ChineseSuperstition and Foreign Currency Returns

Richard Chung*, and Bin Li,
Griffith Business School, Griffith University, Australia

ABSTRACT

We examine the potential effect of Chinese superstition on returns in eight major currencies. We focus on market responses to days that are superstitiously deemed by the Chinese to be either lucky or unlucky. After controlling for the weekend and calendar month anomalies, our results suggest that lucky day 8 in the month is associated with significant lower currency returns for four currencies (Canadian dollars, Euros, Swiss Francs, and British Pounds). In contrast, lucky day 18 is associated with significant higher currency returns for Australian dollars, and unlucky day 24 is associated with significant higher returns for Euros. The results support the argument that Chinese manufacturers convert the foreign currency receipt into US dollars on day 8, and that Chinese companies buy Australian dollars on day 18, possibly to pay for importing natural resources. Our evidence is also consistent with the argument that the Chinese Government buys Euros in unlucky day 24 for investment in European Government debt securities.

KeyWords:Superstition, Foreign Currency Markets

INTRODUCTION

The efficient market hypothesis implies that investors cannot use past information to reap abnormal returns if the market is efficient. However, research dating back at least to Kemmerer (1911) has long shownthe presence of several anomalies in securities markets, opening the possibility for profitable trading strategies. One such anomaly is the possibility that luck could impact investors' decisions in the market[1]. In this paper, we examine the Chinese Superstition effect on currency markets.The presence of this effect has important practical implications for banks, investors, multinational corporations and governments.

China has been dubbed the world's factory, and Chinese companies receive more and more foreign currencies for selling goods in foreign countries. Hence, foreign currency risk management is extremely important for Chinese companies. Since the Chinese currency Yuan is still not a freely tradable currency and US dollar is still the world's most acceptable currency, most Chinese companies would continue to prefer US dollars to other currencies. Hence, the decision on the timing to convert foreign currency into US dollars, or vice versa, is an important decision for Chinese companies. If investor's psychology plays an important role in trading behavior, we expect that the Chinese superstition has a significant role in currency markets.

In studying stock markets, thebehavioral finance literature has documented the significance of human psychology in determining stock returns (see, for example, Hirshleifer and Shumway (2003), Kamstra, Kramer and Levi (2003) and Yuan, Zheng and Zhu (2006)). Furthermore, Kolb and Rodriguez (1987) investigate the potential effect of superstition on stock prices in the US, and find that the mean CRSP market index return for Friday the 13th is significantly lower than that for other Fridays. Yet, Dyl and Maberly (1988) report that the mean S&P500 index return on Friday the 13th is actually higher (albeit generally insignificant) than that for other Fridays. Brown, Chua and Mitchell (2002) examine the relation of superstition to stock price clustering in several Asian countries. They report that the relationship is noticeable around the Chinese New Year and the Dragon Boat and Mid-Autumn festival periods. However, to our best knowledge, no existing studies have examined the superstition effect in currency markets.

McFarland, Pettit and Sung(1982) have shown that US dollar denominated foreign currency returns are higher on Mondays and Wednesdays, but lower on Thursdays and Fridays. They suggest that theFriday-Monday effect is due to an increase in demand for foreign currencies prior to weekends. Further, Joseph and Hewins (1992) investigatea similar seasonality in the United Kingdom and Ke, Chiang and Liao(2007) examine similar effect in the Taiwanese market. These studies report significant day-of-the-week returns, but are somewhat different from those reported in the US studies. The differencecould bedue to the variations in sample periods and in time zones.Also, Li, Liu, Bianchi and Su (2011) examine the seasonality of monthly foreign exchange returns for eight major currencies, and they find that five currencies have significant higher returns in December but they reverse in January.

* Corresponding author: Department of Accounting, Finance and Economics, Griffith Business School, Griffith University, Queensland 4111, Australia. E-mail: r.chung@griffith.edu.au; Tel: +61 5552 8584. Bin Li thanks Griffith University for financial support under the 2011 Griffith University New Researcher Grant Scheme, Project No: 40730.

