An empirical note on the holiday effect in the Australian stock market, 1996-2006

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This note examines the holiday effect in Australian daily stock returns at the market and industry level and for small capitalisation stocks from Monday 9 September 1996 to Friday 10 November 2006. The eight annual holidays specified are New Years Day, Australia Day (26 January), Easter Friday and Easter Monday, ANZAC Day (25 April), the Queen's Birthday (second Monday in June), Christmas Day and Boxing Day. A regression-based approach is employed. The results indicate that the Australian market overall provides evidence of a pre-holiday effect in common with small cap stocks. However, the market level effect appears to be solely the result of a strong pre-holiday effect in the retail industry. No evidence is found of a post-holiday effect in any market or industry.

I. Introduction

One of the better known calendar anomalies comprises the holiday effect, most characteristically a pre-holiday effect, where abnormally high returns accrue to stocks the day before a holiday. First identified in the 1930s, the holiday effect is arguably one of the oldest and most consistent of all seasonal regularities.

The most promising explanation for the holiday effect lies in investor psychology. This hypothesis argues that investors tend to buy shares before holidays because of 'high spirits' and 'holiday euphoria'. Studies conducted in a variety of contexts (including the United States, Canada, Japan, Hong Kong, the United Kingdom, Malaysia, Singapore, South Korea and Taiwan) have provided mixed support for this conjecture [see, most recently, Arsad and Coutts (1997), Brockman and Michayluk (1998), Vergin and McGinnis (1999), Coutts et al. (2000), Coutts and Sheikh (2002), Tonchev and Kim (2004), Keef and Roush (2005), Al-Saad and Moosa (2005), McGuinness (2005), Al-Deehani (2006) and Marquering et al. (2006)]. At the same time, work by Vergin and McGinnis (1999), Keef and Roush (2005) and Marquering et al. (2006) have concluded that the holiday effect has largely disappeared for large

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corporations, but persists for small corporations, though even the magnitude of the small cap effect itself is said to have diminished over time.

The purpose of this note is to examine the holiday effect in the Australian stock market. This complements and updates existing work by including marketwide, industry and small cap returns in the Australian context, thereby providing a more detailed understanding of the holiday effect in a particular market. The remainder of the paper is divided into four main areas. Section II provides a description of the data employed in the analysis. Section III discusses the empirical methodology used. The results are dealt with in Section IV. The paper ends with a brief conclusion in Section V.

II. Description of the Data

Twelve different stock indices are used to test for the holiday effect in the Australian stock market. Each index series runs from 9 September 1996 to 10 November 2006 providing 2,635 end-of-day observations on the Australian Stock Exchange (ASX). All data is sourced from Global Financial Data (2006).

Table 1. Selected descriptive statistics

	Sample mean	Annualised mean	Median	Std. Dev.	Skewness	Kurtosis
All Ordinaries	0.0333	8.6798	0.0348	0.7540	-0.6586	10.9597
Small Ordinaries	0.0160	4.0807	0.0356	0.6691	-1.6818	31.8639
Banking	0.0510	13.5948	0.0299	0.9532	-0.2755	5.5501
Diversified financials	0.0312	8.1110	0.0304	0.9718	-0.3633	9.0491
Insurance	0.0261	6.7417	0.0000	1.2442	-1.3052	22.1254
Energy	0.0459	12.1563	0.0371	1.1886	-0.2947	6.5117
Healthcare	0.0373	9.7717	0.0033	1.0889	0.1773	13.8789
Materials	0.0263	6.7950	0.0000	1.2837	-0.1147	7.7426
Transport	0.0427	11.2631	0.0135	1.1310	-0.3924	9.2485
Media	0.0261	6.7417	0.0000	1.7913	0.5310	13.6408
Retail	0.0418	11.0131	0.0067	1.0880	-0.0718	7.6393
Telecommunications	0.0036	0.9040	0.0000	1.2738	-0.1993	11.8887

Notes: Means and medians are percentages. Critical values for significance of skewness and kurtosis at the .05 level are 0.0935 and 0.1870, respectively. The annualised mean assumes 250 trading days per year.

First, the capitalisation-weighted All Ordinaries index is used to measure marketwide returns. Currently, the index includes nearly all ASX-listed stocks, covering about 92 percent of domestic companies by market value. Second, the Small Ordinaries index is used to measure the returns on small capitalisation stocks. This index is composed of companies included in the S&P/ASX300 (top-three hundred companies by capitalisation), but not in the

S&P/ASX100 (top-one hundred companies by capitalisation), and covers approximately 7 percent of the ASX.

Finally, ten ASX/S&P industry indices are used to measure returns in different industries. The industries selected are banking, diversified financials, energy, healthcare, insurance, materials, media, retailing, telecommunications and transportation. Each index consists of fifty stocks within the industry. The natural log of the relative price is computed for the daily intervals to produce a time series of continuously compounded returns, such that $r_t = \log(p_t/p_{t-1}) \times 100$, where p_t and p_{t-1} represent the index price at time t and $t-1$, respectively. Table 1 presents a summary of descriptive statistics of the daily returns.

