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DETERMINANTS OF UNDERWRITING FEES FOR DOMESTIC AND NON-DOMESTIC SEASONED EQUITY OFFERINGS BY CANADIAN CROSS-LISTED SHARES

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Kryzanowski, L. & Rubalcava, A. (2002). DETERMINANTS OF UNDERWRITING FEES FOR DOMESTIC AND NON-DOMESTIC SEASONED EQUITY OFFERINGS BY CANADIAN CROSS-LISTED SHARES. *Assurances*, *70*(3), 379–406. https://doi.org/10.7202/1107526ar

Article abstract

This paper examines whether the determinants of underwriter fees are the same for domestic and non-domestic seasoned equity offerings (SEOs) by Canadian shares cross-listed on the TSE and on the NYSE/AMEX and NASDAQ. The results indicate that gross proceeds, firm size, return volatility, relative size of the offering and the inclusion of an overallotment option are the determinants of fees for domestic SEOs. Firm size, number of underwriters, type of offering and U.S. listing venue are the determinants of underwriting fees for non-domestic SEOs. After controlling for differences in other relevant fee determinants, underwriter fees are significantly higher for non-domestic compared to domestic SEOs, and for non-domestic SEOs for Canadian shares cross-listed on the NASDAQ compared to those cross-listed on the NYSE/AMEX. These results suggest that the Canadian and the U.S. investment banking markets are not integrated in the sense of sharing underwriting cost functions with an identical set of determinants.

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ABSTRACT

This paper examines whether the determinants of underwriter fees are the same for domestic and non-domestic seasoned equity offerings (SEOs) by Canadian shares cross-listed on the TSE and on the NYSE/AMEX and NASDAQ. The results indicate that gross proceeds, firm size, return volatility, relative size of the offering and the inclusion of an overallotment option are the determinants of fees for domestic SEOs. Firm size, number of underwriters, type of offering and U.S. listing venue are the determinants of underwriting fees for non-domestic SEOs. After controlling for differences in other relevant fee determinants, underwriter fees are significantly higher for non-domestic compared to domestic SEOs, and for non-domestic SEOs for Canadian shares cross-listed on the NASDAQ compared to those cross-listed on the NYSE/AMEX. These results suggest that the Canadian and the U.S. investment banking markets are not integrated in the sense of sharing underwriting cost functions with an identical set of determinants.

RÉSUMÉ

Cet article vérifie si les déterminants des frais de souscription sont les mêmes pour des émissions subséquentes d'actions (ESA) domestiques et non domestiques par des entreprises canadiennes dont les titres sont interlistés sur le TSE, le NYSE/AMEX et le NASDAQ. Les résultats montrent que le montant brut de l'émission, la taille de l'entreprise, la volatilité des rendements, l'importance relative de l'émission et la présence d'une option d'attributions excédentaires sont les déterminants des frais de souscription des ESA domestiques. La taille de l'entreprise, le nombre de souscripteurs, le type d'émission et le marché spécifique américain où le titre est interlisté constituent les déterminants des frais de souscription des ESA non

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domestiques. Les frais de souscription sont significativement plus élevés pour les ESA non domestiques comparativement aux ESA domestiques, de même que pour les ESA non domestiques d'entreprises canadiennes sur le NASDAQ par rapport au NYSE/AMEX. Ces résultats suggèrent que les marchés canadien et américain des banques d'affaires ne sont pas intégrés au sens d'avoir des fonctions de coûts de souscription avec des déterminants identiques.

■ INTRODUCTION

The significant determinants of underwriter fees for seasoned equity offerings (SEOs) vary across the numerous published studies.[1] Determinants are identified by offer type (firm commitment, shelf or not shelf registration), method of underwriter selection (negotiated or competitive), issuer industrial sector (industrials or utilities), underwriter type (commercial bank holding company or investment bank) and country of issue.[2] The determinants identified in most studies, and the signs of their estimated coefficients include the log of gross proceeds (-) and stock return volatility (+), as proxied by the standard deviation of returns.

The current trend in financial research is to compare the empirical results using data for non-U.S. firms with the results of similar studies using U.S. firms to assess their comparability. While this methodological approach significantly enhances the robustness of the inferences based on the findings for U.S. firms, its benefits are very dependent on the appropriateness of the drawn matching sample.

Thus, the purpose of this paper is to extend the literature on the determinants of underwriting fees for SEOs by using domestic and non-domestic issues for Canadian share issuers that are cross-listed in U.S. listing venues.[3] Specifically, the purpose is to test the null hypothesis that the cost functions for SEOs are integrated across countries in the sense that the same set of determinants materially affects SEO underwriting fees. Our methodological approach increases the reliability of the estimated results because the Canadian firms that have shares cross-listed on the Toronto Stock Exchange (TSE) and the U.S. trade venues and that issue domestic SEOs are usually the same as those that issue non-domestic SEOs. Whether this hypothesis is rejected or not needs to be empirically tested.

The topic of this paper is of interest for three reasons. First, by using domestic and non-domestic SEOs, the results should provide greater clarity on whether or not the determinants of underwriting

fees by Canadian issuers who are cross-listed internationally depend on the geographic location of issue. Second, by examining whether the fees are similar for domestic compared to non-domestic SEOs, this study reveals whether the Canadian and U.S. SEO underwriting cost functions are integrated. Since underwriting fees are not a trivial cost for companies that frequently issue common equity, the results of this study have important implications for Canadian CFOs, treasurers or financial decision makers when deciding whether to float equity issues domestically or internationally.

We find that the determinants of underwriter fees differ for the domestic and non-domestic SEOs for Canadian issuers with shares cross-listed in the U.S. The log of gross proceeds, firm size, the volatility of stock returns, the relative size of the offering and the overallotment option are the main determinants of underwriter fees for domestic SEOs, regardless of whether these Canadian issuers are cross-listed on the NYSE/AMEX or NASDAQ. In contrast, firm size, number of underwriters, type of equity (primary or secondary) offering,[4] and U.S. listing venue are the main determinants of underwriter fees for non-domestic SEOs issued by Canadian firms cross-listed in the U.S. We also find that the underwriting fees are higher for the non-domestic relative to the domestic SEOs by Canadian shares cross-listed on the U.S. trade venues. After controlling for the other relevant determinants, underwriter fees for SEOs by Canadian shares cross-listed on the TSE and U.S. trade venues are significantly higher for non-domestic relative to domestic SEOs, and for non-domestic SEOs when the U.S. listing venue of the issuer is NASDAQ and not the NYSE/AMEX. These findings suggest that the Canadian and U.S. underwriting cost functions for SEOs are significantly different in the sense that the same set of determinants does not materially affect SEO underwriting fees in both markets.

The remainder of the paper is organized as follows. Section 2 examines the sample and data. Section 3 presents the hypothesis to be tested and describes the test methodology. The empirical results are reported and analyzed in section four. Section 5 concludes the paper.

