An Examination of the January Effect in

Canadian Stock Market

by

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Abstract

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This paper tests the existence of abnormal returns based on the January effect in Canada, and attempts to verify, if any relationship between firm size and the January effect. A regression model with dummy variables was used to examine the January effect from 2000 to 2013. The January effect, which is also called the turn- of- the- year effect, is a trend that during the first five days of January, stock returns, particularly the small- cap firms are significantly higher than any other time periods of the year. There are several possible explanations for the January effect. The most popular ones are tax- loss selling and window dressing.

This paper found no January effect on any sized companies in Canada from the period 2000 to 2013. As the January effect does not hold for most of the firms in Canadian stock market, as a result, there are no abnormal returns for investors to take advantage of.

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Chapter 1

Introduction

1.1 Purpose of the study

The concept of efficient markets was put forward by Professor Eugene Fama in 1970. Market efficiency is also referred to as the speed and accuracy that new information is translated into the prices of stocks. There are three types of market efficiency, weak-form, semi- strong form and strong- form.

The efficient market hypothesis (EMH) states that security prices cannot be predicted by using historical data. In other words, future security prices are random walks. However, some researchers have determined that abnormal profits can be predicted during recent decades. The investment banker Sidney B. Wachtel (1942) observed that small-cap stocks had outperformed the market in the beginning of January since 1925. These include calendar anomalies including January, weekend, and holiday effect. If as some studies suggest that these abnormal profits stand against the efficient market hypothesis. Therefore, potential profits can be generated to financial institutions as well as individual investors because of the inefficient stock market.

The purpose of this paper is to test the existence of a January effect in the stock market of Canada, and if it exists, verify the relationship between abnormal returns and the firm size and the potential to EMH to take advantage of the abnormalities.

The January effect was first discovered by Wachtel (1942) and documented by Keim (1983). They found that during the first five days of January, stock returns rise significantly compared to the rest of the year. They also observed that small firms experienced higher returns compared to the larger firms.

1.2 Background

The efficient market hypothesis (EMH) was first developed by Professor Eugene Fama (1970). There are three types of market efficiency identified based on the different sets of information.

1. Weak- form market efficiency

   The weak- form of the efficient market hypothesis states that the security prices fully represent all the available market data. Therefore, the historical prices will be useless in predicting future security prices, because prices change randomly in the future. In the weak- form of the EMH, no investors can profit by using technical analysis.

2. Semi- strong form market efficiency

The semi- strong form of efficient market hypothesis states that security prices will adjust rapidly and precisely after new public information is released. Therefore, publicly available information, including all past security market information and nonmarket information available to the public fully represent current security prices. In the semi- strong form of the efficient market, no investors can profit through fundamental analysis.

3. Strong- form market efficiency

The strong- form market efficiency states that security prices fully represent all public and private information. Investors have no opportunities to achieve abnormal returns even if they are insider traders.

The weekend effect and holiday effect were noticed firstly during the period 1931 to 1934 by Fields (1934), and then Wachtel (1942) discovered the January effect that there exist large returns during the first few trading days of January. There are several possible explanations for the January effect.

1. Tax loss selling

Many investors sell securities at the end of the year in order to lower capital gains as well as any tax liability. And then they purchase the stocks back in January. Therefore, the stock prices on January will be pushed up, and returns will be higher than the rest of the year.

2. Window dressing

   Window dressing is a strategy which is often used by mutual funds and portfolio managers at the end of the quarter to improve the appearance of performance. They sell risky stocks in December, and then repurchase them in January.

3. Mis-specification of CAPM

   The mis-specification of CAPM is considered to be one of the reasons which result in the January effect. They believe that the single beta cannot cover all informational risk related with stocks.

All of these explanations can only partly demonstrate the January effect, so it is still difficult to adequately explain this anomaly.

Chapter 2

Literature Review

Even though the January effect has been discovered for several decades, there is still a debate in the literature.

The first point is the contradiction between the January effect and the efficient market hypothesis (EMH). In other words, if stock markets are becoming increasingly efficient, the question to pose is whether the January effect will still exist?

