Therefore, the sum of the discount and underwriting fee captures the net price of the offering, which is the *total direct cost* of the offering for the issuer.[11] According to the certification hypothesis, bought deals achieve superior pricing and assure quality, implying a better net offer price. This leads to the following hypothesis:

> H5: Bought deals are associated with smaller total direct costs than firm commitment offerings.

4. Data and descriptive statistics

4.1. Data

Data on SEOs announced between January 1/1993 and December 31/2005 are collected from the Financial Post (FP) Advisor database, which provides detailed offer characteristics, including the underwriting method. Stock returns and market capitalization data are obtained from the TSX/CFMRC database.

The sample is limited to bought deal and firm commitment stock SEOs. Unit offerings, flow-through shares, and privately placed shares are not included in this study. Also excluded are best efforts and self-underwritten issues. Several observations are reported as having the same announcement and closing dates. The press reports could not be found for these issues by searching Factiva and LexisNexis. To avoid confounding the analysis, these observations are also excluded. To ensure that pure secondary offerings do not bias certain results, the sample includes only primary and combined primary and secondary offerings.[12] A total of 797 SEOs meet these initial criteria.

To facilitate the comparison of bought deals with firm commitment offerings, the sample is further restricted to public offerings made by firms eligible to use a short-form prospectus. To be a candidate for a bought deal, the issuer must be eligible to use a short-form prospectus. According to the Canadian securities law, a firm eligible for a short-form prospectus must have a market capitalization of at least $75 million and must be a reporting issuer for at least 12 months. Therefore, 49 observations for which firms used a long-form prospectus are excluded, leaving 748 observations (the "broad" sample). Finally, 30 observations are dropped due to missing pre-announcement stock return data, and 1 observation is dropped due to a missing observation for the underwriting fee. This leaves 717 SEOs in the "main" sample.

4.2. Descriptive statistics

Table 1 reports the number of offerings and gross proceeds segmented by the underwriting method and by the announcement year for the broad sample of 748 SEOs. Fig. 2 provides the corresponding graphical illustration of the yearly number of offerings. Table 1 indicates that out of the 748 SEOs, bought deals represent 72% of the sample. This illustrates the overwhelming dominance of the bought deal in Canada. Total gross proceeds are approximately $10.5 billion more for bought deals than for firm commitment issues across the entire sample period. There is no apparent trend for either type of issue over time, although bought deals outnumber firm commitments each year.

Table 2 presents descriptive statistics for the various firm and offer characteristics of bought deal and firm commitment underwritten issues in the sample. The two groups are different on var-

Table 1

Number of bought deal and firm commitment underwritten SEOs and gross proceeds raised by year. This table reports the annual number of bought deal and firm commitment underwritten SEOs and gross proceeds raised by TSX-listed firms during the sample period January 1/1993–December 31/2005. Only primary and combined primary and secondary offerings are included. Pure secondary offerings are excluded.

Year	Bought deal		Firm commitment		Total	
	N	Proceeds ($MM)	N	Proceeds ($MM)	N	Proceeds ($MM)
1993	48	4,653.76	7	596.89	55	5,250.65
1994	32	2,873.83	6	418.05	38	3,291.88
1995	23	1,157.39	13	1,548.55	36	2,705.94
1996	46	2,544.10	28	3,895.48	74	6,439.58
1997	59	6,023.04	30	4,073.29	89	10,096.33
1998	50	4,886.88	10	786.11	60	5,672.99
1999	32	3,392.71	25	6,788.12	57	10,180.83
2000	31	2,648.75	19	3,624.41	50	6,273.16
2001	35	2,679.39	15	1,550.57	50	4,229.96
2002	50	5,689.84	6	3,034.99	56	8,724.84
2003	50	3,311.44	14	2,451.66	64	5,763.11
2004	44	2,339.89	21	4,092.06	65	6,431.95
2005	40	2,406.69	14	1,247.65	54	3,654.34
Total	540	44,607.73	208	34,107.82	748	78,715.55

ious dimensions. On average, bought deal underwritten issues are smaller deals and are made by smaller firms. Average gross proceeds (PRO) are $79.1 million for bought deals and the average issuing firm has a market capitalization (MV) of about $809.4 million, compared to average gross proceeds of $152.7 million and a market capitalization of $1.5 billion for firm commitment underwritten issues. This is consistent with the certification hypothesis since larger, well-known firms require less certification. Moreover, underwriters may be apprehensive about agreeing to a bought deal for large issues due to the risk of being stuck with a large lot of unsold shares.

I argue that the underwriter's willingness to accept the greater risk from a possible price decline between the signing of the underwriting agreement (pricing date) and the closing date for bought deals certifies the issue. The variable PRISK in Table 2 measures this risk, defined as the number of calendar days between the pricing date and the closing date of the issue. The descriptive statistics show that the underwriter is at risk for approximately 12 days longer for bought deals compared to firm commitment issues.

Issues are also underwritten as bought deals for firms with less information asymmetry (RVOL), defined as the standard deviation of market-model residuals measured over a 230-day period prior to the announcement of the equity offering, and lower stock return volatility (VOL), measured over the 60 days prior to the announcement of the equity offering. Bought deal underwritten issues also exhibit significantly higher runup (RUNUP), measured as the cumulative abnormal market-model adjusted abnormal return from day -35 to day -5 prior to the announcement of the equity offering (day 0), suggesting that these firms require quality assurance that their shares are not overvalued.[13]

5. Empirical findings

5.1. Choice of underwriting method

In this section I estimate the choice of underwriting method in a multivariate setting using a probit model. The dependent variable takes on a value of one for bought deal underwritten offerings, and a value of 0 for firm commitment underwritten offerings. The independent variables include many of the firm and offer variables discussed above. To control for outliers, all continuous variables are

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[11] Suzuki (2010) uses a similar definition of total cost.

[12] I also conducted the analysis using only the primary offerings in the sample. The results remained qualitatively the same.

[13] One or more of these measures has been used in prior studies (e.g. Denis, 1991; Blackwell et al., 1990; Dutordoir and Van de Gucht, 2007; Autore and Kovacs, 2010).

