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The other January effect ☆

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Abstract

Streetlore since at least 1973 has touted the market return in January as a predictor of market returns for the remainder of the year. We systematically examine the predictive power of January returns over the period 1940–2003 and find that January returns have predictive power for market returns over the next 11 months of the year. The effect persists after controlling for macroeconomic/business cycle variables that have been shown to predict stock returns, the Presidential Cycle in returns, and investor sentiment, and it persists among both large and small capitalization stocks and among both value and growth stocks. In addition, we find that January has predictive power for two of the three premiums in the Fama–French [1993. Journal of Financial Economics 33, 3–50] three-factor model of asset pricing.

JEL classification: G10; G11; G12; G14

Keywords: January barometer; Return seasonalities; Asset pricing; Market returns

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1. Introduction

The origins of many well-documented and carefully studied regularities in stock returns can be traced to financial market streetlore. The study of such regularities has often followed a path in which a supposedly profitable trading rule is mentioned in the popular press and that mention is followed by an initial scholarly inquiry that is, in turn, followed by further studies that apply increasingly powerful statistical techniques and larger databases to determine the generality and strength of the regularity. One well-known example of such a phenomenon is the study of momentum in stock returns, which clearly has its origins in streetlore and has evolved to the point of being a near subdiscipline in the study of financial economics (Chan et al., 1996; Conrad and Kaul, 1998; Jegadeesh and Titman, 1993, 2001). Other examples are the Value Effect, the Turn-of-the-Year Effect, Overreaction, Underreaction, the Presidential Cycle, and, the Halloween Indicator.[1]

In this study, we travel that path to explore another soupçon of financial market streetlore. We call it the Other January Effect to distinguish it from the well-known January Effect in which small and low-priced stocks that have suffered price declines in the prior year perform especially well in January.[2] According to the Other January Effect, stock market returns in January are a precursor of returns over the next 11 months of the year. As we detail below, the Other January Effect has been touted as a guide to investing in the stock market since at least 1973 and has appeared regularly in the financial press ever since.

To explore the Other January Effect, we examine stock returns for the remainder of the year conditional on the market return in January. We find that January stock returns are a surprisingly robust predictor of market returns over the following 11 months. Over the period 1940–2003, when the Center for Research in Security Prices (CRSP) value-weighted (VW) market return in January is positive, the VW market return over the next 11 months averages 14.8%. When the VW market return in January is negative, the VW market return over the next 11 months averages 2.92%, giving rise to a spread of almost 12%. Measured with equal-weighted (EW) market returns, the spread between the 11-month returns following positive Januarys and the 11-month return following negative Januarys is even greater at 18%. When excess returns are considered, that is, when returns in excess of the risk-free rate are considered, the spread is larger still. With VW returns, the spread in excess returns is 14.7%; with EW returns, it is 20.0%. In addition to being economically significant, each of these spreads is statistically significant.

Further, when we splice the New York Stock Exchange price-weighted returns from Goetzmann et al. (2001) with the value-weighted NYSE returns from CRSP, the Other January Effect is present over the full interval of 1825–2003 in which the spread is 7.66% and over the subperiod of 1825–1939 in which the spread is 5.62%. One period for which the Other January Effect is not present is the market-crash-and-Great-Depression decade (plus one year) of 1929–1939. Over this period, the spread is negative at −25.29%. The offset is that the spread for the remainder of the pre-1939 data (that is, 1825–1928) is

[1]An incomplete list of studies on these topics includes Fama and French (1992, 1993), Keim (1983), De Bondt and Thaler (1985), Poteshman (2001), Chittenden et al. (1999), Hensel and Ziemba (1995), Herbst and Slinkman (1984), Huang (1985), Santa-Clara and Valkanov (2003), and Bouman and Jacobsen (2002).

[2]Roll (1983), Keim (1983), Berges, McConnell, and Schlarbaum (1984), Lakonishok and Smidt (1988), Ritter (1988), Ferris et al. (2001), and Grinblatt and Keloharju (2004) among others.

higher at 8.02%. With the exception of 1929–1939, each of these spreads is statistically significant as judged by nominal p-values and bootstrapped p-values, adjusted for data snooping. In short, over the 179-year period considered in our study, the market return during January is a strong and remarkably consistent predictor of US stock market returns over the following 11 months of the year.

Having established that the Other January Effect occurs, we investigate a number of potential causes of it. We ask whether the effect can be attributed to shifts in expected returns arising from macroeconomic/business cycle variables, whether the effect coincides with and can be explained by the Presidential Cycle in stock returns, or whether it is a reflection of investor sentiment that spills over from January into the following months.

Specifically, using multifactor models that include dividend yield, default spread, term spread, short-term interest rates, and stock market returns as predictor variables, we find that the predictive power of January returns is not subsumed by these macroeconomic/ business cycle variables that have been shown to be reliable predictors of market returns elsewhere. Sorting years according to whether the presidential office is held by a Democrat or Republican, we find that the Other January Effect cannot be explained by the Presidential Cycle in stock returns. Using two different measures of investor "sentiment," we find that the Other January Effect is not explained by sentiment.

Having shown that the Other January Effect is not the result of other previously documented time-series phenomena, we explore the implications for asset pricing models. We focus on the three-factor model of Fama and French (1993). To begin, we ask whether the effect is concentrated in the returns to specific portfolios that comprise the premiums of the three-factor model. If the Other January Effect is concentrated in small capitalization stocks or value stocks, then, arguably, the effect could be compensation for greater associated risk. We find that the market return in January is a predictor of returns during the remainder of the year both for stocks with large and those with small market capitalizations and both for firms with high book-to-market equity ratios (i.e., value stocks) and those with low book-to-market equity ratios (i.e., growth stocks). For each portfolio, returns are significantly higher following Januarys with a positive market return than following Januarys with a negative market return. Thus it does not appear to be the case that the Other January Effect is only evident in portfolios of riskier stocks.

Having shown that the Other January Effect does not stem from a particular set of Fama-French portfolios, we ask whether the effect has predictive power for the premiums that comprise the model. Similar to our prior analysis, we calculate 11-month post-January returns to the premiums conditional on whether the premium is positive or negative in January. We find that following Januarys in which the size (SMB) premium is positive, the 11-month returns to SMB average 1.27%; following Januarys in which the SMB premium is negative, the 11-month returns to SMB average −6.38%, giving rise to a statistically significant spread of 7.65%. Thus the Other January Effect does occur for the SMB premium. That is, when the premium is positive in January, the return to SMB over the next 11 months is positive, and when the January premium is negative, the return to SMB over the following 11 months is negative. The Other January Effect exhibits negligible ability to predict the book-to-market (HML) premium. Following Januarys in which the premium is positive, the return to HML averages 3.15%; following Januarys in which the premium is negative, the return to HML averages 9.08%, giving rise to a statistically insignificant spread of −5.93%. In short, the Other January Effect does have power to predict two of the three premiums in the Fama-French three-factor model. This result potentially has implications concerning the source of the risk premiums in the Fama and French (1993) and other factor models of asset pricing. In particular, in an intertemporal capital asset pricing model (ICAPM) context, it is not obvious (at least to us) that a rational risk-based explanation as to why investors should be concerned with hedging risk based on January returns can be readily devised.

In sum, the market return in January appears to contain information about market returns for the remainder of the year: Streetlore has been confirmed. Or, at least, it appears to have been confirmed. An argument can be made that January returns just happened to have been correlated with returns over the next 11 months of the year over the 150 or so-year period preceding the first appearance (that we can find) of the Other January Effect in a published publicly available document. By virtue of this happenstance, the spurious correlation became streetlore.

It is more difficult to dismiss the continued appearance of the effect over the following 30-plus year period. But, even here it can be argued that many strategies have been proposed over time and the ones that continue to show up in the news, as the Other January Effect has, happen to be the ones that, by sheer coincidence (and the law of large numbers), have survived. A further argument in support of that position is that we have not been able to advance a plausible theory to explain this phenomenon. Thus, even though our statistical analysis allows for rejection of the null, the null hypothesis of no predictive power could still be a reasonable prior.

As Schwert (2003) observes, in many cases, following scholarly documentation of apparent predictability in stock returns based on some observable pattern (often called an anomaly), the predictive power of the pattern disappears. It will be interesting to observe whether the Other January Effect persists over the next 63 years (the time period of our detailed analysis) or 179 years (the time period covered by our longer analysis). In the meantime, portfolio managers and investors may wish to keep an eye on January returns in making their portfolio decisions. [Our formal analysis ends with 2003. For completeness, during January 2004 the CRSP VW excess return was 2.25% and the return over the next 11 months was 9.25%. During January 2005, the VW excess return was -2.82% and the return over the next 11 months was 7.24%.]

The remainder of the paper is organized as follows. Section 2 samples the streetlore regarding the Other January Effect as it has appeared in the popular press over the past 30 years. Section 3 describes the data used in our analysis and presents value-weighted and equal-weighted raw and excess holding-period market returns for the 11 months following positive and negative January market returns. Section 4 examines whether the Other January Effect is subsumed by macroeconomic/business cycle factors, the Presidential Cycle in stock returns, or investor sentiment. Section 5 explores the ability of the Other January Effect to predict the component portfolios and the premiums that comprise the Fama-French (1993) three-factor model. Section 6 summarizes our findings and concludes.

2. Streetlore

Published streetlore regarding the virtues of returns in January as a predictor of returns during the remainder of the year can be found as early as 1973.

