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Canada's Dual Class Shares: Further Evidence on the Market Value of Cash Dividends

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ABSTRACT

The Canada Income Tax Act of 1971 permitted Canadian corporations to create two classes of equity, one paying ordinary cash income and the other paying capital gains income. Cash-paying shares have often sold at a premium. Empirical results indicate that the premium is largely explained by the relative value of the dividends paid and by costs imposed on investors by stock dividend payment and share conversion procedures. Premiums for a few firms also reflect the relative liquidity of the two classes of shares. No evidence exists that investors prefer cash income to equal amounts of capital gains.

WITHIN THE LAST FIFTEEN years, over twenty corporations listed on Canadian stock exchanges have issued two classes of equity, one paying cash dividend income and the other paying capital gains. Each share is convertible one for one into shares of the other class, has equal claim to the issuing firm's profits, and receives distributions on the same date as the other class. Thus, each is equally subject to the uncertainty of the firm's operating cash flows.

These unusual securities are uniquely suited to a study of an important unresolved issue in finance, the effect of dividend policy on firm value. Long [6] and Shefrin and Statman [11] indicate that claims to cash income may sell for a premium. In contrast, Elton and Gruber [3], Poterba [9], and other authors present evidence that suggests that capital gains are preferred.[1] If markets were frictionless and information were without cost, the price history (as opposed to the conversion history) of Canada's dual class shares would be of no use to the study of this issue: the actions of traders using the conversion option would ensure that the Class A and Class B shares of a particular company sell for the same price. However, positive transactions costs permit differences between prices of the two classes. The relative expected value of distributions, the relative market value of equal amounts of the two types of distributions, and relative

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[1] Cash shares can sell at a premium if some investors incur significant transactions costs in trading odd numbers of shares received as stock dividends. Shefrin and Statman [11] note that the desire for "self control" on the part of investors could also cause cash dividends to be favored. Either cash or capital gains shares can sell at a premium, reflecting the marginal tax rates of the marginal participant in the market.

trading costs can cause one class to sell at a premium although this premium should be limited by the transactions costs of purchasing and converting shares:

$$\frac{P(A, t)}{P(B, t)} = \kappa \, \mathrm{E}\{\frac{d(A, t+i)}{d(B, t+i)}, i \geq 0\} + \phi \frac{L(A)}{L(B)}. \quad (1)$$

$P(A,t)$, $P(B,t)$, $d(A,t)$, and $d(B,t)$ represent the prices of Class A and Class B shares and the dividends paid to Class A and Class B shareholders at time t. $\mathrm{E}\{\cdot\}$ is the expectations operator. Coefficient κ reflects the relative market values of equal amounts of the two types of distributions. $L(A)$ and $L(B)$ represent the liquidity of Class A and Class B shares, and coefficient ϕ reflects the market value of liquidity.

Canada's dual class shares offer an opportunity to examine markets for cash-paying shares and close substitutes paying only capital gains. This paper uses the record of dual class prices, trading volumes, and dividends to study the effects of dividends and market frictions on stock valuation. Section I provides historical and institutional details about the shares. Section II describes the data set, presents empirical evidence on price differences between the two classes, and considers the market imperfections that serve to segment the markets for the two classes. Section III explains the price differences with the relative value of the dividends paid, relative trading costs, and stock dividend payment procedures that differ among firms. Section IV consists of a summary and conclusion.

I. History and Institutional Details

With passage of the Canada Income Tax Act of 1971, any Canadian corporation could partition its equity into new equities designated Class A and Class B. Shareholders were allowed to select Class A or Class B shares (or any combination of both) in a one-for-one exchange for their old shares. All shares are identical in all other respects, such as voting rights, regardless of the time period or type of dividend paid. Royal Trustco's 1982 annual report states, "Each class of common shares has identical rights, privileges, and conditions except . . . (for the different) . . . dividends. . . ." Imperial Oil's 1983 annual report states, "Class A and Class B shares have voting privileges, are convertible on a share-for-share basis, and rank equally in all other respects. . . ." Class A shares paid ordinary cash dividends throughout the period of this study (1976–1983). Prior to 1979, the Class B shares paid what were known as "tax-deferred" dividends. These dividends were paid in cash and linked to the Class A cash dividend at the rate of eighty-five percent; if Class A were to receive a one-dollar dividend, Class B would receive eighty-five cents at the same time. The "other" fifteen cents were paid directly to the government by the corporation, and no taxes on the eighty-five cents were immediately due. At the time a Class B share was sold by a Canadian investor, the sum of all tax-deferred dividends previously received was subtracted from the basis (purchase price) of the share for the purpose of computing capital gains or losses. Starting in 1979, the Class B shares began to pay stock dividends because of a change in the tax law that had allowed tax-deferred payments. Stock dividends were taxed as capital gains at the time they were sold. Quarterly dividends for both the Class A and Class B securities were

paid on the same day, and the issuing corporations tried to set the before-tax values of the Class A cash and Class B stock dividends equal.[2] However, there was no guarantee that Class B stock dividends would be identical in value to corresponding Class A cash payments.

II. Price Differences between Class A and Class B Shares

This section describes the data set, summarizes market trading activity in the dual class shares, and documents the relative prices of the two classes. The size of the price differences between classes is then interpreted in light of the costs of trading and converting shares.