[1] Superstition is to think that one event can supernaturally cause another event without any apparent physical process linking the two events. For example, modern apartment buildings in Hong Kong have no 4th, 13th, 14th, and 24th floors because Chinese believe that these numbers are unfortunate.

In this paper, we examine the superstition effect in eightmajor currencies (namely, Australian Dollars, Canadian Dollars, Euros, Japanese Yen, New Zealand Dollars, Swiss Francs, Swedish Krona, and British Pound). The remaining of the paper is organized as follows. Section 2 describes the hypothesis and the data used while Section 3 presents the methodology. Section 4 presents theempirical findings and Section 5 concludes the paper.

HYPOTHESIS AND DATA

We hypothesize that popular Chinese superstition around certain numbers impact currency returns in the Chinese markets. In particular, number 3 is believed to be a rhyme for growth in Chinese, while number 8 is a rhyme for prosperity. Hence, these two numbers and their combinations 13, 23, 18 and 28 are considered to be lucky numbers. In contrast, number 4 is a rhyme for death, making 4, 14 and 24 as unlucky numbers. In addition, Friday the 13th is usually considered in the public psychicas unlucky.Thus, lucky days are 3, 13, 23, 8, 18, and 28 in the month, while unlucky days are 4, 14, 24, and Friday the 13th in the month.

We expect investors would sell (buy) foreign currency in unlucky (lucky) days. However, based on the famous idiom, "somebody's rubbish is somebody else's treasure", investors may start selling at the beginning of the unlucky days. When the currency price is under-valued enough during the day, investors will start buying and push up the ending closing price to a level higher than the previous closing price. Consequently, unlucky days may be associated with higher (not lower) returns.In light of the possible presence of other seasonal anomalies, our regressions allow for several control (dummy) variables to avoid biases. They are Monday and Friday dummies to account for the weekend effect, and January, March, April, and December dummies to measure the monthly calendar effect (see, for example, Brusa and Liu, 2004; Dzhabarov and Ziemba, 2010;Russolillo, 2010; and Darrat*et al.*, 2011)[2].

We use daily currency spot returns of six major currencies in the world that are the constituents of the US Dollar Index, namely, the Canadian Dollar, Euro, Japanese Yen, Swiss franc, Swedish Krona and British Pound. Prior to the commencement of the Euro in January 1999, we use the German deutschmark as its proxy. The US Dollar Index is calculated by factoring in the exchange rates of these six major world currencies based on a trade-weighted basis. As the Australian dollar and New Zealand dollar are frequently traded in the currency markets, we also include these two currencies. Hence, we examine altogether eight currencies in this study, and collect exchange rate data from *DataStream* from 2 January1972 to 30 December 2011. We calculate the US dollar denominated daily return on the foreign currency on*day t* as:

$$R_{i,t} = 100 \times \ln(P_{i,t} / P_{i,t-1}) \quad (1)$$

where $P_{i,t}$ is theUS dollar closing price of currency i on day t, and $P_{i,t-1}$is the US dollar closing price of currency $i$on day t-1.

Table 1 reports summary statistics on foreign currency (against US dollars) returns for lucky and unlucky days. Throughout the period 1972-2011, the Swiss Francs have the highest average return of 0.014%/day (or 3.5%/year), and British Pounds have the lowest average return of -0.005%/day (or -1.25%/year). Interestingly, lucky day 8 and unlucky day 4 are associated with negative returns in all eight currencies. In contrast, unlucky day Friday the 13thhas positive returns in all eight currencies. This evidence suggests that there might be a superstition effect in foreign currency returns.