> We doubt that any technique or indicator ever devised has been so remarkably accurate as the January Barometer. The barometer, which indicates that as January

> goes, so will the market go for the total year, has proven correct in 20 of the last 24 years. The performance of this indicator becomes even more striking when you consider its simplicity, coupled with the fact that it is making its prediction eleven months in advance. Very few stock market indicators show such an 83.3 percent accuracy for even short spans of time.

This quote comes from the 1974 edition of Yale Hirsch's *Stock Trader's Almanac* (p. 11). However, according to advertisements for the *Almanac*, this same verbiage appeared in the 1973 edition referring to 1972 and prior years. Similar testimonials regarding the predictive ability of January returns for the remainder of the year have been published regularly ever since. A small sampling of such statements includes the following.

From 1980:

> As January goes, so goes the year, According to Wall Street's famous January Barometer. If so, it will be quite a year. The Dow Jones Industrial Average rose from 828.84 at year's end to 875.85 at January's close (M. D. Pacey, "The Striking Price," *Barron's*, February 4, 1980, p. 71).

From 1984:

> After consulting the 'January Barometer' Wall Street meteorologists have concluded the forecast for the stock market this year is decidedly pleasant ("Finance, Markets, and Investments," *Business Week*, January 23, 1984, p. 111).

From 1992:

> The January barometer, the January effect and the January "early warning system" will be put through their paces in the next few weeks....
>
> Never mind that professional money managers and other sobersides on Wall Street put little credence in these indicators. Those folks may grind out a livelihood with their earnings analyses and investment-committee meetings, but do they ever have any fun? ("Investing—'Tis the Season of Folkloric Excess," *Seattle Times*, January 6, 1992, p. D6).

From 1999:

> Another seasonal signal worth watching—and possibly playing through options—is the January Barometer, or the strong tendency of stock indexes to rise in years when they were up in January and fall when the first month was down (M. Santoli, "January Effect: Will History Repeat in '99?," *Barron's*, January 25, 1999, p. MW11).

And from 2004:

> While 2004 still is young, stock-market bulls gleefully say that a good first week often foreshadows a prosperous year. Since 1950, the S&P 500 has risen for the year 85% of the time after the index gains during its first five trading sessions (A. Lucchetti, "Stocks Enjoy a Good First Week," *Wall Street Journal*, January 12, 2004, pp. C1, C3).

3. Analysis of returns following positive and negative January market returns

Streetlore regarding the "January Barometer" appears to imply that the saying "as goes January, so goes the rest of the year" refers to the market. We interpret the market to be the universe of US traded equities. Streetlore also appears to be concerned with whether raw returns are greater than zero. Using this benchmark, a market return that is just above zero, but less than the risk-free rate, would be counted as confirming streetlore. In addition, streetlore does not appear to address the question of whether returns following positive Januarys have a greater tendency to be positive than do returns following negative Januarys. If returns are positive, but less than the risk-free rate, or if returns following negative Januarys tend to be positive just as frequently, and by just as much, as returns following positive Januarys, advice based on the January Barometer would not seem to be especially valuable. Thus we invoke a higher benchmark than zero for defining and judging the persistence and magnitude of the Other January Effect. We focus our attention on excess returns calculated as the monthly raw return less a corresponding short-term Treasury rate and we ask whether excess returns following Januarys with positive excess market returns (we refer to these as positive Januarys) have been more frequent and significantly higher than excess returns following Januarys with negative excess returns (we refer to these as negative Januarys).

For much of our analysis, we focus on the interval 1940 through 2003. We begin with 1940 as that approximates the start of the interval identified by (published) streetlore as defining the starting point of the Other January Effect (Hirsch, 1974). To represent the market (except when we briefly consider earlier data for the NYSE), we use CRSP VW and EW market returns, including dividends. These returns include equities listed on the NYSE for the entire period 1940–2003, equities listed on Amex for 1962–2003, and equities listed on Nasdaq for 1972–2003. To calculate excess returns, we subtract the one-month T-bill rate from the CRSP market return. The one-month T-bill rate is from Ken French's website. In turn, French's T-bill rates are from Ibbotson and Associates Inc.

Panel A of Fig. 1 displays VW holding-period excess returns for the 11-month interval following Januarys in which the VW excess market return is positive, and Panel B displays VW holding-period excess returns for the 11-month period following Januarys in which the VW excess market return is negative. Not surprisingly, January excess returns are more frequently positive than negative. There are 41 positive January excess returns over this interval and 23 negative January excess returns. Excess returns following positive Januarys are much more likely to be positive than negative. More important for our higher benchmark, 11-month holding-period excess returns following positive Januarys are much more likely to be positive than are 11-month holding-period excess returns following negative Januarys. Following the 41 positive Januarys, there are only five years in which the 11-month holding-period excess return is negative. In contrast, following the 23 negative Januarys, there are 14 years in which the 11-month post-January holding-period excess return is negative. To put it slightly differently, following negative Januarys, the likelihood that the market excess return over the next 11 months will be negative is five times as great as when the January market return is positive: 61% versus 12%.

3.1. Market returns following positive and negative Januarys: statistical tests

We formally test the statistical significance of the Other January Effect by comparing the average of the 11-month returns (both raw returns and excess returns) following positive

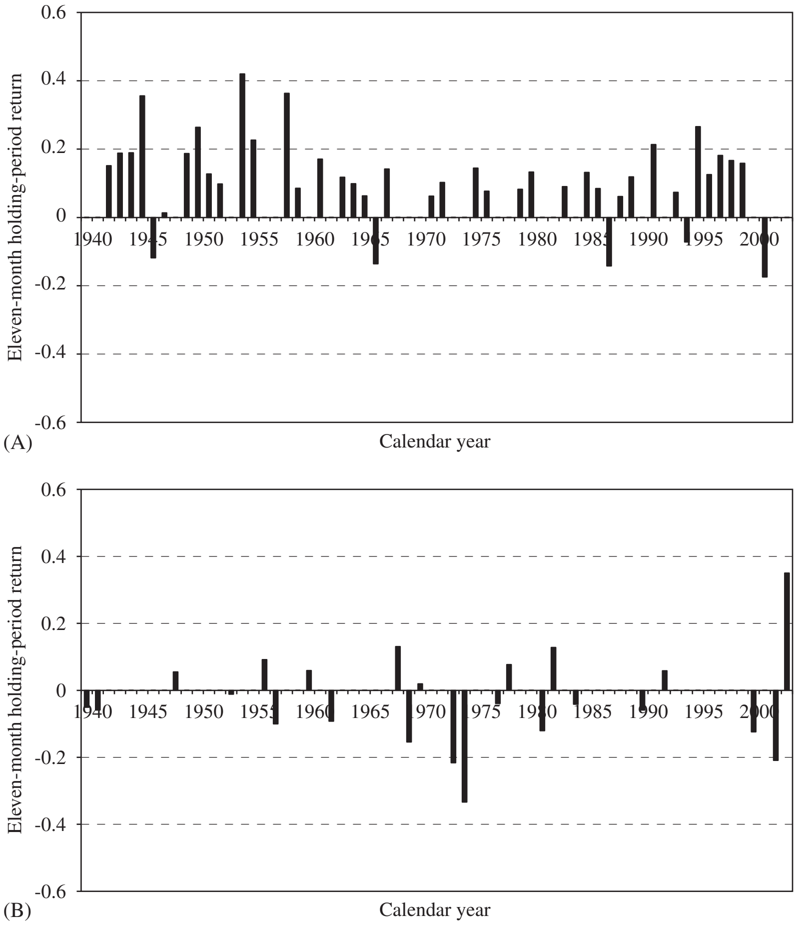

Fig. 1. Center for Research in Security Prices (CRSP) value-weighted (VW) 11-month holding-period excess market returns following Januarys with positive and negative excess returns. Time-series plots of 11-month holding-period excess returns on the CRSP VW market portfolio conditional on whether the return in the month of January is positive or negative. Panel A presents the results for years when the return on the CRSP VW excess market portfolio is positive in January. Panel B presents the results for years when the return on the CRSP VW excess market portfolio is negative in January. The 11-month holding-period returns are computed for February through December of each year.

Januarys with the average of the 11-month returns (both raw returns and excess returns) following negative Januarys. We perform this test by estimating an ordinary least squares (OLS) time-series regression of monthly returns on an indicator variable that takes a value of one for all years when the January return is positive and zero otherwise. This regression is essentially a simple means test examining whether 11-month returns following positive Januarys are statistically different from 11-month returns following negative Januarys. If the coefficient of the indicator is statistically significant, the spread between the two is statistically significant and streetlore is confirmed.

Judging the statistical significance of the coefficient in this regression requires some care because, for example, Hirsch (and others) may have examined a host of other one-month return/11-month return strategies, such as February/March-January, March/April-February, and so forth, and determined ex post that the January/February-December strategy gave the most favorable results. If so, standard tests of significance of the spread in 11-month returns following positive and negative Januaries may overstate the level of significance of the Other January Effect. To control for this type of data snooping that could lead to spurious rejection of the null hypothesis, we perform a randomized-bootstrap procedure to test the statistical significance of the indicator variable in the monthly time-series regressions.[3] The specifics of the bootstrap procedure are given in the Appendix. Where applicable below, we report both the standard (i.e., nominal *p*-values from the OLS regressions) and the bootstrapped *p*-values.