The EMH is based on three assumptions. (1) All investors are price takers, so no one is capable of influencing the price of any stock. (2) Information which is released to the market should be quickly available, cheap to obtain, and widely distributed to the public. (3) Prices are adjusted quickly and precisely to the information. Therefore, the stock prices represent the fair value of securities, and security analysis is a waste of time. So, if the January effect still exists, it means that the stock returns can be predicted which violates the efficient market hypothesis.

Anthony and Arilne (1999) stated that seasonal effects, including January effect are consistent with the weak- form and semi- strong form of market efficiency. However, they are not

consistent with the strong form of the market efficiency. After investors notice the existence of the abnormal returns, speculative measures will be used to exploit the profit. Gu and Simon (2003) found that the January effect is declining annually in the United Kingdom, and Schwert (2003) reported a weakened January effect during 1980 to 2001 on the US market. But the effect still existed. Moreover, according to the research of Li (2013) based on the financial services industry of Canada, there is no convincing evidence that is able to confirm the existence of the January effect in the small- cap firms. However, Moosa (2007) claimed that during 1970 to 2005, a significant January effect existed except for the period of 1990 to 2005 on the US stock market. Athanassakos & George (1997) claim that a significant January effect existed not only in small- cap Canadian stocks, but also large- cap Canadian stocks.

The second key point of the argument is that if investors anticipate the trend of abnormal returns and sell the securities earlier or later, whether the "January effect" will occur at other times. However, Li (2013) claimed that there is neither a December effect nor a February effect existing in the financial services industry of Canada.

The third important point is the negative January effect. Lindley et al (2004) found that during the period 1962 to 2000, a negative January effect occurred several times in the US market.

There are two main reasons that affect the abnormal returns, the size of the firm and the value effect. Decades of findings show that small- cap stocks outperform large- cap stocks in respect to the January effect. The value effect refers to findings that stocks with lower price- to- earnings, lower market- to- book, and higher dividend yields have a more obvious January effect than those growing stocks.

Chapter 3

Methodology

3.1 Data Sources

The purpose of this paper is to verify the relationship between the January effect and firm size in the Canadian stock market. We collect data from the Toronto Stock Exchange (TSX) for the period 2000 to 2013 to analyze this topic. Compared to previous research, this paper separates firms into three different sizes. Those companies whose market capitalizations are less than $2 billion are regarded as the small- cap companies. Companies with the market capitalization of more than $2 billion, but less than $10 billion are categorized as the middle- cap companies. While, the other companies with more than $10 billion market capitalization are treated as the large- cap companies.

One dummy variable is used in the regression model, and tests will be conducted to verify the existence of January effect and the significance of the abnormal returns.

We choose the adjusted closing prices of the first trading day of each month from January 2000 to December 2013. The stock prices can be collected from the Bloomberg and yahoo.finance.com.

According to the previous research, the other factors including TSX index, the price- to-earnings (P/E) ratio and the T- bill rates have been proved to be related to the January effect. So, these variables should also be included in the regression model. The monthly data can be obtained from the Bloomberg Terminal and yahoo.finance.com.

3.2 Model

To measure the monthly return of the Canadian stock market, we should use the natural log return model. The equation is listed below:

$$R_t = Ln\ (P_t/\ P_{t-1}) = Ln\ (P_t) - Ln\ (P_{t-1}) \qquad (3.1)$$

Where

R_t = Monthly return of S&P/TSX Composite Index

P_t = Adjusted closing value of S&P/TSX Composite Index at the period t

P_{t-1} = Adjusted closing value of S&P/TSX Composite Index at the period t-1.

To test the existence of the January effect, the simple regression model can be used as follows:

$$E(R_i) = \alpha_i + \beta_{1i}X_{1i} + \beta_{2i}X_{2i} + \beta_{3i}X_{3i} + \varepsilon_i \qquad\qquad (3.2)$$

Where

$E(R_i)$= the expected return of the price of stock i

X_{1i}= monthly S&P/TSX Composite Index

X_{2i}= the price- to- earnings ratio of stock i

X_{3i}=dummy variable, 1 stands for January and 0 stands for otherwise

ε_i= error term, we suppose that it follows the classical regression assumptions.

