Election Polls, Free Trade, and the Stock Market: Evidence from the 1988 Canadian General Election

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Election polls, free trade, and the stock market: evidence from the 1988 Canadian general election

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Abstract. This paper examines the effect of public opinion polls on the Toronto Stock Exchange (TSE) during the campaign period of the 1988 Canadian general election. Two hypotheses are investigated: first, did polls influence the TSE, and secondly, if so, did the nature of the influence suggest that investors were reacting to expectations concerning the Canada-U.S. Free Trade Agreement (FTA)? I find that the TSE was positively related to Conservative popularity as measured by polls, but that the differential movement of TSE subindices, while not inconsistent with an FTA based interpretation, does not offer much additional supporting evidence.

Sondages électoraux, libre-échange, et les marchés boursiers: résultats pour ce qui est des élections générales de 1988 au Canada. Ce mémoire examine les effets des sondages d'opinion sur la Bourse de Toronto au cours de la campagne électorale qui a mené aux élections générales de 1988 au Canada. Les hypothèses suivantes sont analysées : d'abord, est-ce que les résultats des sondages ont eu un impact sur la Bourse *et*, si oui, est-ce que la nature de cette influence suggère que les investisseurs réagissaient aux anticipations créées par l'Accord de libre-échange Canada-Etats-Unis? L'auteur constate que l'indice boursier est co-relié positivement à la popularité du Parti conservateur telle que mesurée par les sondages, mais que les mouvements différentiels des sous-indices, même s'ils ne sont pas incompatibles avec une interprétation fondée sur l'Accord de libre-échange, ne fournissent pas de support additionnel à l'hypothèse.

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I. INTRODUCTION

The 1988 Canadian general election was fought largely over a single issue: ratification of the Canada-U.S. Free Trade Agreement (FTA). The campaign was characterized by significant fluctuations in voter intentions, with the likely outcome being highly uncertain at all times, and subject to change as new polls were released. Considerable attention was focused on the idea that movements in Canadian stock prices seemed highly sensitive to election polls. For example, following the release of a Gallup poll on 7 November showing the Liberal party ahead of the Conservative, the front-page headline in the *Financial Post* of 8 November read 'Liberal Surge Sends Markets into Tailspin' (Jackson 1988). In a page-11 story, Horsman (1988) offered the following interpretation: 'European investors, particularly in Britain, were in the market selling Canadian equities yesterday, following the publication of a Gallup poll showing John Turner's Liberal Party with a commanding lead over Prime Minister Mulroney's Conservatives. Institutional investors expressed concern that a Liberal victory in Canada might jeopardize the U.S.-Canada Free Trade Agreement.'

One interpretation of campaign events is as follows. The Free Trade Agreement would generate economic gains to Canada, some of which would accrue to owners of capital. Stocks would therefore be worth more when the likelihood of FTA ratification rose and less when it fell. Since the Conservative party unequivocally favoured the FTA, while the other two parties were strongly opposed, stock prices should be correlated with Conservative popularity.

This line of reasoning embodies two separate steps. Step 1, the 'poll influence' hypothesis, is that stock prices were influenced by poll results reflecting the probability of a Conservative victory. Step 2, the 'trade mechanism' hypothesis, is that movements in the stock market derived largely from investor expectations of potential gains from freer trade under the FTA, rather than from expectations concerning other aspects of economic management. The objective of this paper is to investigate these two hypotheses.

My findings support the 'poll influence' hypothesis: polls had a modest but statistically and economically significant effect on stock prices. The magnitude of this effect was, however, less than a casual look at the data (and the newspapers) would indicate. The 'trade mechanism' hypothesis is more difficult to test. The evidence obtained by examining the differential effects of poll movements on industry stock indices is not inconsistent with this hypothesis, but it does not offer much additional support.

This paper is related to several research areas. First, there is a large literature in economics and political science linking electoral politics to economic variables, as reviewed, for example, in Hibbs (1987) and Frey (1978). A widely read study of pre-election voter preference dynamics is Bartels (1988), and an early report on a major study of the 1988 Canadian election is Johnston et al. (1989). There is also a large body of research in financial economics on stock market reactions to various business events. Valuable reviews of the methodology used in these 'event studies'

include Brown and Warner (1980) and Thompson (1985). Event studies have also been occasionally used to investigate stock price responses to economic policy changes, as in Langhor and Viallet (1986) and Boardman et al. (1986). There are only a few papers using stock market data to assess the impact of trade shocks, including Hartigan et al. (1986), and Grossman and Levinsohn (1989). Trimarchi (1990) and Mirus (1990) investigate the relationship between exchange rates and election polls. Thompson (1991a, b) also examines the FTA using stock price data. I know of no published papers linking election poll data to stock prices.

An outline of the paper is as follows. Section II provides some relevant political background, general data description, and some suggestive graphical evidence. Section III contains the central empirical analysis of the paper, and Section IV contains concluding remarks. An appendix lists all the data used.