Although we are primarily interested in excess returns, in Panel A of Table 1 we also report raw market returns for the period 1940-2003. The average 11-month VW holding-period raw market return following positive Januarys is 14.82%; following negative Januarys, it is 2.92% with the spread between the two of 11.9% being highly statistically significant (p-value $= 0.004$; bootstrapped p-value $= 0.003$). The spread is even greater with EW returns. Following positive Januarys, the 11-month EW raw market return is 14.17%; it is −3.87% following negative Januarys. This spread of 18.04% is also highly statistically significant (p-value $= 0.003$; bootstrapped p-value $= 0.003$).

Panel A also gives 11-month average VW and EW excess returns following positive and negative Januarys over the 1940–2003 interval. Eleven-month excess returns are, of course, lower than 11-month raw returns, but the spread between 11-month excess returns following positive and negative Januarys is larger using both VW and EW excess returns than with raw returns and, in both cases, the spread is highly statistically significant. With VW returns, following positive Januarys, the 11-month excess return is 11.93%; following negative Januarys, it is −2.78%, yielding a spread of 14.71% (p-value < 0.001; bootstrapped p-value $= 0.000$). With EW excess returns, following positive Januarys, the 11-month excess return is 11.15%; following negative Januarys it is −8.89%, yielding a spread of 20.04% (p-value < 0.001; bootstrapped p-value $= 0.001$).

The results indicate that interest rates tended to be higher (or at least relatively higher) following negative Januarys than following positive Januarys. They also indicate that the Other January Effect passes our higher benchmark of requiring that average 11-month returns following positive Januarys are not only more likely to be positive than negative, but also that they exceed the risk-free rate and that they occur with greater frequency and at higher levels than when January returns are negative. Further, following negative Januarys, the point estimate of the market equity risk premium is negative with both VW and EW returns. This last point is particularly striking. It is not surprising that following positive Januarys, on average, the next 11-month excess returns are positive, given that the long-run unconditional equity premium is positive. But the finding of negative point estimates for the equity premium following negative return Januarys is unexpected, showing that the Other January Effect has the unique ability to predict periods of zero (or, arguably, negative) market risk premiums.

3.2. *Market returns following positive and negative Januarys over various subperiods*

The first four rows of Panel B of Table 1 give VW and EW excess market returns following positive and negative Januarys over various subperiods of the 1940–2003

[3]We thank the referee for suggesting these tests.

Table 1
Center for Research in Security Prices (CRSP) value-weighted (VW), CRSP equal-weighted (EW), and NYSE 11-month holding-period market returns following Januarys with positive and negative returns. Mean 11-month holding-period returns on CRSP VW, CRSP EW, CRSP VW – R_f, CRSP EW – R_f, and the NYSE portfolio for various time intervals. The sample period is January 1940 through December 2003 for CRSP VW and CRSP EW portfolios and January 1825 through December 2003 for the NYSE portfolio. VWR is the 11-month holding-period return on CRSP value-weighted market portfolio of stocks. EWR is the 11-month holding-period return on CRSP equal-weighted market portfolio of stocks. VWR – R_f is the 11-month holding-period return on CRSP VW market portfolio less the return on the T-bill. EWR – R_f is the 11-month holding-period return on CRSP EW market portfolio less the return on the T-bill. NYSER is the 11-month holding-period return on the NYSE portfolio. The NYSER is price-weighted during the 1825 through 1925 period and value-weighted during the 1926 through 2003 period. NYSER – R_f is the 11-month holding-period return on the NYSE portfolio less the return on a proxy for the risk-free security over the 1857 through 2003 period. N is the number of years when the return in January was positive or negative. The spread is the difference in 11-month holding-period returns (from February through December) following positive and negative January returns. The p-values test the null hypothesis that the spread is equal to zero. The p-value in parenthesis is for a t-statistic of the spread computed using an ordinary least squares regression. The p-value in square brackets is derived from a randomized-bootstrapped t-statistic.

Portfolio	Positive Januarys		Negative Januarys		Spread (%)	P-value spread
	Return (%)	N	Return (%)	N		
Panel A. CRSP VW and CRSP EW 11-month holding-period returns, 1940–2003						
VWR	14.82	42	2.92	22	11.90	(0.004) [0.003]
VWR—R_f	11.93	41	−2.78	23	14.71	(< 0.001) [0.000]
EWR	14.17	52	−3.87	12	18.04	(0.003) [0.003]
EWR—R_f	11.15	50	−8.89	14	20.04	(< 0.001) [0.001]
Panel B. CRSP VW and CRSP EW 11-month holding-period returns by subperiods						
VWR—R_f						
1940–1972	14.42	22	−1.01	11	15.43	(0.004) [0.006]
1973–2003	9.05	19	−4.40	12	13.45	(0.014) [0.007]
1940–1949	13.82	7	−1.81	3	15.63	(0.176) [0.142]
1950–1959	22.63	7	−0.67	3	23.30	(0.031) [0.002]
1960–1969	7.60	6	−1.40	4	9.00	(0.364) [0.141]
1970–1979	9.37	5	−9.84	5	19.21	(0.026) [0.022]
1980–1989	6.81	7	−1.13	3	7.94	(0.407) [0.235]
1990–2003	10.42	9	0.35	5	10.07	(0.187) [0.122]
EWR—R_f						
1940–1972	15.46	25	−8.39	8	23.85	(0.002) [0.004]
1973–2003	6.84	25	−9.57	6	16.41	(0.039) [0.017]
1940–1949	20.46	7	−4.61	3	25.07	(0.086) [0.119]
1950–1959	14.71	9	6.78	1	7.93	(0.745) [0.319]
1960–1969	16.65	7	−15.82	3	32.47	(0.008) [0.004]
1970–1979	3.86	7	−10.18	3	14.04	(0.256) [0.152]
1980–1989	1.86	7	−5.32	3	7.18	(0.490) [0.296]
1990–2003	9.64	13	−23.48	1	33.12	(0.055) [0.021]
Panel C. NYSE 11-month holding-period returns, 1825–2003						
NYSER						
1825–2003	13.47	112	5.71	67	7.76	(0.005) [0.003]
1825–1939	9.64	70	4.02	45	5.62	(0.102) [0.058]
1929–1939	4.01	8	29.30	3	−25.29	(0.296) [0.815]
1825–1928	10.37	62	2.17	42	8.20	(0.010) [0.004]
NYSER—R_f						
1857–2003	10.52	95	3.18	52	7.34	(0.020) [0.012]

Table 1 (*continued*)

Portfolio	Positive Januarys		Negative Januarys		Spread (%)	P-value spread
	Return (%)	N	Return (%)	N		
1857–1939	6.42	53	2.21	30	4.21	(0.371) [0.177]
1929–1939	3.14	8	28.95	3	−25.81	(0.369) [0.816]
1857–1928	7.00	45	−0.76	27	7.76	(0.044) [0.021]

interval.[4] To begin, we bifurcate the sample at the end of 1972. This provides a holdout period that follows the first published mention of the January Barometer (that we have been able to find).

Over the 33-year period 1940–1972, the January VW return is positive 22 years and negative 11 years. Over the 31-year interval of 1973–2003, the January VW return is positive 19 years and negative 12 years. The Other January Effect is clearly evident: In both periods, the 11-month VW excess return following positive Januarys is positive and, in both periods, the VW excess return following negative Januarys is negative. In the earlier period, the spread between 11-month excess returns following positive and negative Januarys is a highly significant 15.43% (p-value = 0.004; bootstrapped p-value = 0.006). Given the quotes from Hirsch and others, that result is perhaps no surprise. What is more surprising is the spread of 13.45% during the post-1972 period. That spread is also statistically significant (p-value = 0.014; bootstrapped p-value = 0.007). When excess returns are measured using EW excess returns, the picture is the same as with VW returns except that the spreads are even larger than with VW returns. Thus the Other January Effect occurs both before and after Hirsch and others identified it as a recurring market phenomenon, and it is in evidence regardless of whether VW or EW excess returns are considered. Finally, following negative Januarys, the equity premium is negative in both time periods.

The remainder of Panel B gives VW and EW excess returns by decade from 1940 through 2003 except that the last interval encompasses the 14 years 1990–2003. Remarkably, the Other January Effect occurs in each interval. With VW excess returns, the spread ranges from a low of 7.97% during 1980–1989 to a high of 23.3% during 1950–1959. With EW excess returns, the spread ranges from 7.18% during 1980–1989 to 33.12% during 1990–2003.

In Panel C of Table 1, we extend the data back to pre-1940 years. For this analysis, we use a price-weighted portfolio of NYSE stocks over the period of 1825–1925 from Goetzmann, Ibbotson, and Peng (2001).[5] We splice the Goetzmann, Ibbotson, and Peng data with CRSP value-weighted NYSE returns for the period 1926–2003 to construct a NYSE index for 1825–2003. We also create an excess return series for the NYSE index from 1857 through 2003. Because we do not have T-bill rates prior to 1927, we use the US

[4]Because we are interested in excess returns, we do not report results based on raw returns. However, all of our tests have been performed with raw returns as well and are consistent with those based on excess returns. These results are available from the authors.

[5]See Goetzmann (2001) for the details of their sample construction. The results we report in Panel D use the Goetzmann, Ibbotson, and Peng low-dividend return estimates. However, the results are qualitatively similar using returns based on the high-dividend estimates and using returns ignoring dividends.

call money rate, from 1857 through 1926, obtained from the National Bureau of Economic Research (NBER). The original source of the NBER data is Macaulay (1938). We splice the NBER data with T-bill rates from 1927 through 2003. To calculate excess returns, we subtract our risk-free rate series from the NYSE market returns.

