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Value-based management, EVA and stock price performance in Canada

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Abstract

Purpose – The purpose of this paper is to determine the extent to which Canadian companies have embraced value-based management (VBM) methods, identify the characteristics of these companies and of the executives responsible for the introduction of VBM in their organisations and assess the stock price performance of the companies that use VMB vs. those that do not.

Design/methodology/approach – The study is based on a survey of CEOs of a large sample of Canadian companies and examines the relation of a number of explanatory variables, including stock price performance, to the probability of using VBM versus not using VBM via a regression analysis of qualitative choice, namely logit analysis.

Findings – The study finds that value-based management methods are widely used in Canada, with the likelihood of usage being higher for larger companies with younger and more educated executives with an accounting/finance background. The statistical analysis that follows the tabulation of survey results indicates companies that used EVA had a better stock price performance than those not using EVA. Moreover, our logit regression analysis shows that companies with better stock market performance exhibited higher likelihood of using EVA.

Practical implications – The study implies that the lower usage of EVA in Canada, especially at the corporate level, provides some explanation for the stock market under- performance of the Canada market *vis-à-vis* the USA in the 1990s.

Originality/value – To our knowledge, this study serves as the first widespread evaluation of VBM methods in Canada and their effect on company and stock price performance.

Keywords Economic value added, Stock prices, Surveys

Paper type Research paper

Introduction

Value-based management (VBM) is a management philosophy that uses analytical tools and processes to focus an organization on the single objective of creating shareholder value. It includes an alignment of corporate strategy, performance reporting and incentive compensation, and aids to bring all staff together to act like shareholders, making decisions that maximize value. These decisions should ultimately lead to improvements in stock market performance over the long run.

Focus on value creation has increased around the world in recent years. The driving force behind this change is the more competitive environment and increased investor activism, which have led individual and institutional investors to expect a higher level of performance. VBM is capturing the interest of the media and investment community as well. Recent articles in *Fortune* (e.g. Tully, 1999) include a list of the top 1,000

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companies ranked by their increase in market value over the past decade. Additionally, *Canadian Investment Review* (e.g. Hofstatter and Jog, 1999) regularly reports on the 50 top value creators in Canada. These articles study several companies that have adopted VBM methods, the most popular of which are the discounted cash flow (DCF) method, the cash flow return on investment (CFROI), the return on invested capital (ROIC) and economic value added (EVA).

The objective of this study is to determine the extent to which Canadian companies have embraced VBM methods and identify the characteristics of these companies, such as size, profitability, stock price performance, industry, as well as the age, background, and education of the executive responsible for the introduction of VBM in the organisation. The study will also serve as a comparison between Canada and results obtained by other researchers in the USA. Canada and the USA possess similar characteristics with respect to government, economy, legal system and business practices. Nevertheless, Canada had historically lagged behind the USA in value creation. For example, between 1995 and 1998, the Dow Jones Industrial Average grew by 139.45 per cent, while the Toronto Stock Exchange-300 (TSX-300) Index grew by just 53.93 per cent. To make things worse, the TSX-300 index performance was a result of excellent performance by only a small number of firms. This study will attempt to provide some evidence on whether the extent (or lack thereof) of utilization of value-based management in Canada was one of the reasons for this disparity. To our knowledge, this study serves as the first widespread evaluation of value-based management methods in Canada and their effect on company performance.

The rest of the paper is structured as follows: Tbe next section discusses the extant literature on VBM. The following section discusses the data and methodology. The penultimate section presents the empirical results and the final section the conclusions and interpretation of findings.

Literature review

Studies of VBM methods were initially conducted when academics theorised that traditional accounting measures were inadequate measures of a firm's performance. O'Hanlon and Peasnell (1996) find that EPS encourages short-sighted behaviour and causes managers to believe that shareholders are a costless source of funds. Stephens and Bartunek (1997) state that ROE, EPS, and earnings growth can all be altered by changing the firm's accounting methods or the capital structure of the firm. O'Byrne (1996) indicates that five-year changes in earnings explained only 24 per cent of the changes in market value. Finally, Kramer and Peters (2001) examine EVA's ability to serve as a proxy for market value added and find that the "marginal cost of using EVA as a proxy for market value added are not justified by any marginal benefits".