II. BACKGROUND AND DATA DESCRIPTION

After coming to power in 1984, the Conservative government, acting partly on the recommendations of the Macdonald Royal Commission (1985), negotiated the FTA. The agreement was signed by the Canadian prime minister and the U.S. president in January 1988 and was to come into effect in January 1989, subject to being ratified by the U.S. Congress and Canadian Parliament within the 1988 calendar year. Ratification by Congress and by the Canadian House of Commons went smoothly, but the upper house of Parliament, an appointed Senate, was still controlled by Liberal appointees from the 1963–84 period. In a controversial use of its power to delay legislation, the Senate refused to ratify the FTA before an election on the issue. On 1 October 1988 an election was called for 21 November. Senate leaders agreed to ratify the agreement should the Conservatives win a majority of seats in the House of Commons.

Given the existence of three major parties, and the geographical structure of voting patterns, the Conservatives needed a popular vote of 40 per cent or above to have a reasonable chance of forming a majority government. Conservative popularity fluctuated sharply in the critical range of the low 30s to low 40s over the course of the campaign, but the Conservatives finally won a majority of seats with 43.7 per cent of the popular vote. The FTA was ratified before the end of the year and went into effect as planned on 1 January 1989.

The basic text of the agreement is described in External Affairs (1987). Important provisions include the gradual elimination of all tariffs and the substantial reduction of other barriers to trade. Economic models are somewhat equivocal concerning the likely size of any economic gains from such an exercise. (See, in particular, Hamilton and Whalley 1985; Whalley 1985; Wonnacott and Wonnacott 1967; Cox and Harris 1985; and Harris 1984a, b.) In the public debate, however, an aggregate real gain of about 3 per cent of national income was widely accepted by many economists as a reasonable estimate.

The distribution of gains from freer trade is also hard to predict. If the source of gains is mainly economies of scale, and if the trading countries are relatively

similar in factor endowments, then, as shown by Krugman (1981), gains are likely to accrue to all factors of production, including capital. We would generally expect, therefore, that the value of Canadian stocks would rise as a result of the FTA.

The natural measure of stock prices is the Toronto Stock Exchange (TSE) index of 300 companies. The relevant poll question is 'If an election were held tomorrow, which party would you vote for?' The poll variable is the share, among those expressing a preference, who chose the Conservatives. There are several major polls, of which the Gallup poll is the best known (especially to foreign investors) and the most frequently released. Prior to the election call, Gallup released results biweekly, and moved to weekly releases soon after the campaign began. Three other major polls began releasing poll data at irregular intervals after the election call.

In the analysis I use both the Gallup poll by itself and an average poll variable. The average was constructed by taking the most recent value released by each of four major pollsters: Gallup, Angus Reid, Globe-Environics, and Insight-CTV. Until 5 October Gallup was the only poll, so its value is the average, and other polls entered the average as they were released; 15 September was chosen as the starting point because it was the release date of the last Gallup poll before the election was called. Each trading day is a single observation. The entire period contains forty-seven trading days.

Figure 1 shows the basic pattern of the data. The vertical axis measures the deviation of the average poll variable from its initial value. Thus on 3 October it registered 6, reflecting the rise in Conservative popularity from 37 per cent to 43 per cent. The TSE index is also shown as a deviation from its initial value and scaled so that it has the same maximum deviation from its base as the poll variable.

The turning points and relative size of the TSE movements seem to match the turning points and relative size of changes in Conservative popularity. It is possible, however, that this apparent relationship was coincidence. A natural way to check this possibility would be to compare TSE movements with the New York Stock Exchange (NYSE). Only a tiny fraction (about 1 per cent) of NYSE firms are also listed on the TSE, and most observers believe that the impact of Canadian politics on the broad population of NYSE firms is negligible. (This reflects the small relative size of Canada's economy, and the small share of exports to Canada in U.S. GNP (about 2 per cent).) The NYSE should, therefore, be a good proxy for other factors that might affect the TSE. Figure 2 shows TSE and NYSE deviations over the 15 September – 21 November period, scaled so as to be comparable with Figure 1.

The TSE and NYSE moved very closely over the period. This is not a great surprise, since both exchanges would presumably respond in similar ways to economic forces such as changes in world commodity prices, interest rate movements, macroeconomic activity, etc. It does seem to cast doubt on the hypothesis that polls were influencing the TSE in a major way.

There were, however, some differences in the pattern of movement between the TSE and NYSE. Figure 3 compares the average poll deviation from its starting value with the TSE-NYSE deviation, scaled once again so as to be comparable with figures