■ THE SAMPLE AND DATA

The initial sample consists of 255 domestic and non-domestic seasoned (primary and secondary) equity offerings (SEOs) by

Canadian issuers cross-listed on the TSE and on the NYSE, AMEX or NASDAQ, as identified using the National Post Data Group Database for the period 1993-1998. The total sample is reduced to 146 SEOs by eliminating 109 SEOs that were withdrawn or not completed, had no fees reported, were not included in the CFMRC

TABLE I

This table reports the descriptive statistics for the Total, Domestic and Non-domestic seasoned (primary and secondary) equity offerings (SEOs) by Canadian issuers with shares cross-listed on the NYSE, AMEX and NASDAQ for each year during the period, 1993-1998. Exchange reports the number of SEOs for the shares cross-listed on the NYSE/AMEX and NASDAQ, respectively. Fee is the mean underwriter fee (gross spread) expressed in percent. The mean values of Gross Proceeds and Firm

		Exchange		
YEAR	Number of SEOs	AMEX	NYSE/ NASDAQ	Mean Fee (%)
Panel A : Total SEOs (N = 146)				
1993	34	23	11	4.40
1994	12	7	5	4.21
1995	17	8	9	4.39
1996	30	15	15	4.71
1997	28	13	15	4.50
1998	25	14	11	4.27
Panel B : Domestic SEOs (N = 109)				
1993	31	20	11	4.33
1994	12	7	5	4.21
1995	10	4	6	4.14
1996	18	10	8	4.54
1997	17	4	13	4.37
1998	21	12	9	4.20
Panel C : Non-domestic SEOs (N = 37)				
1993	3	3	0	5.03
1994	0	0	0	–
1995	7	4	3	4.75
1996	12	5	7	4.97
1997	11	9	2	4.70
1998	4	2	2	4.62

Database, or had no return data before the SEO announcement. The final sample of 146 SEOs (116 primary (PE) and 30 secondary equity offerings) includes 70 firm commitment (FC), 12 best efforts (BE) and 64 bought deals (BD). Although the final sample is 40% smaller, the final sample is highly representative of the initial

Size are in Canadian dollars as of December 1998 based on the Consumer Price Index. The Terms of the SEOs are firm commitment (FC), best efforts (BE), and bought deal (BD). The last column reports the number of seasoned primary equity offerings (PE). Panels A, B and C report the descriptive statistics for the total, domestic and non-domestic SEOs, respectively. No non-domestic SEOs are floated in 1994. N is the sample size.

Gross Proceeds	Firm Size	FC	BE	BD	PE
$74.3	$772.5	24	1	9	30
$47.5	$444.2	5	1	6	9
$97.4	$739.5	5	5	7	11
$136.2	$1,131.1	22	2	6	24
$179.9	$1,122.9	10	1	17	20
$132.3	$1,672.3	4	2	19	22
$76.5	$758.6	21	1	9	27
$47.5	$444.2	5	1	6	9
$57.0	$394.6	3	2	5	8
$103.8	$952.2	11	1	6	15
$115.1	$672.8	4	1	12	11
$114.7	$1,524.4	2	2	17	20
$50.9	$916.2	3	0	0	3
–	–	–	–	–	–
$155.2	$1,232.1	2	3	2	3
$184.9	$1,399.4	11	1	0	9
$280.0	$1,818.5	6	0	5	9
$224.5	$2,448.8	2	0	2	2

sample. Many of the SEOs that are eliminated are from the same firms that are included in the final sample.

Descriptive statistics for the total, domestic and non-domestic samples of SEOs for each year from 1993 to 1998 are reported in panels A, B and C, respectively, of Table 1. The descriptive statistics by year include the number of SEOs by issue location, issuer listing venue and type of underwriter commitment, and the

TABLE 2

This table reports the distribution of Total, Domestic and Non-domestic seasoned (primary and secondary) equity offerings (SEOs) for various categories of Gross Proceeds. The table also reports the mean values for the Fees and Firm Size for every category. Fee is equal to the underwriter fee (gross spread) in percent. Gross

Relative Frequency	Number of SEOs	Gross Proceeds (Millions 1998 $Cdn)
Panel A : Total SEOs (N = 146)		
15.1%	22	< 20
41.8%	61	≥ 20 & < 80
9.6%	14	≥ 80 & < 100
15.1%	22	≥ 100 & < 200
11.0%	16	≥ 200 & < 300
7.5%	11	≥ 300
Panel B : Domestic SEOs (N = 109)		
18.3%	20	< 20
46.8%	51	≥ 20 & < 80
9.2%	10	≥ 80 & < 100
15.6%	17	≥ 100 & < 200
6.4%	7	≥ 200 & < 300
3.7%	4	≥ 300
Panel C : Non-domestic SEOs (N = 37)		
5.4%	2	< 20
27.0%	10	≥ 20 & < 80
10.8%	4	≥ 80 & < 100
13.5%	5	≥100 & <200
24.3%	9	≥ 200 & < 300
18.9%	7	≥ 300

mean values for the % fees, the dollar gross proceeds and issuer firm size. The monetary values are stated in Canadian dollars as of December 1998 based on the Canadian Consumer Price Index as reported by the Canadian Economic Observer.

Of the 109 domestic SEOs, 57 and 52 are by Canadian issuers that are cross-listed on the TSE and on the NYSE/AMEX and NASDAQ, respectively. Of the 37 non-domestic SEOs, 23 and 14 are by firms cross-listed on the TSE and on the NYSE/AMEX and

Proceeds and Firms Size are in millions of Canadian dollars as of December 1998 based on the Consumer Price Index. Panels A, B and C report the values for the Total, Domestic and Non-domestic SEOs, respectively. N refers to the sample size.

Mean Fee (%)	Mean Gross Proceeds (Millions 1998 $Cdn)	Firm Size (Millions 1998 $Cdn)
5.11	10.6	87.8
4.62	45.0	419.5
4.26	86.6	806.5
4.09	134.3	1,429.3
4.12	222.5	2,597.4
3.87	588.4	3,588.6
4.90	5.2	85.4
4.38	43.5	409.8
3.87	83.9	900.4
3.89	137.6	1,481.2
4.00	225.4	2,581.6
4.00	639.3	4,630.2
5.25	19.5	143.00
5.82	52.8	468.8
5.25	93.6	571.9
4.78	123.1	1,252.6
4.22	220.3	2,609.6
3.80	559.3	2,993.4

NASDAQ, respectively.[5] Except for 1994 when no non-domestic SEOs were floated, the SEOs exhibit no noticeable bunching by year for the total, domestic and non-domestic SEOs. Gross proceeds and firm size are consistently higher for non-domestic compared to domestic SEOs for all the years in which both types of offerings are made.

