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A REVIEW ON THE EVOLUTION OF CALENDAR ANOMALIES

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Abstract:

In this article, we provide a detailed review on the behavior of calendar anomalies (day–of–the–week, January and turn–of–month in particular) to understand their evolution over time. The research in the area of stock market indicates negative returns on Monday and positive returns on Friday; however, in the currency markets, results are opposite, that is, the returns on Monday are positive and higher than the returns on Friday which show negative returns. For the January (TOM) effect, the literature suggest that the returns during January (TOM trading days) are higher (lower) than the returns during rest of the year (non–TOM trading days). Further, these calendar anomalies were stronger during the 1980s and 1990s and have gradually diminished in the recent times which indicate that the markets have achieved a higher degree of efficiency.

Key words: *Calendar anomalies; Day–of–the–week; January; Turn–of–month*

1. Introduction

Several studies have documented the presence of various calendar anomalies which violates the well–known theories of asset–pricing models. For example, *holiday effect* (Ariel, 1990; Liano and White, 1994; Vergin and McGinnis, 1999), *monthly or January effect* (Kim and Park, 1994; Haug and Hirschey, 2006; Rendon and Ziemba, 2007; and Agnani and Aray, 2011; Kumar, 2016a,b), *week–end effect* (Lakonishok and Levi, 1982; Jaffe and Westerfield, 1985; Kohli and Kohers, 1992), *turn–of–month effect* (Ogden, 1990; Compton, Johnson and Kunkel, 2006; Kumar, 2015), *day–of–the–week effect* (Chang and Kim, 1988; Dubois and Louvet, 1996; Tonchev and Kim, 2004; Keef and Roush, 2005; Ariss, Rezvanian and Mehdian, 2011; Berument and Dogan, 2012; Kumar and Pathak, 2016), and *week–of–the–year effect* (Levy and Yagil, 2012). Among them, the Day–of–the–week (DOW), the January, and the Turn–of–month (TOM) effects are well known and have attracted much attention equally from academicians and practitioners (Alt, Fortin and Weinberger, 2011). Previous studies have made attempts to investigate the occurrence of these anomalies; however, still we do not have a satisfactory explanation.

The DOW effect is associated with significant negative returns on Monday compared to the other days of the week (Condoyanni, et al., 1987; Chang et al., 1993; Alt et al., 2011). The January effect is a calendar anomaly reported in the financial markets wherein the returns in the month of January are higher than the returns during any other month of the year (Floros, 2008; Moller and Zilca, 2008; Dbouk, Jamali and Kryzanowski, 2013 and Lynch, Puckett and Yan, 2014). Many researchers argue that the performance of securities during the first month of the year often predicts their performances for the entire year. TOM effect is a price anomaly found in the certain time of the month or when one security is carried over from one month to the next which is a well studied phenomenon in the equity markets. Moller and Zilca (2008) show that at the end of December and first few days of January, stock returns are found to be high. Kumar (2015) states that the returns in TOM trading days are significantly lower than the returns during non–TOM trading days.

The studies in this area are motivated by the presence of these calendar anomalies which contradicts the Efficient Market Hypothesis (EMH). These anomalies suggest that the returns are systematically higher or lower depending upon the day of the week or month of the year. According to EMH, all information would already be incorporated in the prices and the calendar anomalies should not persist. Owing to the impossibility of perfect market efficiency, Campbell, Lo and MacKinlay (1997) put forward the concept of relative efficiency which shifted testing market efficiency from all–or–nothing condition to evaluating the market efficiency over time. Urquhart and McGroarty (2014) build upon the argument of Campbell et al. (1997) that market efficiency is not all–or–nothing condition and that it varies over time because calendar anomalies would induce new profit making opportunities continually.

While the calendar anomalies in equity markets have been explored in large body of literature, currency markets have received very little attention (Yamori and Kurihara, 2004). The documentation and explanation of calendar anomalies in the currency markets has noticeably been absent. McFarland, Pettit and Sung (1982) have explained that in foreign exchange market, American investors enjoy high returns on Monday and Wednesday and low on Tuesday and Friday which has been confirmed in other studies as well (e.g., see, Jaffe and Westerfield, 1985; and Cornett, Schwarz and Szakmary, 1995).