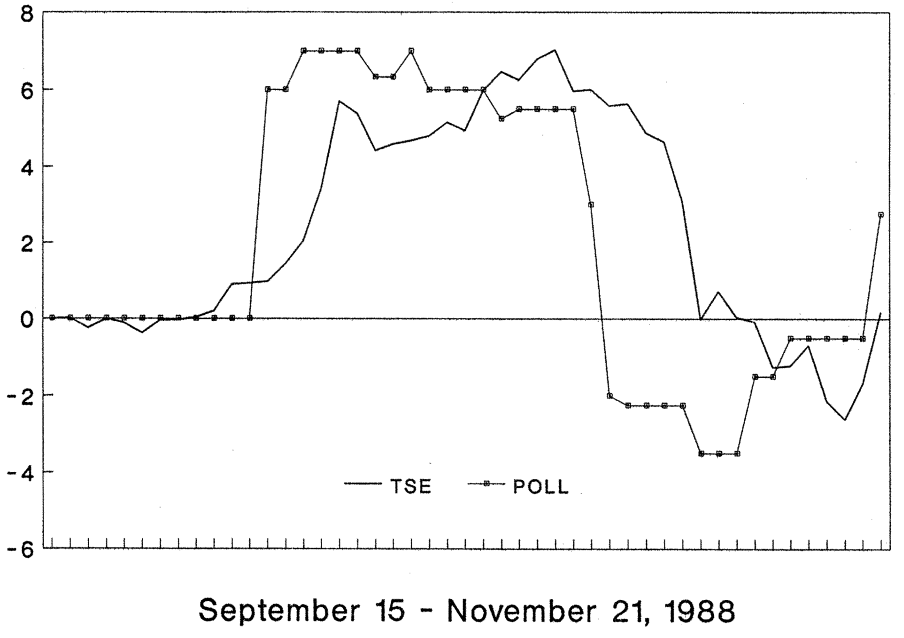

FIGURE 1 TSE and poll deviations

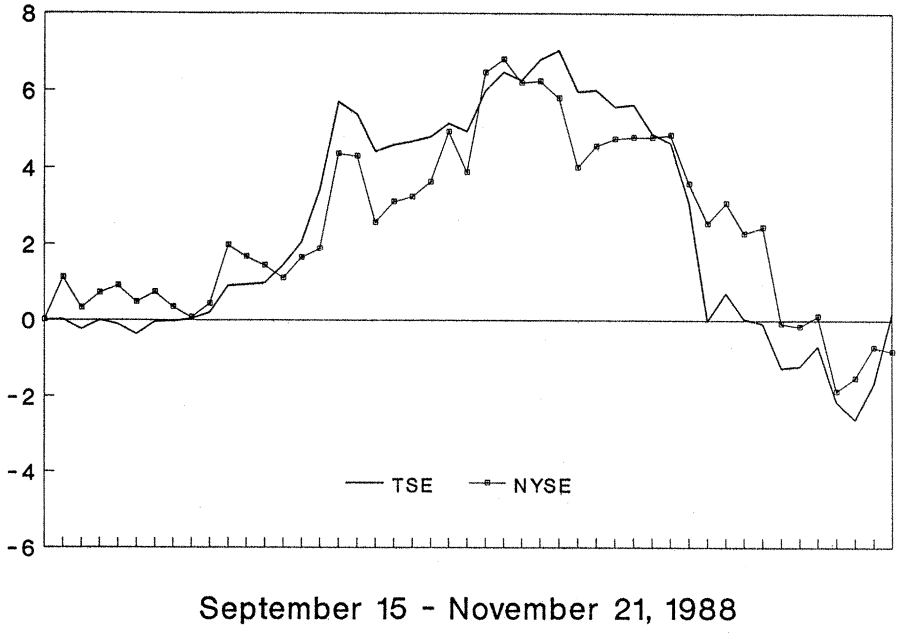

FIGURE 2 TSE and NYSE deviations

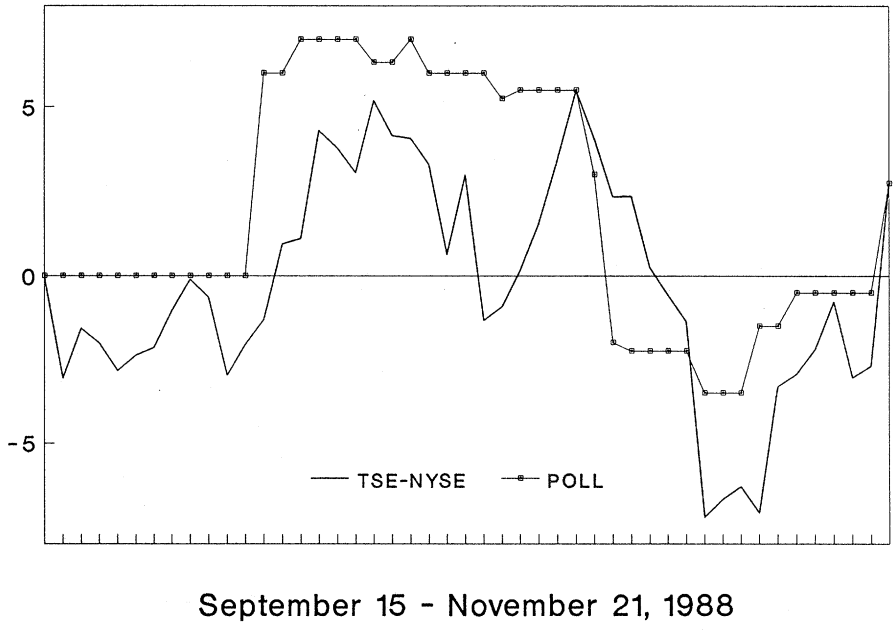

FIGURE 3 TSE — NYSE and poll deviations

1 and 2. There appears to be some relationship between these TSE-NYSE deviations and poll results, but this relationship is less than transparent. It seems, therefore, that undertaking more formal analysis of the relationship between poll movements and stock price movements is called for.