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Number of bought deal and firm commitment underwritten SEOs by year
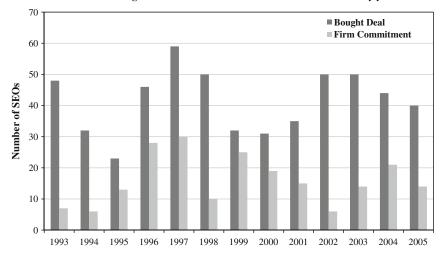

Fig. 2. Number of bought deal and firm commitment underwritten SEOs by year. This figure reports the yearly number of completed SEOs for the sample of 748 bought deal and firm commitment underwritten offerings from January 1/1993 to December 31/2005.

Table 2

Descriptive statistics of firm and offer characteristics. This table reports descriptive statistics for bought deal and firm commitment underwritten SEOs during the period January 1/1993–December 31/2005. PRO is the total amount raised by the issue, before deduction of issue expenses and cash fees, excluding the proceeds from any over-allotment taken. RELSIZE is the amount of shares offered scaled by the firm's total number of shares outstanding in the month prior to the announcement of the equity offering. PRISK is the number of days between the pricing date and the closing date of the offering. MV is the market value of equity and is calculated as the stock price at the end of the month prior to the announcement of the equity offering multiplied by the number of shares outstanding at that time. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. MVOL is the standard deviation of the value-weighted market return over the 60 trading days prior to the announcement of the equity offering. BETA is estimated from the market-model over a 230-day period beginning 250 days prior to the announcement of the offering. TURNOVER is defined as the average daily trading volume as a percent of shares outstanding measured over the 60 trading days prior to the announcement of the equity offering. RUNUP is measured as the cumulative abnormal market-model adjusted abnormal return from day −35 to day −5 prior to the announcement of the equity offering (day 0). UWR is equal to 1 if the book runner for the issue had a market share ranked in the top 10 in the year of the issue, and 0 otherwise. The column entitled Test of Differences reports *p*-values based on simple two sample *t*-test's for differences in means, and the Wilcoxon–Mann–Whitney test for differences in medians.

	Bought deal		Firm commitment		Test of differences	
	Mean	Median	Mean	Median	Mean	Median
PRO ($MM)	79.08	50.00	152.73	71.55	(0.00)	(0.00)
RELSIZE	0.15	0.12	0.22	0.17	(0.00)	(0.00)
PRISK (days)	20.13	20.00	8.00	7.00	(0.00)	(0.00)
MV ($MM)	809.37	393.01	1,459.06	418.40	(0.00)	(0.93)
RVOL (%)	3.04	2.70	3.21	2.89	(0.21)	(0.08)
VOL (%)	2.97	2.65	3.34	2.98	(0.02)	(0.02)
MVOL (%)	0.77	0.64	0.76	0.64	(0.79)	(0.89)
BETA	0.76	0.68	0.80	0.74	(0.41)	(0.77)
TURNOVER (%)	0.29	0.23	0.30	0.21	(0.59)	(0.19)
RUNUP (%)	7.12	5.22	1.37	0.15	(0.00)	(0.00)
UWR	0.69	1.00	0.63	1.00	(0.14)	(0.14)

winsorized at the 1% level in the remainder of the paper.[14] The multivariate setting compares the effect of these variables, *ceteris paribus.*

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[14] Scenarios with other cutoff points are also examined, including unwinsorized tests, yielding similar results.

The interesting departure from previous studies that have examined issuer–underwriter matching equations (e.g. Fang, 2005; Song, 2007) is that in the present setting, it is the underwriter who determines the choice of underwriting method. Firms would rationally prefer a bought deal than the traditional firm commitment underwriting, since bought deals assure the issuing firm a successful offering. However, it is up to the underwriter to decide whether they are willing to do a bought deal.

Table 3 presents probit estimation results for the matching equation between offerings and the underwriting method. Model 1 reports results using RVOL and Model 2 reports results using VOL. The estimation results show that bought deal underwritten issues are more likely for relatively smaller issues (RELSIZE), defined as the number of shares offered scaled by the number of shares outstanding prior to the offering. Bought deals are also more likely for firms with less information asymmetry (RVOL) and for firms with smaller stock return volatility (VOL). These patterns suggest that underwriters choose bought deals for less risky offerings. Firms that have experienced a larger stock return runup (RUNUP) in the month prior to the announcement of the equity offering increase the likelihood of a bought deal. This can be interpreted as consistent with the certification hypothesis, since firms with higher stock return runup may need to signal to the market that their shares are not overvalued. Alternatively, underwriters may find it easier to find buyers for shares that have recently performed well. The coefficient on MARKET, defined as a dummy variable equal to 1 if the primary market in which the issue is sold is Canada, and 0 otherwise, is significantly positive. This says that issues made solely in the Canadian market are more likely to be underwritten as bought deals. BUBBLE is a dummy variable equal to 1 for offerings during the internet bubble period (1999–2000), and 0 otherwise. The coefficient on BUBBLE is significantly negative, indicating that during the internet bubble period, SEOs were more likely to be underwritten as firm commitments. This could be because underwriters understood the inherent volatility during this period. The coefficient on TURNOVER, defined as the average daily trading volume as a percent of shares outstanding over the 60 trading days prior to the announcement of the equity offering, is significantly positive in Model 2. This says that underwriters are more likely to choose bought deals for firms that experience more trading activity prior to the offering, since resale price risk is likely lower for offerings with higher TURNOVER.

Choice of underwriting method. This table estimates probit models for the choice of underwriting arrangement. The dependent variable in each model equals one for equity issues underwritten as a bought deal, and zero for equity issues underwritten as a firm commitment. RELSIZE is the amount of shares offered scaled by the firm's total number of shares outstanding in the month prior to the announcement of the equity offering. Ln(MV) is the logarithm of the firm's market capitalization in the month prior to the announcement of the equity offering. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. UWR is equal to 1 if the book runner for the issue had a market share ranked in the top ten in the year of the issue, and 0 otherwise. UWSHR is the market share of the top 10 underwriters in the year prior to the issue. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. RUNUP is measured as the cumulative abnormal market-model adjusted abnormal return from day -35 to day -5 prior to the announcement of the equity offering (day 0). UTILITIES is a binary variable taking on the value of 1 if the firm belongs to SIC codes 4900–4999, and 0 otherwise. FINANCIAL is a binary variable taking n the value of 1 if the firm belongs to SIC codes 6000–6999, and 0 otherwise. BUBBLE is a binary variable taking on the value of 1 for offerings in the period 1999–2000, and 0 otherwise. BETA is estimated from the market-model over a 230-day period beginning 250 days prior to the announcement of the offering. MVOL is the standard deviation of the value-weighted market return over the 60 trading days prior to the announcement of the equity offering. TURNOVER is defined as the average daily trading volume as a percent of shares outstanding measured over the 60 trading days prior to the announcement of the equity offering. χ^2-statistics are in parentheses.