EVA was among the first VBM methods to be studied with large discrepancies found between studies. Anderson and Bey (1998) discovered that EVA varies greatly over time and is significantly correlated with accounting variables. Contradicting this is O'Byrne's (1997) study which shows that changes in EVA explain more of the variation in ten-year stock returns than do changes in earnings, and significantly more of the variation in five-year returns. Appleby (1997) states that EVA is a lagging indicator that looks into a company's past performance; it provides no indication of the company's performance in the future. In contrast, Chamberlain and Campbell (1995) indicate that EVA allows management to quickly see in which way a company is

heading and that EVA serves as a good predictor of future performance. Furthermore, Wallace (1998a) asserts that EVA's most powerful feature is its suitability to management compensation systems. On this front, a recent study by Griffith (2004) assesses the performance of companies that had implemented the EVA-based compensation system and finds that such companies did not outperform the market.

Wallace (1998b) conducted both an empirical study and a survey of firms that implemented EVA-type performance measures. He finds that the managers of those firms appear to be aware of the impact of these methods on the overall earnings of the firm, and realise and understand how their decisions impact their firms' ability to earn more than the cost of capital employed. Ryan and Trahan (1999) conducted the most extensive empirical study and survey of the utilization of a number of value-based management methods in the USA. They find that the majority of respondents are not satisfied with value-based management methods. According to Ryan and Trahan, this indicates that there is room for improvement in the design and implementation of value-based management systems.

Our study purports to examine the extent to which Canadian companies have embraced VBM methods and provide a benchmark of comparison of VBM usage in the USA versus Canada. Furthermore, our survey and empirical study will also identify the characteristics of these companies and of the executives responsible for the introduction of VBM in their organisations.

Ryan and Trahan (1999) also examined the determinants of the use of VBM systems. Their findings show that financial resources and sophistication, as well as profit margin are the factors that are primarily related to the use of VBM methods by corporations. Further research, however, is needed to study the type of firms and management teams that adopt (or are more likely to adopt) value-based management systems, as well as study the stock price performance of those companies that use VBM systems versus those that do not. Our study of Canadian companies addresses such issues.

Data and methodology

To compile information on how VBM is utilized in Canada, a survey was sent to CEOs of a large sample of firms. A list of the 300 largest (based on market capitalisation) publicly-owned Canadian companies were obtained from *The 1999 Stern Stewart Canadian 300 Market Value Added Rankings*. From this list, 12 companies were excluded from the survey because they were either financial institutions or were not listed on the Toronto Stock Exchange. Addresses and CEO names, as well as other firm specific data were obtained from *Financial Post*'s "FP 5000". Stock return data were obtained from the *Canadian Financial Markets Research Centre* database.

A two page survey was designed which included the respondent's title, familiarity with VBM, use of VBM, areas where it is used, scope of use, timing of adoption, employee education and compensation related to VBM systems[1]. The survey also included information on the corporate title, age, background and education of the persons who initiated/introduced and approved the adoption of VBM methods in their organisations. The survey listed the most popular VBM methods referred to in the introduction of the paper. Each questionnaire had its own unique identification number, which allowed second requests to be sent out. It also helped to compile

statistics on the characteristics of the firms that adopt VBM methods, such as assets, sales, profitability, industry, stock price performance and other metrics.

We also examine the relation and importance of firm and management characteristics to the adoption of VBM and explore the determinants of utilisation of VBM methods. To this end, as a firm can use or not use VBM systems, we will apply a regression analysis of qualitative choice in this study (Kennedy, 1992). The logit model is used as it solves problems faced by the linear qualitative choice models (i.e. the linear probability model). The logit model is also the preferred model in such analysis as it is much easier to use from a computational point of view than other similar models, such as the probit model (Kennedy, 1992).

Empirical results

The questionnaire was mailed to the CEOs of the 288 sample firms in March 2000. Follow-up letters were sent in April 2000. A total of 13 letters were returned as the person to whom the letter had been sent was not employed with the firm any longer or the company did not wish to participate in the survey. A total of 39 (14 per cent) responses were received. This response rate compares favourably with other similar surveys (e.g. Ryan and Trahan, 1999). Similarly, a 2000 KPMG survey of e-commerce in Canada's top companies had a response rate of 18 per cent (e.g. KPMG Investigation and Security Inc, 2000).

Characteristics of respondents and responding firms

To analyse potential non-response bias, we examine the characteristics of responding versus non-responding firms. In our survey, we specifically asked for each respondent's corporate title as CEOs may have forwarded the questionnaire to others within the company. All the respondents were high-level corporate personnel ranging from VP-Financial Planning to CEO and President, with the majority of respondents identifying themselves as the CEO or CFO of the company.