Table 1: Summary Statistics on Foreign Currency Returns (daily percentages):
January 2, 1972 through December 30, 2011

		Australian Dollar (AU)		Canadian Dollar (CN)		Euro (EU)		Japanese Yen (JP)	
Type	day	mean	std.	mean	std.	mean	std.	mean	std.
lucky	3	-0.018	0.675	0.002	0.427	-0.045	0.611	0.000	0.647
	13	0.046	0.667	0.006	0.430	-0.027	0.609	-0.007	0.737
	23	-0.041	0.645	-0.037	0.394	0.000	0.608	0.045	0.620
	8	-0.050	0.966	-0.029	0.416	-0.054	0.562	-0.020	0.650
	18	0.019	0.573	-0.015	0.346	0.023	0.589	-0.012	0.602
	28	0.004	0.651	-0.020	0.377	0.003	0.531	-0.021	0.617
unlucky	4	-0.002	0.648	-0.017	0.435	-0.021	0.619	-0.021	0.658
	14	0.020	0.829	-0.023	0.404	0.023	0.588	0.075	0.664
	24	-0.017	0.805	0.045	0.449	0.046	0.568	0.034	0.651
	Fri 13th	0.131	0.651	0.066	0.434	0.057	0.489	0.050	0.588
	All days	-0.001	0.746	-0.0001	0.422	-0.002	0.601	0.013	0.660

[2] As discussed below, our regressions also include a dummy variable to account for possible effects from the recent global financial crisis.

		N. Zealand Dollar (NZ)		Swiss Franc (SW)		Swedish Krona (SE)		British Pound (UK)	
Type	day	mean	std.	mean	std.	mean	std.	mean	std.
lucky	3	0.001	0.613	-0.027	0.714	-0.025	0.633	-0.049	0.639
	13	-0.014	0.767	0.012	0.664	-0.016	0.582	0.014	0.558
	23	-0.005	0.748	0.054	0.726	0.004	0.655	0.015	0.639
	8	-0.105	0.914	-0.061	0.670	-0.014	0.652	-0.058	0.559
	18	-0.042	1.258	0.055	0.741	0.045	0.605	0.035	0.565
	28	-0.046	0.747	0.038	0.706	0.016	0.563	0.029	0.528
unlucky	4	-0.040	0.680	-0.042	0.735	-0.014	0.675	-0.031	0.573
	14	0.009	0.875	0.084	0.727	-0.004	0.658	0.006	0.544
	24	-0.027	0.856	0.057	0.714	0.033	0.616	0.000	0.574
	Fri 13th	0.068	0.752	0.097	0.521	0.100	0.476	0.166	0.538
	All days	-0.004	0.795	0.014	0.728	-0.003	0.671	-0.005	0.595

Note: All US dollar denominated returns are in logarithms multiplied by 100. Std. denotes standard deviation.

METHODOLOGY

FollowingSun and Tong (2010), we model the mean equations as linear regressions while the variance terms are represented bythe Generalized Autoregressive Conditional Heteroskedasticity (GARCH) approach. We use a GARCH(1, 1)process with conditional normal distributionin light of its popularity for modeling daily returns (Taylor, 2005). The GARCH model can effectively capture volatility clustering in the returns.

To analyze the superstition effect on the primary lucky and unlucky numbers, we specify the mean equation as:

$$R_t = a_0 + \sum_{i=1}^{2} b_i \times lucky_{i,t} + \sum_{i=1}^{2} c_i \times unlucky_{i,t} + f \times GFC_t + \sum_{j=1}^{4} d_j \times M_{j,t} + \sum_{k=1}^{2} e_k \times W_{k,t} + \varepsilon_t \quad (2)$$

where $lucky_t$ is a dummy variable equal to 1 when it is day i of the month, and 0 otherwise (where day i=3 and 8); $unlucky_t$ is a dummy variable equal to 1 when it is day i of the month, and 0 otherwise (where i=4 or Friday the 13th); GFC_t is a dummy variable equal to 1 in the post-2007 period and 0 otherwise; M_{jt} is a dummy variable equal to 1 if it is month j and zero otherwise (where j=Jan., Mar., Apr., Dec.); $W_{k,t}$ is a dummy variable equal to 1 if day-of-week k is 1 and zero otherwise (where k=Monday, Friday); and ε_t follows a GARCH(1,1) process as in:

$$h_t = \alpha + \beta \times \varepsilon_{t-1}^2 + \gamma \times h_{t-1} \quad (1)$$

where h_t is a conditional variance. We employ the maximum likelihood method to estimate the parameters in all models. Since our interest in this paper is on the superstition effect, we focus on the estimated coefficients of *lucky* and *unlucky* dummies, relegating the estimates from the variance equations to an appendix available from the authors upon request.