Over this 179-year period, NYSE stocks have a positive January return in 112 years. The 11-month holding-period return following these Januarys averages 13.47%. Following negative Januarys, it averages 5.71%. The spread between the two is 7.76% with a nominal p-value of 0.005 and a bootstrapped p-value of 0.003. Thus the Other January Effect is present for the full 179-year period for which we have NYSE data.

Of more interest, perhaps, is the pre-1940 data alone. For the entire 1825–1939 interval, there are 70 positive Januarys and 45 negative Januarys. Following positive Januarys, the average 11-month raw return is 9.64%; following negative Januarys, the average 11-month raw return is 4.02%, giving rise to a spread of 5.62% with a nominal p-value of 0.102 and a bootstrapped p-value of 0.058. Thus the spread over this period is almost but not quite statistically different from zero at conventional levels of significance. However, this interval includes the market-crash-and-Great-Depression era of 1929–1939, which has been shown to have been a unique period in various economic time-series data (Bernanke, 1983, and others). When we split the pre-1940 interval into two subperiods encompassing 1825–1928 and 1929–1939, the results are distinctly different. Over the 1825–1928, the Other January Effect is clearly at work. Over the 11 months following positive Januarys, NYSE stocks have an average return of 10.37%. Over the 11 months following negative Januarys, these stocks have an average return of 2.17%, yielding a statistically significant spread of 8.20% (p-value $= 0.010$; bootstrapped p-value $= 0.004$). Over the 1929–1939 interval, however, the effect is reversed. For months following positive Januarys, 11-month returns for NYSE stocks average 4.01. In comparison, 11-month returns following negative Januarys average 29.3% giving rise to a negative spread of -25.29%. Thus, as with other economic data, during the Great Depression era of the 1930s, the Other January Effect exhibited "anomalous" behavior. Still, when the 1930s are folded in with the other 168 years of data, the Other January Effect is pronounced and statistically significant.

The results using excess returns from 1857 through 2003 are consistent with those using raw returns. During this 147-year period, the Other January Effect is clearly evident. Over the 11 months following positive Januarys, the NYSE index has an average excess return of 10.52%. Over the 11 months following negative Januarys, the index has an average return of 3.18%, yielding a statistically significant spread of 7.34% (p-value $= 0.020$; bootstrapped p-value $= 0.012$). When we examine the pre-1940 period, the results are also consistent with those from raw returns. During the market-crash-and-great-depression era of 1929–1939, the effect is not evident. During 1857–1928, the effect is evident with a spread of 7.76% (p-value $= 0.044$; bootstrapped p-value $= 0.021$). Of special note is the negative point estimate of the 11-month equity premium following negative Januarys of -0.76%.

In short, over the 179-year period considered, the market return during January is a strong and remarkably consistent predictor of US stock market returns over the following 11 months of the year.

3.3. Do non-January months predict the following months' returns?

The analyses so far suggest that the market excess return in January has predictive power for market returns over the following 11 months. But perhaps every month has predictive power for the next 11 months. If so, the Other January Effect would not be especially noteworthy. To examine whether non-January months have similar predictive power, we examine the spreads in 11-month holding-period returns following positive and negative returns for each month of the year.

Panel A of Table 2 gives results using VW returns and Panel B gives results using EW returns. The results show that January is highly unusual in its predictive power for the following months on both an economic and statistical basis. Following other months, with VW returns, the 11-month spread between positive and negative months is positive six times and negative five times. With EW returns, the spread is positive nine times and negative twice. In no case is the spread statistically significant at the 0.05 level. Among months of the year, January is unique. Thus the Other January Effect does not occur just because every month predicts the next 11-months of returns.

3.4. The Other January Effect by months of the year

One further examination of the data that may be of interest is sorting by months of the year following January. That is, a natural question arises as to whether the Other January Effect is concentrated in a few months immediately after January as might occur if short-horizons returns are serially correlated (or if market-wide momentum explains the effect). In that case, positive monthly returns would naturally occur in the first month or two following positive Januarys and negative monthly returns would naturally occur following negative Januarys.

Table 3 gives monthly average excess returns following positive and negative Januarys. The monthly average excess returns following positive Januarys are almost always positive, and no particular pattern of deterioration emerges in excess returns as the months progress through the year. Contrarily, following negative Januarys, average monthly returns are mostly negative. For example, of the 22 VW and EW average monthly excess returns following positive Januarys, 19 are positive (and three are negative). Of the 22 VW and EW average monthly excess returns following negative Januarys, only seven are positive (and 15 are negative).

In addition, February returns are not contributing disproportionately to the 11-month post-positive-January returns. With VW returns, for years when the January excess return is positive, six of the 10 months following February have average excess returns greater than that of February. With EW returns, the pattern is a bit different. Returns following positive Januarys do tend to decrease as the year progresses through October, but the pattern is reversed in November and December, which exhibit the second and third highest average monthly returns (just slightly lower than February's). Thus, it is difficult to discern a pattern in returns that would indicate that the Other January Effect merely reflects serial correlation in short-horizon market returns.

3.5. Consideration of volatility

Other than comparing raw returns with the risk-free rate, the analysis so far has not considered risk. Perhaps higher risk during months following positive Januarys explains the higher excess returns. The problem with this explanation is that the point estimates of the risk premium over the 11 months following negative Januarys are negative for the 1940–2003 interval (−2.78% with VW returns and −8.89% with EW returns). It is difficult

Table 2
Center for Research in Security Prices (CRSP) value-weighted (VW) and CRSP equal-weighted (EW) 11-month holding-period excess market returns following months with positive and negative excess returns. Mean 11-month holding-period excess returns on CRSP VW – R_f and CRSP EW – R_f market portfolios for the period January 1940 through December 2003. Eleven-month holding-period excess returns are computed for the 11-month period beginning with the month immediately following the conditioning month. N is the number of years when the return in a conditioning month is positive or negative. The p-values test the null hypothesis that the spread is equal to zero. The p-value in parenthesis is for a t-statistic of the spread computed using an ordinary least squares regression. The p-value in square brackets is derived from a randomized-bootstrapped t-statistic.

Month	Positive months		Negative months		Spread (%)	*P*-value spread
	Return (%)	*N*	Return (%)	*N*		
Panel A. CRSP VW 11-month holding-period returns						
January	11.93	41	−2.78	23	14.71	(< 0.001) [0.000]
February	9.10	35	5.14	28	3.96	(0.285) [0.204]
March	5.07	41	9.77	22	−4.70	(0.276) [0.783]
April	7.39	40	6.37	23	1.02	(0.731) [0.300]
May	6.83	40	8.95	23	−2.12	(0.490) [0.702]
June	10.66	34	5.28	29	5.38	(0.076) [0.058]
July	8.18	32	7.87	31	0.31	(0.959) [0.461]
August	8.12	37	8.22	26	−0.10	(0.927) [0.382]
September	11.17	27	8.10	36	3.07	(0.560) [0.333]
October	7.62	36	8.75	27	−1.13	(0.887) [0.470]
November	6.87	45	6.11	18	0.76	(0.807) [0.336]
December	5.85	49	8.63	14	−2.78	(0.774) [0.688]
Panel B. CRSP EW 11-month holding-period returns						
January	11.15	50	−8.89	14	20.04	(< 0.001) [0.001]
February	10.42	38	9.43	25	0.99	(0.782) [0.502]
March	7.24	40	15.00	23	−7.76	(0.182) [0.797]
April	11.88	37	9.26	26	2.62	(0.601) [0.214]
May	11.80	38	11.34	25	0.46	(0.831) [0.496]
June	16.29	34	8.78	29	7.51	(0.052) [0.056]
July	13.48	36	10.47	27	3.01	(0.419) [0.223]
August	13.23	37	11.22	26	2.01	(0.718) [0.264]
September	16.45	30	10.47	33	5.98	(0.231) [0.145]
October	11.90	30	15.01	33	−3.11	(0.487) [0.598]
November	12.15	38	10.01	25	2.14	(0.882) [0.326]
December	11.85	38	10.62	25	1.23	(0.447) [0.327]

to envision a risk metric that is sufficiently peculiar to explain this outcome. Nevertheless, it is interesting to compare the volatility of 11-month returns following positive Januarys with volatility following negative Januarys.

We compute the standard deviation of the 11-month post-January market excess returns for the period 1940–2003.[6] With VW excess returns, the standard deviation following

[6]We also compute the standard deviations of returns for each of the time periods and indexes given in Table 1. Volatilities following positive Januarys tend to be close to those following negative Januarys for each time period and index.

Table 3
Center for Research in Security Prices (CRSP) value-weighted (VW) and CRSP equal-weighted (EW) monthly excess returns following Januarys with positive and negative returns. Mean monthly excess returns on CRSP VW and CRSP EW market portfolios conditional on January returns for the period January 1940 through December 2003. Monthly returns are computed for months January through December of each year. VWR – R_f is the monthly return on CRSP VW market portfolio less the one-month T-bill return, and EWR – R_f is the monthly return on CRSP EW market portfolio less the one-month T-bill return. N is the number of years when the return in January was positive or negative.