Table 2 reports the relative frequencies and mean fees, gross proceeds and firm sizes for various constant-dollar gross proceed categories for the total, domestic and non-domestic SEO samples. For most of the categories of gross proceeds, the underwriting fees are consistently higher for the non-domestic compared to the domestic SEOs. As Chen and Ritter (2000) find for U.S. SEOs, underwriting fees are not clustered at any specific percent.[6]

■ HYPOTHESIS AND TEST METHODOLOGY

The null hypothesis to be tested is that in capital markets where the cost functions for SEOs is integrated, both the level and the determinants of underwriting fees do not differ for domestic and non-domestic SEOs and by U.S. listing venue for issuers whose shares are internationally cross-listed. We test this hypothesis by estimating the following relationship:[7]

$$
\begin{aligned}
FEE_i = \quad & \beta_0 + (\beta_1 + \lambda_{NASD} GLO)NASD_i + (\beta_2 + \lambda_{LnGP} GLO)LnGP_i \\
& + (\beta_3 + \lambda_{ME} GLO)ME_i + (\beta_4 + \lambda_{STD3} GLO)STD3_i \\
& + (\beta_5 + \lambda_{RELSIZE} GLO)RELSIZE_i \\
& + (\beta_6 + \lambda_{NOFFSC} GLO)NOFFSC_i + (\beta_7 + \lambda_{NU} GLO)NU_i \\
& + (\beta_8 + \lambda_{OAO} GLO)OAO_i \\
& + (\beta_9 + \lambda_{DNS} GLO)DNS_i + \varepsilon_i \qquad\qquad (1)
\end{aligned}
$$

where

FEE_i is the underwriter fee in percent for issue i, and is equal to $[(P^o - P^i)/P^o]*100$, where P^o is the price offered to the market and P^i is the price paid to the issuer firm for issue i.

$NASD_i$ is a dummy variable that indicates whether or not the shares of the issuer of issue i are cross-listed on NASDAQ. This dummy is equal to one if the shares are cross-listed in

NASDAQ and is equal to zero if they are cross-listed on the NYSE/AMEX.

GLO_i is a dummy variable that is equal to one if issue i is a non-domestic seasoned offering, and is equal to zero otherwise.

$LnGP_i$ is the natural logarithm of gross proceeds for issue i (i.e., the dollar amount of the offering size), and is equal to the number of shares floated times the offering price. It does not include the amount associated with the exercise of any overallotment option since whether or not this option will be exercised is not known at the time of the offering.

ME_i is the market value (in billions of dollars) of the equity of the issuer of issue i. This proxy for firm size is measured by multiplying the offering price by the number of shares outstanding prior to the SEO announcement, as in Hansen and Torregrossa (1992).

$STD3_i$ is the standard deviation of daily stock returns for the shares of the issuer of issue i during the three months prior to the SEO announcement.[8] The volatility of stock returns is used as a measure of price uncertainty or price risk.

$RELSIZE_i$ is the relative size of offer i as measured by the number of shares offered divided by the outstanding shares prior to the offering, as in Altinkilic and Hansen (2000), and Bae and Levy (1990).

$NOFFSC_i$ corresponds to the number of SEOs floated by the lead underwriter, where the number of non-domestic issues is adjusted to be comparable with those for domestic issues.[9] It is a proxy for underwriter prestige. This proxy is preferred over the dummy variable proxy used by Roten and Mullineaux (2000) and Ursel (2000) because our proxy captures more variability in underwriter reputation.

NU_i is the number of underwriters of Canadian issue i by an issuer whose shares are cross-listed on the TSE and on a U.S. trade venue. This variable proxies for underwriter effort where a higher number of underwriters is associated with higher NU_i.

OAO_i is a dummy variable that is equal to one if issue i has an overallotment option and is zero otherwise.

DNS$_i$ is a dummy variable that is equal to one if issue i is a primary seasoned equity offering and is zero if it is a secondary offering.

The determinants, *LnGP$_i$* and *ME$_i$*, are expressed in Canadian dollars as of December 1998 using the Canadian Consumer Price Index. Furthermore, unless stated otherwise, significance is measured throughout at the 5 percent level.

To enhance interpretation and to complement the exposition of the regression results based on equation (1), we also estimate the following equation that is obtained by replacing *NASD$_i$* by *NYAM$_i$* and *GLO$_i$* by *DOM$_i$* in equation (1):

$$
\begin{aligned}
FEE_i = \quad & \beta_0 + (\beta_1 + \lambda_{NYAM} DOM)\, NYAM_i + (\beta_2 + \lambda_{LnGP} DOM) LnGP_i \\
& + (\beta_3 + \lambda_{ME} DOM)\, ME_i + (\beta_4 + \lambda_{STD3} DOM) STD3_i \\
& + (\beta_5 + \lambda_{RELSIZE} DOM) RELSIZE_i + (\beta_6 + \lambda_{NOFFSC} DOM) \\
& NOFFSC_i + (\beta_7 + \lambda_{NU} DOM) NU_i + (\beta_8 + \lambda_{DNS} DOM) DNS_i \\
& + (\beta_9 + \lambda_{DNS} DOM) DNS_i + \varepsilon \qquad\qquad (2)
\end{aligned}
$$

where

NYAM$_i$ is a dummy variable that indicates whether or not the shares of the issuer of issue i are cross-listed on the NYSE/AMEX. This dummy is equal to one if the shares are cross-listed on the NYSE/AMEX and is equal to zero if they are cross-listed on the NASDAQ.

DOM$_i$ is a dummy variable that is equal to one if issue i is a domestic seasoned equity offering and is zero otherwise.

All the other terms are as defined above.

The variable that captures the U.S. listing venue, NASD$_i$ or NYAM$_i$, is included to examine if the fixed portion of underwriting fees for non-domestic issues is significantly higher if the Canadian non-domestic SEO is for shares that are cross-listed on the NASDAQ compared to on the NYSE/AMEX. This expectation is based on an extension of the imputed noncompetitive behavior of NASDAQ dealers for order handling to SEO underwritings during the 1993-1998 time period examined herein. Christie, Harris and Schultz (1994), amongst others, document the relatively higher costs for order handling by dealers on NASDAQ. Since gross proceeds is significantly higher for non-domestic issues, particularly for issuers cross-listed on NASDAQ, this variable also may proxy somewhat for gross proceeds.

The $LnGP_i$ variable is selected because it measures the impact of potential economies of scale to the investment dealer in placing larger issues. It is used in most empirical studies dealing with the determinants of underwriter fees and normally is negatively related to fee size (for a condensed review see Bühner and Kaserer, 2000).

To control for firm size, ME_i is included. Usually, the larger is the issue, the larger is the firm. Larger firms are associated with lower expected fees because larger firms are considered less risky. They are deemed to have less information asymmetry since they are closely followed by analysts and are more widely held. This is consistent with lower marketing and certification costs by the underwriter (Hansen and Torregrossa, 1992). On the other hand, as the issue size increases, underwriters may require larger fees to persuade wealthy or institutional investors to add additional same-firm shares to their already large holdings of the issuing firm (Merton, 1987). Additionally, larger issues usually result in larger price drops at the announcement date (Korajczyk, Lucas and McDonald, 1990).

The expectation is that fees and the relative size of the offering, $RELSIZE_i$, are positively related. Larger quantities of shares offered relative to firm size may decrease the price of the outstanding shares. In turn, this increases the risk of the offering, and therefore the underwriter fee. In addition, the larger the issue, the more the need for the underwriter to support the issue and therefore the larger the gross spread or fee (Asquith and Mullins, 1986; Bae and Levy, 1990). This adheres to the concept of variable costs rising as more capital is raised, everything else held equal, and supports the notion of U-shaped fees (Altinkilic and Hansen, 2000).