	Model 1	Model 2
RELSIZE	-2.83^{***}	-3.01^{***}
	(34.79)	(37.85)
Ln(MV)	-0.04	-0.11
	(0.38)	(2.54)
RVOL	-0.10^{**}	
	(4.04)	
VOL		-0.22^{***}
		(18.27)
UWR	0.07	0.07
	(0.28)	(0.31)
MARKET	1.79^{***}	1.78^{***}
	(99.80)	(98.30)
RUNUP	0.01^{***}	0.01^{***}
	(13.86)	(16.67)
UTILITIES	-0.33	-0.38
	(1.14)	(1.50)
FINANCIAL	-0.30	-0.35
	(1.92)	(2.53)
BUBBLE	-0.50^{***}	-0.46^{**}
	(7.62)	(6.52)
BETA	0.01	0.12
	(0.01)	(1.08)
MVOL	0.12	0.31
	(0.38)	(2.57)
TURNOVER	0.33	0.65^{**}
	(1.27)	(4.54)
INTERCEPT	0.59	2.06
	(0.16)	(1.92)
N	717	717
Pseudo R^2	0.25	0.27

[*] Statistical significance at the 10% level.
[**] Statistical significance at the 5% level.
[***] Statistical significance at the 1% level.

5.2. Issuance costs: empirical methodology

An indirect cost of issuing equity is the negative market reaction to the announcement of SEOs. The announcement effect is measured using standard event study methodology where cumulative abnormal returns (CARs) are computed using the market-model, and the parameters of the model are estimated using time-series data from the estimation period, $t = -250, \ldots, -20$, that precedes each announcement ($t = 0$). A feature of the bought deal is that the offer price, and hence the discount, is determined at the announcement of the equity offering. This is not the case for firm

commitment offerings since the offer price is determined before the closing date of the issue. Therefore, in order to purge the impact of the discount on the CARs for bought deals, and making CAR comparable between bought deal and firm commitment offerings, I compute the discount-adjusted abnormal returns for bought deals. This method is commonly used in the private placement literature (e.g., Wruck, 1989; Hertzel and Smith, 1993; Chen et al., forthcoming).[15]

Two direct equity issuance costs examined in this paper are DISCOUNT and FEE. FEE is simply the cash fee, as a percentage of gross proceeds, paid by the issuing company, as detailed in the FP Advisor database. DISCOUNT is computed and requires further discussion. As noted above, the offer price (and implicitly the discount) is determined at the announcement of the equity offering for bought deals while the offer price (and thus the discount) for firm commitment offerings is determined before the closing date of the offering. Therefore, comparing the discounts based on the offer price determination date is not appropriate, since the market price the day before the offer price determination date for bought deals does not reflect the market's reaction. For firm commitment offerings, however, the offer price is determined after the offer has already been announced and therefore the price is already lowered by the market's reaction. Thus, in order to draw a suitable comparison across flotation methods, I compute the offer price discount relative to the market price on the day prior to the announcement date for *both* bought deals and firm commitment offerings. This discount measure provides a more even comparison because it includes all relevant pricing information for bought deals, and it is calculated from a pre-announcement price for both types of offers. This discount measure is proposed by Autore et al. (2009) for a similar problem in comparing offer price discounts across issue methods.[16]

For robustness, I also measure the offer price discount relative to the market price on the day prior to the offer date for both bought deal and firm commitment offerings. The results of the paper are statistically similar with this alternative measure. For brevity, these tables are not reported.

5.3. Issuance costs: univariate analysis

Table 4 presents mean and median indirect and direct equity issuance costs for the sample of bought deal and firm commitment offerings over the entire sample period (January 1/1993–December 31/2005). The mean and median discount-adjusted CAR for bought deals (-1.17% and -1.94%) is significantly less negative than the mean and median discount-adjusted CAR for firm commitment offerings (-3.47% and -3.12%) over the event window ($-1, 1$), centered on the announcement date ($t = 0$). I also test CAR for event windows ($-3, 3$), ($-2, 2$) and ($-1, 0$), finding similar results. Of note however, is the mean adjusted CAR for event window ($-1, 0$) for the bought deal sample, which is insignificantly different from zero, suggesting complete certification.[17] Therefore bought deals, which are associated with a firmer commitment from the underwriter, experience on average a less negative announcement-day stock price reaction than firm commitment underwritten offerings. These univariate results support hypothesis H1. To put

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[15] The discount-adjusted abnormal return is: $AR_{Adj} = [1/(1 - \alpha)][AR] + [\alpha/(1 - \alpha)][(P_b - P_0)/P_b]$ where AR is the abnormal stock return, α is the ratio of the shares issued to the shares outstanding after the placement, P_b is the market price at the end of the day prior to the event window, and P_0 is the offer price.

[16] I thank an anonymous referee for pointing this out.

[17] As pointed out in Eckbo and Masulis (1992), Bøhren et al. (1997) and Eckbo and Norli (2005), the remaining significantly negative market reaction, except for the event window ($-1, 0$) for bought deals, indicates that the signal of the underwriter certification technology partially reveals the issuer's true quality.