If the January effect really exists, the coefficient β_{3i} should be statistically significant.

The first step is to run the regression model using the complete data set to test for the existence of the January effect, and analyze the data annually. Then, we run the regression model based on individual companies.

Chapter 4

Empirical Results

The purpose of this paper is to test for the existence of the January effect in the Canadian stock

market, and the influence of firm size. From the regression model in Chapter 3 (Equation 3.2), it

is obvious that the significance of the coefficient beta3 can determine whether the January

effect exists.

The S&P/TSX composite index return and the price- to- earnings ratio (P/E Ratio) in the model

are variables that affect the return of securities. The data which are stocks of the Toronto Stock

Exchange from the period 2000 to 2013 are downloaded from the yahoofinance.com and

Bloomberg. The following section analyzes the data in detail to determine whether the January

effect existed in the Canadian stock market for the period 2000 to 2013.

4.1 Based on Year

From Table 4.1, large-cap companies did not show a January effect except for 2010. So the

results suggest that the January effect does not exist significantly in large-cap companies. The

statistical insignificance represents the case for market efficiency in large-cap companies.

From Table 4.2, mid-cap companies did not show a January effect except for 2006. So once more the results suggest that the January effect does not exist for mid-cap companies confirming market efficiency in mid-cap companies.

From the Table 4.3, small-cap companies also did not show a January effect except for 2010. So, the statistical insignificance represents the market efficiency in small-cap companies.

From the R-squared, it is not obvious that Equation 3.2 is more suitable for any sized companies.

Table 4.1

Statistical results for the model

Large-Cap Companies (by year)

Year	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
2013	0.1511 (0.39)	-0.0304 (-1.57)	0.1674 (1.61)	0.2617
2012	0.0054 (0.03)	0.0740 (0.50)	0.0234 (0.97)	0.1421
2011	-0.0180 (-0.12)	-0.0074 (-0.68)	0.1290 (0.37)	0.0749
2010	0.2441 (0.80)	-0.2121 (-0.78)	-0.0852 (-2.37)*	0.4917
2009	0.0350 (0.22)	-0.0499 (-0.24)	-0.0931 (-1.48)	0.2203
2008	0.0889 (0.50)	0.0047 (0.95)	0.0355 (0.67)	0.1670
2007	0.1640 (2.01)	0.0029 (1.21)	-0.0193 (-0.71)	0.3859
2006	-0.2527 (-2.13)*	0.0232 (1.78)	0.0168 (0.77)	0.4840
2005	-0.1305 (-0.53)	0.0018 (0.61)	-0.0497 (-1.11)	0.1384
2004	0.1744 (0.79)	0.0014 (0.60)	-0.0173 (-0.71)	0.2860
2003	-0.0355 (-0.14)	0.0014 (0.36)	-0.0290 (-0.94)	0.1559
2002	0.1306 (0.51)	0.2750 (0.87)	0.0148 (0.31)	0.1414
2001	0.2749 (1.84)	-0.1978 (-0.58)	0.0137 (0.26)	0.3010
2000	0.1327 (0.71)	-0.0042 (-0.18)	-0.0628 (-1.37)	0.2410

*Significant at the 5% level

Table 4.2

Statistical results for the model

Mid-Cap Companies (by year)

Year	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
2013	-0.2677 (-0.94)	0.0013 (0.77)	0.0294 (1.01)	0.1606
2012	-0.1050 (-0.41)	0.0058 (1.19)	-0.0023 (-0.07)	0.1594
2011	0.2509 (1.10)	-0.0767 (-1.55)	0.0286 (0.83)	0.2572
2010	0.1950 (0.87)	-0.1341 (-1.41)	0.0415 (0.58)	0.3090
2009	0.1418 (0.89)	-0.0107 (-1.21)	-0.0036 (-0.05)	0.2225
2008	0.0789 (0.13)	0.0052 (0.31)	-0.0952 (-0.89)	0.1399
2007	-0.1617 (-0.54)	0.0764 (1.10)	0.0057 (0.12)	0.1324
2006	-1.1436 (-3.71)*	1.0390 (2.56)*	0.1053 (2.91)*	0.6432
2005	-0.3020 (-2.47)*	1.0102 (3.72)*	-0.0171 (-1.10)	0.6438
2004	-0.0056 (-0.03)	-0.0010 (-0.97)	0.0302 (0.89)	0.1471
2003	0.2979 (0.60)	-0.4885 (-0.58)	-0.0607 (-0.81)	0.1017
2002	-0.2690 (-0.65)	0.0028 (0.56)	-0.0071 (-0.09)	0.0772
2001	0.2625 (0.68)	-0.0019 (-1.64)	0.2454 (1.73)	0.2883
2000	0.2998 (0.65)	-0.0006 (-0.53)	0.2011 (1.87)	0.4751