III. EMPIRICAL ANALYSIS

Theoretical econometricians usually advocate prespecification of a theoretical and statistical model, acquisition of data, and subsequent estimation and/or hypothesis testing within the original specification. Thus the general model to be estimated and hypotheses to be tested are specified before the data are examined. In practice, however, it is common for applied researchers to engage in 'data-mining': allowing the model specification process and hypotheses to be 'data-driven.' As argued persuasively by Leamer (1978), data-driven specification searches are readily defensible in disciplines that rely heavily on scarce non-experimental data. One should, however, report the model selection process accurately, which I try to do here. This paper uses a mixture of prior and data-driven specification.

1. The poll influence hypothesis

The starting point for the model specification is the idea that asset prices should fluctuate randomly if markets are competitive and past information is incorporated in current prices. (The classic proof of this point is in Sameulson (1965).) Using

T (for TSE) to represent the asset price, this suggests the following algebraic form:

$$T_i = D + T_{i-1} + e_i, \tag{1}$$

where i represents the period, D is a drift or trend parameter, and e is an unsystematic error representing the random arrival of new information. One source of new information is poll results (denoted P), which will of course be treated separately rather than implicitly incorporated in e. Various other influences on the TSE might also affect the New York Stock Exchange (NYSE), so the NYSE, denoted N, is also used as an 'explanatory' variable. We would also expect the TSE to be (negatively) related to domestic interest rates, so the bank rate (denoted R) is in the regressions. In addition, I allow the coefficient on the lagged TSE to be estimated rather than assuming its value to be 1. The functional form with which the poll variables and other variables might enter is not provided by prior theory, but I shall start with a linear specification, then undertake various specification tests. The basic equation to be estimated is, therefore, as follows:

$$T_i = \alpha_0 + \alpha_L T_{i-1} + \alpha_P P_i + \alpha_N N_i + \alpha_R R + e_i. \tag{2}$$

An ordinary least squares (OLS) estimation[1] of (2) yields high significance levels and generally good regression diagnostics, except that there is clear evidence of serial correlation in the errors. (Durbin's (asymptotically normal) h-statistic is over 3.06, and the DW statistic, despite being biased towards 2 by the presence of a lagged dependent variable, is 1.16.) The next step, therefore, is to allow the error term to be a first-order autoregressive (AR1) process, as follows:

$$T_i = \alpha_0 + \alpha_L T_{i-1} + \alpha_P P_i + \alpha_N N_i + \alpha_R R + \rho e_{i-1} + u_i, \tag{2}$$

where ρ is the error autocorrelation coefficient and u is normal white noise. The autocorrelation coefficient is estimated using a Cochrane-Orcutt type procedure as described in White et al. (1990).

Table 1 shows summary statistics for the data used in this and subsequent regressions, and table 2 reports results for the two regressions corresponding to (3), one using the Gallup poll and one using the average poll. The regression diagnostics suggest that these are 'good' regressions. The adjusted R^2 is high, the DW statistic is not far from 2, and various tests of normality, including the GF test, provide little evidence against normality of the residuals. (What I call the GF test, following White et al. 1990, is simply a chi-square goodness-of-fit test for normality as described, for example, in Klein 1974.) The DW statistic is still biased towards 2, but a second-order autoregressive process was estimated and showed no evidence[2] of

1 All statistical analysis reported in the paper was implemented using version 6.2 of Shazam as described in White et al. (1990).

2 I thank Ken White for pointing out this method of checking for serial dependence in the errors in the presence of a lagged dependent variable.

TABLE 1
Summary statistics

Variable	Mean	St.Dv.	Min	Max
TSE	3,316	69.9	3,199	3,430
IND	1,957	59.2	1,844	2,050
PFP	3,718	82.7	3,597	3,850
EN	3,527	113.5	3,281	3,657
RE	14,298	290.8	13,481	14,602
NYSE	273	5.3	264	284
NYI	315	6.4	303	327
FFP	1,165	31.8	1,099	1,216
FEN	1,226	19.7	1,187	1,263
FRE	908	6.2	892	916
Gallup	38.0	3.48	31	43
Ave. poll	38.9	3.62	33.5	44
Bank rate	1,064	.15	1,051	1,089

NOTES
The abbreviations are: TSE = Toronto Stock Exchange 300, IND = TSE Industrials, PFP = TSE paper and forest products index, EN = TSE energy index, RE = TSE real estate index, NYSE = New York Stock Exchange (S&P 500), NYI = NYSE industrials, FFP = Fidelity Forest Products, FEN = Fidelity Energy, FRE = Fidelity Real Estate. The bank rate is in basis points (i.e., the mean is 10.64 per cent).
Number of observations = 47.

further serial correlation in the errors. The regressors (except for the bank rate) in both regressions show high levels of statistical significance. The Gallup poll version provides a higher significance level and a slightly larger point estimate for the poll coefficient, suggesting that investors may have been more responsive to the Gallup poll than to other polls.

The range of the data for the Gallup poll is twelve points, just covering the range from a clear Conservative loss (31 per cent) to a clear win (43 per cent). Multiplying this twelve-point difference by the Gallup poll coefficient estimate of 5.05 yields a total effect of sixty-one points or 1.8 per cent of the TSE value. If the FTA were the driving force behind TSE reactions to polls, this would be a modest but reasonable estimate of the value of a Conservative win for returns to capital. It is worth pointing out that a simple OLS regression of the TSE on just a constant and the Gallup poll variable[3] yields a (much higher) coefficient estimate of 12.23 (and a *t*-statistic of 5.14). The DW statistic, however, is only 0.17, indicating gross misspecification. Various specification issues are discussed at the end of the next subsection.