A. Data

Although over twenty pairs of dual-dividend-class securities were listed on the Toronto Stock Exchange (TSE) in 1983, only nine have enough trading activity in the Class B share for empirical study.[3] Daily closing prices and volumes for February 1976 through August 1983 were supplied by FRI Information Services of Toronto for the following equities: Consolidated Bathurst, Dofasco, Dome Petroleum 7.76% Preferred, Imperial Oil, Royal Trustco, Royal Trustco $1.875 Preferred,[4] and Stelco. Matching data for Newfoundland Light and Power and TransAlta Utilities[5] were obtained from the pages of *The Commercial and Financial Chronicle* for the same period. The sample includes one paper company, two steel companies, two oil companies, two public utilities, and one financial-

[2] This excerpt from a Consolidated Bathurst proxy statement of 1979 is typical of the companies issuing dual class stock:

> No provision for payment (of a stock dividend) may be made . . . on the Series B Common Shares unless, contemporaneously, the Board of Directors declares a cash dividend, payable at the same time as the said dividend on the Series B . . . , on each Series A Common Share then outstanding, equal to . . . the value of the stock if any, (paid) . . . in respect of each Series B Common Share outstanding. . . .
> For the purpose of determining the value of any such stock dividend, each Series B Common Share shall be deemed to have a value substantially equal to the average of the last sale price for . . . either Series A Common Shares or Series B Common Shares on the Montreal and Toronto Stock Exchanges on the eight trading days . . . immediately preceding the date of declaration of such stock dividend. . . .

Among the other companies in the sample, Imperial Oil, Royal Trustco, and Stelco use the average price for a Class A or Class B share for the five days prior to the declaration date to determine the amount of stock dividend to pay once the cash dividend has been set. Dofasco uses the day prior to declaration and Dome Petroleum uses fourteen days prior through five days beyond the record date. Two companies, Newfoundland Light & Power and TransAlta, try to compensate Class B shareholders with a dividend slightly larger in value than the Class A cash dividend. A TransAlta brochure states the following: "The price of the Class B Common shares issued as stock dividends will be based on 95% of the average market price of the Class A Common shares." Newfoundland Light & Power has an identical "ninety-five percent" policy. Both firms use the average price five days prior to the payment date to calculate the amount of stock dividend to pay.

[3] This study excludes dual equity classes with different voting rights.

[4] Royal Trustco $1.875 Preferred Class B receives Class B common shares as stock dividends, not additional Class B preferred shares.

[5] Calgary Power was renamed TransAlta Utilities in 1981.

services company. Dividend information was obtained from Standard & Poor's *Quarterly Dividend Record.*

Table I contains summary information on the level of trading activity in the shares: for each class of stock issued by each of the companies in the sample, the number of days with trading volume in the security (days traded) and the average daily trading volume (mean volume) are reported. The principal conclusion to be drawn from Table I is that trading is light for Class B shares. Class A shares are heavily traded, while Class B trading activity for most of the securities consists of only a few hundred shares trading once or twice a month. Dome Petroleum Class B Preferred and Imperial Oil Class B Common are the most frequently traded Class B shares in the sample: an average of about one thousand Dome Class B changed hands on seventy percent of the days the market was open. Imperial Class B had similar volume on about fifty percent of the days the market was open in the 1979–1983 period. Dome Petroleum and Imperial Oil are the best cases for empirical study, but results will be reported for all nine pairs of securities in the sample. The table also reports the mean ratio of Class A to Class B volume and the mean ratio of Class A to Class B shares outstanding. Comparing the two measures indicates that Class A shares are proportionately more heavily traded than Class B shares for all firms except Newfoundland Light & Power.

B. Relative Market Prices for Class A and Class B Shares

Table II presents summary statistics on the ratio of Class A to Class B share prices for days that both types trade. The mean price ratios and sign tests suggest that all Class A shares have, on average, sold at a statistically significant premium relative to Class B. In the 1976–1978 period, the Class A premium ranges from 3½ percent for Stelco to forty-one percent for Consolidated Bathurst. A drop in price ratios appears to exist subsequent to the change in tax regime in 1979: Class A premiums range from less than one percent for Dome Petroleum to nineteen percent for Consolidated Bathurst. Plots of the price ratios indicate that Class A premiums in the 1976–1978 period remain virtually constant across time although the level of the premium varies across firms.[6] In the 1979–1983 period, plots indicate that Consolidated Bathurst, Dofasco, Imperial Oil, and Royal Trustco Common and Preferred price ratios drifted toward one, starting at about the time the Class B shares began to pay stock dividends. Newfoundland Light & Power and Stelco show no readily discernible pattern in their prices, perhaps because of the small number of observations. Dome Petroleum and TransAlta price ratios appear to remain close to one. Though nonsynchronous prices add noise to observed price ratios, the evidence indicates that Class A shares often sold at substantial premiums relative to Class B shares, especially in the earlier time period. Further, the relative pricing of the two types of shares is not constant across firms or time periods.

[6] The plots are not reproduced in the paper but are available from the author upon request.