	Firms responding ($n = 39$)	Firms failing to respond ($n = 236$)	T-statistic for difference
Total assets ($mil.)	3,710	2,513	1.11
Revenues ($mil.)	2,806	1,260	2.47*
Net Income ($mil.)	112.9	56.2	1.20
EPS	1.00	0.40	1.53
Return on assets (%)	3.65	2.21	1.18
ROE (%)	6.24	0.77	1.76
Operating margin (%)	3.62	−3.49	0.90
Net profit margin (%)	1.59	−5.97	0.98
Price per share ($)	21	16	1.56
Number of shares outstanding ($mil.)	108.2	63.4	2.10*
Market value of equity ($mil.)	2,394.5	1,556.0	1.34
Compounded monthly stock return (1991-1998)	0.0125	0.0086	1.39
Number of employees	13,700	5,911	1.74

Note: *Significant at the 5 percent level

Table I.
Financial characteristics of surveyed firms as at the end of 1998: mean values

With regards to the characteristics of responding versus non-responding firms, Table I presents the mean values of various firm-specific variables as at the end of 1998. Revenues and number of shares outstanding are the only variables from those examined whose means differ statistically between the responding and non-responding firms at traditional levels of significance. It is possible that the response is biased towards firms that are interested in and using value-based management, overstating these percentages in our results relative to the population of firms. Our chief objective, however, is to provide information on how responding firms perceive, use and implement value based management systems. Hence, this possible response bias, if it exists, would not impact our main results. In survey studies, if tests indicate that there are no significant differences between respondents and non-respondents on key variables, then the sample appears to be a "microcosm" of the original sample and population. If no major differences exist between the two groups, the potential for non-response bias is minimal despite a possible high non-response rate. The question, of course, is whether revenues and shares outstanding, in this study, are "key variables" and whether the documented differences between the two groups are considered to be "major". If they are not then it is valid to generalise inferences from the sample data to the population. We are also aware that self-selection bias may affect the results and, if this is the case, the significant predictors of VBM usage may only apply in this study's small sample.

Utilization and efficiency of value-based management

Survey participants were asked:

- to indicate their familiarity and use of the listed value-based management systems;
- to indicate the areas within their organisation that VBM is used;
- to indicate the scope of use of VBM in order to determine the extent to which VBM is pervasive within organisations;
- whether they adopted a VBM method at once or gradually and to list the year they adopted a method and abandoned it, if applicable; and
- about employee education and training on value-based management.

Tables II-VI summarise their responses.

Respondents are generally familiar with the listed methods. However, EVA is the least used method (35 per cent), with the DCF method being used by all respondents who are familiar with VBM (see Table II). Interestingly enough, while DCF (94 per cent), CFROI (64 per cent) and ROIC (75 per cent) are very pervasive within organisations, and used for the entire company, only half of the respondents use EVA for the entire corporation, with the other half using EVA only for divisional and/or departmental purposes. In the questionnaire, we did not specify the other uses of the particular VBM method besides its use at the corporate level. We assume here that these "other" uses refer to the divisional and/or departmental level. The more recent method to be adopted is EVA, with a median adoption year 1996, whereas all other methods were adopted mainly in the 1980s. We recognise that the respondent's recollection of the year of adoption of the particular VBM method may be a function of his/her length of employment with the organisation. However, as the respondents were

Familiarity and use	DCF		CFROI		ROIC		EVA		Other	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Familiar with this method	32 of 38	84	23 of 38	61	27 of 38	71	34 of 38	89	10 of 38	26
Seen a presentation on this method	14 of 32	44	9 of 23	39	9 of 27	33	25 of 34	74	4 of 10	40
Use this method	32 of 32	100	14 of 23	61	24 of 27	89	12 of 34	35	10 of 10	100
Developed this method internally	20 of 32	63	7 of 23	30	11 of 27	41	4 of 34	12	5 of 10	50
Developed this method with outside assistance	3 of 32	9	3 of 23	13	3 of 27	11	8 of 34	24	2 of 10	20
Satisfied with this method	23 of 32	72	9 of 23	39	14 of 27	52	8 of 34	24	8 of 10	80

Note: Responses are given for 38 respondents who indicated that they were familiar with value-based management. One of the respondents indicated that he/she was not familiar with value-based management

Table II.
Utilization and efficiency of value-based management systems in Canada – familiarity and use of value-based management systems

senior company Most firms trained employees both prior and after implementation of VBM with the highest frequency in the case of ROIC (70 per cent) and EVA (63 per cent) (see Table VI).