2. The trade mechanism hypothesis

To address the trade mechanism hypothesis I applied appropriately modified

3 The OLS regression in which the TSE is regressed only on the Gallup poll and a constant forms the main focus of the empirical work reported in Everest (1989).

TABLE 2
TSE regression results

Ind. var.	Coeff	*t*-stat	
	Gallup poll regression		
Gallup	5.05	6.44	$R^2 = 0.98$
NYSE	0.58	9.35	DW = 1.88
Bank rate	−0.02	−0.08	GF = 6.54
lag	0.32	4.77	
auto	0.46	3.14	
const.	130	0.41	
	Average poll regression		
Ave. poll	3.99	3.92	$R^2 = 0.97$
NYSE	0.57	7.84	DW = 1.84
Bank rate	−0.14	−0.54	GF = 6.54
lag	0.34	4.04	
auto	0.54	3.80	
const.	316	0.76	

NOTES
'GF' is a chi-square goodness of fit statistic (3 d.f.) with critical values 9.49 and 13.28 for the 0.05 and 0.01 levels of significance, respectively. The NYSE variable was scaled so as to have the same initial value as the TSE. The R^2 is Theil's adjusted '*R*-bar' squared.

versions[4] of equation (2) or (3) to four subindices of the TSE: industrials, forest and paper products, energy, and real estate. The basic procedure is to estimate equation (2), then correct for autocorrelation if Durbin's *h*-statistic clearly indicates autocorrelation. If *h* were exactly normal, then a 99 per cent confidence interval would be (−2.576, 2.576), so I took values outside this range as indicating autocorrelation.

The energy index would seem to be the most likely on prior grounds to be positively affected by the FTA: it is an area where Canada is thought to have clear comparative advantage, where the firms own substantial specific factors (reserves, drilling rigs, etc.), and where the pro-competitive effect associated with U.S. competition should be small. In addition, the FTA deals explicitly with energy and removes several actual or potential profit-reducing barriers to trade. Energy producers strongly supported the FTA.

Forest products are interesting because of the trade-sensitivity of the sector, although the FTA did not change the status quo very much. Industrials are important

4 One could impose a model of asset pricing such as the Capital Asset Pricing Model and regress subindex abnormal returns, corrected for risk and the market's general movement, on the poll variable. This would be a poor procedure in the current situation. First, using the corresponding U.S. stock price already comes very close to correcting for general movements in the market. Secondly, 'correcting' for the market covariance structure makes sense only if this structure is unaffected by the events in question, which is almost certainly not true here. See Brown and Warner (1980) for further discussion along these lines.

TABLE 3
TSE sub-indicies

	Industrials	Forest prod.	Energy	Real estate
Ind. var.	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)
		Gallup poll regression		
Gallup	8.60 (5.97)	1.21 (1.27)	1.60 (1.51)	1.32 (1.37)
NYSE-sub	0.39 (5.22)	0.10 (1.76)	0.74 (7.48)	0.27 (1.05)
Bank rate	−2.31 (−5.25)	0.26 (0.84)	−0.97 (−2.43)	−0.77 (−2.15)
lag	0.22 (2.20)	0.98 (31.96)	0.28 (2.98)	0.75 (7.94)
auto		−0.44 (−4.25)	0.94 (17.41)	
constant	3149 (5.21)	−583 (−1.15)	838 (1.40)	709 (0.77)
(adj) R^2	0.95	0.92	0.98	0.93
Durbin's *h*	1.35			−1.97
DW		1.97	1.59	
GF	7.16	4.43	5.50	4.74
		Average poll regression		
Ave. poll	5.87 (4.42)	1.58 (2.07)	−0.72 (−0.51)	0.35 (0.42)
NYSE-sub	0.27 (3.50)	0.08 (1.62)	0.73 (7.28)	0.22 (.80)
Bank rate	−2.13 (−4.33)	0.22 (0.78)	−0.97 (−2.38)	−0.77 (−2.83)
lag	0.40 (3.75)	0.98 (33.75)	0.26 (2.71)	0.82 (8.40)
auto		−0.48 (−3.71)	0.95 (19.24)	−0.34 (−2.17)
constant	2968 (4.38)	509 (−1.05)	−326 (−1.64)	688 (0.93)
(adj) R^2	0.94	0.92	0.98	0.94
Durbin's *h*	0.57			
DW		2.07	1.55	2.12
GF	6.67	9.00		10.36

NOTES
All subindicies are scaled to the same starting value. Critical values for the *t*-statistics (testing the hypothesis that the coefficient is different from zero) are (plus or minus) 2.02 and 2.70 for the 0.05 and 0.01 significance levels, respectively.

as the major affected sector, and real estate is interesting because it is non-traded and therefore should not be very sensitive to the FTA directly, but it is very sensitive to general economic management. The basic idea is that the trade mechanism hypothesis would be reflected in a stronger poll coefficient in the energy regressions and a weaker impact in real estate.