Table I

Market Activity for Class A Cash Shares and Class B Capital Gains Shares

Security	Days Market Was Open[a]	Class A		Class B		Days Both Classes Traded	Mean of A Volume to B Volume, Days Both Classes Traded	Mean of A to B Shares Outstanding
		Days Traded[b]	Mean Volume[c]	Days Traded	Mean Volume			
Consolidated Bathurst:								
1976–1978	728	703	7508	19	1102	19	15.16	13.58
1979–1983	1168	1156	7906	89	504	88	39.88	5.99
Dofasco:								
1976–1978	728	717	5420	6	522	6	27.89	18.83
1979–1983	1168	1165	9284	23	394	22	82.36	30.54
Dome Petroleum 7.76% Preferred:								
1979–1983	974	939	3141	723	905	707	8.28	2.20
Imperial Oil:[d]								
1976–1978	728	722	24591	227	707	227	75.50	20.67
1979–1983	1168	1164	54209	501	1081	501	158.90	30.25
Newfoundland Light & Power:								
1979–1983	1168	1079	1191	25	194	25	6.13	26.30
Royal Trustco:								
1979–1983	1049	1008	14412	56	617	56	211.30	178.20
Royal Trustco $1.875 Preferred:								
1980–1983	748	479	4254	34	325	28	28.22	0.85
Stelco:								
1976–1978	728	722	10377	23	329	23	62.80	15.94
1979–1983	1168	1168	35615	50	403	50	260.60	26.08
TransAlta:								
1980–1983	825	824	33824	106	60	106	24362.20	29.35

[a] The number of days the Toronto market was open.

[b] The number of days the security experienced positive trading volume.

[c] Average daily trading volume on days security experienced positive trading volume.

[d] Imperial Oil Class A was also listed on the AMEX.

Table II

Summary Statistics on the Ratio of Class A Share Prices to Class B Share Prices and Tests of the Significance of the Differences between Prices for the Two Classes for the Time Periods 1976–1978 and 1979–1983

Security	1976–1978			1979–1983		
	N[a]	Mean of Price Ratio P(A,t)/P(B,t)[b]	Sign Test[c]	N	Mean of Price Ratio P(A,t)/P(B,t)	Sign Test
Consolidated Bathurst	19	1.408 (0.0038)	3.82	88	1.193 (0.0150)	8.37
Dofasco	6	1.334 (0.0111)	2.20	22	1.133 (0.0200)	4.07
Dome Petroleum 7.76% Preferred	—	—	—	707	1.003 (0.006)	9.14
Imperial Oil	227	1.208 (0.0009)	13.06	502	1.121 (0.0029)	19.24
Newfoundland Light & Power	—	—	—	25	1.018 (0.0110)	2.03
Royal Trustco	—	—	—	56	1.173 (0.0135)	6.50
Royal Trustco $1.875 Preferred	—	—	—	28	1.081 (0.0244)	2.74
Stelco	23	1.035 (0.0020)	4.19	50	1.027 (0.0025)	5.94
TransAlta	—	—	—	106	1.011 (0.0014)	6.44

[a] N is the number of days when both classes of stock traded.

[b] P(A,t) is the price of Class A cash shares; P(B,t) is the price of Class B capital gains shares that paid tax-deferred dividends prior to 1979 and stock dividends starting in 1979. The statistic in parentheses beside each mean is the standard error of the mean.

[c] Wilcoxon signed-rank test of the difference between Class A and Class B prices. The statistic is significant at the five percent level for Dofasco 1976–1978 and Newfoundland Light & Power. All others are significant at the one percent level.

C. Relative Market Prices and the Cost of Conversion

A premium for one class of stock is consistent with the market valuing Class A and Class B distributions or trading costs differently. However, the conversion feature limits the price differences between classes. Sufficiently large price differences permit purchasing shares of the low-priced class, converting them, and selling them at the higher price of the other class (or using them to clear out a short position in the higher priced class) at a profit. The premiums for Class A shares are often large. Several of the Class A shares have been priced at premiums ten to twenty percent higher than Class B shares. However, the cost of executing a round-trip arbitrage transaction on the TSE and the cost of converting shares may be so great that the premiums do not represent economically significant mispricings.

During virtually the entire period under study, the Toronto Stock Exchange used a fixed schedule of commissions similar to that once used by the New York Stock Exchange.[7] An investor was charged at least one percent of the value of shares bought or sold, except for very large lots. Fees were higher (up to three percent) for odd lots, low-priced shares, and transactions involving a small total cash flow. Brokers could elect to declare a minimum dollar amount to be charged. In addition, an implicit cost is apparent in the form of the bid-ask spread. Tinic and West [12] estimate an average Toronto Stock Exchange bid-ask spread of C$.38 a share in the early 1970's. Bid-ask spreads for lightly traded Class B shares are likely to be higher. Applying Roll's [10] method of estimating bid-ask spreads to weekly price changes for Dome Petroleum and Imperial Oil yields higher Class B bid-ask spreads for Imperial but not for Dome, which agrees with the relative size of the Class A premiums for the two companies.[8] Additionally, Tinic and West [12] find a strong negative association between bid-ask spread and trading volume, again suggesting that lightly traded Class B shares have large bid-ask spreads. Finally, margin would have to be posted to maintain a short position in the higher priced class of shares.

Revenue Canada, the Ontario Securities Commission, the Toronto Stock Exchange, and the issuing corporations advise that no tax liability, transfer taxes, or other costs are incurred upon conversion.[9] The tax basis of an old share is

[7] Fixed commissions were abolished by the TSE on April 1, 1983.