To analyze the superstition effect of individual lucky and unlucky days, we estimate the following regression:

$$R_t = a_0 + \sum_{i=1}^{10} b_i \times day_{i,t} + f \times GFC_t + \sum_{j=1}^{4} d_j \times M_{j,t} + \sum_{k=1}^{2} e_k \times W_{k,t} + \varepsilon_t, \quad (4)$$

where $day_{i,t}$ is a dummy variable set to 1 when it is day i of the month, and 0 otherwise (where day i=3, 13, 23, 8, 18, 28, 4, 14, 24, or Friday the 13th); and other variables are defined in the same way as in equation (2).

EMPIRICAL RESULTS

Table 2 examines whether there is a superstition effect with the primary lucky days (day3 and day8) and unlucky numbers (day4 and Friday the 13th). Itreports the coefficient estimates and their t-statistics of the mean equations over thedaily sample from January 2, 1972 to December 30, 2011.The t-statistics are generated based on the Newey-West heteroskedasticity and autocorrelation consistentstandard errors with 12 lags (alternative lags yield similar results). It shows that lucky day8 is associated with significantlylower returns for Canadian dollars (marginally), Euros, Swiss Francs and British Pounds, with or without controlling for GFC, the weekend and the calendar month effects.Since China is dubbed the world's factory, Chinese companies receive a lot of foreign currency. Our evidence is consistent with the argument that Chinese manufacturers convert their foreign currency receiptinto US dollars in lucky day 8. Table 2 also shows that January coefficient is significantly negative for Euro and for Swiss Francs, while Friday coefficient is significantly negative

for Japanese Yen and Swiss Francs. The evidence is consistent with the Li et al. (2011) and McFarland et al. (1982) results.

Table 3 investigates whether there is a superstition effect with variants of lucky days (day3, day13, day23, day8, day18, and day28), and with that of unlucky days (day4, day14, day24, Friday the 13th). Similar to those results from Table 2, lucky day8 is associated with significantlylower currency returns for Canadian dollars, Euros, Swiss Francs, and British Pounds. In contrast, lucky day18 is associated with significantlyhigher currency returns for Australian dollars, and unlucky day 24 is associated with significantlyhigher returns for Euros.The phenomenal growth with the Chinese economy requiresimporting tremendous amount of natural resources from countries such as Australia. Our evidence suggests that Chinese companies tend to buy Australian dollars in lucky day 18, possibly topay for thesenatural resources.In addition, the Chinese Government has been heavily investing in foreign Government debt securities, especially in the US and Europe. Our evidence is consistent with the argument that the Chinese Government buys Euros in unlucky day 24 for investment in European Government debt securities.

CONCLUSION

This paper examines the potential effect of superstition on eight major foreign currencyreturns. The data are dailycovering the period from January 2, 1972 to December 30, 2011.We focus on the response of stock returns to days that are superstitiously deemed by Chinese as either lucky or unlucky. After controlling for the weekend and calendar month anomalies, our results suggest that lucky day8 of the month is associated with significantly lower currency returns for four currencies (Canadian dollars, Euros, Swiss Francs, and British Pounds). In contrast, lucky day18 is associated with significantly higher currency returns for Australian dollars, and unlucky day 24 is associated with significantly higher returns for Euros. The results support the argument that Chinese manufacturers convert the foreign currency receipt into US dollars on day 8, and that Chinese companies buy Australian dollars on day 18, possibly to pay for importing natural resources. Our evidence is also consistent with the argument that the Chinese Government buys Euros in unlucky day 24 for investment in European Government debt securities.