The relationship between fees and return volatility, as measured by the prior standard deviation of returns or $STD3_i$, is expected to be positive. Higher return volatility should increase the risk of the offering, and therefore increase the required underwriter compensation. In other words, higher standard deviations of returns increase the possibility that the underwriters may face higher price risk at the time of and after the offering, so that they have to liquidate their long positions at market prices that are lower than the offered prices. This variable is identified as a significant determinant of fees in most studies. The expectation is that fees are positively related with the quality of the underwriter because higher quality underwriters certify, market and monitor more credibly seasoned offerings (Chemmanur and Fulghieri, 1994).

The expected coefficient of the number of underwriters is expected to be positive. This assessment is based on empirical findings for IPOs. For example, Chung, Kryzanowski and Rakita (2000) find that, when a higher effort in issue marketing and distribution is needed for Canadian IPOs, the underwriter group needs to be compensated accordingly with higher fees.

The relationship between the inclusion of an overallotment option and fees is undetermined. Ellis, Michaely and O'Hara (2000) argue that, if the market is 'hot' for IPOs, a higher possibility exists that the underwriter will exercise the overallotment option to increase its total fee revenues. They also add that, since the OAO reduces inventory risk, a lower percent underwriter fee is expected. On the other hand, the issuer may be willing to pay higher fees to obtain higher total proceeds by granting the OAO to the underwriter as an incentive to oversell the issue (Pichler and Wilhelm, 2001). Ritter (1998) claims that the OAO may serve as a signal or marketing device to convince investors that the issue is not overpriced. Assuming that the signal is credible, then the issuer is willing to compensate the underwriter with higher fees.

The relationship between fees and type of offering (primary or secondary) is an empirical issue. Although intuitively it is expected to be positive in both cases, the impact of both types of offerings may not be similar when considering domestic and non-domestic SEOs for cross-listed shares. Both types of issues may be perceived differently by investors who trade domestic issues in the Canadian market relative to those who trade non-domestic issues in U.S. markets. Thus, the relationship between fees and type of offering may be positive (positive or negative) and significant (non-significant or significant) for the type of offering that is perceived as having the higher (lower) information asymmetry by investors.[10]

The means and medians of the fees and ex-ante determinants for the total, domestic and non-domestic samples of SEOs, and the p-values of the differences in the means and medians for the domestic and non-domestic samples of SEOs are reported in Table 3. Based on columns (1) through (4), the mean fees of 4.44 percent for the total sample of SEOs is lower than the mean fees of 5.44 percent for U.S. SEOs, as reported by Lee, Lochhead and Ritter (1996). The mean (median) fees of 4.32 (4.00) percent for the domestic SEOs is significantly lower than the corresponding values of 4.82 (4.75) percent for the non-domestic SEOs. The mean gross proceeds (firm size) of $89.4 ($856.7) million for the domestic SEO also is statistically smaller than the corresponding values of $201.0 ($1,566.6) for the non-domestic SEOs. Similar inferences

are drawn using the medians, which have smaller values than the means. In contrast, the mean number of underwriters of 2.85 for the domestic SEOs is higher and marginally significant compared to the corresponding value of 2.29 for the non-domestic SEOs. No statistically significant differences are found in both the means and medians for return volatility, *STD3*, the relative size of the offering, *RELSIZE*, and the proxy for underwriter reputation, *NOFFSC*, for the domestic and non-domestic SEO samples.

Similar statistics are reported by U.S. listing venue (NYSE/ AMEX and NASDAQ) for the domestic and non-domestic SEOs in columns (5) through (7) and (8) through (10), respectively. Approximately the same numbers of issuers of domestic SEOs are cross-listed on the NYSE/AMEX (57) as on NASDAQ (52). Based on column (7) of Table 3, the mean and median differences for fees and most of the fee determinants are statistically significant. The exceptions include the mean difference for *STD3*, and both the mean and median differences for *NOFFSC* and *NU*. The mean and median values of *FEE*, *STD3* and *RELSIZE* are statistically lower for the domestic SEOs by Canadian issuers with shares cross-listed on the NYSE/AMEX relative to those cross-listed on the NASDAQ (except for the mean of *STD3* which is significant only at the 10 percent level). Gross proceeds (*GP*) and firm size (*ME*) are significantly larger in value for the domestic SEOs by Canadian issuers with shares cross-listed on the NYSE/AMEX relative to those cross-listed on the NASDAQ.

Based on column (10) of Table 3, the mean and median differences for fees and all fee determinants are statistically significant. The mean and median values of *FEE*, *STD3* and *RELSIZE* are significantly lower for the non-domestic SEOs of issuers with shares cross-listed on the NYSE/AMEX relative to those cross-listed on the NASDAQ. The mean and median values of *GP, ME, NOFFSC* and *NU* are significantly higher for the non-domestic SEOs of Canadian issuers with shares cross-listed on the NYSE/AMEX relative to those cross-listed on the NASDAQ.

■ EMPIRICAL RESULTS

The regression results for the estimations of equations (1) and (2) are reported in Table 4.[11] Based on their F-values, the two regressions are statistically significant. The explanatory power (as measured by the R-square value) is equal to 0.47 for both regressions.

To assess if the determinants are the same for the domestic and non-domestic SEOs, equation (1) uses the dummy variable *GLO* to determine the marginal impact of non-domestic SEOs on the individual slope coefficients for the fee determinants of domestic SEOs. Equation (2) uses the dummy variable *DOM* to assess the marginal impact of domestic SEOs on the individual slope coefficients for the fee determinants of the non-domestic SEOs. The regression results for equations (1) and (2) are reported in columns (1) and (2) of Table 4, respectively.

The estimated constants of 4.6899 and 5.0916 percent reported in columns (1) and (2) of Table 4 for equations (1) and (2), respectively, are both significant. The estimated coefficient of the constant change dummy (β_1) for undifferentiated SEOs by issuers cross-listed on NASDAQ is positive (0.2240) but insignificant (p-value of 0.1045). The estimated coefficient of the constant change dummy for non-domestic SEOs by issuers cross-listed on NASDAQ is both positive (0.9217) and significant (p-value of 0.0007). The estimated coefficient of the constant change dummy for undifferentiated SEOs by issuers cross-listed on NYSE/AMEX is negative (-1.0484) and significant (p-value of 0.0000). The estimated coefficient of the constant change dummy for domestic SEOs by issuers cross-listed on NYSE/AMEX is both positive (0.8243) and significant (p-value of 0.0028). These results suggest that the fixed portion of underwriter fees is significantly higher (lower) for non-domestic versus domestic SEOs for Canadian issuers whose shares are cross-listed on NASDAQ (NYSE/AMEX), and that the fixed portion of underwriter fees is significantly lower (higher) for non-domestic SEOs for Canadian issuers whose shares are cross-listed on NYSE/AMEX (NASDAQ).

The estimated coefficient of the log of gross proceeds, *LnGP*, is negative (-0.3721) and significant (p-value of 0.0000) for domestic SEOs, and negative (-0.0884) but not significant (p-value of 0.4366) for non-domestic SEOs. The estimated coefficient of the log of gross proceeds times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant, *LnGP*GLO*, is both positive (0.2118) and marginally significant (p-value of 0.0745). Thus, the stylized inverse relationship between underwriter fees and gross spreads is significantly negative only for domestic SEOs, and is significantly less negative for non-domestic versus domestic SEOs for the sample studied herein.