[8] Estimated bid-ask spreads were as follows: Dome Class A 1979–1983 $.08, Dome Class B 1979–1983 $.04, Imperial Class A 1976–1978 $.10, Imperial Class B 1976–1978 $1.52, Imperial Class A 1979–1983 $.91, Imperial Class B 1979–1983 $1.49. The shares in the sample traded in a range of about ten to forty dollars per share.

[9] Excerpts from Consolidated Bathurst By-Law AA-4, published on October 8, 1975, are typical of statements supplied by the corporations under study:

> 2(c) Each issued and fully paid Class A Common Share may at any time, at the option of the holder, be converted into one Class B Common Share. The conversion privilege ... may be exercised by notice in writing given to a transfer agent ... accompanied by the certificate....
> 2(d) Each issued and fully paid Class B Common Share may at any time, at the option of the holder, be converted into one Class A Common Share. The conversion privilege ... may be exercised in the same manner as the conversion privilege for which provision is made in the immediately preceding paragraph....

An exception to completely free convertibility is the stock of Imperial Oil, which suspends the conversion privilege within five trading days of an ex-dividend day.

passed to the new share upon conversion. However, conversion does not occur instantly. Share certificates must be delivered by courier or mail to the transfer agent, and a period of several days elapses before the conversion is officially recorded on the company's books.[10] Therefore, an arbitrageur must bear the implicit costs of ordering share certificates and delivering them to the transfer agent while maintaining a short position in the higher priced class and a long position in the lower priced class of shares for several days. The sum of transactions fees, commissions, a bid-ask spread of a dollar or two a share, the indirect costs of conversion, and other opportunity costs can represent a significant percentage of a share's price.[11]

The costs of executing trades on the TSE and the conversion of dual class shares permit substantial price differences between classes to persist in an efficient market. Further, the marketplace in which the shares trade is not identical to the more familiar stock and option exchanges in the U.S. Tinic and West [12] and Booth and Johnston [2] note that no specialists or market makers are present on the floor of the TSE. Member firms are prohibited from trading for their own account, and floor brokers act only to execute their clients' orders. Virtually all trades are public orders. Therefore, price differences between classes may reflect the relatively high trading costs of investors off the floor of the exchange.

III. Explaining the Price Differences

This section tests the observed differences between Class A and Class B prices for the hypothetical effects of dividends and liquidity. The statistical associations between the relative value of Class A and Class B shares, the relative value of dividends paid, and market frictions are reported and interpreted. Also considered are the relation between relative share prices and stock dividend payment procedures and the hypothesis that investors prefer cash income to an equal amount of capital gains.

[10] Royal Trustco common and preferred shareholders can pay a fee to expedite conversion. Five dollars per conversion, with a twenty-five-dollar minimum, can be paid for same-day conversions. Three dollars per conversion, with a fifteen-dollar minimum, can be paid for twenty-four-hour conversions.

Aside from the Royal Trustco case, it is unlikely that cross-sectional differences in premiums can be explained by differing conversion procedures. Dofasco and Dome Petroleum both employ National Trust as their transfer agent. Royal Trustco employs its own subsidiary, Royal Trust, as transfer agent. All the other companies in the sample employ Montreal Trust. However, correspondence from several of the companies and transfer agents suggests that the use of computers to manage corporate records beginning in the late 1970's or early 1980's has reduced the time needed to process conversion requests. This fact could explain the downward-drifting patterns in some of the time series of price ratios.

[11] Consider an arbitrage involving one round lot of each class. Let shares sell for about forty dollars. Fixed commissions (one percent plus \$.20 per share) and exchange fees (\$.20 per trade plus 1/80 percent, with a maximum total fee of \$1750) amount to 1.5 percent one-way and three percent in total (simultaneous long and short transactions). If bid-ask spreads are one dollar for Class A and two dollars for Class B, one half of each spread is an additional cost of 3.75 percent, for a total of 6.75 percent. Finally, the necessity of trading at transactions prices rather than at nonsynchronous closing prices (see Phillips and Smith [8] and Bhattacharya [1]), share conversion costs, and opportunity costs further reduces potential arbitrage profits.

A. Dividends, Trading Costs, and Price Differences

The Canadian tax code should be studied for an explanation of the premiums paid for Class A shares. As in the U.S., dividends received by individuals are taxed more heavily than capital gains. To avoid double taxation, corporations receiving dividends pay taxes at a rate considerably lower than that for corporate income.[12] Further, Canada's tax code includes such unusual features as no distinction between short- and long-term capital gains, taxation of stock dividends only at the time they are liquidated, and a tax credit equal to about a third of the value of cash dividends received by individuals from Canadian corporations.[13] Alternatively, the tax preferences of U.S. investors may affect prices if they are the marginal investors in the TSE. A U.S. investor holding a Class B share during the 1976–1978 period pays U.S. taxes on dividends immediately and receives no exemption from capital gains taxes when shares are sold. During the period since 1979, a U.S. investor has paid ordinary income tax on the value of any stock dividends received from Class B shares. However, the characteristics of the marginal investor in the market are not clear, given participation by Canadian, U.S., and other foreign investors with varying tax situations. Further, the peculiarities of the Canadian or U.S. tax systems cannot explain Class A share price premiums that vary across firms in the same time period.[14] An explanation of the cross-sectional variation in Class A premiums must come from a study of characteristics that differ across firms. Dividend policy and share trading costs are the most obvious of such characteristics.