Use of value-based management for compensation

Participants using VBM for compensation were asked to indicate what level of employees were covered and how the compensation was determined. The responses are summarised in Table VII. VBM compensation systems were applied most frequently to CEOs and other executives, followed by middle management.

	DCF (32 users)		CFROI (14 users)		ROIC (24 users)		EVA (12 users)		Other (10 users)	
Areas of use	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Long-term planning	21	66	7	50	13	54	9	75	5	50
Annual budgeting	11	34	6	43	14	58	6	50	7	70
Investment decisions	32	100	12	86	13	54	7	58	3	30
Performance measurement	15	47	6	43	15	63	7	58	8	80
Compensation	3	9	3	21	11	46	6	50	6	60
Other	3	9	1	7	0	0	2	17	0	0

Note: Responses are given for respondents who indicated that they use a particular value-based management method

Table III. Utilization and efficiency of value-based management systems in Canada – areas where value-based management methods are used

	DCF (32 users)		CFROI (14 users)		ROIC (24 users)		EVA (12 users)		Other (10 users)	
Scope of use	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Entire company	30	94	9	64	18	75	6	50	9	90
Other	2	6	3	21	2	8	6	50	1	10
Did not respond	0	0	2	14	4	17	0	0	0	0

Note: Responses are given for respondents who indicated that they use a particular value-based management method

Table IV. Utilization and efficiency of value-based management systems in Canada – scope of use of value-based management systems

	DCF (21 adopters)		CFROI (10 adopters)		ROIC (13 adopters)		EVA (8 adopters)		Other (5 adopters)	
Timing of adoption	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Adopted all at once	13	62	5	50	6	46	4	50	4	80
Adopted gradually	8	38	5	50	7	54	4	50	1	20
	n	Median	*n*	Median	*n*	Median	*n*	Median	*n*	Median
Year adopted method	18	1984	7	1992	13	1988	8	1996	5	1997
Year abandoned method	0		0		0		2	1998	0	

Note: Responses are given for respondents who responded to questions regarding the adoption of value-based management systems

Table V. Utilization and efficiency of value-based management systems in Canada – timing of adoption of value-based management systems

Timing of training	DCF (16 respondents)		CFROI (5 respondents)		ROIC (10 respondents)		EVA (8 respondents)		Other (5 respondents)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Prior to implementation	4	29	1	20	2	20	3	37	0	0
After implementation	2	14	1	20	1	10	0	0	2	40
Both prior to and after	8	57	3	60	7	70	5	63	3	60
Conducted training internally	11	69	4	67	6	60	5	63	5	100
Utilised outside firm for training	0	0	0	0	0	0	1	13	0	0
Both internal and external training	5	31	2	33	6	60	2	24	0	0

Notes: Responses are given for respondents who responded to questions regarding training that employees received on value-based management systems. Percentages and statistics are based on the number of responses to a particular question

Table VI.
Utilization and efficiency of value-based management systems in Canada – employee education on value-based management systems

Characteristics of those who introduced the idea to the firm

Participants whose companies used VBM were asked to indicate age, education and background of the person initiating/introducing the idea to the organisation. Table VIII summarises the responses. From those responding, 60 per cent indicated that those introducing VBM in the organisation were 45 years of age or less, 59 per cent that they had a graduate education and 85 per cent that they had an accounting/finance background. Companies could use VBM but the respondent in this question may not know who introduced it to the organisation or may not wish to answer the question.

Determinants of value-based management usage and stock price performance

In this section, the information obtained from the survey will now be used for statistical and logit regression analysis in order to explore the determinants of VBM usage and its effect on firm stock price performance. We hypothesise that (the probability of) VBM usage (i.e. the dependent variable in the logit regression) is a

	Merit increases		Bonuses		Stock options		Promotions	
Level of use	*n*	%	*n*	%	*n*	%	*n*	%
CEO	5	21	22	92	12	50	1	4
Other executives	5	21	22	92	12	50	3	13
Middle management	4	17	19	79	8	33	3	13
Other	1	4	8	33	0	0	1	4

Note: Responses are given for 24 respondents who provided information about how their firms use value-based management systems for compensation and promotion purposes. Percentages are based on 24 respondents