III. Empirical Methodology

The approach used to test the holiday effect is a regression-based approach. The effect is examined on the basis of a trading time hypothesis whereby returns are created only on trading days during the week. The following model is specified:

$$r_t = \lambda_0 + \lambda_1 PRE_HOL + \lambda_2 POST_HOL + \varepsilon_t \quad (1)$$

where r_t is the daily market or industry return, PRE_HOL is a dummy variable representing the last trading day before a holiday and zero otherwise, $POST_HOL$ is a dummy variable representing the first trading day following a holiday and zero otherwise, λ are coefficients to be estimated and ε_t is a random error term. The hypothesis tested is $H_0 : \lambda_0 = \lambda_1 = \lambda_2$ against the alternative that not all λ are equal. If the null hypothesis is rejected, then the returns exhibit holiday seasonality.

The eight national holidays specified are New Years Day (1 January), Australia Day (26 January), Easter Friday and Easter Monday, ANZAC Day (25 April), the Queen's Birthday (second Monday in June), Christmas Day (25 September) and Boxing Day (26 December). While a number of other holidays are found in the various Australian states and territories (such as Melbourne Cup Day and Labour Day), these are the only days scheduled as both non-trading and non-business weekdays by the ASX.

IV. Empirical Results

The estimated coefficients and standard errors of the parameters detailed in Equation (1) are presented in Table 2. Breusch-Godfrey Lagrange multiplier and White's heteroskedasticity

tests (not shown) were initially used to test for higher-order serial correlation and/or heteroskedasticity in the least squares residuals, respectively. All of the least squares residuals displayed heteroskedasticity and/or serial correlation. Accordingly, all standard errors and p -values in Table 2 with the exception of the energy and retail industries incorporate corrections for heteroskedasticity and autocorrelation following Newey-West. The energy and retail industries models include corrections for heteroskedasticity only following White.

Table 2. Estimated coefficients and standard errors

		<i>CONS.</i>	<i>PRE_HOL</i>	<i>POST_HOL</i>
All	Coefficient	0.0236	0.1129	0.1300
Ordinaries	Std. error	0.0115	0.0672	0.0818
Small	Coefficient	0.0116	0.1188	0.0799
Ordinaries	Std. error	0.0155	0.0613	0.0960
Banking	Coefficient	0.0507	-0.0081	0.0234
	Std. error	0.0190	0.1311	0.1349
Diversified	Coefficient	0.0321	0.1077	-0.1494
Financials	Std. error	0.0199	0.0995	0.1276
Energy	Coefficient	0.0416	0.1841	0.0197
	Std. error	0.0237	0.1606	0.1606
Healthcare	Coefficient	0.0316	0.1900	0.0884
	Std. error	0.0205	0.2654	0.1679
Insurance	Coefficient	0.0262	0.1021	-0.1524
	Std. error	0.0267	0.1290	0.1794
Materials	Coefficient	0.0219	0.1938	0.0194
	Std. error	0.0264	0.1387	0.1862
Media	Coefficient	0.0251	0.0822	-0.0385
	Std. error	0.0349	0.1675	0.3160
Retail	Coefficient	0.0350	0.2372	0.0616
	Std. error	0.0217	0.1457	0.1445
Telecoms	Coefficient	0.0031	0.0083	0.0183
	Std. error	0.0254	0.1753	0.1753
Transport	Coefficient	0.0397	-0.0410	0.1985
	Std. error	0.0218	0.1257	0.1495

Notes: Significant coefficients (p -value $<.10$) in bold.

The results in Table 2 indicate significantly higher pre-holiday returns in the All Ordinaries market index. The pre-holiday return over the entire period is .1129 percent and the return on all other days of the year is .0236. This suggests that pre-holidays returns are nearly five times higher at the market level. The Small Ordinaries also displays a significantly high pre-holiday return. The average pre-holiday return on the Small Ords is .1188 percent whereas returns on any other day are .0166 percent. These results support the findings in Vergin and McGinnis (1999) who argued that the holiday effect was more prominent in small capitalisation stocks.

However, there is a little evidence of a holiday effect at the industry level with retail being the only industry displaying a significant holiday effect. As shown, retail industry returns average .2372 percent on pre-holidays and .035 percent on all other days: an almost sevenfold increase. This appears consistent with the strong seasonality found in most financial aspects of the retail industry. For instance, the high pre-holiday returns are most likely due to anticipated high sales turnover during the Christmas period. No evidence of a post-holiday effect is apparent in any industry.

V. Conclusion

This study examines the presence of the holiday effect in Australian market and industry returns over the period 1996 to 2006. Evidence is found of a holiday effect at the market level with pre-holiday returns typically five times higher than other days. A small firm effect is also supported with pre-holiday returns in small cap stocks more than ten times higher than other trading days. At the sub-market level, pre-holiday effects are only found in the retail industry. Bearing in mind the construction of the indices used in this study, it is very likely that the very strong holiday seasonality found in the retail industry is the main reason for the holiday seasonality in market and small cap returns. There is no evidence of a (negative) post-holiday effect in this particular industry and this calls into doubt whether the observed seasonality is indeed the result of ‘high spirits’ and ‘holiday euphoria’ or some rather more prosaic motivation.

The generally low level of observed holiday seasonality suggests that the Australian stock market overall is weak-form efficient. A number of contributory factors are possible, including the growth in derivative markets, the increasing internationalisation and liberalisation of the domestic capital market, increased trading by institutional rather than individual investors, and the dramatic fall in transaction costs, especially those relating to brokerage, taxation and information procurement. However, strong pre-holiday effects are found in retail industry stocks. Since these represent unexploited profit opportunities and violations of market efficiency, interesting opportunities for research exist in terms of identifying whether market conditions such as liquidity and/or industry-specific operational factors represent the source of these anomalies.

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