Prior to 1979, Class B tax-deferred dividends were paid in cash at exactly eighty-five percent of the Class A dividend amount. This situation implies a dividend value ratio of 1.176; yet the average price ratios range from 1.03 to 1.40. Using a Wilcoxon signed-rank test to see whether the 1976–1978 price ratios are different from 1.176, test statistics of 3.82 for Consolidated Bathurst, 2.20 for Dofasco, 13.06 for Imperial Oil, and −3.53 for Stelco reject equality of the price ratios and the dividend value ratio of 1.176. No obvious association exists between relative prices and relative dividend values during the 1976–1978 period.

Starting in 1979, the policy of issuing corporations has been to try to set the value of the Class B stock dividend approximately equal to the before-tax value of the Class A cash dividend. Table III presents averages of the ratio of the value of Class A cash to the value of Class B stock dividends, $d(A,t)/d(B,t)$, for the period from 1979 to 1983. The value of a stock dividend, $d(B,t)$, is computed as the amount of stock paid times the first Class B price on or after the payment date. Table III shows that, in spite of the issuers' stated intentions, Class B stock dividends are, on average, lower in value than Class A cash dividends. For

[12] For an individual resident in Ontario, the top marginal income tax rate was sixty-two percent from 1976 to 1982 and fifty percent in 1983. For a corporate resident in Ontario, the income tax rate was fifty percent during the period under study. For both types of investors, the capital gains rate was half the ordinary rate.

[13] See Booth and Johnston [2] and Lakonishok and Vermaelen [5] for details of the dividend tax credit.

[14] A sample of annual reports, proxy statements, and 10-K reports offers no evidence of a "clientele" effect for each class of share. Principal shareholders (individuals and corporations), directors, and officers own both Class A and Class B shares.

Table III

The Average Ratio of the Value of Class A Cash Dividends Paid to the Value of Class B Stock Dividends Paid, 1979–1983[a]

Security	N[b]	Ratio of Amount of Class A Cash Dividend to Value of Class B Stock Dividend[c]		Correlation between Values of Cash and Stock Dividends
		Mean	Standard Deviation	
Consolidated Bathurst: 1979–1983	18	1.157	0.1658	0.964
Dofasco: 1979–1983	19	1.071	0.1529	0.583
Dome Petroleum 7.76% Preferred: 1979–1983	15	1.019	0.0437	0.000[d]
Imperial Oil: 1979–1983	17	1.099	0.1368	0.329
Newfoundland Light & Power: 1980–1983	11	0.969	0.1038	0.846
Royal Trustco: 1979–1983	16	1.141	0.2128	0.601
Royal Trustco $1.875 Preferred: 1980–1983	11	1.087	0.2152	0.000[d]
Stelco: 1980–1983	10	1.089	0.2232	0.931
TransAlta: 1980–1983	12	0.968	0.0550	0.915

[a] Prior to 1979, Class B shares paid tax-deferred dividends at exactly eighty-five percent of the Class A rate, so the ratio for those years is 1.176.

[b] N is the number of dividends observed.

[c] The value of a stock dividend equals the amount of the stock dividend times the first Class B stock price on or after the payment date. Results (available from the author) are similar if the stock dividends are valued as of the declaration day, rather than the payment day. The actual amount of the stock dividend paid was not available from Consolidated Bathurst, Dome Petroleum, and Royal Trustco Common and Preferred, so the amount was estimated following each company's published procedures.

[d] The correlation is zero because the Class A cash dividend is constant for these preferred issues.

example, Dome Petroleum Class B 7.76% Preferred shareholders received a distribution worth, on average, two percent less than the corresponding Class A cash dividend, while Imperial Oil Class B shareholders received a distribution worth about ten percent less than the Class A cash dividend. A comparison of Table III with the average price ratios reported in Table II shows that those firms that offered stock dividends of substantially lower average value than the corresponding cash dividends exhibit higher Class A premiums. Imperial Oil's cash dividend was, on average, ten percent greater in value than its stock dividends, and its Class A shares sell at a twelve percent premium relative to its Class B shares. Dome Petroleum Class B 7.76% Preferred shareholders receive a stock dividend worth only about two percent less than the corresponding Class A cash dividend, and premiums for Dome's Class A Preferred are close to zero. The estimated correlation between the average price ratios and average dividend ratios is a significant 0.85, with a p-statistic of 0.004. Thus, the discount for the Class B shares of some of the companies may reflect the relatively lower value of the stock dividends paid in the 1979–1983 period.

Regression analysis is used to document the association between prices, dividend ratios, and trading costs more thoroughly. Logged price ratios are regressed

on firm dummy variables and terms representing the expected dividend value ratio and relative trading costs. The explanatory power of the firm dummies is low if relative dividends and relative trading costs explain most of the variability of relative share prices. Observations from all nine pairs of securities from the 1976–1978 period and the 1979–1983 period are stacked in two regressions, one observation per pair per quarter.[15] Each regression is run twice. Residuals from the OLS first pass are used to create weights for the second pass: each observation is weighted by the standard deviation of the residuals from that pair's observations in the first-pass regression. Expectations about future dividends are approximated with the natural log of the ratio of contemporaneous values of Class A and Class B dividends. Relative trading costs are represented by the natural log of the ratio of contemporaneous values of Class A and Class B trading volumes:

$$\begin{aligned}\ln\{P(A, t)/P(B, t)\} = {} & \alpha_0(1) + \sum_{i=2}^{9} \alpha_0(i)\, D(i) \\ & + [\alpha_1(1) + \sum_{i=2}^{9} \alpha_1(i)\, D(i)] \ln\{d(A, t)/d(B, t)\} \qquad (2) \\ & + [\alpha_2(1) + \sum_{i=2}^{9} \alpha_2(i)\, D(i)] \ln\{V(A, t)/V(B, t)\}.\end{aligned}$$