The coefficient estimate of the market value of equity, *ME*, is positive (0.0001) and significant (p-value of 0.0171) for domestic

SEOs, and is negative (-0.0003) and significant (p-value of 0.0000) for non-domestic SEOs. The estimated coefficient of the market value of equity times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant, $ME*GLO$, is both negative (-0.0004) and significant (p-value of 0.0000). Thus, a significant positive (negative) relationship exists between underwriter fees and market value of equity for domestic (non-domestic) SEOs, and the relationship is significantly different for domestic versus non-domestic SEOs.

The coefficient estimate of the return volatility, $STD3$, is positive (13.9554) and significant (p-value of 0.0219) for domestic SEOs, and is positive (13.9554) but insignificant (0.4744) for non-domestic SEOs. The estimated coefficient of the return volatility times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant is negative (-15.4573) but only marginally significant (p-value of 0.0899). Thus, fees and return volatility are positively and significantly related only for domestic SEOs.

The estimated coefficient of the relative size of the offering, $RELSIZE$, is positive (0.7304) and significant (p-value of 0.0102) for domestic SEOs, and negative (-0.7727) but not significant (p-value of 0.2937) for non-domestic SEOs. The estimated coefficient of the relative offer size times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant, $RELSIZE*GLO$, is negative (-1.5892) and significant (p-value of 0.0350). Thus, the relationship between underwriter fees and relative offer size is the only significant relationship for domestic SEOs, and is significantly different for domestic versus non-domestic SEOs for the sample studied herein.

The estimated coefficient of the proxy for underwriter prestige, $NOFFSC$, is positive but insignificant (p-values of 0.4939 and 0.5097) for the domestic and non-domestic SEOs, respectively. The estimated coefficient of underwriter prestige times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant, $NOFFSC*GLO$, is negative (-0.0065) but insignificant (p-value of 0.7186). Thus, no significant relationship exists between underwriter fees and underwriter prestige even if SEOs are differentiated by location of issue as being domestic or non-domestic.[12]

The estimated coefficient of syndicate size, NU, is positive (0.0007) but insignificant (p-value of 0.9840) for domestic SEOs, and positive (0.3329) and significant (p-value of 0.0000) for non-

TABLE 3

This table reports the descriptive statistics for underwriter fees and its expected determinants for the Total, Domestic and Non-domestic (global) seasoned (primary and secondary) equity offerings (SEOs) by the Canadian issuers with shares cross-listed on the TSE and on the NYSE, AMEX and NASDAQ. The determinants are defined as follows. FEE is the underwriter fee (gross spread) expressed in percent. It is equal to $[(P^0-P^i)/P^0]*100$, where P^0 is the offering price to the market and P^i is the price paid to the issuer. GP is gross proceeds and is equal to the offering price times the number of shares issued. ME is the market value of the equity of the issuer, and proxies for firm size. It is equal to the offering price times the number of shares outstanding before the SEO announcement. GP and ME are expressed in millions of dollars as of December 1998. STD3 is the daily standard deviation of returns for the period consisting of the three months prior to the SEO announcement. It proxies for return volatility. RELSIZE is the relative size of the offering. It is equal to the shares offered divided by the number of outstanding shares. NOFFSC corresponds to the number of such SEOs floated by the lead underwriter, where the number

Variables	(1) Total SEOs [146]	(2) Total SEOs Domestic [109]	(3) Total SEOs Non- domestic [37]	(4) p-value, difference	(5) NYSE/AMEX [57]
FEE	4.44	4.32	4.82	0.003***	4.07
	(4.00)	(4.00)	(4.75)	(0.003)***	(4.00)
GP	$117.7	$89.4	$201.0	0.001***	$124.8
	($64.2)	($51.0)	($128.9)	(0.000)***	($76.9)
ME	$1,036.6	$856.7	$1,566.6	0.009***	$1,242.8
	($475.0)	($343.4)	($982.0)	(0.001)***	($642.6)
STD3	0.0292	0.0294	0.0287	0.842	0.0266
	(0.0237)	(0.0233)	(0.0247)	(0.932)	(0.0216)
RELSIZE	0.201	0.205	0.189	0.692	0.155
	(0.120)	(0.122)	(0.118)	(0.886)	(0.109)
NOFFSC	10.22	10.52	(9.31)	(0.263)	10.58
	(10.43)	(12.00)	(8.14)	(0.234)	(12.00)
NU	2.71	2.85	2.29	0.077*	3.052
	(2.00)	(2.00)	(2.0)	(0.267)	(2.00)

of non-domestic issues is scaled (adjusted) to be comparable with those for domestic issues. It proxies for underwriter prestige. Finally, NU corresponds to the number of underwriters. It proxies for underwriter effort. Column (1) displays the mean (median) values of each determinant for the Total sample of SEOs. Columns (2), (3) and (4) report the mean (median) values of each determinant and the p-values of their difference for the Domestic and Non-domestic SEOs. Columns (5), (6) and (7) display similar statistics for the Domestic SEOs by issuers with shares cross-listed on the NYSE/AMEX and NASDAQ. Finally, columns (8), (9) and (10) report similar statistics for the Non-domestic SEOs by firms with shares cross-listed on the NYSE/AMEX and NASDAQ. T- and Wilcoxon/Mann-Whitney tests are used to test the difference in means and medians, respectively. The medians and the p-values of their differences are reported in parentheses. *, **, and *** correspond to levels of significance of 10, 5 and 1 percent, respectively. Sample sizes are reported in the brackets.

(6) Domestic SEOs NASDAQ [52]	(7) p-value, difference	(8) NYSE/AMEX [23]	(9) Non-domestic SEOs NASDAQ [14]	(10) p-value, difference
4.59	0.001***	4.30	5.67	0.000***
(4.31)	(0.004)***	(4.00)	(6.00)	(0.000)***
$50.6	0.004***	$261.0	$102.4	0.082*
($32.5)	(0.000)***	($205.5)	($71.5)	(0.008)***
$433.5	0.002***	$2,175.1	$566.9	0.002***
($159.8)	(0.000)***	($1,902.7)	($259.2)	(0.000)***
0.0324	0.062*	0.0221	0.0397	0.000***
(0.0256)	(0.032)**	(0.0203)	(0.0387)	(0.001)***
0.260	0.013**	0.139	0.272	0.012**
(0.185)	(0.022)**	(0.111)	(0.224)	(0.004)***
10.46	0.910	12.50	(4.07)	0.000***
(12.00)	(0.990)	(10.85)	(2.71)	(0.000)***
2.63	0.235	2.52	1.92	0.036**
(2.0)	(0.293)	(2.00)	(2.00)	(0.031)**