*Significant at the 5% level

Table 4.3

Statistical results for the model

Small-Cap Companies (by year)

Year	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
2013	0.1909 (0.42)	0.1267 (1.11)	-0.0254 (-0.45)	0.1601
2012	-0.0833 (-0.31)	0.0045 (1.03)	0.0726 (1.65)	0.2696
2011	0.0164 (0.13)	0.0017 (1.58)	-0.0026 (-0.09)	0.2736
2010	0.1489 (1.11)	-0.0019 (-3.28)*	-0.0773 (-3.44)*	0.7645
2009	0.1300 (0.85)	0.1183 (0.51)	-0.0061 (-0.09)	0.1193
2008	0.1861 (0.81)	-0.0003 (-1.14)	-0.0155 (-0.18)	0.1874
2007	0.5217 (1.28)	-0.6902 (-1.40)	0.0843 (1.35)	0.2574
2006	-0.6454 (-1.45)	0.2353 (0.99)	0.0739 (1.60)	0.2971
2005	-0.3314 (-1.10)	-0.0502 (-0.11)	-0.0360 (-0.74)	0.1563
2004	-0.0938 (-0.70)	-0.0012 (-1.04)	0.0067 (0.32)	0.1588
2003	0.3048 (0.86)	0.0009 (0.26)	-0.0051 (-0.14)	0.0994
2002	0.5242 (1.24)	0.1210 (3.06)*	0.0621 (1.33)	0.7133
2001	0.3689 (1.12)	-0.5225 (-1.48)	0.1076 (1.22)	0.2162
2000	0.4714 (1.55)	-0.5934 (-2.21)*	-0.0200 (-0.30)	0.3872

*Significant at the 5% level

4.2 Based on Individual Companies

From Table 4.4, the coefficient of the dummy variable, beta3, showed that two large-cap companies, which are Royal Bank of Canada (RY) and Bank of Nova Scotia (BNS), have strong January effects during 2000 and 2013.

From Table 4.5, the coefficient of dummy variable, beta3, showed that three mid-cap companies, which are Transcanada Corporation (TRP), Enbridge Inc. (ENB), and Transalta Corporation (TA), have strong January effects between 2000 and 2013.

From Table 4.6, the coefficient of dummy variable, beta3, showed that one small-cap company, namely Caledonia Mining Corporation (CAL) has a strong January effect during 2000 and 2013.

Table 4.4

Results for individual companies

Large-Cap Companies

Name	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
BCE	0.1870 (2.76)*	-0.0020 (-1.88)	-0.0165 (-1.03)	0.0787
TD	0.1896 (2.73)*	0.0599 (1.45)	-0.0253 (-1.49)	0.0739
RY	0.1200 (1.96)	0.0078 (0.34)	-0.0408 (-2.76)*	0.0594
BNS	0.2507 (4.55)*	-0.0078 (-2.98)*	-0.0395 (-2.99)*	0.01683
CM	0.1484 (1.92)	0.0002 (0.94)	0.0110 (0.70)	0.0571
IMO	0.0024 (0.03)	-0.0025 (-1.73)	-0.0241 (-1.34)	0.0296
BMO	0.2332 (3.55)*	-0.0053 (-2.48)*	0.0035 (0.22)	0.0981
ABX	0.0309 (0.26)	-0.1373 (-2.76)*	-0.0123 (-0.45)	0.0476
CP	0.2092 (2.37)*	0.0013 (0.92)	-0.0090 (-0.42)	0.0468