Consolidated Bathurst Class A and Class B are the first pair of securities in the 1976–1978 regression; Dome Petroleum 7.76% Preferred Class A and Class B are the first pair of securities in the 1979–1983 regression. $D(i)$ are dummy variables, one for each of the second through ninth pairs of securities. The intercept for the first pair of securities, $\alpha_0(1)$, represents the premium for its Class A shares. The intercepts for the other eight pairs represent the premium for their Class A shares in excess of the first pair's Class A premium. The dividend and volume coefficients for the first pair of securities, $\alpha_1(1)$ and $\alpha_2(1)$, represent the total impact of those variables on relative share prices. The dividend and volume coefficients for the other pairs represent the effect of those factors on relative share prices in excess of the impact for the first pair. Because the dividend value ratio was a constant 1.176 in the 1976–1978 period, it is excluded from that period's regression.

Table IV reports the estimates of regression (2). Dividends are significant in explaining the Class A premiums in the 1979–1983 period. The dividend coefficient for Dome Petroleum is significantly positive, suggesting that the differing

[15] Combining observations from all nine pairs of securities adds the regression's power to estimate the market's relative value of the two types of dividends and also tests whether the relative value is identical across firms. Price, dividend, and volume ratios enter the regressions in logged form to avoid potential problems with the distributional properties of ratios. If, for example, the true Class A and Class B stock values are observed with normally distributed multiplicative errors, the ratio of observed prices may not be normally distributed. Kendall and Stuart [4] note that the ratio of two independent zero-mean, unit-variance, normally distributed random variables follows a Cauchy distribution. Significance tests that assume normally distributed variables are inappropriate in such cases. Assuming lognormality is realistic for such variables as stock prices, dividends, and volumes because they must take non-negative values. The assumption also permits the use of parametric significance tests of OLS regression coefficients.

Table IV

Coefficient Estimates from Pooled Weighted Least-Squares Regression of Price Ratios on Firm Dummy Variables, Dividend Value Ratios, and Volume Ratios[a]

	1976–1978			1979–1983			
	N[b]	Intercept	Volume Ratio[c]	N	Intercept	Dividend Ratio[d]	Volume Ratio
Dome Petroleum 7.76% Preferred	—	—	—	15	0.0002	0.1729	0.0023
					(0.06)	(2.49)	(1.01)
Consolidated Bathurst	6	0.3388	0.0087	18	0.0697	−0.0159	0.0320
		(169.37)	(6.11)		(1.19)	(−0.08)	(2.03)
Dofasco	6	−0.0377	−0.0144	12	0.0771	0.2404	−0.0000
		(−2.64)	(−2.74)		(0.99)	(1.04)	(−0.00)
Imperial Oil	11	−0.1434	−0.0112	17	0.0370	−0.1151	0.0137
		(−14.94)	(−4.04)		(0.60)	(−0.77)	(1.08)
Newfoundland Light & Power	—	—	—	8	−0.0187	−0.0601	0.0062
					(−1.44)	(−0.62)	(1.79)
Royal Trustco	—	—	—	13	0.1403	0.0431	−0.0108
					(3.91)	(0.34)	(−0.98)
Royal Trustco $1.875 Preferred	—	—	—	5	0.1371	0.5349	0.0162
					(8.65)	(4.12)	(0.48)
Stelco	10	−0.3112	−0.0073	10	0.0273	−0.1582	−0.0019
		(−22.42)	(−2.00)		(1.64)	(−2.09)	(−0.50)

TransAlta	—	—	—	12	0.0114	−0.1118	−0.0028
					(0.47)	(−0.72)	(−0.72)
Adjusted R^2		0.999				0.835	
F-Ratio		15,026.64				22.15	

[a] t-Statistics are in parentheses. Dependent variable is natural log of ratio of Class A price to Class B price. Observations for the nine pairs of securities are pooled in one regression for the two periods with one observation per quarter per pair of securities. For the 1976–1978 period, only four firms had Class B shares trading. The dividend ratio during this period was constant, so it is excluded from the regression. For the 1979–1983 period, stock dividends are valued at the first Class B trade occurring on or after the payment date. Results (available from the author) are similar if the stock dividends are valued as of the declaration day, rather than the payment day. For both regressions, there are some missing observations due to zero Class B volume during some quarters. The specification includes intercept and slope dummy variables for the second through ninth firms. The regression is run twice. Residuals from the OLS first pass are used to create weights for the second pass: each observation is weighted by the standard deviation of the residuals from that pair's observations in the first-pass regression. For the 1976–1978 regression, Consolidated Bathurst Class A and Class B are the first pair of securities to enter the regression, while, during the 1979–1983 period, Dome Petroleum 7.76% Preferred Class A and Class B are the first pair. In both regressions, the intercept for the first pair represents the premium for its Class A shares. The intercepts for the other eight pairs of securities represent the premium for their Class A shares in excess of the first pair's Class A premium. The dividend and volume coefficients for the first pair represent the total impact of those factors on relative share prices. The dividend and volume coefficients for the other pairs represent the impact of those factors on relative share prices in excess of the impact for the first pair.