Portfolio	January return	N	Monthly returns (%)											
			January	February	March	April	May	June	July	August	September	October	November	December
VWR - R_f	Positive	41	4.07	0.78	0.80	1.65	1.42	0.93	0.75	0.35	0.10	0.10	1.93	2.69
VWR - R_f	Negative	23	−3.60	−0.96	1.17	−1.15	−1.78	−0.74	−0.10	0.20	−2.50	1.11	0.70	0.00
EWR - R_f	Positive	50	7.73	1.88	1.16	1.27	1.24	0.48	0.35	−0.04	−0.29	−0.47	1.67	1.84
EWR - R_f	Negative	14	−2.14	−1.62	1.58	−1.89	−3.22	−1.67	1.00	1.00	−1.46	−0.77	−0.66	−0.90

positive Januarys is 12.64%; following negative Januarys, it is higher at 14.20%. With EW excess returns, following positive Januarys, the standard deviation is 21.44%; following negative Januarys, it is lower at 16.56%. It is difficult to know what to make of these results. Under the best of circumstances, a difference in volatilities cannot explain a negative risk premium for returns following negative Januarys, and with VW returns, the volatility of returns is actually higher for returns following negative Januarys.

Perhaps a difference in volatilities can explain the difference in returns over the longer time period of 1825–2003. At least over this interval, the equity risk premium is positive following both positive and negative Januarys. With the NYSE index over this interval, the standard deviation of 11-month raw returns following positive Januarys is 18.77%; following negative Januarys, it is 15.16%. This lower volatility might explain the lower returns following negative Januarys. Ideally, we would calculate a Sharpe ratio to test the difference in returns per unit of risk. Unfortunately, we do not have the risk-free rate for the first 33 years of this time period. Thus we calculate the simple ratio of the average return to the standard deviation of return for the 11 months following positive and negative Januarys. These ratios are $13.47\%/18.77\% = 0.72$ and $5.71\%/15.16\% = 0.37$, respectively. If we assume that the risk-free rate is constant across time, this analysis indicates that, even with the full data set, the modestly higher volatility following positive Januarys does not explain the Other January Effect. Consistent with these results, over the 1857–2003 period for which we are able to estimate excess returns for the NYSE, the Sharpe ratio for the 11 months following positive Januarys is 0.55 and for the 11 months following negative Januarys is 0.20. Thus the Other January Effect is not due to risk as measured by the standard deviation of returns.

Finally, one further way in which the distribution of returns could influence our results is through outliers. To reduce the influence of outliers, we calculate median raw and excess returns for the 11 months following positive and negative Januarys. With medians, the spread in 11-month VW excess returns following positive versus negative Januarys is 16.69% (p-value<0.001). With EW returns, the spread in median returns is 19.89% (p-value<0.001). Raw returns exhibit a similar pattern. The Other January Effect cannot be attributed to outliers.

4. Possible explanations of the Other January Effect

In this section, we ask whether the Other January Effect can be explained by other established determinants of stock returns including macroeconomic/business cycle variables, the Presidential Cycle in stock returns, and investor sentiment.

4.1. Macroeconomic/business cycle variables

Prior studies by Fama (1981), Keim and Stambaugh (1986), Fama and French (1988a, b, 1989), Pesaran and Timmermann (1995), and others show that certain macroeconomic/business cycle variables have power to predict stock market returns. These variables include dividend yields, prior stock market returns, interest rate credit spreads, interest rate term spreads, and the short-term Treasury rate of interest. We now ask whether such variables can explain the ability of the January market return to predict post-January returns. If the apparent correlation between post-January excess returns and the Other January Effect is just the result of a correlation between business cycle variables and stock market returns, controlling for macroeconomic variables that have been shown to have power in predicting stock returns should eliminate the Other January Effect.

The return generating model that we use is

$$R_{Feb-Dec,t} = \alpha + \beta_1 DEF_{Dec,t-1} + \beta_2 DIV_{Dec,t-1} + \beta_3 TERM_{Dec,t-1} + \beta_4 DETREND\_YLD_{Dec,t-1} + \varepsilon_t, \tag{1}$$

where $R_{Feb-Dec,t}$ is the 11-month (February through December) VW or EW excess market holding-period return in year t, α and β_k ($k = 1,\ldots,4$) are estimated regression coefficients, DIV_{t-1} is the dividend yield of the CRSP value-weighted index, DEF_{t-1} is the yield spread between Baa-rated and Aaa-rated corporate bonds, $TERM_{t-1}$ is the yield spread between the ten-year T-bond and three-month T-bill, $DETREND\_YLD_{t-1}$ is the detrended yield of a T-bill with three months to maturity, and ε_t is an error term. To detrend the T-bill yield, we divide the month t yield by the average of the previous 12 monthly observations. The observations of the lagged macro variables are from the end of December from the year prior to the 11-month returns used as the dependent variable. Data for *DIV*, *DEF*, and *TERM* are obtained from the *Federal Reserve Bulletin*.

To determine the extent to which the macroeconomic multifactor model can explain the Other January Effect, we generate forecasts of 11-month returns. Specifically, we estimate the coefficients of Eq. (1) using data for the period 1940–2003. Each year, we calculate the 11-month predicted return using the estimated coefficients and the realized observations of the independent variables from the prior year-end. We subtract the predicted 11-month VW (or EW) excess market returns from the actual 11-month VW (or EW) market return. We call these differences abnormal market returns.

We sort years according to whether the 11-month predicted return is above or below the median predicted return over the 1940–2003 period and then sort years according to whether the January VW and EW returns are positive or negative. If the Other January Effect stems from variations in business cycle risk, then, regardless of the January return, when predicted returns are high, post-January abnormal returns will be higher and positive. When predicted returns are low, post-January returns will be lower and/or negative. In addition, when we sort according to high and low 11-month predicted returns, the spread between post-January excess returns following positive and negative Januarys will be insignificant.

The means of the 11-month abnormal returns following positive and negative Januarys are reported in Panel A of Table 4. The Other January Effect is clearly not subsumed by information contained within the business cycle variables. The spread in 11-month abnormal returns following high predicted 11-month returns is 14.64% (p-values = 0.001) with VW market returns. With EW market returns, the spread is 17.06% (p-values = 0.039). The spread in returns following low predicted 11-month returns is 11.45% (p-values = 0.044) with VW market returns. With EW market returns, the spread is 22.10% (p-values = 0.018). Thus controlling for the time-variation in expected returns from this set of macroeconomic variables does not explain the spread in returns over the 11 months following positive and negative Januarys.

We conduct analyses using variations on the basic four-factor model of Eq. (1). It could be that the Other January Effect is related to long-horizon negative auto-correlation in market returns (Fama and French, 1988b). For example, conditional

Table 4
Abnormal returns based on various macroeconomic and business cycle models. Mean 11-month holding-period abnormal returns for February through December using two different return-generating models for the period 1940–2003. In Panel A, the time series of nonoverlapping 11-month holding-period returns of either the Center for Research in Security Prices (CRSP) value-weighted (VW) or CRSP equal-weighted (EW) index less the return on the one-month T-bill are regressed against the yield spread between Baa bonds and Aaa bonds (*DEF*), the dividend yield of CRSP VW portfolio (*DIV*), the yield spread between a ten-year T-bond and a one-year T-bill (*TERM*), and the detrended yield on a T-bill with three months to maturity (*DETREND_YLD*). The macro variables are December month-end observations from the year prior to the 11-month returns used as the dependent variable. In Panel B, the same dependent variable is regressed against the lagged annual returns from the prior three years ($R_{Jan-Dec,t-1}$, $R_{Jan-Dec,t-2}$, and $R_{Jan-Dec,t-3}$), the detrended yield on a T-bill with three months to maturity (*DETREND_YLD*), and the yield spread between a ten-year T-bond and a one-year T-bill (*TERM*). The regressions are estimated annually with an intercept and using the period 1940–2003 as the estimation period. The resulting parameter estimates are used to compute predicted excess returns (E[*R*]). The years are sorted according to whether the 11-month predicted return for year *t* is high or low, as computed with the median predicted return from the full sample, and according to whether the January VW (or EW) excess market return was positive or negative. Abnormal returns are computed as the difference between the realized excess returns and the predicted excess returns. *N* is the number of years when the return in January was positive or negative. The *p*-values test the null hypothesis that the spread is equal to zero.

	Eleven-month holding-period abnormal returns				Spread	*P*-value spread
	Positive Januarys		Negative Januarys			
	Return (%)	*N*	Return (%)	*N*		
Panel A. Predictive model						
$R_{Feb-Dec,t} = \alpha + \beta_1 DEF_{Dec,t-1} + \beta_2 DIV_{Dec,t-1} + \beta_3 TERM_{Dec,t-1} + \beta_4 DETREND\_YLD_{Dec,t-1} + \varepsilon_t$						
VWR - R_f						
E[R] $\geqslant$ median E[*R*]	4.71	22	−9.93	10	14.64	(0.001)
E[R]$<$median E[*R*]	4.52	19	−6.93	13	11.45	(0.044)
EWR - R_f						
E[R] $\geqslant$ median E[*R*]	4.08	26	−12.98	6	17.06	(0.039)
E[R]$<$median E[*R*]	4.64	24	−17.46	8	22.10	(0.018)
Panel B. Predictive model						
$R_{Feb-Dec,t} = \alpha + \beta_1 DEF_{Dec,t-1} + \beta_2 DIV_{Dec,t-1} + \beta_3 TERM_{Dec,t-1} + \beta_4 DETREND\_YLD_{Dec,t-1} + \varepsilon_t$						
VWR - R_f						
E[R] $\geqslant$ median E[*R*]	4.97	23	−8.87	9	13.84	(0.007)
E[R]$<$median E[*R*]	5.00	18	−8.89	14	13.89	(0.013)
EWR - R_f						
E[R] $\geqslant$ median E[*R*]	4.12	27	−18.77	5	22.89	(0.026)
E[R]$<$median E[*R*]	4.03	23	−12.21	9	16.24	(0.046)

on a string of years with low returns, it could be more likely that subsequent Januarys and the following 11 months have high returns. This could occur, for example, because of tax-loss selling. That is, a year with negative market returns might produce more year-end tax-loss selling such that the following January (and next few months) are more likely to be positive. Contrarily, after years with positive market returns, realization of capital gains could be deferred into the following year, with the consequence that January's and subsequent months' returns could tend to be low because of selling associated with the realization of deferred capital gains. Thus negative serial correlation in market returns stemming from tax-motivated trading (or some other fundamental factor) could explain the Other January Effect.