Our results bear some practical implications. The persistence of significantly lowerreturns in day 8 of the monthfor Canadian dollars, Euros, Swiss Francs and British Pounds suggest market inefficiency as they open the possibility of formulating profitable trading rules based on such patterns. In particular,traders can shortthese currencies at the end of day 7 in the month, and then buy them back at the end of day 8ofthe month to achieve abnormal profits. Similarly, traders can buy Australian dollars (Euros) at the end of day 17 (day 23) and sell them at the end of day 18 (day 24). It should be interesting to see whether trading rules using such superstitious numerology would prove profitable in the future.

Table 2: The Effects of Primary Lucky and Unlucky Days on Foreign Currency Returns

		Australian Dollar (AU)		Canadian Dollar (CN)		Euro (EU)		Japanese Yen (JP)	
Type	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lucky	day3	-0.068	-0.068	0.009	0.010	-0.024	-0.023	0.056	0.053
		(-1.51)	(-1.41)	(0.62)	(0.59)	(-0.71)	(-0.66)	(0.82)	(0.83)
	day8	-0.047	-0.048	-0.039*	-0.040*	-0.079**	-0.081**	-0.014	-0.013
		(-1.01)	(-0.95)	(-1.74)	(-1.84)	(-2.75)	(-2.52)	(-0.41)	(-0.37)
Unlucky	day4	0.093	0.092	-0.012	-0.012	-0.009	-0.010	-0.055	-0.057
		(1.25)	(1.32)	(-0.75)	(-0.77)	(-0.24)	(-0.27)	(-0.82)	(-0.88)
	Fri 13th	0.113	0.111	0.050	0.045	0.016	0.030	0.044	0.080
		(0.71)	(0.77)	(1.23)	(1.06)	(0.33)	(0.52)	(0.68)	(1.16)
Control	GFC		0.041		0.018		0.003		0.020
			(1.52)		(0.72)		(0.13)		(0.79)
	Jan		-0.024		-0.013		-0.089**		-0.035
			(-0.87)		(-0.64)		(-2.37)		(-1.42)
	Mar		-0.012		0.008		-0.019		-0.010
			(-0.52)		(0.78)		(-1.02)		(-0.36)
	Apr		0.011		0.018		0.001		0.002
			(0.50)		(1.63)		(0.06)		(0.10)
	Dec		0.027		0.000		0.032		-0.015
			(0.90)		(-0.01)		(1.42)		(-0.60)
	Mon		-0.030		-0.008		-0.017		-0.006
			(-1.03)		(-0.99)		(-1.03)		(-0.32)
	Fri		-0.006		0.006		-0.023*		-0.047**
			(-0.25)		(0.70)		(-1.70)		(-2.09)
	Constant	0.008	0.013	-0.003	-0.004	0.002	0.014	0.002	0.015
		(0.85)	(1.35)	(-0.82)	(-0.94)	(0.31)	(1.47)	(0.29)	(1.61)

Table 2:(continued)

		N. Zealand Dollar (NZ)		Swiss Franc (SW)		Swedish Krona (SE)		British Pound (UK)	
Type	**Variable**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
Lucky	day3	-0.068	-0.055	-0.041	-0.040	-0.019	-0.018	-0.029	-0.029
		(-0.82)	(-0.70)	(-1.04)	(-0.97)	(-0.53)	(-0.53)	(-0.78)	(-0.92)
	day8	0.125	0.114	-0.095**	-0.095**	-0.069	-0.069	-0.067**	-0.065**
		(0.76)	(0.84)	(-2.55)	(-2.51)	(-1.49)	(-1.62)	(-2.50)	(-2.08)
Unlucky	day4	-0.134	-0.114	-0.035	-0.035	-0.038	-0.037	0.008	0.007
		(-0.90)	(-0.95)	(-0.83)	(-0.79)	(-0.77)	(-0.76)	(0.30)	(0.24)
	Fri 13th	-0.897	-0.911	0.026	0.056	0.015	-0.004	0.048	0.062
		(-1.20)	(-1.01)	(0.46)	(0.83)	(0.28)	(-0.07)	(0.92)	(1.08)
Control	GFC		0.015		0.020		0.019		-0.007
			(0.38)		(0.74)		(0.52)		(-0.30)
	Jan		-0.008		-0.069**		-0.042		-0.012
			(-0.27)		(-2.34)		(-1.68)		(-0.47)
	Mar		-0.152		-0.022		-0.025		-0.001
			(-1.32)		(-0.93)		(-0.86)		(-0.04)
	Apr		0.026		-0.017		0.009		0.012
			(0.85)		(-0.65)		(0.46)		(0.70)
	Dec		0.014		0.029		0.035		0.027
			(0.45)		(1.06)		(1.71)		(1.21)
	Mon		0.008		-0.013		-0.043		-0.024
			(0.23)		(-0.66)		(-1.85)		(-1.56)
	Fri		0.046		-0.039**		0.011		-0.022
			(1.15)		(-2.14)		(0.36)		(-1.52)
	Constant	0.012	0.009	0.014	0.029	0.007	0.014	0.006	0.012
		(0.77)	(0.30)	(1.67)	(2.45)	(1.09)	(1.48)	(0.96)	(1.31)