TABLE 4

This table reports the results of various regressions of underwriter fees against the expected determinants for the Total, Domestic and Non-domestic or global (primary and secondary) equity offerings (SEOs) for the Canadian issuers with shares cross-listed on the NYSE, AMEX and NASDAQ. The cross-sectional regression model used for regressions (1) and (2) is as follows:

$$FEE = \beta_0 + (\beta_1 + \lambda_{NASD} GLO)NASD_i + (\beta_2 + \lambda_{LnGP} GLO)LnGP_i$$
$$+ (\beta_3 + \lambda_{ME} GLO)ME_i + (\beta_4 + \lambda_{STD3} GLO)STD3_i$$
$$+ (\beta_5 + \lambda_{RELSIZEGLO})RELSIZE_i + (\beta_6 + \lambda_{NOFFSC}GLO)NOFFSC_i$$
$$+ (\beta_7 + \lambda_{NU}GLO) NU_i + (\beta_8 + \lambda_{OAO}GLO)OAO_i + (\beta_9 + \lambda_{DNS}GLO)DNS_i + \varepsilon_i \qquad (1)$$

$$FEE_i = \beta_0 + (\beta_1 + \lambda_{NYAM}DOM) NYAM_i + (\beta_2 + \lambda_{LnGP} DOM)LnGP_i$$
$$+ (\beta_3 + \lambda_{ME} DOM) ME_i + (\beta_4 + \lambda_{STD3} DOM)STD3_i$$
$$+ (\beta_5 + \lambda_{RELSIZE}DOM)RELSIZE_i + (\beta_6 + \lambda_{NOFFSC}DOM) NOFFSC_i$$
$$+ (\beta_7 + \lambda_{NU}DOM) NU_i + (\beta_8 + \lambda_{DNS} DOM)DNS_i$$
$$+ (\beta_9 + \lambda D_{NS} DOM)DNS_i + \varepsilon_i \qquad (2)$$

The subscript i refers to issue i. FEE is the underwriter fee (gross spread) expressed in percent. It is equal to $[(P^0-P^i)/P^0]*100$, where P^0 is the offering price to the market

Variables	(1)	
	Coef.	p-value
CONSTANT	4.6899	0.0000***
NASD or NYAM	0.2240	0.1045
NASD*GLO or NYAM*DOM	0.9217	0.0007***
LnGP	-0.3721	0.0000***
ME	0.0001	0.0171**
STD3	13.9554	0.0219**
RELSIZE	0.7304	0.0102**
NOFFSC	0.0101	0.4939
NU	0.0007	0.9840
OAO	0.3563	0.0264**
DNS	0.0912	0.6910
lnGP*GLO or lnGP*DOM	0.2118	0.0745*
ME*GLO or ME*DOM	-0.0004	0.0000***
STD3*GLO or STD3*DOM	-15.4573	0.0899*
RELSIZE*GLO or RELSIZE*DOM	-1.5892	0.0350**
NOFFSC*GLO or NOFFSC*DOM	-0.0065	0.7186
NU*GLO or NU*DOM	0.3304	0.0000**
OAO*GLO or OAO*DOM	-0.1647	0.5138
DNS*GLO or DNS*DOM	0.1363	0.5875
Adjusted R-squared	0.474	
Prob. (F-statistic)	0.000	

and P^i is the price paid to the issuer. NASD (NYAM) is a dummy variable that equals one if the issuer has shares cross-listed in NASDAQ (NYSE/AMEX), and is zero otherwise. GLO (DOM) is a dummy variable that is equal to one for the Non-domestic (domestic) SEOs, and is zero otherwise. LnGP is the natural logarithm of the gross proceeds (GP), which is equal to the offering price times the number of shares issued. ME is the market value of the equity of the issuer and proxies for firm size. It is equal to the offering price times the number of shares outstanding before the SEO announcement. GP (ME) are expressed in (billions of) dollars as of December 1998. STD3 is the daily standard deviation of returns for the three months prior to the SEO announcement. RELSIZE is the relative size of the offering and it is equal to the shares offered divided by the number of shares outstanding. NOFFSC correspond to the number of SEOs by Canadian issuers with shares listed in U.S. markets that are floated by the lead underwriter. It is a proxy for underwriter prestige. NU_i is the number of underwriters of Canadian shares cross-listed on the U.S. trade venue of issue i, where higher NU_i implies higher underwriter effort. OAO_i is a dummy variable that is equal to one if issue i has on overallotment option, and is zero otherwise. DNS_i is a dummy variable that is equal to one if issue i is a primary seasoned equity offering and is zero if it is a secondary offering. The cells report the estimated coefficients (Coef.) and their associated p-values (p-value) based on tests for significance using Newey and West robust t-statistics. The adjusted R^2 and the probability (F-statistic) values are reported in the last two rows of each column. *, **, and *** indicate significance at levels of 10, 5, and 1 percent, respectively.

	(2)	
	Coef.	p-value
	5.0916	0.0000***
	-1.0484	0.0000***
	0.8243	0.0028***
	-0.0884	0.4366
	-0.0003	0.0000***
	5.3691	0.4744
	-0.7727	0.2937
	0.0085	0.5097
	0.3329	0.0000***
	0.2914	0.1506
	0.2529	0.0560*
	-0.3123	0.0207**
	0.0005	0.0000***
	7.5059	0.3665
	1.4978	0.0568*
	0.0005	0.9796
	-0.3323	0.0000***
	0.0701	0.7793
	-0.1950	0.4428
	0.470	
	0.000	

domestic SEOs. The estimated coefficient of the syndicate size times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant, $NU*GLO$, is positive (0.3304) and significant (p-value of 0.0000). Thus, a significant (and positive) relationship between underwriter fees and syndicate size exists only for non-domestic SEOs, and the relationship between underwriter fees and syndicate size is significantly different for domestic versus non-domestic SEOs.

The coefficient estimate of the overallotment option dummy, OAO, is positive (0.3563) and significant (p-value of 0.0264) for domestic SEOs, and is positive (0.2914) but not significant (p-value of 0.1506) for non-domestic SEOs. The estimated coefficient of the overallotment option times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant is negative (-0.1647) but insignificant (p-value of 0.5138). Thus, the relationship between underwriter fees and the inclusion of an overallotment option is significant (and positive) only for domestic SEOs.

The coefficient estimate of the dummy for primary offerings, DNS, is positive (0.0912) but not significant (p-value of 0.6910) for domestic SEOs, and is positive (0.2529) and marginally significant (p-value of 0.0560) for non-domestic SEOs. The estimated coefficient of the dummy variable for primary equity offering times the dummy variable used to capture the marginal impact on fees of non-domestic SEOs for this fee determinant is positive (0.1363) but insignificant (0.5875). Thus, the relationship between underwriter fees and the type of the offering (primary) is significant (and positive) only for non-domestic SEOs.

Thus, the log of gross proceeds, $LnGP$, firm size, ME, the standard deviation of returns, $STD3$, offer size, $RELSIZE$ and the inclusion of an overallotment option, OAO, are significant determinants of underwriter fees for our sample of domestic SEOs by Canadian issuers with shares cross-listed in U.S. markets. The estimated signs for $LnGP$, $STD3$ and $RELSIZE$ are consistent with the findings of Bae and Levy (1990) and Eckbo and Masulis (1992). A possible explanation for the positive relationship between fees and firm size may be due to the difficulty of selling domestic SEOs of larger Canadian firms into the domestic Canadian market because of their relatively high proportion of market capitalization relative to the average firm in the Canadian stock market. In addition, targeted large investors (such as pension funds) may already hold a significant proportion of the share float of these firms in their investment portfolios. This conjecture is consistent with the

predictions of the Merton (1987) model, in which a higher weight on the same stock should be associated with a higher expected return. Thus, underwriters may require higher compensation for issues by larger Canadian issuers for domestic SEOs. The positive relationship between underwriter fees and the inclusion of an overallotment option is consistent with the findings for Canadian IPOs by Chung et al (2000). It also is consistent with the argument by Pichler and Wilhelm (2001) and Ritter (1998) that higher fees paid to the investment bank may be more than compensated by the successful sale of a larger issue (measured in terms of net proceeds to the issuer).