[b] N equals the number of observations in the regression for the pair of securities.

[c] Natural log of the ratio of Class A volume to Class B volume.

[d] Natural log of the ratio of Class A cash dividend amount to value of Class B dividend.

values of the dividends paid to Dome's two classes explain much of the share price differences. Further, the dividend coefficients for all but one of the other eight pairs of securities are either insignificant or significantly positive, which means that the effect of dividends on their relative share prices is either identical to or greater than the effect for Dome Petroleum. The intercepts for most pairs of shares are reduced in size and significance from the raw average price ratios. Interestingly, the only firm charging a fee for quick handling of conversions, Royal Trustco, shows the largest and most significant residual premiums. Differences in dividends appear to explain some of the premiums paid for Class A shares. However, differences in liquidity, as measured with the time series of relative volumes, have little power to explain relative prices in both periods. Only Consolidated Bathurst and Newfoundland Light & Power's price ratios show a significant association with the volume ratios. In addition, market liquidity appears to have no power to explain relative share prices across firms: the correlation between the intercepts of regression (2) and the average relative volumes reported in Table I is insignificant in both periods.

While share prices appear to be sensitive to the relative before-tax value of dividends, some of the firms in the sample continue to exhibit residual Class A premiums, as indicated by the estimates of their intercept coefficients. Further, the intercept and slope coefficients are not identical across firms: a weighted least-squares regression that constrains the intercept, dividend, and volume coefficients to be equal across pairs of securities was also estimated. The F-statistic of 11.85 rejects equality of coefficients across firms during the 1979–1983 period at the one percent level of significance. Therefore, the relative amount of dividends is a significant explanatory variable but still leaves unexplained unequal premiums for the Class A stock of some of the companies.

B. Stock Dividend Payment Procedures and Price Differences

To explain the residual premiums for Class A shares, stock dividend procedures that differ across firms will be examined. An issue of uncertainty arises in comparing Class A cash dividends to the stock dividends received by Class B shareholders in the 1979–1983 period. At the time a cash dividend is announced, the Class A owner knows with certainty the value of the distribution he or she will receive on the payment date. The same certainty does not exist for the Class B shareholder, who cannot be certain of a forthcoming stock dividend's payment date value until he or she observes market prices on the payment date. To eliminate this risk, the Class B shareholder can liquidate existing shares equal in number to the forthcoming stock dividend at the time it is declared. Unless investors accept the "bird-in-the-hand" fallacy[16] or face a significant cost by liquidating existing shares in advance, the lag between declaration and payment of stock dividends does not induce a preference for Class A cash-paying shares.[17]

[16] The idea that rational investors prefer periodic cash dividends to uncertainty about the future value of non-dividend-paying securities is proven false by Miller and Modigliani [7].

[17] Some evidence exists that the frequency of trading in Class B shares is higher around stock dividend declaration dates. For example, Class B shares of Imperial Oil traded on 42.9 percent of all the days in the sample. However, Class B shares were traded on fifty percent of days that fall on, or one day after, a declaration date.

The estimated standard deviations of the ratio of cash dividend to stock dividend value in Table III are indicative of this uncertainty about the value of stock dividends at the payment date. The standard deviations for Dome Petroleum, Newfoundland Light & Power, and TransAlta are relatively low, indicating that the value ratios of Class B stock dividends to Class A cash dividends at the payment date are fairly stable. Estimated standard deviations, some two to five times greater in size for the other companies, indicate more uncertainty about the value of stock dividends, relative to cash dividends, on the payment date. This stock dividend uncertainty factor is correlated with the premiums paid for some of the Class A stock: the three companies with a low standard deviation of dividend value ratio (Dome Petroleum, Newfoundland Light & Power, and TransAlta) show the smallest Class A premiums, while the others have larger premiums. The estimated correlation between the residual premiums (the intercepts) from regression (2) and these standard deviations is significant at 0.73, with a p-statistic of 0.03.

Table V reports further evidence of this uncertainty, stock dividend declaration procedures that differ among the companies. The table presents summary statistics on the number of days Class B investors had to wait between the time the

Table V

Waiting Period, in Days, between Determination of Amount of Stock Dividend and Payment of Stock Dividend, 1979–1983[a]

Security	Average Days	Minimum Days	Maximum Days
Consolidated Bathurst	50.8	46	61
Dofasco	45.1	29	98
Dome Petroleum 7.76% Preferred	15.4	5	18
Imperial Oil	42.4	37	51
Newfoundland Light & Power	2.2	1	4
Royal Trustco	35.9	23	64
Royal Trustco $1.875 Preferred	39.9	23	68
Stelco	53.3	42	74
TransAlta	1.9	1	5