Table 4
Indirect and direct costs of issuing equity. This table compares the indirect and direct costs of issuing equity using the bought deal and firm commitment underwriting methods in the sample period January 1/1993–December 31/2005. CAR represents the indirect costs of issuing equity defined as the cumulative abnormal return centered on the announcement date. Several event windows are used, including $(-3, 3)$, $(-2, 2)$, $(-1, 1)$ and $(-1, 0)$. The discount-adjusted CAR and the unadjusted CAR are reported for bought deals. The unadjusted CAR is the cumulative abnormal return over the specific event window. The discount-adjusted CAR is the cumulative abnormal return computed from the discount-adjusted abnormal return: $AR_{Adj} = [1/(1-\alpha)][AR] + [\alpha/(1-\alpha)][(P_b - P_0)/P_b]$ where AR is the abnormal stock return, α is the ratio of the shares issued to the shares outstanding after the placement, P_b is the market price at the end of the day prior to the event window, and P_0 is the offer price. Market-model parameters are estimated over a 230-day period beginning 250 days prior to the announcement of the offering. DISCOUNT and FEE represent the direct costs of issuing equity. DISCOUNT is defined as $(P_{-1} - P_{offer})/P_{offer}$, which is scaled up by a factor of 100, where P_{-1} is the market price the day before the announcement date and P_{offer} is the offer price. FEE is the cash fee, in percent, paid by the issuing company. TDCOST is the total direct cost of the issue, defined as the sum of DISCOUNT and FEE. The column entitled Test of Differences reports p-values based on simple two sample t-test's for differences in means, and Wilcoxon–Mann–Whitney test for differences in medians.

	Bought deal		Firm commitment		Test of differences	
	Mean	Median	Mean	Median	Mean	Median
Indirect cost – discount-adjusted CAR						
CAR$_{(-3,3)}$ (%)	−0.80[*]	−2.09[***]	−3.70[***]	−3.53[***]	(0.00)	(0.00)
CAR$_{(-2,2)}$ (%)	−1.06[***]	−2.10[***]	−3.85[***]	−3.72[***]	(0.00)	(0.00)
CAR$_{(-1,1)}$ (%)	−1.17[***]	−1.94[***]	−3.47[***]	−3.12[***]	(0.00)	(0.00)
CAR$_{(-1,0)}$ (%)	−0.06	−0.91[***]	−1.79[***]	−1.76[***]	(0.00)	(0.00)
Indirect cost – unadjusted CAR						
CAR$_{(-3,3)}$ (%)	−1.02[**]	−2.02[***]	−3.70[***]	−3.53[***]	(0.00)	(0.00)
CAR$_{(-2,2)}$ (%)	−1.35[***]	−2.18[***]	−3.85[***]	−3.72[***]	(0.00)	(0.00)
CAR$_{(-1,1)}$ (%)	−1.49[***]	−1.98[***]	−3.47[***]	−3.12[***]	(0.00)	(0.00)
CAR$_{(-1,0)}$ (%)	−0.56[*]	−1.08[***]	−1.79[***]	−1.76[***]	(0.02)	(0.02)
Direct costs						
DISCOUNT (%)	4.01[***]	3.56[***]	8.76[***]	6.82[***]	(0.00)	(0.00)
FEE (%)	4.45[***]	4.00[***]	4.96[***]	5.00[***]	(0.00)	(0.00)
TDCOST (%)	8.46[***]	7.71[***]	13.72[***]	11.46[***]	(0.00)	(0.00)

[*] Statistical significance at the 10% level.
[**] Statistical significance at the 5% level.
[***] Statistical significance at the 1% level.

these numbers into perspective, the difference in average stock price effects of −2.30% translates into an $18.6 million change in the market value of a sample issuing firm of average size ($809.4 million).[18]

Since the mechanics of the adjustment to CAR for bought deals suggests that offer size affects the adjustment, and since bought deals have smaller offer sizes, Table 4 also reports the unadjusted CAR for bought deals. Comparing the unadjusted CAR for bought deals to the CAR for firm commitment offerings yields qualitatively similar results. Therefore, in the remainder of the paper results for the discount-adjusted CAR are reported for bought deals.

Turning to the direct equity issuance costs, the mean and median DISCOUNT for bought deals (4.01% and 3.56%) is significantly smaller than the mean and median DISCOUNT for firm commitment offerings (8.76% and 6.82%). For a sample issuing firm with average gross proceeds of $79.1 million, this difference of 4.75% implies an issue cost difference of about $3.8 million. These results suggest bought deal underwritten issues yield superior pricing for the issuer, consistent with hypothesis H3.

The mean and median FEE for bought deals (4.45% and 4.00%) is also shown to be significantly smaller than the mean and median FEE for firm commitment offerings (4.96% and 5.00%). This implies that higher underwriting fees are associated with book-building and marketing efforts, even though the underwriter is exposed to more resale price risk for bought deals, consistent with Gao and Ritter (forthcoming). Given the DISCOUNT and FEE results, it follows that the mean and median total direct costs (TDCOST) are significantly lower for bought deals (8.46% and 7.71%) than the mean and median TDCOST for firm commitment offerings (13.72% and 11.46%). This says that an issuing firm obtains superior pricing for bought deals. These results support hypothesis H4 and H5. In terms of economic magnitude, this 5.26% difference

in TDCOST translates into a $4.2 million direct cost savings for bought deals.[19]

To control for a possible self-selection bias I also compare the values of CAR, DISCOUNT, FEE and TDCOST across flotation methods (in unreported tests) for a sub-sample of firms that conduct both bought deal and firm commitment underwritten offerings. The sample includes 66 firms with 184 observations: 100 bought deals and 84 firm commitment offerings. The results are qualitatively similar to those using the full sample. The mean and median discount-adjusted CAR for bought deals (−0.66% and −2.36%) is significantly less negative than the mean and median discount-adjusted CAR for firm commitment offerings (−3.64% and −3.67%). Similar differences are found for direct issuance costs. The mean and median DISCOUNT for bought deals (4.64% and 4.45%) is significantly lower than for firm commitment offerings (7.21% and 5.88%), and the mean and median FEE is also significantly lower for bought deals (4.57% and 4.00%) than for firm commitment offerings (4.88% and 4.75%). Finally, given the sub-sample DISCOUNT and FEE results, the mean and median TDCOST for bought deals (9.21% and 8.44%) is significantly lower than the mean and median TDCOST for firm commitment offerings (12.09% and 11.28%).

5.4. Issuance costs: multivariate analysis

5.4.1. Full sample results

Up to this point, the cost differences documented could be due to the type of underwriting method, specific firm and offer characteristics, or both. Therefore, in this section, I expand the cross-sectional analysis by estimating OLS regressions to test the association between equity issuance costs and the type of underwriting method, controlling for firm and offer characteristics.

[18] For robustness, I also compute other test statistics used in the event study literature (unreported). Specifically, I use test statistics proposed by Patell (1976) and Boehmer et al. (1991). Statistical significance remains unchanged using these other measures.