Note: Regression coefficients (t-statistics) are reported. The mean equation is model (2) in the text. The variance equation is modeled as a GARCH (1,1) process. The *t*-statistics (in parentheses) are the corresponding Newey and West robust *t*-statistics with 12 lags. "day x" is a dummy variable equals to one if the day x of the month is 3, 8, 4, Friday the 13th, and 0 otherwise. "GFC" is a dummy variable to account for possible shifts due to the recent financial crisis that equals to one in the post-2007 and 0 otherwise. "Jan", "Mar", "Apr", and "Dec" are dummy variables that equal to one for the corresponding months and 0 otherwise. "Mon (Fri)" is a dummy variable that equals to one for Monday (Friday) and 0 otherwise. The ** and * denote statistical significance at the 5% and 10% levels, respectively.

Table 3: The Effects of Individual Lucky and Unlucky Days on Stock Returns

		Australian Dollar (AU)		Canadian Dollar (CN)		Euro (EU)		Japanese Yen (JP)	
Type	**Variable**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Lucky	day3	-0.062	-0.062	0.007	0.008	-0.022	-0.020	0.056	0.052
		(-1.21)	(-1.35)	(0.41)	(0.50)	(-0.57)	(-0.62)	(0.78)	(0.80)
	day13	-0.018	-0.018	0.000	0.002	-0.067	-0.070	-0.058	-0.068
		(-0.39)	(-0.43)	(0.01)	(0.10)	(-1.23)	(-1.37)	(-1.38)	(-1.73)
	day23	0.013	0.009	-0.018	-0.018	0.021	0.022	0.008	0.007
		(0.20)	(0.11)	(-1.01)	(-1.01)	(0.68)	(0.85)	(0.21)	(0.17)
	day8	-0.037	-0.038	-0.041**	-0.042**	-0.077**	-0.078**	-0.014	-0.013
		(-0.82)	(-0.82)	(-2.02)	(-2.02)	(-2.24)	(-2.25)	(-0.39)	(-0.38)
	day18	0.253**	0.257**	-0.010	-0.009	0.012	0.010	0.007	0.007
		(2.06)	(2.29)	(-0.56)	(-0.52)	(0.35)	(0.29)	(0.20)	(0.21)
	day28	0.043	0.044	-0.010	-0.010	0.000	0.003	-0.065	-0.068
		(0.51)	(0.57)	(-0.66)	(-0.65)	(-0.00)	(0.08)	(-1.53)	(-1.75)
Unlucky	day4	0.106	0.105	-0.014	-0.013	-0.007	-0.007	-0.054	-0.057
		(1.08)	(1.33)	(-0.98)	(-0.94)	(-0.16)	(-0.19)	(-0.82)	(-0.92)
	day14	-0.015	-0.014	-0.025	-0.025	0.029	0.031	0.040	0.039
		(-0.40)	(-0.38)	(-1.85)	(-1.64)	(1.04)	(1.08)	(0.97)	(0.97)
	day24	0.029	0.037	0.016	0.016	0.056**	0.059**	0.048	0.047
		(0.40)	(0.42)	(0.65)	(0.81)	(1.96)	(2.03)	(1.39)	(1.40)
	Fri 13th	0.150	0.153	0.047	0.040	0.085	0.105	0.102	0.150
		(0.93)	(0.92)	(0.74)	(0.80)	(1.13)	(1.58)	(1.18)	(1.84)
Control	GFC		0.038		0.018		0.003		0.020
			(1.38)		(0.71)		(0.11)		(0.78)
	Jan		-0.030		-0.013		-0.090**		-0.035
			(-1.15)		(-0.59)		(-2.26)		(-1.38)
	Mar		-0.015		0.008		-0.019		-0.010
			(-0.70)		(0.86)		(-1.17)		(-0.36)
	Apr		0.003		0.018		0.001		0.002
			(0.17)		(1.46)		(0.08)		(0.11)
	Dec		0.026		0.000		0.033		-0.015
			(0.75)		(-0.02)		(1.52)		(-0.62)
	Mon		-0.032		-0.008		-0.016		-0.006
			(-1.11)		(-1.21)		(-0.96)		(-0.28)
	Fri		-0.012		0.006		-0.025		-0.049**
			(-0.47)		(0.71)		(-1.66)		(-2.17)