Very recently, Kumar (2016b) examines the presence of three calendar anomalies (DOW, TOM and January effect) for seventeen currency pairs against the US dollar from 1995 to 2014. He finds that the returns on Monday and Wednesday are negative and lower than the returns on Thursday and Friday which show positive and higher returns. The results for the January effect (TOM effect) indicate that the returns during January (TOM trading days) are higher (lower) than the returns during rest of the year (non–TOM trading days). However, these calendar anomalies seem to have disappeared for almost all currencies during 2005 to 2014 and indicate that the markets have achieved a higher degree of efficiency in the later part of the sample.

In this paper, we primarily aim at providing a detailed analysis of calendar anomalies in the area of stock and currency market. The paper is organized as: Sections 2 provides a detailed review of literature on calendar anomalies in the area of stock and currency markets. Section 3 presents a discussion on whether the calendar anomalies could be traded upon. Section 4 concludes the paper.

2. Literature review

2.1. The DOW Effect

Many of the studies for the DOW effect have considered and investigated the stock markets and a common finding has been high Friday returns and low Monday returns (e.g., see, Cross, 1973; Gibbons and Hess, 1981; and Rogalski, 1984). Condoyanni et al. (1987) demonstrate that the DOW effect is prevalent in the capital markets around the world. Chang et al. (1993) report that the sample size and/or the error term adjustment makes the DOW effect statistically insignificant in the US. Adrangi and Ghazanfari (1996) investigate the weekend effect in the corporate bond market and find a reverse weekend effect in that the Monday returns are positive and statistically significant on an average. Dubois and Louvet (1996) examine the DOW effect in nine countries. They report negative returns on Monday and positive returns on Wednesday. Berument and Kiymaz (2001) examine the presence of the DOW effect in stock market volatility. They report that the highest and lowest returns are found on Wednesday and Monday; whereas, the highest and lowest volatility are reported on Friday and Wednesday respectively.

Chen and Singal (2003) show that the short sellers close their positions on Friday, leading to higher returns; and short their positions on Monday, causing the prices to fall. Schwert (2003) present the evidence of weekend effect in the US from 1802 to 1987. Chan, Leung and Wang (2004) find that the lower returns on Monday could be attributed to individual investors since the Monday effect is strong stocks with lower institutional investment. Siegel (1998), in order to extend these findings, examine the Monday effect from 1885 to 1997 for DJIA. He concludes had the Monday returns been the same as the non–Monday returns over the sample period, the DJIA would have been double of its level as it was at the end of 1997. Marquering, Nisser, and Valla (2006) document the decline in Monday effect on DJIA from 1960 to 2003.

Jones and Ligon (2009) document higher returns for IPOs on Monday from 1980 to 2003 in the US. Ariss et al. (2011) examine the calendar anomalies in the Gulf Cooperation Council (GCC) and find the returns to be higher on Wednesday and the effect is more pronounced outside the month of Ramadan. Alt et al. (2011) confirm significant Monday effect for 1970s and 1980s for the US and Germany, however, in the late 1990s and 2000s, the effect appears to have vanished. Floros and Salvador (2014) investigate the DOW and monthly seasonal effects in cash and stock index futures returns over 2004 to 2011. They report significant differences in seasonal patterns in cash and futures indexes due to the presence of basis risk. However, Berument and Dogan (2012) do not confirm the presence of DOW effect in the US daily returns from May 26, 1952 to September 29, 2006.

Lakonishok and Levi (1982) argue that the DOW effect could be attributed to the difference between trading time and settlement time. They argue that the cheques that are cleared through US Federal Reserve System take one day from the time they are delivered to the time they are actually debited/credited by the commercial banks. Such a delay in clearing means that stocks purchased on a day other than Friday provides the buyer with eight days before their account is debited for purchasing the stock. But if they purchase the stock on a Friday, the payment will not be processed till the following second Monday, ten calendar days after the trade. Therefore, the buyers should be ready to pay more on Friday than on any other day by an amount of two days interest. The opposite holds true for the sellers. Hence, the equilibrium expected returns on Fridays should be higher than other days of the week.