[19] I also examined CAR, DISCOUNT, FEE and TDCOST on a yearly basis and the results are consistent and stable across time. The yearly tables and graphs are not included in order to save pace, but can be made available upon the request of the reader.

Table 5

OLS regressions of cumulative abnormal returns (CARs). The dependent variable is the 3-day cumulative abnormal return (CAR), centered on the announcement date, for firm commitment offerings, and the 3-day discount-adjusted cumulative abnormal return for bought deals. The discount-adjusted CAR is computed from the discount-adjusted abnormal return: $AR_{Adj} = [1/(1 - \alpha)][AR] + [\alpha/(1 - \alpha)][(P_b - P_0)/P_b]$ where AR is the abnormal stock return, α is the ratio of the shares issued to the shares outstanding after the placement, P_b is the market price at the end of the day prior to the event window, and P_0 is the offer price. RELSIZE is the amount of shares offered scaled by the firm's total number of shares outstanding in the month prior to the announcement of the equity offering. Ln(MV) is the logarithm of the firm's market capitalization in the month prior to the announcement of the equity offering. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. UWR is equal to 1 if the book runner for the issue had a market share ranked in the top ten in the year of the issue, and 0 otherwise. BD is a binary variable taking on the value of 1 for offerings underwritten as a bought deal, and 0 for offerings underwritten as a firm commitment. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. UTILITIES is a binary variable taking on the value of 1 if the firm belongs to SIC codes 4900–4999, and 0 otherwise. FINANCIAL is a binary variable taking n the value of 1 if the firm belongs to SIC codes 6000–6999, and 0 otherwise. BUBBLE is a binary variable taking on the value of 1 for offerings in the period 1999–2000, and 0 otherwise. BETA is estimated from the market-model over a 230-day period beginning 250 days prior to the announcement of the offering. MVOL is the standard deviation of the value-weighted market return over the 60 trading days prior to the announcement of the equity offering. Heteroscedasticity consistent t-statistics are in parentheses.

	Model 1	Model 2	Model 3	Model 4
RELSIZE	2.51	2.11	2.44	2.18
	(0.86)	(0.74)	(0.83)	(0.75)
Ln(MV)	−0.04	−0.09	−0.01	−0.04
	(−0.13)	(−0.31)	(−0.04)	(−0.12)
RVOL	−0.15	−0.96**		
	(−0.53)	(−2.19)		
VOL			−0.10	−0.83**
			(−0.39)	(−2.20)
UWR	−0.95*	−0.89	−0.94*	−0.88
	(−1.68)	(−1.60)	(−1.67)	(−1.57)
BD	2.97***	−0.47	2.95***	−0.50
	(4.35)	(−0.33)	(4.28)	(−0.38)
MARKET	−2.64***	−2.44***	−2.65***	−2.39***
	(−3.01)	(−2.69)	(−3.02)	(−2.67)
UTILITIES	−1.47**	−1.41*	−1.46**	−1.41*
	(-2.11)	(−1.94)	(−2.09)	(−1.87)
FINANCIAL	−0.48	−0.50	−0.48	−0.44
	(−0.68)	(−0.73)	(−0.66)	(−0.64)
BUBBLE	0.79	1.00	0.75	0.97
	(0.82)	(1.01)	(0.79)	(1.02)
BETA	−0.87*	−0.76	−0.89*	−0.86*
	(−1.66)	(−1.48)	(−1.66)	(−1.66)
MVOL	−0.44	−0.39	−0.43	−0.48
	(−0.54)	(−0.47)	(−0.50)	(−0.57)
BD*RVOL		1.07**		
		(2.26)		
BD*VOL				1.07**
				(2.53)
Intercept	0.69	4.11	0.04	2.69
	(0.10)	(0.61)	(0.01)	(0.41)
N	717	717	717	717
Adjusted R^2	0.03	0.04	0.03	0.04

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

The regression results for CAR are reported in Table 5. In Model 1, the three-day cumulative abnormal return (CAR) is regressed on a bought deal binary variable (BD) and various firm and offer characteristics. These include issue size scaled by the number of shares outstanding in the month prior to the announcement of the equity offering (RELSIZE), firm size (Ln(MV)), the firm's stock return residual volatility (RVOL), a measure of the firm's systematic risk (BETA), and market volatility (MVOL). I also control for utility (UTILITIES) and financial (FINANCIAL) firms, consistent with prior

studies. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. BUBBLE is a dummy variable equal to 1 for offerings in the period 1999–2000, and 0 otherwise. I also include a control for underwriter reputation (UWR). Chemmanur and Fulghieri (1994) find that SEOs made by more reputable underwriters reduce the impact of information asymmetry. An empirical implication from their model is that the negative stock price reaction around SEOs is a decreasing function of the underwriter's reputation. Therefore, including UWR ensures that the results are not being driven by the underwriter's reputation, but rather by the greater certification from the *type* of underwriting method, as proposed in this paper. Model 2 includes the interaction variable BD*RVOL to test the differential impact of information asymmetry across underwriting methods. In Models 3 and 4 I replace RVOL with the firm's stock return volatility (VOL).

I expect a negative coefficient on RVOL and VOL since the presence of more adverse information and uncertainty should amplify investors' beliefs that management is issuing shares that are overvalued. The coefficient on the bought deal binary variable, BD, is expected to be positive since bought deals convey a firmer commitment from the underwriter. Therefore, investors will perceive these issues to be less influenced by information asymmetry. The interaction terms capture the marginal impact of the bought deal on CAR due to greater certification. If bought deals provide greater certification, then they should reduce the negative impact of information asymmetry and uncertainty. Thus, I expect the coefficients on BD*RVOL and BD*VOL to be positive.

Focusing on Models 1 and 3, the coefficient on BD is found to be significantly positive, implying that bought deal underwritten issues are associated with a less negative market reaction than firm commitment issues. The coefficients on RVOL and VOL are insignificant. However, when the interaction terms BD*RVOL and BD*VOL are included in Models 2 and 4 the coefficients on RVOL and VOL, interpreted as the effect of information asymmetry and uncertainty on CAR *for the sample of firm commitment offerings*, is significantly negative, and the coefficient on BD*RVOL and BD*VOL is significantly positive, confirming the differential effect of information asymmetry and uncertainty across the bought deal and firm commitment underwriting methods. This resolution of information asymmetry and uncertainty for bought deals is consistent with the certification story.