The NYSE is not subdivided in the same way as the TSE, although it does have an 'industrials' subindex. For the other sectors I used the price of the appropriate Fidelity Mutual fund as the NYSE subindex variable. Table 3 shows the regression results corresponding to these four subindices. The NYSE and the NYSE subindices were all scaled so as to have the same starting value as the associated TSE subindex itself. Thus the coefficients are comparable across regressions as indicators of the relative economic significance of each of the explanatory variables. Both Gallup poll and average poll regressions are reported.

The industrials index displays a very similar statistical significance in its response to polls as the overall TSE, and the implied economic significance of the

poll is greater. The value of a Conservative win as measured by a movement from 31 to 43 per cent would, based on the Gallup regression, add about 3.0 per cent to the value of the TSE industrials index. The forest products index appears to be very nearly a random walk, although the average poll has a marginally significant coefficient. The poll variable is not statistically significant in any of the other regressions, and the coefficients are small. Overall, the pattern of results from the subindex regressions provides little support for the trade mechanism hypothesis.

There is, of course, another way to interpret the data. One might take the importance of the FTA as a maintained assumption, and interpret these regressions as indicative of the relative importance of the FTA for different sectors. It is not particularly surprising that the TSE industrials would show a marked positive relationship to the FTA, while forest products and real estate show small to negligible effects. The insignificance of the energy results would have to be regarded as a surprise. However, table 1 shows that the energy index is more variable than the other indices (relative to its mean), possibly indicating a relatively high incidence of large idiosyncratic errors, and therefore being harder to estimate well in a short time series.

There are several specification issues that one might consider. First, it is quite likely that the TSE and the NYSE might be non-stationary. If so, the coefficient estimators are still consistent but, given the results of West (1988) and Sims, Stock, and Watson (1990), are not necessarily asymptotically normal. (See also Engle and Granger 1987 and Stock 1987.) The reported t-statistics (and implied standard errors) might therefore be misleading. The actual distributions for this case are not known, and it is not clear whether the reported t-statistics are likely to be too large or too small.

One response to this problem is to transform the variables to first differences. This has the cost of constraining the coefficient on the lagged dependent variable to be 1, but has the advantage of probably removing non-stationarity. Differencing all variables implies consistency with the level regressions. Table 4 reports the results of the first difference regressions. The poll coefficients and t-statistics are similar to the level regressions, and the regression diagnostics are quite good except for the real estate regressions.

An alternative transformation of the variables is to use rates of return. Whether this is more appropriate than first differences is an issue of functional form and error distribution. There is also some question over whether a lagged dependent variable should be included in rate of return regressions and over whether the poll variables and bank rate should be transformed as well. Table 5 reports rate of return regressions including a lagged dependent variable and in which all variables are transformed to rate of change form. (If x_t is the value of some variable on day t, then the rate of change is defined as $100(x_t - x_{t-1})/x_{t-1}$). The significance of the poll variables tends to be slightly less than in the first difference regressions, but a very similar pattern emerges. Leaving out lagged dependent variables makes little difference, as does leaving the poll variables and/or the bank rate variable untransformed.

TABLE 4
Regressions in first difference form

	TSE	Industrials	Forest Prod.	Energy	Real estate
Ind. var.	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef (*t*-stat)
			Gallup poll regressions		
Gallup	4.92 (4.78)	6.55 (3.95)	3.94 (2.10)	1.64 (1.49)	4.18 (2.81)
NYSE-sub	0.53 (7.86)	0.70 (7.66)	0.33 (2.84)	0.78 (7.86)	−0.13 (−0.49)
Bank rate	−0.26 (−0.69)	−0.02 (−0.02)	−0.13 (−0.19)	−0.99 (−2.43)	−0.49 (−0.88)
constant	0.22 (0.11)	−2.4 (−0.75)	2.94 (0.87)	−3.7 (−1.83)	−4.3 (−1.58)
(adj) R^2	0.65	0.62	0.20	0.59	0.12
DW	2.03	2.14	2.40	1.78	2.08
GF	6.56	7.62	13.5	2.97	5.60
			Average poll regressions		
Ave. poll	3.72 (2.40)	5.00 (2.09)	1.57 (0.62)	−1.19 (−0.82)	1.62 (0.77)
NYSE-sub	0.55 (6.93)	0.71 (7.02)	0.36 (2.98)	0.76 (7.55)	−0.14 (−0.82)
Bank rate	−0.26 (−0.60)	−0.02 (−0.02)	−0.14 (−0.19)	−1.00 (−2.39)	−0.50 (−0.82)
constant	0.33 (0.15)	−2.1 (−0.63)	3.25 (0.91)	−3.5 (−1.73)	−4.1 (−1.4)
(adj) R^2	0.53	0.53	−0.13	0.57	0.03
DW	1.78	1.98	2.41	1.67	2.21
GF	10.73	6.42	7.27	5.20	16.61

NOTE: The NYSE-sub variable is the aggregate NYSE in the TSE regression and the appropriate subindex in each other case.

Some readers might object that there is a possible 'errors in variables' problem in the poll variable. If so, then the coefficients on the poll variables are biased downward, indicating that the strength of the poll effect on the TSE may be underestimated. Similarly, if Canadian polls actually were affecting the NYSE, then this could also lead to an underestimate of the poll coefficients.