Table VII.
Use of value-based management systems for compensation and promotion

	n	Per cent of those responding
Age		
45 or less	12	60
Over 45	8	40
Did not know/answer	12	
	32	
Education		
Undergraduate	7	41
Graduate	10	59
Did not know/answer	15	
	32	
Background		
Accounting/finance	17	85
Other	3	15
Did not know/answer	12	
	32	

Note: Responses are given for 32 respondents who indicated that they are using VBM. Percentages are based on those who responded to this question

Table VIII.
Characteristics of those who introduced this idea to the organisation

function of industry, firm-performance, firm-size and sophistication, and age, background, and education of the main players in the decision. Proxies for the above arguments to be used as dependent variables in the logit regression are discussed below.

Utilisation of VBM may vary across broad industry groups. EVA, for example, has been argued not to be appropriate for high technology companies where R&D expenditures have long expected payoff periods or for mature heavy-manufacturing industries (e.g. Ryan and Trahan, 1999). We use a dummy variable (LOWRISK_IND) that takes on the value of 1 if the industry in which the company belongs is in the telephone, pipeline, food and department store areas. The industry classification is same as the one applied by the Toronto Stock Exchange to broadly include companies within industries. The Toronto Stock Exchange has an industrial classification system based on product (good or service) and business cycle characteristics. Although this classification system is not perfect, as it groups firms that in many cases are not very homogeneous, it will suffice for this study, as long as clear differences in risk (returns variance) and growth characteristics exist between industries (e.g. Hatch and White, 1988, p. 195). We expect to find that the lower the risk and growth potential of the industry, the higher the likelihood for the company to use a VBM method.

Firm-performance may influence the utilisation of VBM systems either because the methods are working or because firms are committed to continuing strong performance. We use 1998 ROA, ROE, operating margin, net profit margin, and compounded monthly returns over the 1991-1998 period (RET9198) as proxies for firm-performance. Depending on which effect dominates, the sign of the coefficient of these variables in logit regression could be either negative or positive.

Cooper and Petry (1994) find evidence that large firms are more likely to adhere to shareholder value-maximising principles than small firms. We use firm-size as a proxy for sophistication, which may influence the utilisation of value-based management methods. The natural logarithm of 1998 total assets (LNASSETS) and revenues (LNREVENUES) are used as proxy of size. In addition, we also use the natural logarithm of a company's price level as at the end of 1998 (LNPRICE98) as a proxy of firm-size and sophistication.

Finally, age, background and education should also be important in determining usage of VBM methods. Younger executives, with a higher level of education are more likely to experiment and be familiar with the newest trends in management. Moreover, a certain level of financial and/or accounting background and/or sophistication is needed to understand some of the more complex VBM methods. Dummy variables are used that take on the value of 1 if the age (AGE) of the executive introducing/initiating VBM to the organisation is 45 years or less, his/her background (BACKGROUND) is accounting/finance and his/her education (EDUCATION) is a graduate degree, and zero otherwise. The value of 1 is also given to the dummy variable if the age, education and background of the company's CEO were 45 years or less, graduate degree, accounting/finance, respectively and the respondent's company did not use any of the VBM systems. Moreover, the dummy variable takes on the value of 0 in all other cases of the above including the case that no response was given regarding age, background and education. This value (assumption) for the dummy variable may not be unrealistic as chances are that older, less educated individuals outside accounting/finance may not have been as willing to disclose such information. We expect Age, Education and

Background to be positively related to usage of VBM and, hence, we expect to find a positive coefficient for these variables in the logit regression.

A logit regression is also utilised to examine the relation between the use of any VBM method or EVA and the firm-specific financial and other variables previously identified. Table IX reports the mean values of the model (non-dummy) raw variables for the pairs of groups using/not-using any VBM method or EVA. A parametric test of significance of the difference in the means between the "use" and "do not use" groups shows that for all variables the mean differences are not statistically different from zero at any traditional level of significance. However, with small samples, the normality assumption underlying the *t*-test may not hold. Moreover, due to unequal and small sub-group sizes, the t-test has low power to detect significant differences. As a result, Table IX also reports a non-parametric Brown-Mood median test which provides an approximate χ^2-test that does not rely on normality. While the differences in medians between the aforementioned groups are not statistically different from zero for most of the variables, they are for RET9198 for the EVA/non-EVA groups and for ROA and ROE for the VBM/non-VBM groups. The most interesting result from Table IX is the finding that companies that use EVA seem to have had better stock price performance in the 1990s, both in economic and statistical sense according to the non-parametric tests, than those that did not use EVA. The opposite is the case for companies that used any of the other methods listed, although the difference here is not statistically significant. As these results are quite preliminary given the size of the sample, more research is needed in this area to determine whether indeed EVA is a superior method to use for shareholder value creation than any of the other VBM methods.