The empirical results in Table 5 provide evidence in favour of hypothesis H1 and H2. First, consistent with the idea that bought deals provide greater certification due to the underwriter's commitment to purchase the offering at an earlier time, stock prices react more positively to the announcement of bought deals compared to firm commitment offerings, as implied by the positive coefficient on BD. Second, higher levels of information asymmetry are associated with more negative announcement-period abnormal returns for firm commitment equity offerings, ceteris paribus. Third, stock prices react more positively to higher levels of information asymmetry and uncertainty for bought deals than for firm commitment offerings, as indicated by the significantly positive coefficients on the interaction terms BD*RVOL and BD*VOL.

Interestingly, the coefficient on UWR is negative. This implies that firms making equity offerings with reputable underwriters are associated with more negative announcement-period abnormal returns. This result contrasts the empirical implications from Chemmanur and Fulghieri's (1994) model.

It is worthwhile to put the magnitude of the coefficients into perspective. The estimated coefficients on BD in Table 5 indicate that bought deals have smaller negative announcement-period abnormal returns than firm commitment equity offerings by about 2.97%, after controlling for firm and offer characteristics, using the proxy RVOL. The average market value of the firms for the 717

Table 6

OLS regressions of DISCOUNT, FEE and TDCOST. This table reports regression results using DISCOUNT, FEE and TDCOST as the dependent variable. DISCOUNT is defined as $(P_{-1} - P_{offer})/P_{offer}$, which is scaled up by a factor of 100, where P_{-1} is the market price the day before the announcement date and P_{offer} is the offer price. FEE is the cash fee, in percent, paid by the issuing company. TDCOST is the total direct cost and is defined as the sum of DISCOUNT and FEE. RELPRO is gross proceeds scaled by the firm's market capitalization in the month prior to the announcement of the equity offering. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. UWR is equal to 1 if the book runner for the issue had a market share ranked in the top 10 in the year of the issue, and 0 otherwise. BD is a binary variable taking on the value of 1 for offerings underwritten as a bought deal, and 0 for offerings underwritten as a firm commitment. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. UTILITIES is a binary variable taking on the value of 1 if the firm belongs to SIC codes 4900–4999, and 0 otherwise. FINANCIAL is a binary variable taking n the value of 1 if the firm belongs to SIC codes 6000–6999, and 0 otherwise. BUBBLE is a binary variable taking on the value of 1 for offerings in the period 1999–2000, and 0 otherwise. INVPRO is the inverse of gross proceeds. Heteroscedasticity consistent t-statistics are in parentheses.

	DISCOUNT		FEE		TDCOST	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
RELPRO	−6.27**	−4.65	0.37*	0.64***	−5.93**	−4.04
	(−2.18)	(−1.61)	(1.80)	(3.01)	(−2.01)	(−1.36)
RVOL	1.27***		0.20***		1.48***	
	(5.29)		(10.39)		(6.03)	
VOL		1.12***		0.17***		1.29***
		(4.76)		(8.85)		(5.31)
UWR	1.31**	1.21*	−0.08	−0.10*	1.25**	1.13*
	(2.11)	(1.93)	(−1.58)	(−1.87)	(1.97)	(1.77)
BD	−5.40***	−5.17***	−0.39***	−0.36***	−5.83***	−5.56***
	(−5.66)	(−5.39)	(−6.38)	(−5.53)	(−5.96)	(−5.65)
MARKET	3.48***	3.49***	−0.32***	−0.32***	3.25**	3.26**
	(2.67)	(2.67)	(−3.62)	(−3.50)	(2.46)	(2.46)
UTILITIES	0.00	−0.04	−0.02	−0.04	−0.02	−0.07
	(0.00)	(−0.04)	(−0.20)	(−0.37)	(−0.02)	(−0.08)
FINANCIAL	0.92	0.95	−0.24***	−0.24***	0.69	0.72
	(0.97)	(0.97)	(−3.59)	(-3.49)	(0.71)	(0.71)
BUBBLE	−0.41	−0.38	−0.04	−0.02	−0.44	−0.39
	(−0.47)	(−0.43)	(−0.64)	(−0.37)	(−0.49)	(−0.44)
INVPRO	38.77**	43.11***	12.62***	13.59***	51.74***	57.04***
	(2.28)	(2.60)	(8.61)	(9.09)	(2.96)	(3.35)
INTERCEPT	1.22	1.23	4.23***	4.26***	5.37***	5.42***
	(0.81)	(0.81)	(41.37)	(41.30)	(3.53)	(3.53)
N	717	717	717	717	717	717
Adjusted R^2	0.17	0.16	0.47	0.45	0.20	0.19

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

equity offerings in the sample is $987.9 million. This implies that the indirect issuing cost difference between bought deal and firm commitment offerings is about $29.3 million in favour of the bought deal.

Table 6 examines OLS regressions for direct equity issuance costs: DISCOUNT and FEE. According to hypothesis H3, bought deal issues should be associated with smaller offer price discounts because the underwriter's commitment to purchase the offering at the beginning of the issuance process for bought deals certifies the quality of the issue, leading to favorable pricing. Also, according to hypothesis H4, bought deals should be associated with smaller underwriting fees because there is no marketing and book-building for bought deals, and because the underwriter's willingness to do a bought deal suggests that the underwriter is confident on the quality of the issue, requiring a smaller fee. The firm and offer characteristics include proceeds scaled by the firm's market capitalization in the month prior to the announcement of the equity offering (RELPRO), the inverse of gross proceeds (INVPRO), residual volatility (RVOL) and total return volatility (VOL). I also control for firms that are in the utilities and financial industries, the primary