IV. CONCLUDING REMARKS

This paper examines the relationship between the Toronto Stock Exchange and election polls during the 1988 Canadian General Election campaign. The TSE was positively related to Conservative popularity as measured by polls. This effect is significant, but is considerably less than would be suggested by a simple OLS regression of the TSE on Conservative popularity. Once other factors are taken into account, and a more acceptable dynamic structure is incorporated, the superficially strong relationship between polls and the TSE is sharply reduced although still economically meaningful.

Testing the trade mechanism hypothesis by comparing the differential movement of particular groups of stocks seems reasonable in principle, but execution is difficult because it is hard to identify those stocks that should do well. Our previous

TABLE 5
Regressions in rate of return form

	TSE	Industrials	Forest Prod.	Energy	Real estate
Ind. var.	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef. (*t*-stat)	Coef (*t*-stat)
			Gallup poll regressions		
Gallup	0.052 (4.55)	0.077 (4.02)	0.041 (2.00)	0.021 (1.68)	0.045 (2.59)
NYSE-sub	0.54 (8.12)	0.82 (7.57)	0.27 (2.25)	0.76 (7.40)	−0.11 (−0.38)
Bank rate	−0.05 (−0.42)	−0.01 (−0.05)	−0.07 (−0.31)	−0.28 (−2.09)	−0.18 (−0.94)
lag	0.18 (2.02)	−0.03 (−0.32)	−0.14 (−0.96)	0.18 (1.83)	−0.10 (−0.69)
constant	0.01 (0.08)	−0.08 (−0.86)	0.09 (0.84)	−0.09 (−1.32)	−0.15 (−1.7)
(adj) R^2	0.67	0.61	0.19	0.61	0.10
DW	2.27	2.11	2.10	1.94	1.87
GF	3.62	4.35	2.78	2.27	6.20
			Average poll regressions		
Ave. poll	0.040 (2.35)	0.060 (2.10)	0.021 (0.75)	−0.008 (−0.45)	0.018 (0.74)
NYSE-sub	0.55 (7.23)	0.84 (6.90)	0.30 (2.39)	0.75 (7.09)	−0.11 (−0.39)
Bank rate	−0.04 (−0.32)	0.002 (0.01)	−0.071 (−0.31)	−0.29 (−2.05)	−0.18 (−0.92)
lag	0.22 (2.13)	0.020 (0.12)	−0.14 (−0.92)	0.18 (1.69)	−0.14 (−0.94)
constant	0.01 (0.18)	−18.0 (−1.8)	0.10 (0.92)	−0.08 (−1.19)	−0.15 (−1.59)
(adj) R^2	0.57	0.51	0.13	0.59	0.03
DW	2.08	2.02	2.12	1.83	1.92
GF	16.61	8.07	6.32	5.63	11.22

NOTES The NYSE-sub variable is the aggregate NYSE in the TSE regression and the appropriate subindex in each other case. All variables are in rate of change form. If x_t is the value of some variable on day t, then the rate of change is defined as $100(x_t - x_{t-1})/x_{t-1}$. Thus the price indexes are converted to rates of return.

experiences with trade liberalization suggest that much of the differential impact of the FTA is likely to be at the firm-specific level within industries. Looking at industry aggregates will mask the true differential impact of the FTA and lead to an underestimate of its significance.

One could certainly improve upon what is done here by allocating stocks to industry groups at a fairly low (e.g., four-digit) level of aggregation (as done by Eckbo 1986 for his analysis of Canadian mergers) and then use a model that can identify industry level stock market winners and losers. Both the assignment of stocks to industries and obtaining reliable industry level predictions are, however, difficult and highly prone to error, especially for low levels of aggregation. In any case, this is a large-scale task that is beyond the scope of the current paper.

Overall, the 1988 Canadian general election provides an interesting opportunity to test the effect of polls on stock prices. The results show a modest but clear investor preference for the Conservative party. The opportunity to infer whether this preference results from the Free Trade Agreement is considerably weaker. The magnitude of the effect of polls on the TSE is consistent with the free trade interpretation, but the differential effect of polls on the TSE subindices fails to provide clear supporting evidence.

APPENDIX: DATA

The following table lists all the data used in the paper.