A possible reason for the non-significance of *NOFFSC* is that relatively little information asymmetry needs to be resolved by the investment dealer for SEOs compared to IPOs (where fees are higher). Cross-listed SEO issuers generally have a well-known trading history, and are often followed by a large number of analysts. As a result, there is much less need for high certification and monitoring (and therefore for higher underwriter reputation), as is the case for IPOs (McLaughlin, Safieddine, and Vasudevan, 2000).[13,14] The insignificance of syndicate size, *NU*, as a determinant of underwriter fees is consistent with the findings of Chung et al (2000) for Canadian IPOs.

In contrast, market value of equity, *ME*, syndicate size, *NU*, and type of offering (*primary*) and U.S. listing venue, *NYAM*, are significant determinants of underwriter fees for our sample of non-domestic SEOs by Canadian firms cross-listed in U.S. markets. This result indicates that the variable portion of underwriter fees for non-domestic SEOs by Canadian issuers with shares cross-listed in the U.S. decreases with increasing firm size, increases with syndicate size, and increases if the issue is a primary offering. The fixed portion of underwriting fees is lower for shares cross-listed on the NYSE/AMEX compared to that for the NASDAQ, all else held equal.

A number of separate unreported regressions are run to test for the robustness of the findings reported above. When the dummies for exchange and for the dummy for exchange times the dummy *GLO* are omitted, the estimated coefficients of *LnGP*, *STD3* and *OAO* become significant with their expected signs for the non-domestic SEOs, and the estimated coefficient of *DNS* becomes insignificant. This suggests that the exchange dummy captures the impact of these variables on underwriter fees for non-domestic SEOs. To further assess the impact of the NASDAQ and the NYSE dummies, we first regress the dummy *NASD*GLO* on the variables,

LnGP*GLO, ME*GLO, STD3*GLO, OAO*GLO and *DNS*GLO.*
We then regress the dummy *NYAM* on the same independent varia-
bles. Except for *ME*GLO*, the estimated coefficients for the regres-
sions are all significant but with opposite signs. Specifically, the
coefficients for the determinants of *NASD*GLO (NYAM)* are -- (+)
for *LnGP*, + (-) for *STD3*GLO*, + (-) for *OAO*GLO* and - (+) for
DNS*GLO. The results for *STD*GLO* and *OAO*GLO* suggest that
the dummy variable *NASD (NYAM)* is a proxy for higher (lower)
risk so that higher (lower) relative underwriter fees are required.
On the other hand, the larger the *LnGP*, the less likely the SEO
is non-domestic for an issuer cross-listed in *NASD* compared to
NYAM. Similarly, primary (secondary) offerings are less (more)
likely to be floated on the *NASD (NYAM)*. This is consistent with
the empirical finding that larger issues are more likely to be primary
than secondary, and are more likely to be floated for firms cross-
listed in *NYAM* than in *NASD.*[15]

In summary, our study has three main findings. First, the
determinants of underwriting fees for domestic and non-domestic
SEOs by Canadian cross-listed shares are not the same. Second,
the underwriting fees are much higher for non-domestic relative
to domestic SEOs. Third, the underwriting fees for non-domestic
SEOs are higher for shares cross-listed on the NASDAQ compared
to those cross-listed on the NYSE. All of these results indicate
that the SEO cost functions differ between the Canadian and U.S.
markets, and also across U.S. markets depending on the listing
venue of the issuer.

Based on these findings, why do firms issue non-domestic
SEOs that carry higher underwriting fees? Doidge, Karolyi, and
Stulz (2001) provide one possible explanation of why firms may
decide to float shares non-domestically, even though such issues
carry higher underwriting fees. Doidge et al. find that firms that
cross-list in major U.S. markets are more highly valued than similar
firms that do not cross-list. They attribute this to their higher growth
opportunities and lower costs of controlling shareholder agency
problems.

Another possible explanation is that Canadian companies
whose shares are cross-listed into international markets (mostly the
U.S.) can reap the benefits of wider investor recognition from a
greater investor base by using a non-domestic SEO. Non-U.S. firms
may be able to position larger portions of their shares in the U.S.
without causing the larger price drops that would occur if they issue
new equity in their smaller and thinner domestic markets. Thus,
international SEOs by Canadian cross-listed firms may be a method

to lower their cost of capital by benefiting from a lower price impact from issue and from a declining systematic risk after issue (see Foerster and Karolyi, 1999, 2000; and Errunza and Miller, 2000). Although we provide no empirical evidence on this issue, we expect that the larger underwriting fees associated with non-domestic relative to domestic SEOs is more than offset by differences in the price discount (underpricing), price impact (at the announcement and issue dates) and systematic risk impact of non-domestic versus domestic SEOs

■ CONCLUSION

It is well documented that the empirical determinants of underwriter fees (gross spreads) differ somewhat across various samples. Determinants generally identified as being significant are the characteristics of the issue (types and terms of the offering) and the issuer (size, risk and so forth), the type of underwriter (bank-owned underwriter or independent investment bank), and country of issue placement.

This paper makes an important contribution to the existing empirical literature by analyzing the determinants of the under-writer fees for both domestic and non-domestic seasoned equity offerings (SEOs). By using samples of domestic and non-domestic SEOs by Canadian issuers cross-listed on the TSE and various U.S. listing venues (NYSE/AMEX and NASDAQ), we examine better matched samples of SEOs. This methodological approach enhances the reliability of the tests, and therefore the inferences drawn from the empirical results since the firms that usually float domestic issues are generally the same as those that float international issues (although usually at different points of time).

Our main finding is that the determinants of underwriting fees differ for the domestic and non-domestic SEOs by Canadian firms that are cross-listed on the TSE and on the U.S. major trade venues. Specifically, the significant determinants of the variable portion of underwriter fees and their signs for our sample of domestic SEOs are the natural log of gross proceeds (-), the size of the firm or market equity capitalization (+), the standard deviation of prior returns (+), the relative size of the offering (+) and the inclusion of an overallotment option (+). The significant determinants of the variable portion of underwriter fees and their signs for our sample of non-domestic SEOs are firm size (-), syndicate size (+) and if the

issue is a primary (not a secondary) offering (+). The fixed portion of underwriter fees are significantly higher for non-domestic versus domestic SEOs for Canadian issuers, and are significantly higher for non-domestic SEOs for Canadian issuers whose shares are cross-listed in NASDAQ versus the NYSE/AMEX.