However, such an explanation may not hold true for currency markets since in foreign exchange markets, unlike domestic markets, payments are made with uncleared or clearing house funds (Levi, 1978). These payments are settled through interbank transfer that takes place within the cheque clearing system of the country whose currency is getting traded. Such a difference between federal funds settlement for domestic transactions and clearing house funds for international transactions has significant implications for value of the USD on a weekend. In currency markets, Berument et al. (2007) examine the DOW effect for the Turkish lira–US dollar exchange rate and report that Thursday exhibit higher depreciation than Mondays. Similarly, for the Taiwan foreign exchange market, Ke, Chaing and Liao (2007) report that first three days of the week show higher returns confirming DOW effect.

Kumar and Pathak (2016) examine the presence of DOW effect in the Indian currency market and report significantly positive returns from Monday to Wednesday and significant negative returns on Thursday and Friday. Figure 1 from Kumar and Pathak (2016) show the bar charts for the week day returns for four currencies against the Indian rupee. One can easily observe the trend across all the four currencies (US dollar, euro, British pound and Japanese yen) for Monday to Wednesday, and Thursday to Friday effect. Monday always shows the highest returns and Friday the lowest returns.

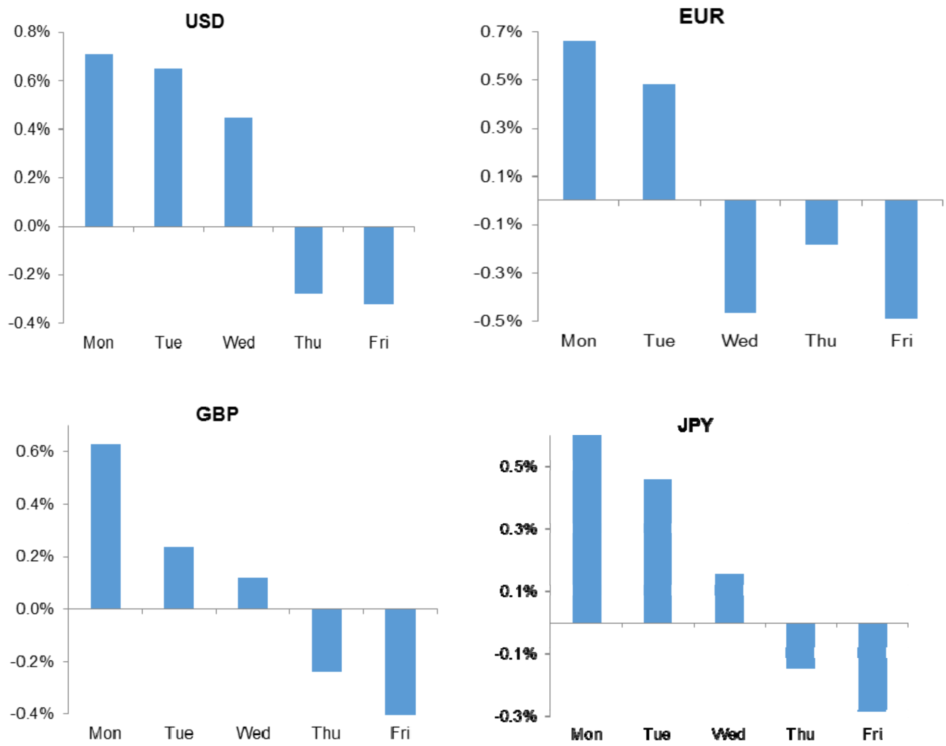

Figure 1: Daily Average Returns for the DOW effect for the pre-crisis period (1999 to 2007).

Source: Kumar and Pathak (2016)

The DOW effect is explained in detail in McFarland et al. (1982) who state that the information flows more actively over weekend in currency markets relative to other financial markets. Therefore, it may be that the price changes on Monday could exhibit different distribution relative to other days of the week due to events of the weekend or due to a different length of non–trading period between Friday and Monday. Finally, the distribution of returns on Thursday may be different due to the fact that regular announcements of money supplies are made on Thursday. Additionally, the clearing system for currencies involving USD leads to opportunity loss of interest for transactions on Wednesday since Wednesday transactions are cleared for 'good' value on Friday in foreign currency, however, not until Monday for the USD. This loss of two days' interest leads to lower demand for USD relative to other currencies so that the values of other currencies will be higher on Wednesday. Therefore, Tuesday to Wednesday price change would be positive and Wednesday to Thursday would be negative.