TABLE A1

DATE	TSE	G	AVE	BANK R.	IND	PFP	EN	RE	NYSE	NY-IND	FFP	FEN	FRE
Sept 15	3261.3	37	37.00	10.57	1954	3623	3648	14453	268.1	307.9	1188	1238	908
16	3261.8	37	37.00	10.57	1958	3616	3647	14407	270.7	310.8	1195	1239	910
19	3255.4	37	37.00	10.57	1944	3615	3657	14355	268.8	308.5	1188	1237	913
20	3261.2	37	37.00	10.57	1953	3608	3655	14445	269.7	309.5	1184	1241	910
21	3258.6	37	37.00	10.57	1950	3620	3649	14431	270.2	310.1	1184	1234	907
22	3252.3	37	37.00	10.54	1936	3612	3650	14475	269.2	308.8	1172	1230	907
23	3260.4	37	37.00	10.54	1950	3611	3643	14418	269.8	309.4	1172	1226	912
26	3260.6	37	37.00	10.54	1944	3597	3633	14389	268.9	308.4	1170	1226	906
27	3262.2	37	37.00	10.54	1945	3602	3625	14360	268.3	307.5	1170	1220	907
28	3266.2	37	37.00	10.54	1944	3610	3624	14323	269.1	308.5	1171	1221	907
29	3283.0	37	37.00	10.58	1970	3606	3632	14349	272.6	312.7	1182	1231	908
30	3283.7	37	37.00	10.58	1972	3657	3599	14386	271.9	311.7	1184	1226	913
Oct 3	3284.5	43	43.00	10.58	1962	3627	3541	14376	271.4	311.1	1179	1214	909
4	3295.9	43	43.00	10.58	1956	3633	3506	14397	270.6	310.4	1197	1205	908
5	3310.3	43	44.00	10.58	1971	3663	3487	14366	271.9	311.9	1206	1202	911
6	3343.1	43	44.00	10.56	1996	3679	3496	14488	272.4	312.7	1200	1206	910
7	3398.4	43	44.00	10.56	2050	3744	3528	14602	278.1	319.2	1216	1216	912
11	3390.7	43	44.00	10.56	2034	3722	3546	14542	277.9	319.6	1210	1221	913
12	3367.5	43	43.33	10.56	2016	3749	3539	14396	274.0	314.9	1186	1218	914
13	3371.6	43	43.33	10.54	2021	3722	3557	14372	275.2	316.3	1182	1222	913
14	3373.8	43	44.00	10.54	2013	3732	3568	14440	275.5	316.7	1174	1232	915
17	3376.8	39	43.00	10.54	2015	3743	3588	14415	276.4	317.8	1178	1248	913
18	3385.2	39	43.00	10.54	2018	3780	3577	14419	279.4	321.4	1185	1251	916
19	3380.0	39	43.00	10.54	1998	3748	3598	14476	277.0	318.8	1182	1249	916
20	3405.1	39	43.00	10.51	2026	3785	3631	14551	282.9	326.1	1189	1263	915
21	3416.8	39	42.25	10.51	2030	3795	3623	14478	283.7	326.8	1194	1263	916
24	3411.6	40	42.50	10.51	2022	3802	3596	14539	282.3	325.5	1195	1249	914

DATE	TSE	G	AVE	BANK R.	IND	PFP	EN	RE	NYSE	NY-IND	FFP	FEN	FRE
25	3424.5	40	42.50	10.51	2018	3836	3582	14546	282.4	325.7	1181	1252	915
26	3430.2	40	42.50	10.51	2026	3844	3583	14598	281.4	324.2	1176	1247	916
27	3404.7	40	42.50	10.54	2003	3850	3570	14486	277.3	319.2	1162	1235	913
28	3405.5	40	40.00	10.54	2007	3851	3576	14502	278.5	320.7	1162	1241	915
31	3595.5	38	35.00	10.54	1986	3833	3579	14559	279.0	321.3	1158	1236	905
Nov 1	3396.6	38	34.75	10.54	1987	3840	3559	14510	279.1	321.2	1157	1236	908
2	3378.6	38	34.75	10.54	1966	3821	3529	14409	279.1	321.4	1158	1237	908
3	3373.1	38	34.75	10.86	1964	3822	3501	14353	279.2	321.5	1155	1241	909
4	3335.8	38	34.75	10.86	1929	3839	3456	14375	276.3	318.1	1143	1229	907
7	3260.7	31	33.50	10.86	1866	3729	3385	14053	273.9	315.4	1121	1215	904
8	3278.2	31	33.50	10.86	1892	3755	3401	14126	275.2	316.8	1145	1220	903
9	3262.2	31	33.50	10.86	1875	3749	3390	13938	273.3	314.6	1130	1214	903
10	3259.3	31	35.50	10.86	1872	3760	3384	13923	273.7	315.0	1131	1218	904
11	3231.1	31	35.50	10.86	1852	3733	3348	13889	267.9	308.1	1104	1198	899
14	3232.2	35	36.50	10.86	1859	3725	3345	13853	267.7	307.7	1103	1197	899
15	3245.0	35	36.50	10.86	1865	3733	3353	13767	268.3	308.3	1115	1199	900
16	3209.8	35	36.50	10.86	1844	3704	3308	13764	263.8	302.8	1101	1187	896
17	3198.6	35	36.50	10.89	1846	3673	3281	13611	264.6	303.9	1099	1187	895
18	3221.1	35	36.50	10.89	1861	3661	3291	13481	266.5	306.4	1111	1189	896
21	3265.4	40	39.75	10.89	1894	3703	3321	13596	266.2	306.1	1111	1191	892

SOURCES

Most of the poll data was obtained from Richard Johnston, Director, 1988 Canadian Election Study, and was compiled from public sources. All polls are entered on the first day for which they can affect trading. For example, polls released over a weekend enter the data set on the following Monday, and polls released after the close of trading enter the data set on the following day. The TSE data is taken from *TSE 300 Indexes, 1988 Annual Update*, Toronto Stock Exchange, Toronto. The NYSE data is from *Daily Stock Price Record: New York Stock Exchange*, Standard and Poor's, New York. The Fidelity Mutual Fund data is from *Daily Stock Price Record: Over-the-Counter*, Standard and Poor's, New York. The Canadian bank rate is from the *Bank of Canada Review*, Bank of Canada, Ottawa.

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