Table 7

OLS regressions of cumulative abnormal returns (CARs) for sub-sample. This table reports OLS regression results for a sub-sample of 66 firms that conduct both bought deal and firm commitment underwritten offerings. The dependent variable is the 3-day cumulative abnormal return (CAR), centered on the announcement date, for firm commitment offerings, and the 3-day discount-adjusted cumulative abnormal return for bought deals. The discount-adjusted CAR is computed from the discount-adjusted abnormal return: $AR_{Adj} = [1/(1 - \alpha)][AR] + [\alpha/(1 - \alpha)][(P_b - P_0)/P_b]$ where AR is the abnormal stock return, α is the ratio of the shares issued to the shares outstanding after the placement, P_b is the market price at the end of the day prior to the event window, and P_0 is the offer price. RELSIZE is the amount of shares offered scaled by the firm's total number of shares outstanding in the month prior to the announcement of the equity offering. Ln(MV) is the logarithm of the firm's market capitalization in the month prior to the announcement of the equity offering. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. UWR is equal to 1 if the book runner for the issue had a market share ranked in the top ten in the year of the issue, and 0 otherwise. BD is a binary variable taking on the value of 1 for offerings underwritten as a bought deal, and 0 for offerings underwritten as a firm commitment. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. UTILITIES is a binary variable taking on the value of 1 if the firm belongs to SIC codes 4900–4999, and 0 otherwise. FINANCIAL is a binary variable taking n the value of 1 if the firm belongs to SIC codes 6000–6999, and 0 otherwise. BUBBLE is a binary variable taking on the value of 1 for offerings in the period 1999–2000, and 0 otherwise. BETA is estimated from the market-model over a 230-day period beginning 250 days prior to the announcement of the offering. MVOL is the standard deviation of the value-weighted market return over the 60 trading days prior to the announcement of the equity offering. Heteroscedasticity consistent t-statistics are in parentheses.

	Model 1	Model 2
RELSIZE	1.30	1.71
	(0.23)	(0.28)
Ln(MV)	0.36	−0.04
	(0.52)	(−0.05)
RVOL	0.73	
	(1.09)	
VOL		0.14
		(0.22)
UWR	0.11	0.13
	(0.10)	(0.11)
BD	3.29**	3.42**
	(2.55)	(2.46)
MARKET	−3.26**	−3.21**
	(−2.17)	(−2.12)
UTILITIES	−1.89	−2.28*
	(−1.42)	(−1.68)
FINANCIAL	−0.10	−0.16
	(−0.08)	(−0.12)
BUBBLE	0.02	0.37
	(0.01)	(0.21)
BETA	−3.92***	−3.41**
	(−2.97)	(−2.52)
MVOL	−0.68	−0.25
	(−0.35)	(−0.11)
Intercept	−7.53	1.30
	(−0.50)	(0.08)
N	184	184
Adjusted R^2	0.06	0.05

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

market where the issue is made, and the period of the internet bubble (1999–2000).[20]

Consistent with prior studies, smaller offerings (INVPRO), firms with greater information asymmetry (RVOL) and uncertainty (VOL)

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[20] One or more of these control variables have been used by previous researchers (e.g., Altınkılıç and Hansen, 2003; Corwin, 2003; and Mola and Loughran, 2004). Specifications including additional controls (unreported) such as bid-ask spread, market return volatility, beta, runup, and share turnover, are also estimated. However, including these additional control variables does not provide greater explanatory power, and all of the results are unchanged.

Table 8
OLS regressions of DISCOUNT, FEE and TDCOST for sub-sample. This table reports OLS regression results for a sub-sample of 66 firms that conduct both bought deal and firm commitment underwritten offerings using DISCOUNT, FEE and TDCOST as the dependent variable. DISCOUNT is defined as $(P_{-1} - P_{offer})P_{offer}$, which is scaled up by a factor of 100, where P_{-1} is the market price the day before the announcement date and P_{offer} is the offer price. FEE is the cash fee, in percent, paid by the issuing company. TDCOST is the total direct cost and is defined as the sum of DISCOUNT and FEE. RELPRO is gross proceeds scaled by the firm's market capitalization in the month prior to the announcement of the equity offering. RVOL is the standard deviation of market-model residuals measured over a 230-day period beginning 250 days prior to the announcement of the offering. VOL is the standard deviation of returns measured over the 60 trading days prior to the announcement of the offering. UWR is equal to 1 if the book runner for the issue had a market share ranked in the top ten in the year of the issue, and 0 otherwise. BD is a binary variable taking on the value of 1 for offerings underwritten as a bought deal, and 0 for offerings underwritten as a firm commitment. MARKET is a binary variable taking on the value of 1 if the primary market in which the issue is sold is Canada, and zero otherwise. UTILITIES is a binary variable taking on the value of 1 if the firm belongs to SIC codes 4900–4999, and 0 otherwise. FINANCIAL is a binary variable taking n the value of 1 if the firm belongs to SIC codes 6000–6999, and 0 otherwise. BUBBLE is a binary variable taking on the value of 1 for offerings in the period 1999–2000, and 0 otherwise. INVPRO is the inverse of gross proceeds. Heteroscedasticity consistent t-statistics are in parentheses.

	DISCOUNT		FEE		TDCOST	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
RELPRO	−2.73	−1.85	0.09	0.40	−2.35	−1.16
	(−0.42)	(−0.29)	(0.26)	(1.15)	(−0.36)	(−0.18)
RVOL	0.84		0.17***		1.01*	
	(1.43)		(4.07)		(1.75)	
VOL		0.91**		0.10***		1.01**
		(2.14)		(2.83)		(2.30)
UWR	−0.22	−0.50	−0.13	−0.15	−0.37	−0.68
	(−0.15)	(−0.34)	(−1.28)	(−1.50)	(−0.25)	(−0.45)
BD	−4.21***	−3.83***	−0.33***	−0.28**	−4.53***	−4.09***
	(−2.98)	(−2.68)	(−3.15)	(−2.59)	(−3.15)	(−2.81)
MARKET	3.41*	3.26	−0.41***	−0.41***	3.02	2.87
	(1.68)	(1.62)	(−3.08)	(−3.02)	(1.46)	(1.40)
UTILITIES	0.67	0.94	−0.14	−0.23	0.52	0.70
	(0.34)	(0.50)	(−0.69)	(−1.07)	(0.29)	(0.41)
FINANCIAL	0.83	0.90	−0.39***	−0.40***	0.46	0.52
	(0.63)	(0.65)	(−2.85)	(−2.68)	(0.34)	(0.36)
BUBBLE	−0.21	−0.42	0.13	0.15	−0.04	−0.24
	(−0.13)	(−0.28)	(1.08)	(1.22)	(−0.03)	(−0.15)
INVPRO	46.38	44.19	21.82***	24.18***	70.04*	70.41**
	(1.29)	(1.29)	(8.47)	(10.01)	(1.94)	(2.02)
INTERCEPT	2.33	2.08	4.26***	4.36***	6.49**	6.34**
	(0.78)	(0.72)	(24.93)	(26.30)	(2.11)	(2.16)
N	184	184	184	184	184	184
Adjusted R^2	0.07	0.08	0.55	0.52	0.11	0.12

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

are associated with higher discounts and underwriting fees.[21] However, larger *relative* offerings (RELPRO) are associated with smaller discounts, but higher underwriting fees. The explanatory variable of interest is the bought deal binary variable, BD. After controlling for firm and offer characteristics, consistent with hypothesis H3 and H4, the coefficient on BD is significantly negative at the 1% level in both the DISCOUNT and FEE equations. Therefore, the analysis indicates a direct cost advantage in favor of bought deals.