2.2. The January Effect

The January effect was first documented by Rozeff and Kinney (1976) on the NYSE. Gultekin and Gultekin (1983) report that returns in January and April are high in UK and only in January in Japan from 1959 to 1970. Mills and Coutts (1995) find support for January effect for the FTSE100, Mid 250 and 350 indices from 1986 to 1992.

Chang (1988) shows monthly effect in the raw material prices which is similar to the findings in the common stock markets. He analyzes the Dow Jones Spot Commodity Index and reveals that the returns for the first nine trading days are greater than the returns for the last nine trading days of the trading month. Chang and Kim (1988) study the same phenomenon for the commodity markets and find that this effect is documented in the growth rates of real goods prices. The similar effect is observed in the futures prices of the commodities as well. Lucey and Whelan (2004) investigate the Irish equity market over 1934 to 2004 and report a strong and constant January effect. Szakmary and Kiefer (2004) examine the S&P500 cash and futures returns and report evidence of a turn–of–the–year effect for the pre–1993 period which disappears in the later periods. Rendon and Ziemba (2007) find that the January effect is still alive in the futures markets from 1982 to 2004 period. Floros (2008) provides no evidence of January effect in the Greek stock market and Depenchuk et al. (2010) find no evidence for the January effect in the both the stock and bond market in Ukraine.

Haug and Hirschey (2006) examine the January effect using value-weighted and equal-weighted equity returns. They note the consistent presence of January effect in the small cap stocks across time. Sun and Tong (2010) find strong evidence of the January effect in monthly CRSP data from 1926 to 2005. Agnani and Aray (2011) use the US monthly data over the period 1940–2006 and find the existence of a time–varying January effect which is positive and significant in both high and low volatility regimes. Jacobsen and Zhang (2013) study more than 300 years of UK stock returns and find that the January effect appears around 1830, when Christmas became a public holiday; however, is no longer significant from 1951 to 2009. However, Beyer et al. (2013) find no evidence against January effect as they show that a portfolio comprised of small and unfavorable stocks outperformed the market 45 out of 47 Januaries.

Moller and Zilca (2008) examine the development of daily pattern of January effect. They notice that significant higher returns in the first half of January make the magnitude of January effect significant despite lower returns in the second half. Dbouk, Jamali and Kryzanowski (2013) examine the presence, and factors affecting January effect for individual corporate bonds. They report significant presence of higher January returns across different time periods. Their results further indicate that reversal and tax loss selling effects significantly determine the January effect. Lynch, Pucket and Yan (2014) provide institutional explanations for the January effect with the transaction level data. They state that window dressing hypothesis best explains the

January effect, wherein pension plan sponsor sell the small stock with poor performance in December and buy again in January.

Among several other explanations of January effect, the most accepted is the tax loss selling hypothesis (Agnani and Array, 2011). Many investors prefer to sell their securities before the end of the year to claim capital loss for tax purposes. Again, in January, they reinvest their money causing the security prices to rise. Therefore, the security prices have a tendency to fall in December and rise in January and significant higher returns are observed in the month of January.

Kumar (2016b) studies the January effect for seventeen currency pairs against the US dollar from 1995 to 2014. Confirming the significant presence of January effect in the subsample 1995 to 2004, he notes that the returns of all the currencies are higher in January and lower during rest of the year. However, he further argues that the January effect has disappeared for almost all currencies during 2005 to 2014 which in turn indicates that the markets have achieved a higher degree of efficiency in the later part of the sample.

2.3. The TOM Effect

TOM effect is a price anomaly found in the certain time of the month or when one security is carried over from one month to the next which is a well studied phenomenon in the equity markets. Ariel (1987) finds an empirical irregularity in the equity returns and coins it ‘monthly effect’. He calculates the stock index returns for the time period 1963–1981 and finds that for days immediately before and during the first half of calendar months, the mean return for stocks is positive, however, for days during the last half of the month, it is not found to be statistically different from zero. Jaffe and Westerfield (1989) extend Ariel’s (1987) work for four other countries and report a weak evidence for his results. However, they find strong evidence for last–day–of–the–month effect.