	constant	-0.000	0.008	-0.001	-0.002	0.000	0.012	0.002	0.016
		(-0.01)	(0.88)	-0.272	(-0.46)	(0.00)	(1.29)	(0.23)	(1.46)

Table 3:(continued)

		N. Zealand Dollar (NZ)		Swiss Franc (SW)		Swedish Krona (SE)		British Pound (UK)	
Type	**Variable**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
Lucky	day3	-0.089	-0.074	-0.036	-0.035	-0.019	-0.018	-0.031	-0.031
		(-0.56)	(-1.02)	(-0.87)	(-0.87)	(-0.58)	(-0.51)	(-0.89)	(-0.89)
	day13	-0.004	0.017	-0.036	-0.043	-0.067*	-0.064*	-0.015	-0.019
		(-0.05)	(0.23)	(-0.74)	(-0.84)	(-1.80)	(-1.71)	(-0.33)	(-0.47)
	day23	-0.020	-0.023	0.034	0.034	0.033	0.034	-0.020	-0.020
		(-0.20)	(-0.35)	(0.92)	(0.88)	(0.90)	(0.89)	(-0.53)	(-0.56)
	day8	0.101	0.093	-0.091**	-0.090**	-0.068	-0.068	-0.070**	-0.068**
		(0.63)	(0.56)	(-2.42)	(-2.34)	(-1.46)	(-1.53)	(-2.44)	(-2.33)
	day18	-0.053	-0.049	0.022	0.022	0.072	0.071	0.008	0.008
		(-1.01)	(-0.81)	(0.58)	(0.63)	(1.62)	(1.61)	(0.33)	(0.32)
	day28	-0.027	-0.022	0.018	0.018	0.004	-0.001	0.005	0.005
		(-0.46)	(-0.56)	(0.45)	(0.45)	(0.12)	(-0.02)	(0.18)	(0.18)
Unlucky	day4	-0.163	-0.142	-0.030	-0.030	-0.039	-0.038	0.005	0.004
		(-0.81)	(-1.05)	(-0.67)	(-0.71)	(-0.81)	(-0.80)	(0.17)	(0.17)
	day14	-0.063*	-0.064	0.062	0.062	-0.013	-0.013	-0.035	-0.034
		(-1.80)	(-1.06)	(1.45)	(1.49)	(-0.35)	(-0.39)	(-1.12)	(-1.01)
	day24	-0.204	-0.194	0.022	0.023	-0.043	-0.039	-0.025	-0.024
		(-1.62)	(-1.40)	(0.54)	(0.57)	(-0.46)	(-0.41)	(-0.67)	(-0.68)
	Fri 13th	-0.838	-0.858	0.067	0.105	0.084	0.065	0.060	0.078
		(-0.84)	(-0.96)	(0.88)	(1.30)	(1.24)	(0.90)	(0.82)	(1.12)
Control	GFC		0.002		0.019		0.018		-0.007
			(0.04)		(0.71)		(0.62)		(-0.32)
	Jan		-0.015		-0.069**		-0.042		-0.012
			(-0.44)		(-2.16)		(-1.49)		(-0.50)
	Mar		-0.161		-0.023		-0.026		-0.001
			(-1.04)		(-0.94)		(-0.93)		(-0.03)
	Apr		0.019		-0.017		0.008		0.012
			(0.32)		(-0.70)		(0.36)		(0.79)
	Dec		0.005		0.030		0.035		0.027
			(0.11)		(1.10)		(1.66)		(1.34)
	Mon		0.011		-0.013		-0.043**		-0.023
			(0.36)		(-0.67)		(-2.16)		(-1.65)
	Fri		0.039		-0.040**		0.008		-0.023
			(0.99)		(-2.16)		(0.27)		(-1.52)
	constant	0.032*	0.032	0.009	0.024**	0.007	0.015	0.009	0.016
		(1.89)	(1.30)	(0.96)	(2.07)	(0.95)	(1.46)	(1.30)	(1.50)