*Significant at the 5% level

Table 4.5

Results for individual companies

Mid-Cap Companies

Name	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
MFC	0.1096 (0.69)	-0.0026 (-0.69)	0.0020 (0.17)	0.0750
CNR	-0.0211 (-0.23)	-0.0015 (-2.54)*	0.0047 (0.64)	0.0422
WN	-0.1067 (-1.13)	-0.0150 (-0.24)	-0.0117 (-1.56)	0.0225
SU	0.3501 (2.33)*	-0.0120 (-0.32)	0.0075 (1.23)	0.0361
CLS	-0.2618 (-1.12)	-0.0437 (-1.43)	-0.0046 (-0.24)	0.0222
TRP	-0.0108 (-0.16)	-0.0852 (-1.42)	-0.0173 (-3.22)*	0.0908
QLT	-0.5074 (-1.13)	-0.2288 (-1.91)	0.0038 (0.13)	0.1213
BB	0.0222 (0.07)	0.1666 (3.04)*	-0.0060 (-0.22)	0.0685
TLM	0.1516 (1.17)	-0.0189 (-0.62)	0.0358 (-0.34)	0.0255
ENB	0.0810 (1.15)	-0.0876 (-2.23)*	-0.0137 (-2.43)*	0.0747
CNQ	0.2632 (1.85)	0.0143 (0.28)	-0.0010 (-0.09)	0.0396
POT	0.1991 (1.31)	0.0595 (1.33)	0.0017 (0.14)	0.0221
SCC	-0.0387 (-0.20)	-0.0101 (2.92)*	0.0212 (1.25)	0.0691
VRX	-0.0172 (-0.20)	0.0128 (0.83)	0.0144 (0.92)	0.0109

Table 4.5 (continued)

Name	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
TA	0.0671 (0.67)	-0.0119 (0.61)	0.0494 (-2.67)*	0.0516
BPO	0.3278 (2.53)*	-0.0465 (-1.75)	-0.0108 (-0.47)	0.0560
L	-0.0692 (-0.72)	-0.0539 (-0.84)	-0.0163 (-0.90)	0.0142
PWF	0.2217 (2.56)*	0.1281 (1.96)	-0.0171 (-1.09)	0.0810
IGM	0.1197 (1.19)	-0.0134 (-1.82)	-0.0205 (-1.15)	0.0339

*Significant at the 5% level

Table 4.6

Results for individual companies

Small-Cap Companies

Name	Beta1(index) (t- value)	Beta2(P/E Ratio) (t- value)	Beta3(Jan effect) (t- value)	R-square
SAP	0.1700 (1.75)	-0.0077 (-3.29)*	-0.0200 (-1.13)	0.0938
PWT	0.2941 (2.16)*	-0.0044 (-1.88)	0.0183 (0.73)	0.0530
EQ	-0.9719 (-1.72)	-0.0544 (-0.78)	0.0839 (0.85)	0.0890
CDV	-0.2666 (-1.03)	0.0187 (0.45)	-0.0302 (-0.66)	0.0125
IDG	0.3271 (2.01)	0.0022 (0.31)	0.0139 (0.50)	0.0380
BLX	0.1506 (0.73)	-0.0161 (-0.71)	0.0565 (1.38)	0.0207
AXX	0.0916 (0.39)	-0.0011 (-0.87)	0.0333 (0.74)	0.0182
KFS	-0.2644 (-1.07)	-0.0239 (-0.36)	0.0083 (0.22)	0.0133
CRJ	-0.1107 (-0.30)	-0.0425 (-1.20)	0.0397 (0.64)	0.0242
WFC	0.1492 (1.26)	0.0295 (0.81)	-0.0449 (-1.40)	0.0360
DDC	0.4334 (2.58)*	-0.0067 (-0.25)	-0.0596 (-1.43)	0.0552
CAL	0.4823 (1.26)	0.0069 (1.97)	0.3030 (3.12)*	0.2465
AEM	-0.0946 (-0.52)	-0.0442 (-1.77)	-0.0081 (-0.17)	0.0292
LB	0.1822 (2.63)*	-0.0011 (-1.57)	-0.0243 (-1.46)	0.0576