Jaffe and Westerfield (1985) report weak evidence of TOM effect for stocks traded in Australia, Canada, Japan and the UK and the US. However, Lakonishok and Smidt (1988) and Linn and Lockwood (1988) find that TOM returns are significantly more than the non–TOM returns. McConnell and Xu (2008) further extend Lakonishok and Smidt (1988) by including data up to 2005 and find significant presence of the TOM effect. Apart from equity markets, the TOM effect has been analyzed into other financial markets as well. Jordan and Jordan (1991) find no evidence of TOM effect in bond markets. Chang (1988) examines the Dow Jones Commodities Spot and Futures Indexes and concludes that the effect is present in both spot and futures market prices, however the effect is more pronounced in the spot markets.

Ogden (1990) studies the stock index returns in the US and confirms the existence TOM effect and reports that returns are higher following the month of December. Khaled and Keef (2012) find the evidence of the TOM effect in 50 international stocks over 1994–2006 even after controlling for several factors. Dzhabarov and Ziemba (2010) and Atanasova and Hudson (2010) find that the TOM effect still exists. The TOM effect has been studied in detail in the real estate investment trusts (REITs) by Compton et al. (2006). They consider the five domestic REITs indices and confirm the presence of the TOM effect. The TOM returns are found to be higher than the rest of the month returns in 75 percent of the cases. Depenchuk et al. (2010) find the evidence of TOM in the Ukranian stock market. Sharma and Narayan (2014) examine the TOM effect for firms' returns and volatilities for different sectors and sizes and report that TOM has a heterogeneous effect on the firms.

Based on Ogden (1990), we argue that the standardization in the payments process in the US leads to a monthly irregularity in the securities' returns. For major economic entities, the turn of each month is a characteristic payoff for accrued wages, interest and principal components, dividends etc. Therefore, these entities having short-term funds prefer to invest in securities maturing at the end of the calendar month to provide necessary liquidity to meet turn–of–month obligations. Such an increased demand for short–term securities bids their prices (yields) up (down).

In the currency futures market, the TOM effect was observed by Liano and Kelly (1995 who examine the prices for four currency futures prices as the British pound, the Deutsche mark, the Japanese yen and the Swiss franc viz.-a-viz. the US dollar. They find (see Table 1) that for the Japanese yen futures, the returns during the TOM period are higher as compared to the rest of the month, whereas for British pound futures, the average returns during the non–TOM significantly exceed the TOM returns.

Similarly, Kumar (2015), for the first time, examines the TOM effect in the Indian currency market for selected currency pairs; USD–INR, EUR–INR, GBP–INR and JPY–INR, from January 1999 to April 2014. He shows that the returns in TOM trading days are significantly lower than the returns during non–TOM trading days. If these differences are defined as excess returns and compounded for a trading strategy that employ the turn–of–month days, the average annual excess returns for EUR and JPY would be –0.07 and –0.08 percent respectively. However, this effect vanishes for all the currencies after the 2008 financial crisis.

3. Practical implications – can these calendar anomalies be traded?

The reviews of the studies presented might have important practical implications in the sense that if the stock, commodity or currency markets exhibit significant calendar anomalies, it will lead to formulation of important investment strategies based on whether the returns during particular day of the week and particular month of the year are higher or lower than the returns on other trading days and months. Therefore, in this section, we provide a review of Urquhart and McGroarty (2014) to understand whether a simple trading strategy for each calendar anomaly can earn excess returns to the investors. They examine the Adaptive Market Hypothesis (AMH) through Monday effect, the January effect, and the TOM effect in Dow Jones

Industrial Average (DJIA) from 1900–2013. They find that all the calendar anomalies support the AMH, since they vary over time.

Table1
Results for TOM effect for sub–periods

	Intercept	TOM	DW	Levene Test
PANEL A: JUNE 1977 to DECEMBER 1981				
BP	0.0304	–0.1103	2.09	7.88+++
	(1.50)	(–1.99)##		
GM	0.0019	0.0141	2.60	22.57+++
	(0.09)	(0.20)		
JY	0.0002	0.1200	2.04	7.18+++
	(0.01)	(1.86)#		
SF	0.0080	0.1123	1.94	25.15+++
	(0.28)	(1.44)		
PANEL B: JANUARY 1982 to DECEMBER 1987				
BP	0.0121	–0.0738	1.99	3.53+
	(0.54)	(–1.32)		
GM	0.0208	0.0096	2.04	7.09++
	(0.94)	(0.18)		
JY	0.0279	0.0445	2.07	11.91+++
	(1.31)	(1.01)		
SF	0.0209	0.0044	2.06	6.19++
	(0.86)	(0.07)		