Note: See notes to Table 2. The mean equation is model (4) in the text. "Day x" equals to one if the day of the month is x, and 0 otherwise, where x equals 3, 13, 23, 8, 18, 28, 4, 14, or 24.

REFERENCES

Brown, P., Chua, A. and Mitchell, J., 2002. The influence of cultural factors on price clustering: Evidence from Asia-Pacific stock markets,Pacific-Basin Finance Journal 10: 307–332.

Brusa, J. and Liu, P., 2004. The day-of-the-week and the week-of-the-month effects: An analysis of investors' trading activities, Review of Quantitative Finance and Accounting 23:19-30.

Darrat A.F., Li, B., Liu, B. and Su, J.J., 2011. A fresh look at seasonal anomalies: An international perspective, International Journal of Business and Economics10: 93-116.

Dzhabarov, C. and Ziemba, W.T., 2010. Do seasonal anomalies still work?,Journal of Portfolio Management 36: 93-104.

Dyl, E. and Maberly, E., 1988. The anomaly that isn't there: A comment on Friday the thirteenth, Journal of Finance, 43: 1285-1286.

Hirshleifer, D. and Shumway, T., 2003. Good day sunshine: Stock returns and the weather, Journal of Finance 58: 1009–1032.

Joseph, N.L. and Hewins, R.D. 1992, Seasonality estimation in the UK foreign exchange market, Journal of Business Finance & Accounting 19:39–71.

Kamstra, M.J., Kramer, L.A. and Levi, M.D., 2003. Winter blues: Seasonal affect disorder (SAD) and stock market returns,American Economic Review 93: 324– 343.

Ke, M.C., Chiang, Y.C. and Liao, T.L., 2007. Day-of-the-week effect in the Taiwan foreign exchange market, Journal of Finance 31: 2847–2865.

Kemmerer, F.W., 1911. Seasonal variations in the New York money market, American Economic Review 1: 33-49.

Kolb, R. and Rodriguez, R., 1987. Friday the thirteenth part vii: A note, Journal of Finance 42: 1385-1387.

Li, B., Liu, B., Bianchi, R.and Su, J.J., 2011. Monthly seasonality in currency returns: 1972-2010, JASSA - The FINSIA Journal of Applied Finance3: 6-11.

McFarland, J., Pettit, R. and Sung, S., 1982. The distribution of foreign exchange price changes: trading day effects and risk measurement, Journal of Finance 37: 693–715.

Sun, Q. and Tong, W.H.S., 2010. Risk and the January effect, Journal of Banking & Finance 34: 965-974.

Russolillo, S., 2010. 'Santa Claus Rally' at top of investors' wish list, Wall Street Journal, November 29.

Taylor, S.J., 2005.Asset Price Dynamics, Volatility, and Prediction, Princeton University Press, Princeton, NJ.

Yuan, K., Zheng, L. and Zhu, Q., 2006. Are investors moonstruck? Lunar phases and stock returns, Journal of Empirical Finance13: 1-23.