Table 6 also tests OLS regressions with total direct costs (TDCOST) as the dependent variable, which sums the discount and underwriting fee. The regression results for TDCOST also indicate that bought deals are associated with smaller direct costs than firm commitment offerings after controlling for firm and offer characteristics. Specifically, the estimated coefficient on BD in Table 6 indicates that direct costs (TDCOST) are lower for bought deals than for firm commitment issues by about 5.83% using the proxy RVOL. The average gross proceeds for the 717 equity offerings in the sample is $99.3 million. This implies a lower direct issuing cost of about $5.8 million for bought deals compared to firm commitment offerings.

5.4.2. Sub-sample results

To mitigate a possible self-selection bias I also estimate OLS regressions for the sub-sample of firms that conduct both bought deal and firm commitment underwritten offerings.

The regression results for CAR are presented in Table 7. Two models are shown, one using the information asymmetry proxy RVOL and the other using the uncertainty proxy VOL. Consistent with the full sample results and the certification hypothesis, the bought deal binary variable is significantly positive in each specification. This says that holding the issuer constant, bought deals are associated with less negative announcement-period abnormal returns by 3.29%. The coefficient on BETA is found to be significantly negative. Consistent with intuition, this says that offerings by firms with higher systematic risk are associated with more negative announcement effects. The coefficients on most of the other variables are insignificant.

Table 8 reports regression results for the direct costs, DISCOUNT and FEE, and the sum of these two costs, TDCOST. The sub-sample results for direct costs are also consistent with the full sample results. In particular, the bought deal binary variable, BD, is significantly negative in the DISCOUNT regression results, indicating that bought deals are associated with smaller discounts, and thus more favorable pricing, by about 4.21%. The coefficient on VOL is positive and statistically significant in Model 2. This says that firms with greater uncertainty issue equity at a higher discount, consistent with the idea that investors require a larger discount to purchase the offering.

Turning to the underwriting fee (FEE) regression results, the bought deal binary variable, BD, is negative and statically significant, implying that bought deals are associated with lower fees. This supports the idea that bought deal underwritings incur less marketing and distribution costs, and these cost savings dominate

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[21] For example, Chen et al. (2009) also find that larger offers significantly lower gross spreads and volatility positively affects gross spreads.

the increased resale price risk for bought deals. The coefficients on RVOL and VOL are positive and significant in Models 1 and 2, respectively. This indicates that underwriters require higher compensation for underwriting issues by firms with greater information asymmetry and uncertainty. The coefficient on INVPRO is positive and significant, implying an economies of scale effect in underwriting fees.

Finally, the regressions examining total direct costs, TDCOST, are also consistent with the full sample results. The explanatory variable of interest, BD, is negative and statistically significant. This implies that the total direct issuance costs for bought deals is about 4.0–4.5% less than total direct issuance costs for firm commitment underwritten issues, depending on the specification. The signs and significance of the control variables are also similar to the full sample results. In particular, RVOL, VOL and INVPRO are significantly positive.

Overall, the conclusion from the sub-sample results is that holding the issuer constant, bought deal underwritten issues are perceived more favorably by the market, and consistent with higher quality, bought deals are issued with smaller offer price discounts and smaller underwriting fees.

6. Conclusions

This paper investigates whether bought deal underwritten equity offerings provide greater certification than firm commitment underwritten offerings. Consistent with the underwriter certification hypothesis, I find that the market reaction to the announcement of equity issues is significantly less negative for bought deals than for firm commitment issues. The indirect cost savings is about $29.3 million for an average size firm in the sample. Consistent with higher quality, I also find that bought deals are issued with smaller offer price discounts and smaller underwriting fees compared to firm commitment issues. Economically, bought deals save a further $5.8 million in direct costs for an average firm in the sample. My results hold even after controlling for a possible self-selection bias and a host of other controls found to be important in the literature. These findings suggest that investment banks' underwriting method of choice is informative of issue quality.

The cost advantages of the bought deal support its overwhelming use in Canada. However, one may ask why there are so many bought deals and thus, so many high-quality issuers. One explanation is that since this paper examines a sample of completed issues, the analysis is conditional on issuing. Therefore, potential low-quality issuers may not issue. Alternatively, low-quality issuers may use less transparent issue methods. One such method is private placements of equity. Maynes and Pandes (2009) document a large market for private placements of equity in Canada, which are sold without a prospectus to high-net worth individuals and/or institutions at large discounts compared to seasoned public equity offerings.

Given the popularity of bought deals in Canada, it is perhaps surprising why other countries have not adopted them. One reason cited by DuVal (1995–96) is that regulation in Canada allows underwriters to solicit expressions of interest from potential investors for a maximum of two business days prior to the filling of the preliminary prospectus.[22] This permission is contingent upon an underwriting agreement having been signed between the issuer and the underwriter which requires that the preliminary prospectus be filed within the two business day period. This allows underwriters some limited opportunity to canvas the market prior to the pub-

lication of the issue and therefore allow bought deals to be negotiated with greater assurance by the underwriter. In most other markets, underwriters cannot solicit expressions of interest until the registration statement is filed with regulators.[23]

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[22] As of December 30, 2005, this period during which the pre-marketing of a bought deal can occur was changed from two business days to up to four business days.

[23] Casual conversations I have had with lawyers and investment bankers in both Canada and the US also cited this as the main reason why bought deals are not common, at least in the US market. However, they also noted that the recent introduction of the free writing prospectus by the SEC in the US may lead to the use of bought deals for US equity offerings.

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