Table X takes the statistical analysis a step further and reports the estimated coefficients from the logit regression analysis, which examines the likelihood of adoption of any of the listed VBM methods and the likelihood of adoption of EVA. A backward elimination method was applied according to which independent variables are removed if they do not meet certain statistical criteria. This selection procedure resulted in five financial or other variables with high discriminating power in the VBM regression and eight variables with high discriminating power in the EVA regression. Table X shows that the higher the size of the firm-assets, the higher the likelihood of adoption of a VBM system. Similarly, the higher the amount of revenues, the higher the likelihood for adoption of EVA. Both firm-size coefficients are statistically significant. Larger firms are more likely to use several of the value-based methods listed in this paper, suggesting that these methods are employed by more resource rich and sophisticated firms. Stock price is negatively related to EVA usage but its coefficient is not statistically different from zero.

Companies in less risky and lower growth industries exhibit higher likelihood of adopting VBM methods. However, while the relationship is positive, as expected, it is not statistically significant. Consistent with O'Byrne (1997), performance, measured by returns between 1991 and 1998, is positively (statistically significant) related to the likelihood of adoption of EVA. From Table V, we see that most companies adopted EVA in the 1990s. As a result, the findings are not spurious in the sense that companies were not using EVA before the 1990. Net profit margin is positively (statistically significant) related to the likelihood of adoption of VBM. On the other hand, firm-performance, as proxied by ROE, is negatively (statistically significant) related to

Table IX.
Logit regression (non-dummy) raw variable mean values and parametric and non-parametric tests of significance

Variable	EVA group Mean ($n = 12$)	Non-EVA group Mean ($n = 26$)	T-test	χ^2–test	VBM group Mean ($n = 32$)	Non-VBM group Mean ($n = 6$)	T-test	χ^2-test
Revenues (mil.)	$3,275.1	$2,606.7	0.48	0.47	$2,601.6	$3,895.3	0.54	0.00
Assets (mil.)	$4.177.1	3,494.1	0.37	0.47	3,896.5	2,716.0	0.73	0.00
ROA (%)	2.69	4.11	1.52	0.33	3.14	6.28	1.68	3.36*
ROE (%)	3.03	7.72	0.77	0.47	5.08	12.47	1.29	3.08*
Net profit margin (%)	3.61	0.65	0.99	0.00	1.73	0.83	0.20	0.00
Operating margin (%)	6.43	2.31	0.99	0.00	3.85	2.38	0.24	0.77
PRICE98	$21.50	$21.10	0.55	0.00	$21.18	$21.47	0.36	0.77
RET9198	0.01532	0.0110	1.29	4.27*	0.012	0.0142	1.02	0.77

Notes: * significant at the 5 percent level. T-value tests the significance of the difference of means between the EVA and VBM Groups and non-EVA and non-VBM Groups.χ^2-value provides a non-parametric test of significance of the difference of medians between the above groups. PRICE98 signifies the stock price at the end of 1998. RET9198 signifies the compounded monthly return on the firm's stock between 1991 and 1998. All other variables are also as at the end of 1998 and are self-explanatory

	VBM		EVA	
INTERCEPT	−10.04	(1.55)	−43.14	(5.05)**
LNREVENUES	–	–	3.03	(4.81)**
LNASSETS	0.93	(2.59)*	–	
LNPRICE98	–		−1.88	(2.17)
ROA	−0.50	(2.32)	–	
ROE	–	–	−0.24	(3.20)*
OPERATING MARGIN	–	–	0.17	(1.34)
NET PROFIT MARGIN	0.17	(3.18)*	–	
RET9198	–	–	234.2	(3.68)**
LOWRISK_IND	1.79	(1.27)	–	
AGE	4.07	(3.98)**	3.18	(2.37)
BACKGROUND	–	–	7.39	(4.44)**
EDUCATION	–	–	3.43	(1.98)
CONCORDANT (%)	89.8		94	
USERS	32		12	
NON-USERS	6		26	