[a] Consolidated Bathurst calculates the amount of stock dividend to pay based on market share prices for eight days prior to the declaration date. Imperial Oil, Royal Trustco, and Stelco calculate based on market prices for five days prior to declaration, while Dofasco uses the market price for the day prior to declaration. The waiting period for these firms is calculated as the number of days from the day prior to declaration to the first trading day after the payment day. Dome Petroleum calculates the stock dividend based on market prices fourteen days before and five days beyond the record date, so its waiting period is calculated as the number of days from the fifth trading day after the record date to the first trading day after the payment date. Newfoundland Light Power and TransAlta calculate the amount of stock dividend to pay based on the market price of a share for five days prior to the payment date, so their waiting periods are calculated as the number of days from the day prior to the payment date to the first trading day on or after the payment date. The waiting period for cash dividends is theoretically zero. Postal delays may affect waiting periods for both cash and stock dividends, while check-clearing delays may affect cash dividend waiting periods.

amount of stock dividend to be paid was computed and the time it was actually paid. Company procedures detailed in the table determine how long this wait is. The waiting period ranges from an average of 1.9 days for TransAlta shareholders to 50.8 days for Consolidated Bathurst shareholders. Once again, comparison with earlier results indicates a correspondence between this waiting period and the premium paid for the corresponding Class A share. Those firms with a large lag between declaration and payment of the stock dividend also show large Class A premiums. The estimated correlation between the unexplained premiums from regression (2) and the waiting period averages in Table V is a weakly significant 0.56, with a p-statistic of 0.11. The evidence suggests that investors prefer a cash dividend to the "uncertainty" of the corresponding stock dividend. While consistent with a "bird-in-the-hand" preference for cash dividends, the evidence may also be explained by the cost of selling off an offsetting number of existing shares at the time a stock dividend is declared or disposing of odd amounts of stock dividends once they are received. Such costs can vary across firms, depending on the liquidity of the market for their Class B shares.

The evidence on stock dividend payment procedures could be caused by an investor preference for cash dividends. Because the time-series regression reported in Table IV may suffer from nonsynchronous prices and thin trading, a simple cross-sectional regression using averaged time-series data is estimated. The average 1979–1983 price ratios reported in Table II are regressed on the

Table VI

Cross-Sectional Regressions of Average Price Ratio on Average Dividend Value Ratio, Average Volume Ratio, Average Stock Dividend Waiting Time, and U.S. Listing Dummy Variable, 1979–1983[a]

Explanatory Variable	First Specification		Second Specification	
	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
Intercept	0.1084	0.2286	−0.3187	0.5380
Average Dividend Value Ratio (Table III)[b]	0.9150	0.2139	1.3601	0.5491
Average Volume Ratio (Table I)[c]	—	—	6.5492E-07	2.6073E-06
Average Stock Dividend Waiting Time (Table V)[d]	—	—	−0.0016	0.0019
U.S. Listing Dummy Variable[e]	—	—	0.0124	0.0533
Adjusted R^2	0.684		0.549	
Durbin-Watson Statistic	1.96		2.10	

[a] The dependent variable is the average price ratio (natural log of ratio of Class A price to Class B price). The regressions have nine observations, one for each of the nine pairs of shares traded in the 1979–1983 period.

[b] Natural log of ratio of Class A dividend to value of Class B dividend.

[c] Natural log of ratio of Class A volume to Class B volume.

[d] Time between declaration and payment of stock dividend.

[e] Equals one for Imperial Oil, zero otherwise.

average dividend ratios, average volume ratios, and average waiting times reported in Tables I, III, and V. A dummy variable for the one firm whose Class A shares trade in the U.S., Imperial Oil, is also included as an explanatory variable. If share price differences are primarily caused by differences in expected dividends, the slope coefficient on the average dividend ratio is not significantly different from one. However, if a preference exists for cash income, the slope coefficient is significantly greater than one.

Table VI reports estimates of two versions of the regression. In both versions, the slope coefficient on the average dividend ratio is not significantly different from one. Thus, the data are consistent with the hypothesis that Class A premiums are caused by differences in the value of dividends expected to be paid on the two classes. No evidence is apparent that investors prefer cash income to an equal amount of capital gains.

IV. Summary and Conclusion

Canada's dual class shares are an interesting case with which to examine the market value of cash dividends and the potentially confounding effect of market frictions. Cash-paying Class A shares have often sold at a significant premium compared to Class B shares, which pay capital gains. Premiums in the 1976–1978 period are not significantly related to the relative value of dividends paid. Premiums in the 1979–1983 period appear to be related to the relative value of dividends paid and to stock dividend payment procedures and conversion costs, which differ across firms. The stock dividend procedure effect may be caused by the cost of selling odd numbers of shares received as stock dividends. A few pairs of shares reflect an association between relative share prices and relative liquidity, as measured by trading volume. The relationship between average price ratios and average dividend value ratios is not consistent with an investor preference for cash dividends.

While Canada's dual class shares represent a small number of often lightly traded securities, the evidence permits a few observations. During the 1979–1983 period, premiums for Class A shares are largely explained by changes in the relative value of dividends and, to a lesser degree, by relative trading costs. No evidence exists of a preference for cash income over an equal amount of capital gains income. The 1979–1983 data may also reflect two unusual market frictions, the cost of receiving odd amounts of stock dividends and the cost of converting shares. The evidence on stock dividend payment procedures, the poor explanatory power of dividends in the 1976–1978 period, and the persistent residual Class A premiums for Royal Trustco (the only firm that charges a fee for rushed conversions) suggest that market frictions are an important factor in this market. Clearly, any study of the relative value of dividends and capital gains must consider transactions costs and other imperfections.

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