To test that possibility, returns are predicted using the following model:

$$R_{Feb-Dec,t} = \alpha + \beta_1 R_{Jan-Dec,t-1} + \beta_2 R_{Jan-Dec,t-2} + \beta_3 R_{Jan-Dec,t-3} + \beta_4 DETREND\_YLD_{Dec,t-1} + \beta_5 TERM_{Dec,t-1} + \varepsilon_t, \quad (2)$$

where $R_{jan-Dec,t-1}$ $R_{Jan-Dec,t-2}$, and $R_{Jan-Dec,t-3}$ are the annual returns from the prior three years and the other variables are as defined in Eq. (1). As before, we sort years according to whether the 11-month predicted return is above or below the median predicted return and then sort years according to whether the January VW and EW returns are positive or negative.

The means of the 11-month holding-period abnormal returns following positive and negative Januarys are reported in Panel B of Table 4. Consistent with the previous results, the Other January Effect is not subsumed by the lagged returns and interest rate information. For both the EW and VW market returns, the spread in abnormal returns following positive and negative Januarys is always significant (ranging from 13.84% to 22.89%) regardless of whether the predicted returns from Eq. (2) are high or low. Thus market-level serial correlation in returns does not explain the Other January Effect.[7]

4.2. The Presidential Cycle in stock returns

Herbst and Slinkman (1984), Huang (1985), Hensel and Ziemba (1995), and Santa-Clara and Valkanov (2003) report that common stocks earn higher returns when a Democrat is president than when a Republican is president. In part, this Presidential Cycle could be the result of a correlation between business cycle fluctuations and the fiscal policies of the two political parties. It could be that the Other January Effect is simply picking up variations in returns stemming from presidential cycles that are not captured by standard business cycle variables. If that is the case, most positive Januarys would have occurred during Democratic administrations (and the next 11-months' returns would have been mostly positive), and most negative Januarys would have occurred during Republican administrations (and the next 11-months' market returns would have been mostly negative).

To investigate this possibility, we sort years according to whether the presidency is held by a Democrat or a Republican and then sort years according to whether the January VW (or EW) excess returns are positive or negative. It turns out that, with both VW and EW market returns, there is a modestly higher propensity for January returns to be positive during Democratic administrations and a modestly higher propensity for January returns to be negative during Republican administrations. For example, with VW returns, there are 25 positive Januarys when a Democrat sat in the White House and 16 positive Januarys when a Republican sat in the White House. In contrast, there are only eight negative Januarys when a Democrat is president while there are 15 negative Januarys when a Republican is president. But, regardless of whether a Democrat or a Republican is president, when the January return is positive, the next 11 months tend to be positive and

[7]There are many possible variations on the design of the business cycle tests in this section. We experiment with some (e.g., variations on the predicted return models, using excess returns instead of abnormal returns and so forth) and find that none has the ability to explain the Other January Effect.

when the January return is negative, the next 11 months tend to be negative. The spread between 11-month returns following positive and negative Januarys is large and highly statistically significant during both Democratic and Republican administrations. With VW excess returns under Democratic administrations, it is 13.4% (p-value $= 0.03$). Under Republican administrations, it is 15.2% (p-value $= 0.005$). The Other January Effect is not the result of the Presidential Cycle in stock returns.

4.3. Investor sentiment

Prior studies by Lee et al. (1991), Bram and Ludvigson (1998), Neal and Wheatley (1998), Baker and Wurgler (2006), Brown and Cliff (2005), Lemmon and Portniaguina (2006), and others report that positive market returns are significantly more likely to occur during periods when investor "sentiment" is "more positive." That leads to a natural question of whether positive January returns might be correlated with positive investor sentiment, which might spill over into the following months. If that is the case, positive January returns would be more likely to occur when investor sentiment is high (and be followed by positive returns as sentiment remains high) and negative January returns would be more likely to occur when investor sentiment is low (and be followed by low or negative returns as sentiment continues to be low). In addition, within the high and low sentiment groups, the spread between post-January excess returns following positive and negative Januarys will be insignificant.

To investigate that possibility, we use two measures of investor sentiment. The first is the annual sentiment index, spanning 1962–2001, from Baker and Wurgler (2006). By construction, the Baker–Wurgler (BW) index has a mean of zero. Thus, using this index, we define high (low) sentiment years as years when the index is positive (negative). The second index of investor sentiment is the University of Michigan (UM) Index of Consumer Sentiment from 1960 through 2003 (as used by Lemmon and Portniaguina, 2006). The UM index is a continuous measure not centered on zero. Thus we determine the median level of the index over the period of our usage and define high (low) sentiment years according to whether the index is above (below) the median at the start of each year. With each index, we sort years according to whether the index is high or low and whether the January excess market return is positive or negative. We then calculate the 11-month post-January excess return for each sort.

With the BW index, the data emphatically reject the conjecture that the Other January Effect is due to investor sentiment. For example, with VW returns, when sentiment is high, the number of positive Januarys is 13; when sentiment is low, the number of positive Januarys is also 13. Likewise, when sentiment is low, the number of negative Januarys is 7; when sentiment is high, the number of negative Januarys is also 7. With the UM index, when sentiment is high, Januarys are slightly more likely to be positive then when sentiment is low. Similarly, when sentiment is low, Januarys are more likely to be negative than when sentiment is high.

Nevertheless, within periods of both high and low sentiment, regardless of whether we consider the BW index or the UM index, and regardless of whether we consider VW or EW returns, the spread in 11-month holding-period returns following positive and negative Januarys is always economically large (ranging from 9% to 25%) and typically statistically significant.

5. Implications of the Other January Effect for models of asset pricing

Having determined that streetlore concerning the predictive power of January returns withstands other factors that have been shown to have predictive power for the time series of equity returns, we ask what, if any, implications the Other January Effect has for models of asset pricing. In particular, given that January market returns have predictive power for the market equity premium, we ask whether January returns have predictive power for the other two premiums of the Fama and French (1993) three-factor model of equity returns.

5.1. The Other January Effect across size and book-to-market portfolios

To begin this analysis, we ask whether the predictive power of January returns for the rest of the year is concentrated among the portfolios that comprise the Fama–French three-factor model. That is, we ask whether the Other January Effect is concentrated among portfolios of small- or big-cap stocks or among portfolios of value or growth stocks. The results in Section 4.1 suggest that time variation in expected returns resulting from shifts in macroeconomic state variables does not explain the Other January Effect for VW and EW market returns. However, the Other January Effect, by conditioning on returns in January, could owe some of its success to conditional variations in expected returns to riskier subsets of assets (that in part make up the VW market) across the business cycle. For example, Perez-Quiros and Timmermann (2000) show that portfolios of small-cap firms display asymmetries in expected returns across economic cycles. If January returns are correlated with future shifts in the business cycle (which are not picked up by the variables examined in Section 4.1), the Other January Effect could be due to cyclical variations in the returns to "riskier" stocks across business cycles, and conditioning on January returns picks up that risk. If our results are consistent with this explanation, we would expect the Other January Effect to occur primarily in the returns to small-cap and value stocks.

To conduct our analyses, we use stocks sorted into portfolios using the stocks' equity market capitalizations and their book-to-market equity ratios. The portfolios are taken from Ken French's website. In these sorts, CRSP equities are sorted from smallest to largest into deciles in July of each year according to their total market values at the end of June. Book-to-market decile sorts are performed in July of each year using the book value of a firm's equity at fiscal year-end of the previous year (from Compustat) and dividing it by the market value of equity from CRSP as of the end of December of the previous year. Because much of the returns to size and book-to-market portfolios have been shown to emanate from January (Loughran, 1997), we consider both 11-month and 12-month post-January excess returns to these portfolios. That is, in the 12-month post-January returns, we include the following January. We examine data for 1940–2003.

To begin the analysis, we compute the 11-month and 12-month holding-period excess returns following positive and negative Januarys for the decile containing the smallest capitalization stocks and ask whether the spread between excess returns following positive and negative Januarys is significant. We define positive and negative Januarys using VW excess market returns. We then repeat the comparison using the three deciles of stocks having the smallest market capitalizations, using the decile of stocks with the largest market capitalizations, and using the three deciles of stocks with the largest markets capitalizations.[8]

The results of the analysis based on market capitalization sorts are given in Panel A of Table 5. Reading across the rows, the spread between 11-month excess returns (or 12-month excess returns) following positive and negative Januarys is highly statistically significant regardless of whether we consider small- or large-cap stocks. For example, with the three deciles making up the smallest cap stocks (shown in Row 3), the 12-month post-January spread is 21.89% (p-value<0.001; bootstrapped p-value $=0.001$). For the three making up the largest cap stocks (shown in Row 6), the spread is 15.87% (p-value<0.001; bootstrapped p-value<0.001). The Other January Effect is not just present in small-cap stocks.