Table 4.6 (continued)

VET	0.1028 (1.18)	0.0097 (0.35)	-0.0071 (-0.34)	0.0106
HLF	0.1725 (2.07)	-0.0037 (-0.08)	-0.0164 (-0.77)	0.0325
CWL	0.2819 (2.01)	-0.0226 (-0.95)	0.0254 (0.95)	0.0493
GDL	0.0873 (0.95)	-0.0034 (-2.40)*	0.0208 (0.93)	0.0470
MHR	0.1044 (1.27)	-0.0049 (-2.65)*	-0.0092 (-0.44)	0.0502
ELD	-0.1358 (-0.78)	0.0153 (1.04)	-0.0474 (-1.07)	0.0243
S	0.2126 (1.36)	0.0174 (1.08)	0.0114 (0.30)	0.0205
AMM	-0.6408 (-0.62)	0.0181 (0.60)	-0.1633 (-1.09)	0.2020
MFI	-0.0536 (-0.59)	0.0002 (1.15)	0.0309 (1.40)	0.0222

*Significant at the 5% level

Chapter 5

Conclusions and Recommendations

5.1 Conclusions

Wachtel (1942) first discovered the January effect, and research about the January effect has

been carried out since then across many models indicating evidence of this effect. However,

tests on the Canadian stock market are quite rare, hence the reason for this paper.

The results cover 2000 to 2013 and are not sufficient enough to confirm the existence of

January effect in any sized companies. The reasons for this may be the results depend on

different estimation models which researchers use. Moreover, the selection of stocks among

Toronto Stock Exchange, the time interval chosen by researchers, the data sources, and the

research methodology used may result in different conclusions. So, it is very normal that

findings of this paper are different from some of the previous papers. Also, this paper has

limitations which will be mentioned in Section 5.2.

From the results of this paper above, abnormal returns do not exist in January in the Canadian

stock market. Therefore, we can say that the Canadian stock market is mature and efficient.

Furthermore, investors and fund managers should maintain their equity position and do not

need to take special considerations on January investment because there is no arbitrage or opportunities to earn abnormal returns.

5.2 Limitations

There are several limitations with this study paper.

Firstly, the time interval I choose is during 2000 and 2013. There are 1,168 stocks of Toronto Stock Exchange which came onto the market before 2010, however only 13 stocks which have the market capitalization of more than $10billion. This results in the difficulty of large-cap companies' selection.

Secondly, the total number of firms is 55 and this might not be sufficient enough to detect the January effect.

Thirdly, the regression model is not robust enough. There might be other factors that will affect returns of stock prices which are not covered in the model. Also, the returns of stock prices might be linear with the square or square root of variables, but I did not consider this in the model I use.

Last but not least, the factors that can influence the returns of stock prices might not be linear.

Therefore, the linear regression model will be inappropriate in such situations

Further studies should concentrate more on these limitations. A better regression model should

be built. Stocks can also be distinguished through different industries.

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APPENDIX A: Samples

Large-cap Samples:

Ticker	Short Name	Market Cap
BCE CN Equity	BCE INC	83953180672
TD CN Equity	TORONTO-DOM BANK	24041777152
RY CN Equity	ROYAL BANK OF CA	19614134272
BNS CN Equity	BANK OF NOVA SCO	15346525184
CM CN Equity	CAN IMPL BK COMM	13878625280
IMO CN Equity	IMPERIAL OIL	13375725568
BMO CN Equity	BANK OF MONTREAL	13164678144
ABX CN Equity	BARRICK GOLD CRP	10197000192
47002Q CN Equity	CAN PACIFIC LTD	10323690496

Mid-cap Samples:

Ticker	Short Name	Market Cap
MFC CN Equity	MANULIFE FIN	9241660416
CNR CN Equity	CAN NATL RAILWAY	7704634368
WN CN Equity	WESTON (GEORGE)	7259849728
SU CN Equity	SUNCOR ENERGY	6674079232
CLS CN Equity	CELESTICA INC	6766270976
TRP CN Equity	TRANSCANADA CORP	5765212672
QLT CN Equity	QLT INC	5478759936
RCM/RV/B CN Equity	ROGERS WIRELESS	4968000000
BB CN Equity	BLACKBERRY LTD	4683140096
TLM CN Equity	TALISMAN ENERGY	4442833920
ENB CN Equity	ENBRIDGE INC	4323284992
CNQ CN Equity	CAN NATURAL RES	3921668096
POT CN Equity	POTASH CORP SAS	3743249920
SCC CN Equity	SEARS CANADA INC	4243360000
BLD CN Equity	BALLARD POWER	3414034944
VRX CN Equity	VALEANT PHARMACE	3193560064
TA CN Equity	TRANSALTA CORP	2399840000
BPO CN Equity	BROOKFIELD OFFIC	2016036224
L CN Equity	LOBLAW COS LTD	9697274880
PWF CN Equity	POWER FINANCIAL	8317919744
IGM CN Equity	IGM FINANCIAL IN	4338215936

Large-cap Samples:

Ticker	Short Name	Market Cap
SAP CN Equity	SAPUTO INC	1659346560
PWT CN Equity	PENN WEST PETROL	1440749952
EQ CN Equity	EQ INC	335051744
I CN Equity	INTELLIPHARMACEU	205149104
CDV CN Equity	COM DEV INTL LTD	151443408
IDG CN Equity	INDIGO BOOKS & M	237007344
BLX CN Equity	BORALEX INC -A	69829200
AXX CN Equity	AXIA NETMEDIA	240259504
KFS CN Equity	KINGSWAY FINL	275450496
CRJ CN Equity	CLAUDE RESOURCES	27884700
WFC CN Equity	WALL FINANCIAL	93966608
MBX CN Equity	MICROBIX BIOSYS	12799160
DDC CN Equity	DOMINION DIAMOND	412001984
CAL CN Equity	CALEDONIA MINING	3241500
AEM CN Equity	AGNICO EAGLE MIN	586063424
LB CN Equity	LAURENTIAN BANK	357733504
VET CN Equity	VERMILION ENERGY	
HLF CN Equity	HIGH LINER FOODS	
CWL CN Equity	CALDWELL PARTNRS	
GDL CN Equity	GOODFELLOW INC	
MHR CN Equity	MCGRAW-HILL RYER	
ELD CN Equity	ELDORADO GOLD	
S CN Equity	SHERRITT INTL	
AMM CN Equity	ALMADEN MINERALS	
MFI CN Equity	MAPLE LEAF FOODS	