These results clearly indicate that the determinants of underwriter fees are dependent on whether the SEO is domestic or non-domestic, and on the U.S. listing venue where the Canadian shares are cross-listed. Our findings are robust since we control for the same explanatory variables for both types of SEOs. Our findings appear to unambiguously demonstrate that the same common determinants of SEO underwriter fees do not exist internationally, at least for the domestic and non-domestic SEOs for our sample of Canadian issuers whose shares are cross-listed in the U.S.

We also find that the underwriting fees are much higher for the non-domestic relative to the domestic SEOs for the Canadian firms cross-listed on the TSE and on U.S. trade venues, and that the fees for non-domestic SEOs are higher for issuers that are cross-listed on the NASDAQ than on the NYSE. These findings suggest that the cost functions for SEO underwritings differ between the Canadian and the U.S. markets. Whether or not these differences are due to noncompetitive behavior or differences in the costs of providing such underwriting services is a very controversial topic that is worthy of future in-depth investigation.

☐ Appendix

List of lead underwriters for the Domestic and Non-domestic seasoned (primary and secondary) equity offerings (SEOs) for Canadian issuers with cross-listed shares on the NYSE, AMEX and NASDAQ for the time period, 1993-1998. Panel A and B report in alphabetical order the names of the lead underwriters for the Domestic and Non-domestic SEOs, respectively.

Panel A : Domestic SEOs

Bunting Warburg Inc.; CIBC Wood Gundy Securities Inc.; First Marathon Securities Limited; Goepel, Shields & Partners Inc.; Gordon Capital Corporation; Griffiths McBurney & Partners; Levesque Beaubien Geoffrion Inc.; Loewen, Ondaatje, McCutcheon Limited; McLean McCarthy Inc.; Midland Walwyn Capital Inc.; Nesbitt Burns Inc.; Newcrest Capital Inc.; Pollitt, Bertrand & Co. Inc.; RBC Dominion Securities Inc.; Richardson Greenshields of

Canada Limited; ScotiaMcLeod Inc.; Sprott Securities Ltd.; UBS Ltd.; and Yorkton Securities Inc.

Panel B : Non-domestic SEOs

CIBC Wood Gundy Securities Inc.; Cowen & Company; Credit Suisse First Boston Corporation; Donaldson, Lufkin & Jenrette Securities; Furman Selz Inc.; Goldman, Sachs & Co.; Hambrecht & Quist Inc.; Howard, Weil, Labouisse, Friedrichs Inc.; Levesque Beaubien Geoffrion Inc.; Loewen, Ondaatje, McCutcheon Limited; Merrill Lynch & Co.; Morgan Stanley Canada Limited; Nesbitt Burns Inc.; Nomura International Ltd.; PaineWebber Incorporated; RBC Dominion Securities Inc.; Richardson Greenshields of Canada Limited; and Salomon Smith Barney Canada Inc.

☐ Acknowledgements

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☐ Notes

1. Underwriter fees also are known as gross spreads, syndicate spreads, or underwriter commissions. Underwriting fees compensate the underwriter(s) for bearing price and distribution (inventory) risk at the time of the offering. We adhere to the Investment Dealers Association of Canada or IDA definition (see Syndicate Practices Handbook, 1996) of underwriter fee as referring to gross (%) spreads herein.

2. This literature includes Hansen and Torregrossa (1992) and Bae and Levy (1996) for firm commitment SEOs, Bhagat, Marr and Thompson (1985) for shelf and not shelf registration SEOs, Bhagat and Frost (1986) for negotiated versus competitive SEO deals, Eckbo and Masulis (1992) for rights offerings and the SEOs for industrials and utilities, Gande, Puri and Sanders (1999), Roten and Mullineaux (2000) and Ursel (2000) for the type of underwriter (commercial bank holding company or investment bank), and Slovin, Sushka and Lai (2000) and Bühner and Kaserer (2000) for SEO flotation methods and country of issue placement.

3. Domestic SEOs by Canadian cross-listed shares on the U.S. refer to seasoned (primary and secondary) equity offerings that are floated in Canada. Non-domestic SEOs are those that are floated outside of Canada, mainly in the U.S.

4. Primary equity offering refers to the sale of new equity to the public by a firm (i.e., there is an increase in outstanding shares). In a secondary issue no new equity is sold to the public, only shares owned by the existent shareholders are sold to the public (i.e., the number of outstanding shares remains the same).

5. In the total sample of SEOs, there are only two simultaneous domestic and non-domestic issues. They are classified separately as domestic and non-domestic issues.

6. In contrast, Chen and Ritter (2000) and Kryzanowski and Rakita (2001) find that fees for IPOs are clustered at seven percent (U.S.) and six percent (Canada), respectively.

7. The model also is estimated using dummy variables to identify the terms of the SEO (i.e., firm commitment, best efforts or bought deal). None of the estimated regression coefficients for these dummy variables is significant.

8. The time periods used to measure daily return volatility range from two years (Ursel, 2000) to 20 days prior to the issue (Yeoman, 2001). Our time period is similar to that used by Bae and Levy (1990). We find that our results are robust when we measure the daily standard deviation of stock returns using the data for both the month and the six months prior to the announcement.

9. This is because the sample size is different for domestic (109) and non-domestic (37) SEOs; otherwise the *NOFFSC* for non-domestic would be biased downwards. In addition, the underwriters that subscribe domestic issues are usually Canadian investment dealers and those who subscribe non-domestic issues are usually U.S. investment dealers. See the Appendix for the complete list of lead underwriters for the domestic and non-domestic Canadian SEOs, respectively.

10. Asquith and Mullins (1986) and Korajczyk et al (1990) find a lower price impact for secondary relative to primary equity offerings at the announcement date. This may suggest the existence of lower information asymmetry for SEOs. Myers and Majluf (1984) suggest that firms use primary equity offerings when the value of growth opportunities is higher relative to the assets in place discounted by the possible negative price effects of such issues. Viswanath (1993) and Cooney and Kalay (1993) find that a non-negative price impact of equity offerings may arise from positive firm information. The likelihood of these results is higher for issues where investors are more likely to be better informed (i.e., for domestic issues), as implied by the investor recognition model of Merton (1987). The Merton model builds on earlier models for asset pricing in imperfect markets. For a comparison and reconciliation of two of these models, see Kryzanowski and To (1982).

11. To examine the stability of the coefficient estimates, the regressions also are run using each independent variable until all the ex-ante determinants are included. Based on unreported results, the estimates of the coefficients for the two types of regressions, which are estimated with and without dummies, do not change significantly.

12. The market share of the lead underwriter as a proportion of total proceeds, for both domestic and non-domestic issues for the sample period 1993-1998, was also used as a proxy for underwriter prestige. No significant results were found for this measure.

13. Ursel (2000) finds that underwriter prestige is negatively related to fees and is not statistically significant. Roten and Mullineaux (2000) find that, counter to a priori expectations, the coefficient of underwriter prestige is negative and statistically significant. Bae and Levy (1990) use the number of lead managing underwriters as a proxy for underwriter prestige. They find that the estimated coefficient of this variable is positive and statistically significant but highly correlated with the size of the offering. Based on the unreported correlation matrix, this is not the case herein.

14. Kryzanowski and Rakita (2001) find that underwriter reputation is marginally significant as a determinant of underwriter fees for Canadian IPOs.

15. The correlation matrix and these regression results are available upon request.