Panel B parallels Panel A except that the sorts are based on book-to-market equity ratios. The results here are similar to those in Panel A. For the value portfolio, that is, for the decile with the highest book-to-market ratio stocks (shown in Row 1 of Panel B), the spread between the 12-month excess returns following positive and negative Januarys is 20.85% (p-value<0.001; bootstrapped p-value<0.001). For the growth portfolio, that is, the decile with the lowest book-to-market ratio stocks (shown in Row 2), the 12-month spread is 18.81% (p-value<0.001; bootstrapped p-value<0.001). Results are similar with 11-month excess returns. The Other January Effect is not just present in the returns to value stocks.

Overall, these results show that the Other January Effect is not primarily concentrated in the returns to portfolios of small-cap or value stocks.

5.2. *Predicting the factor premiums*

Having taken a preliminary look at returns to the portfolios that underlie the three-factor model, we now turn to the more fundamental question of whether January returns have power to predict the monthly premiums that comprise the model. The three premiums are the market premium (VWR - R_f), the small minus big premium (SMB), and the high minus low (HML) premium. We have already shown that the Other January Effect is a strong predictor of the market premium. In this section, we concentrate on HML and SMB. These two premiums are taken from Ken French's website. SMB and HML are constructed from six size/book-to-market benchmark portfolios.

The benchmark portfolios use two independent sorts, on size and book-to-market. The size breakpoint is the median NYSE market capitalization. The book-to-market breakpoints are the 30th and 70th NYSE percentiles. Six size/book-to-market portfolios (small low, small medium, small high, big low, big medium, and big high) are formed as the intersections of the two size and the three book-to-market groups. The SMB premium is the average return on the three small portfolios (small low, small medium, and small high) minus the average return on the three big portfolios (big low, big medium, and big high). The HML premium is the average return on

[8] We also conduct the analysis shown in Table 5 using the market capitalization portfolio returns and the book-to-market equity portfolio returns, instead of the VW excess market returns, to define positive and negative Januarys. The results are qualitatively similar to those of Table 5 and are available from the authors.

Table 5

Small cap, large cap, high book-to-market, low book-to-market, and Fama–French factor portfolio excess returns following Januarys with positive and negative returns. Mean 11-month and 12-month holding-period excess returns to stocks sorted on the basis of market value and book-to-market equity ratio following positive and negative Januarys, where the January return is the CRSP VW market excess return. Eleven-month holding-period excess returns are computed for months February through December. Twelve-month holding-period returns are computed for months February through January. The holding-period excess returns are computed separately for years when the VW excess market return in January is positive and for years when the VW excess market return in January is negative. The sample period is January 1940 through December 2003. Panel A presents results for portfolios based on market capitalization sorts. Panel B presents results for portfolios based on book-to-market equity ratio sorts. SCR - R_f is the excess return on a portfolio of firms in decile one (or deciles one, two, and three) from a sort on market capitalization, LCR - R_f is the excess return on a portfolio of firms in decile ten (or deciles eight, nine, and ten) from a sort on market capitalization, HBM - R_f is the excess return on a portfolio of firms in decile ten (or deciles eight, nine, and ten) from a sort on book-to-market, and LBM - R_f is the excess return on a portfolio of firms in decile one (or deciles one, two, and three) from a sort on book-to-market. Panels C and D presents the holding-period returns to Fama–French SMB and HML factors, respectively, following positive and negative Januarys. In Panel C, we sort years according to whether the January VW market excess return is positive or negative. In Panel D, we sort years according to whether the factor premium is positive or negative. The p-values test the null hypothesis that the spread is equal to zero. The p-value in parenthesis is for a t-statistic of the spread computed using an ordinary least squares regression. The p-value in square brackets is derived from a randomized-bootstrapped t-statistic.

Portfolio	Eleven-month holding-period excess returns				Twelve-month holding-period excess returns			
	Positive Januarys	Negative Januarys	Spread	*P*-value spread	Positive Januarys	Negative Januarys	Spread	*P*-value spread
	Return (%)	Return (%)			Return (%)	Return (%)		
Panel A. Returns for stocks sorted by market value								
SCR - R_f (bottom decile)	14.40	−6.39	20.79	(< 0.001) [< 0.001]	22.69	−2.80	25.49	(< 0.001) [< 0.001]
LCR - R_f (top decile)	11.77	−2.70	14.47	(< 0.001) [< 0.001]	12.81	−3.47	16.28	(< 0.001) [0.000]
SCR - R_f (bottom three deciles)	14.20	−4.82	19.02	(< 0.001) [< 0.001]	19.52	−2.37	21.89	(< 0.001) [0.001]
LCR - R_f (top 3 deciles)	11.87	−2.36	14.23	(< 0.001) [< 0.001]	13.03	−2.84	15.87	(< 0.001) [< 0.001]
Panel B. Returns for stocks sorted by book-to-market equity ratios								
HBM - R_f (top decile)	16.04	−2.79	18.83	(< 0.001) [< 0.001]	20.85	0.00	20.85	(< 0.001) [< 0.001]
LBM - R_f (bottom decile)	12.67	−4.79	17.46	(< 0.001) [< 0.001]	12.93	−5.88	18.81	(< 0.001) [< 0.001]
HBM - R_f (top three deciles)	14.72	−0.11	14.83	(0.001) [< 0.001]	18.50	1.97	16.53	(< 0.001) [< 0.001]
LBM - R_f (bottom three deciles)	11.96	−3.48	15.44	(< 0.001) [< 0.001]	12.62	−4.23	16.85	(< 0.001) [< 0.001]
Panel C. Factors from the Fama-French three-factor model conditional on January VW excess market return								
SMB	1.33	−3.50	4.83	(0.028) [0.026]	3.27	−1.48	4.75	(0.153) [0.062]
HML	2.76	6.95	−4.19	(0.143) [0.125]	4.92	9.34	−4.42	(0.158) [0.112]
Panel D. Factors from the Fama-French three-factor model conditional on own value in January								
SMB	1.27	−6.38	7.65	(0.006) [0.006]	3.55	−5.19	8.74	(0.004) [0.005]
HML	3.15	9.08	−5.93	(0.119) [0.312]	5.60	10.52	−4.92	(0.302) [0.309]

the two value portfolios (small high and big high) minus the average return on the two growth portfolios (small low and big low).

We sort years according to whether the January VW market excess return is positive or negative. We then calculate the average 11- (12-)month SMB and HML premiums following Januarys in which the market excess return is positive (or negative). These averages are displayed in Panel C of Table 5. An alternative way to classify years is to sort according to the sign of each premium in January. We call these the "own" premiums. The results based on sorting by own January premium returns are given in Panel D.

We start with the size premium. The 11-month post-January size premium average return is strongly linked with the January excess market return. In Panel C, following positive Januarys, the SMB average return over the remaining 11 months of the year is 1.33%; following negative return Januarys, it is −3.50% for a statistically significant spread of 4.83% (p-value = 0.028; bootstrapped p-value = 0.026). The spread is similar in economic magnitude over the 12 months following January (4.75%) but is not statistically significant (p-value = 0.153; bootstrapped p-value = 0.062). In Panel D, when we condition on the SMB premium return in January, the ability of the Other January Effect to predict SMB is stronger. For example, following Januarys with a positive return to the size premium, the SMB average return over the remaining 11 months of the year is 1.27%; following negative return Januarys, it is −6.38%, for a statistically significant spread of 7.65% (p-value = 0.006; bootstrapped p-value = 0.006). The spread is similar in economic magnitude over the 12 months following January (8.74%) and is statistically significant (p-value = 0.004; bootstrapped p-value = 0.005).

We turn next to the value premium. In Panel C, following positive January VW excess market returns, the HML average return over the remaining 11 months of the year is 2.76%; following negative return Januarys, it is 6.95%, and the spread between the two of −4.19% is not statistically significant (p-value = 0.143, bootstrapped p-value = 0.125). As shown in Panel D, when we condition on the HML own premium return in January, the spread is −5.93%, which is also not statistically significant. In each of the four cases (that is, conditioning on the VW market return or the HML premium return and reporting subsequent 11- or 12-month returns) the spread is not statistically significant at conventional levels (p-values range from 0.11 to 0.31).

Thus the Other January Effect does have predictive power for two of the three premiums that make up the Fama-French three-factor model and the results are consistent with streetlore. Following positive Januarys, the returns to the market and size premium are positive for the remainder of the year; following negative Januarys, the returns to the market and size premium are negative.

Fama and French (1993) and others argue that the dispersion in returns of size and book-to-market sorted portfolios arises because of marketwide nondiversifiable risk. Still others argue that the premiums are due to mispricing, arising from various forms of investor biases. (See, for example, Lakonishok et al., 1994; Barberis and Shleifer, 2003; Baker and Wurgler, 2006; Lemmon and Portniaguina, 2006). We take no position on whether January's ability to predict the market and size premiums over the next 11 or 12 months reflects rational or irrational pricing behavior. However, for a risk-based explanation to be consistent with our results, there must exist a source of marketwide risk that arises from, and is correlated with, returns in January.

6. Summary and conclusion

The popular press has touted the market return in January as a reliable predictor of returns for the remainder of the year since at least 1973. In this paper, we undertake a systematic investigation of this long-standing market adage using market returns from the interval 1940–2003 (and in some tests 1825–2003). Our analyses confirm popular wisdom. In particular, we find that the return from the month of January is a powerful predictor of the returns over the remaining months of the year. If January returns are positive, returns over the remaining months of the year are much more likely to be positive and higher than are returns following Januarys with negative returns. This simple rule, which we title the Other January Effect, holds for both the equal-weighted and value-weighted market (using both raw and excess returns) and also holds for portfolios of high and low book-to-market stocks, portfolios of small and large capitalization stocks, and the size premium from the Fama and French (1993) three-factor model.