Notes: *Significant at the 5 percent level; ** significant at the 1 percent level; ($n = 38$). Logistic regressions are estimated where the independent variable is 1, if a firm uses a method and 0 otherwise. VBM indicates the use of any value-based management system, EVA indicates the use of economic value added only. LOWRISK_IND is 1 if firm is classified as being a telephone, pipeline, food or department store, and 0 otherwise. LNPRICE98 signifies the natural logarithm stock price at the end of 1998. RET9198 signifies the compounded monthly return on the firm's stock between 1991 and 1998. LNASSETS and LNREVENUES are the natural logarithm of the 1998 assets and revenues, respectively. All other company statistics are also as at the end of 1998 and are self-explanatory. AGE is 1 if the age of the person who introduced the VBM or EVA system to the company (or of the company's CEO, if no VBM method is used) is 45 years or less, and 0 otherwise (which also includes the case that no answer to this question is given). BACKGROUND takes the value of 1 if the above person's background is in Accounting or Finance and 0 otherwise (which also includes the case that no answer to this question is given). EDUCATION takes the value of 1 if the above person holds a graduate degree and 0 otherwise (which also includes the case that no answer to this question is given)

Table X.
Determinants of value-based management usage

EVA. This may mean that low ROE companies tend to attempt to improve performance by adopting EVA. Similarly, ROA is negatively related to the adoption of VBM, but its coefficient is not statistically significant.

Finally, personal characteristics of those executives introducing VBM to organisations are important determinants of likelihood of adoption of VBM systems. The younger these executives are the higher the likelihood of VBM adoption. As seen in Table X, this is the most statistically significant variable in the VBM equation. With regards to the EVA equation, the background of those executives is one of the most important variables determining adoption of EVA. Age and education are also positively related to the likelihood of EVA adoption but their coefficients are not statistically significant.

The resulting concordant percentages in Table X indicate that all methods do perform substantially better than chance in classifying firms based on their usage of value-based management. Our model classifies correctly 89.8 per cent of the observations for the VBM equation and 94 per cent for the EVA equation. These classifications are very successful for both the VBM and EVA using firms.

Conclusions and interpretation of findings

The objective of this empirical study and survey was to determine the extent to which Canadian companies have embraced VBM methods, identify the characteristics of these companies and of the executives responsible for the introduction of VBM in their organisations and assess the stock price performance of those companies that used VBM methods versus those that do not.

The main findings are as follows: The most popular VBM method in Canada, from those listed, is the DCF method. Value-based management is used mostly in the areas of investment decisions (DCF is most common), long-term planning (EVA is the most common), and performance measurement (ROIC is the most common). Most of these methods are developed internally, with the exception of EVA. EVA is the most recently adopted method. Generally, younger executives with a higher level of education and a background in accounting/finance tend to be more willing to initiate and introduce VBM in their organisations.

This study's findings were mostly similar with those reported for the USA (e.g. Ryan and Trahan, 1999). However, as opposed to Canada where EVA was the least used method (34 per cent), in the USA, EVA was used by half of the respondents (e.g. Ryan and Trahan, 1999). Moreover, whereas EVA was used by 50 per cent of the respondents at the corporate level in Canada, in the USA, the largest percentage of respondents (84 per cent) said they used EVA at the corporate level (e.g. Ryan and Trahan, 1999).

Could this difference in the frequency of the particular VBM method used, especially at the corporate level, be an explanation for the observed discrepancy of stock markets between the USA and Canada in the 1990s? If EVA is a more important value-creating VBM method than the other methods listed in this study, then its lower usage in Canada, especially at the corporate level, could provide some explanation for the stock market differential performance.

The statistical analysis following the tabulation of survey results may have provided some help in this regard. Table IX, for example, showed that companies using EVA did have a better stock price performance than those not using EVA. This being the case, Canadian companies, which tend to use primarily non-EVA VBM methods, especially at the corporate level, would tend to have stock that under-performs the stock of those that use EVA – and USA companies do use more extensively EVA, particularly at the corporate level. Further support for this conclusion was provided by the logit regression analysis in Table X, which showed that companies with better stock market performance exhibited higher likelihood of using EVA. While this may not prove causality, it does provide some evidence in support of the argument that Canadian companies may have to use EVA more aggressively, especially for the entire corporation, if they are to experience better value creation and stock market performance than they had had in the 1990s.

Note

1. The questionnaire used, which builds on and expands Ryan and Trahan's (1999) questionnaire, is available from the authors on request.

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