APPENDIX B: S&P/TSX Composite Index Return

Date	Ln Return	Date	Ln Return	Date	Ln Return	Date	Ln Return
02/12/2013	-0.0147	01/04/2011	0.0038	01/08/2008	-0.0526	01/12/2005	0.0639
01/11/2013	0.0299	01/03/2011	0.0462	02/07/2008	-0.0636	01/11/2005	-0.0738
01/10/2013	0.0285	01/02/2011	0.0339	02/06/2008	0.0700	03/10/2005	0.0392
03/09/2013	-0.0073	04/01/2011	0.0333	01/05/2008	0.0508	01/09/2005	0.0451
01/08/2013	0.0514	01/12/2010	0.0364	01/04/2008	-0.0455	02/08/2005	0.0866
02/07/2013	-0.0582	01/11/2010	0.0379	03/03/2008	0.0243	04/07/2005	0.0352
03/06/2013	0.0033	01/10/2010	0.0509	01/02/2008	-0.0492	01/06/2005	0.0283
01/05/2013	-0.0221	01/09/2010	-0.0076	02/01/2008	0.0294	02/05/2005	-0.0537
01/04/2013	0.0027	03/08/2010	0.0789	03/12/2007	-0.1031	01/04/2005	0.0148
01/03/2013	-0.0211	02/07/2010	-0.0367	01/11/2007	0.0569	01/03/2005	0.0424
01/02/2013	0.0013	01/06/2010	-0.0882	01/10/2007	0.0877	01/02/2005	0.0009
02/01/2013	0.0368	03/05/2010	0.0164	04/09/2007	0.0146	04/01/2005	-0.0221
03/12/2012	-0.0234	01/04/2010	0.0521	01/08/2007	-0.0268	01/12/2004	0.0548
01/11/2012	-0.0037	01/03/2010	0.0556	03/07/2007	-0.0034	01/11/2004	0.0451
01/10/2012	0.0381	01/02/2010	-0.0699	01/06/2007	0.0971	01/10/2004	0.0740
04/09/2012	0.0430	04/01/2010	0.0180	01/05/2007	0.0505	01/09/2004	0.0014
01/08/2012	-0.0082	01/12/2009	0.1076	02/04/2007	0.0366	03/08/2004	0.0016
03/07/2012	0.0484	02/11/2009	-0.0198	01/03/2007	-0.0094	02/07/2004	0.0414
01/06/2012	-0.1172	01/10/2009	0.0576	01/02/2007	0.0074	01/06/2004	0.0240
01/05/2012	-0.0064	01/09/2009	-0.0624	02/01/2007	-0.0049	03/05/2004	-0.0945
02/04/2012	-0.0239	04/08/2009	0.1570	01/12/2006	0.0468	01/04/2004	-0.0045
01/03/2012	0.0291	02/07/2009	-0.0997	01/11/2006	0.0056	01/03/2004	0.0289
01/02/2012	0.0374	01/06/2009	0.1982	02/10/2006	-0.0380	02/02/2004	0.0013
03/01/2012	0.0132	01/05/2009	0.1243	01/09/2006	0.0424	02/01/2004	0.0559
01/12/2011	0.0031	01/04/2009	0.1667	01/08/2006	-0.0070	01/12/2003	0.0342
01/11/2011	0.1018	02/03/2009	-0.1520	04/07/2006	-0.0144	03/11/2003	0.0543
03/10/2011	-0.1925	02/02/2009	-0.0942	01/06/2006	-0.0215	01/10/2003	0.0221
01/09/2011	-0.0191	02/01/2009	0.1178	01/05/2006	0.0542	02/09/2003	0.0542
02/08/2011	-0.0491	01/12/2008	-0.1880	03/04/2006	0.0008	01/08/2003	-0.0113
04/07/2011	0.0039	03/11/2008	-0.2984	01/03/2006	-0.0090	02/07/2003	0.0291
01/06/2011	-0.0558	01/10/2008	-0.1181	01/02/2006	0.0586	02/06/2003	0.0908
02/05/2011	0.0087	02/09/2008	-0.0570	03/01/2006	0.0500	01/05/2003	0.0737

APPENDIX B: S&P/TSX Composite Index Return (continued)

Date	Ln Return	Date	Ln Return	Date	Ln Return	Date	Ln Return
01/04/2003	-0.0144	03/06/2002	0.0147	01/08/2001	-0.0172	02/10/2000	-0.1113
03/03/2003	0.0035	01/05/2002	-0.0062	03/07/2001	-0.0453	01/09/2000	0.1066
03/02/2003	0.0158	01/04/2002	0.0195	01/06/2001	0.0353	01/08/2000	0.0005
02/01/2003	0.0020	01/03/2002	0.0015	01/05/2001	0.0650	04/07/2000	0.0800
02/12/2002	0.0508	01/02/2002	0.0092	02/04/2001	-0.0765	01/06/2000	-0.0046
01/11/2002	0.0323	02/01/2002	0.0220	01/03/2001	-0.1706	01/05/2000	-0.0010
01/10/2002	-0.0554	03/12/2001	0.0650	01/02/2001	0.0739	03/04/2000	-0.0092
03/09/2002	0.0088	01/11/2001	0.0156	02/01/2001	-0.0055	01/03/2000	0.0978
01/08/2002	-0.1092	01/10/2001	-0.1049	01/12/2000	-0.0802	01/02/2000	0.0431
02/07/2002	-0.0796	04/09/2001	-0.0496	01/11/2000	-0.0952	04/01/2000	0.0927