With the exception of our citation to various popular press articles, in presenting our results, we have done so from a de novo perspective. That posture is not accurate. At least one prior empirical inquiry has been made into the power of January returns to predict returns for the remainder of the year. Fuller (1978) uses the Dow Jones Industrial Average and the S&P 500 Index to evaluate the ability of the first five days of January and the full month of January to determine whether an investor would have earned superior returns using these as guides to investing over the interval 1898–1977. He concludes that a naïve buy-and-hold strategy would have performed just as well after considering transaction costs.

In addition to documenting the existence and persistence of the Other January Effect, we investigate numerous explanations for it. We find that business cycle risk, zshort-horizon autocorrelation, the Presidential Cycle, and sentiment cannot explain the effect.

While we currently cannot explain the forces behind the Other January Effect, we believe that it has several implications. First, it appears to be a powerful tool in predicting the market and other portfolios and, thus it should prove to be an important tool to portfolio managers or other managers engaged in hedging market or size premium risk. In a related manner, this suggests that incorporating the Other January Effect into asset pricing benchmarks would be reasonable from the perspective of evaluating portfolio managers' performance. Finally, our results could serve to heighten the debate over the source of the risk premiums in the Fama–French three-factor model. If the predictability is due to risk, what are the underlying risk factors related to January returns? Or conversely, if the predictability arises from behavioral biases, what are the biases and why do they emanate from Januarys returns?

7. Appendix

The bootstrap procedure explicitly controls for the eleven other one-month followed by 11-month strategies that streetlore could have sampled before descending upon January as the best predictor month for the next 11-month returns. Specifically, each year over the time interval for which a test is conducted, we randomly select a specific conditioning month. For that month, we calculate the following 11-month holding-period return. Within the set of conditioning months, we randomly draw one and calculate a randomized return for that month. The randomized return for a conditioning month is drawn from the returns of other same months of the year. For example, in 1954, we could select April as the conditioning month, calculate the following 11-month return (i.e., the return for May-March), and, from all Aprils, randomly select the conditioning month to be April of 1974. We do this for each year of the sample and then sort the selected months (each year) into positives and negatives depending upon whether the randomized market return for that month is positive or negative and calculate the post-conditioning average 11-month returns. Finally, we calculate the spread in 11-month returns following positive and negative conditioning months. As before, we estimate a time-series regression of monthly returns on an indicator variable that takes a value of one for all years when the conditioning month return is positive and zero otherwise.

We compute the t-statistic of the coefficient on the indicator variable. We repeat this process ten thousand times. The bootstrapped distribution of t under the null hypothesis is the distribution of the ten thousand draws on t. Under the null hypothesis, 11-month returns following positive and negative conditioning months should be equal, implying a t-statistic of zero. Under the alternate streetlore hypothesis, the spread in returns following positive and negative Januarys should be positive, implying a positive t-statistic. Thus we compute a one-sided bootstrapped p-value by calculating the percentage of bootstrapped t's that are greater than the nominal (non-bootstrapped) t statistic.

We also run a slightly more complicated bootstrap, in which we control for the possibility that the Other January Effect is drawn from a population of 144 related strategies. In these bootstraps, we allow for not only the possibility of all twelve one-month/contiguous 11-month strategies, but we also allow for all possible one-month/noncontiguous 11-month strategies, in which the 11-month holding-period return is anywhere from two to 12 months after the conditioning month. The results from this randomized 144strategy bootstrapped experiment are qualitatively similar to the 12strategy bootstraps and are available from the authors.

References

Baker, M., Wurgler, J., 2006. Investor sentiment and the cross–section of stock returns. Journal of Finance, forthcoming.

Barberis, N., Shleifer, A., 2003. Style investing. Journal of Financial Economics 68, 161–199.

Berges, A., McConnell, J.J., Schlarbaum, G.G., 1984. The turn-of-the-year in Canada. Journal of Finance 39, 185–192.

Bernanke, B., 1983. Nonmonetary effects of the financial crises in the propagation of the great depression. American Economic Review 73, 257–276.

Bouman, S., Jacobsen, B., 2002. The Halloween indicator, sell in May and go away: another puzzle. American Economic Review 92, 1618–1635.

Bram, J., Ludvigson, S., 1998. Does consumer confidence forecast household expenditures? A sentiment index horse race. Economic Policy Review 4, 59–78.

Brown, G., Cliff, M., 2005. Investor sentiment and asset valuation. Journal of Business 78, 405–440.

Chan, L., Jegadeesh, N., Lakonishok, J., 1996. Momentum strategies. Journal of Finance 51, 1681–1713.

Chittenden, W., Jensen, G.R., Johnson, R.R., 1999. Presidential politics, stocks, bonds, bills, and inflation. Journal of Portfolio Management Fall 00, 63–79.

Conrad, J., Kaul, G., 1998. Anatomy of trading strategies. Review of Financial Studies 11, 489–519.

DeBondt, W., Thaler, R., 1985. Does the stock market overreact? Journal of Finance 40, 793–805.

Fama, E., 1981. Stock returns, real activity, inflation, and money. American Economic Review 71, 545–565.
Fama, E., French, K., 1988a. Dividend yields and expected stock returns. Journal of Financial Economics 22, 3–25.
Fama, E., French, K., 1988b. Permanent and temporary components of stock prices. Journal of Political Economy 96, 246–273.
Fama, E., French, K., 1989. Business conditions and expected returns on stocks and bonds. Journal of Financial Economics 25, 23–49.
Fama, E., French, K., 1992. The cross–section of expected stock returns. Journal of Finance 47, 427–465.
Fama, E., French, K., 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 33, 3–56.
Ferris, S., D'Mello, R., Huang, C.Y., 2001. The tax-loss selling hypothesis, market liquidity, and price pressure around the turn-of-the-year. Journal of Financial Markets 6, 73–98.
Fuller, R., 1978. The January barometer: what's its batting average. Journal of Portfolio Management, Winter 00, 5–7.
Goetzmann, W.N., Ibbotson, R.G., Peng, L., 2001. A new historical database for the NYSE 1815 to 1925: Performance and predictability. Journal of Financial Markets 4, 1–32.
Grinblatt, M., Keloharju, M., 2004. Tax-loss trading and wash sales. Journal of Financial Economics 71, 51–76.
Hensel, C.R., Ziemba, W.T., 1995. United States investment returns during Democratic and Republican administrations, 1928–1993. Financial Analysts Journal March–April 00, 61–69.
Herbst, A., Slinkman, C., 1984. Political–economic cycles in the U.S. stock market. Financial Analysts Journal March–April 00, 35–39.
Hirsch, Y., 1974. Stock Trader's Almanac. The Hirsch Organization, Nyack, NY.
Huang, R., 1985. Common stock returns and presidential elections. Financial Analysts Journal March-April 00, 24–39.
Jegadeesh, N., Titman, S., 1993. Returns to buying winners and selling losers: implications for stock market efficiency. Journal of Finance 48, 65–91.
Jegadeesh, N., Titman, S., 2001. Profitability of momentum strategies: an evaluation of alternative explanations. Journal of Finance 56, 699–720.
Keim, D., 1983. Size related anomalies and stock return seasonality: further empirical evidence. Journal of Financial Economics 12, 13–32.
Keim, D., Stambaugh, R., 1986. Predicting returns in the stock and bond markets. Journal of Financial Economics 17, 357–390.
Lakonishok, J., Smidt, S., 1988. Are seasonal anomalies real? A ninety-year perspective. Review of Financial Studies 1, 403–425.
Lakonishok, J., Shleifer, A., Vishny, R., 1994. Contrarian investment, extrapolation, and risk. Journal of Finance 49, 1541–1578.
Lee, C.M.C., Shleifer, A., Thaler, R.H., 1991. Investor sentiment and the closed-end fund puzzle. Journal of Finance 46, 75–109.
Lemmon, M., Portniaguina, E., 2006. Consumer confidence and asset prices: some empirical evidence. Review of Financial Studies, forthcoming.
Loughran, T., 1997. Book-to-market across firm size, exchange, and seasonality: is there an effect. Journal of Financial and Quantitative Analysis 32, 249–268.
Macaulay, F., 1938. Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the United States since 1856. National Bureau of Economic Research, Cambridge, MA.
Neal, R., Wheatley, S.M., 1998. Do measures of investor sentiment predict market returns. Journal of Financial and Quantitative Analysis 33, 523–547.
Pesaran, M., Timmermann, A., 1995. Predictability of stock returns: robustness and economic significance. Journal of Finance 50, 1201–1228.
Perez-Quiros, G., Timmermann, A., 2000. Firm size and cyclical variations in stock returns. Journal of Finance 55, 1229–1262.
Poteshman, A., 2001. Underreaction, overreaction and increasing misreaction to information in the options market. Journal of Finance 56, 851–876.

Ritter, J.R., 1988. The buying and selling behavior of individual investors at the turn of the year. Journal of Finance 43, 701–717.
Roll, R., 1983. Vas ist das? The turn-of-the-year effect and the return premium of small firms. Journal of Portfolio Management 9, 18–28.
Santa-Clara, P., Valkanov, R., 2003. The presidential puzzle: political cycles and the stock market. Journal of Finance 58, 1841–1872.
Schwert, G.W., 2003. Anomalies and market efficiency. In: Constantinides, G., Harris, M., Stulz, R. (Eds.), Handbook of the Economics of Finance. North-Holland, Amsterdam, pp. 937–972.