Note: +++ reject the hypothesis that the variance in turn-of-month trading days is equal to the variance in non-turn-of-month trading days at one percent significance level.
++ reject the hypothesis that the variance in turn-of-month trading days is equal to the variance in non-turn-of-month trading days at five percent significance level.
+ reject the hypothesis that the variance in turn-of-month trading days is equal to the variance in non-turn-of-month trading days at ten percent significance level.
reject the hypothesis that rates in turn-of-month trading days are equal to rates in non-turn-of-month trading days at five percent significance level.
reject the hypothesis that rates in turn-of-month trading days are equal to rates in non-turn-of-month trading days at ten percent significance level.
The t-statistics in the parenthesis are corrected for autocorrelation and heteroskedasticity using the technique of Hansen (1982)
Source: Liano and Kelly (1995).

They then develop an implied investment strategy wherein the buy-and-hold strategy involves buying the DJIA on first January 1900 and selling on December 31, 2013. For the Monday effect, the implied strategy is to buy the stock on first January 1900 and then selling on the first Monday due to the Monday effect, and then buy it on

Tuesday, which will continue till December 31, 2013. For the January effect, the investment strategy involves buying the stocks on January 1, 1900 and selling on February 1, 1900 till January 1, 1901 when the portfolio would be bought again. This strategy would continue until the portfolio is liquidated on December 31, 2013. The TOM strategy involves buying the portfolio first on January 31, 1900 until February 03, 1900 where the short position is taken until February 28, 1900, the time when a long position is taken in the portfolio again. This strategy is continued until December 31, 2013 where the portfolio would be liquidated.

Table 2
Implied investment strategy over the full sample and the subsamples

	No. Trades	IS	B&H	Difference	Annualized Diff	Roundtrip TC
Panel A: Monday Effect						
1900-2013	5562	68,375.78	332.13	205.87	3.77%	0.30%
1900-1918	921	2.28	1.65	1.38	1.72%	0.14%
1919-1937	928	50.55	1.46	34.55	20.50%	0.46%
1938-1956	928	561.66	4.14	135.58	29.49%	0.83%
1957-1975	934	5321.05	1.72	3096.4	52.66%	0.97%
1976-1995	916	26,434.43	4.47	5919.9	57.96%	1.27%
1995-2013	935	68,375.78	4.32	15,833.05	66.35%	1.34%
Panel B: January Effect						
1900-2013	228	2.52	332.13	−0.01	-3.33%	-2.91%
1900-1918	38	1.02	1.65	−0.62	-2.50%	-1.35%
1919-1937	38	1.38	1.46	−0.95	-0.29%	-1.84%
1938-1956	38	1.42	4.14	−0.34	-5.46%	-4.56%
1957-1975	38	1.68	1.72	−0.98	-0.10%	-2.76%
1976-1995	38	2.55	4.47	−0.57	-2.91%	-6.20%
1995-2013	38	2.52	4.32	−0.58	-2.80%	-6.08%
Panel C: TOM Effect						
1900-2013	2728	443.02	332.13	1.33	0.20%	0.44%
1900-1918	448	1.65	1.65	1.00	0.00%	0.22%
1919-1937	456	5.58	1.46	3.81	7.30%	0.46%
1938-1956	456	28.9	4.14	6.98	10.77%	1.04%
1957-1975	456	84.2	1.72	49.00	22.73%	1.08%
1976-1995	456	209.87	4.47	47.00	22.46%	1.49%
1995-2013	456	443.02	4.32	102.59	27.60%	1.64%

Note: No. trades denotes the number of trades during the sample period, B&H signifies the buy-and-hold strategy, while IS signifies the Implied strategy. Difference signifies the difference between the IS and B&H, while annualized different is the difference per year between the IS and the B&H. The Roundtrip TC is the roundtrip breakeven transaction costs.
Source: Urquhart and McGroarty (2014)

The results of Urquhart and McGroarty (2014) are presented in Table 2 for the full sample as well as the 6 subsample of equal length each. Panel A shows that for Monday effect, the investment strategy outperforms the buy-and-hold strategy even after controlling for 0.30% transaction cost. Same results can be observed in the subsample analysis as well wherein the investment strategy outperforms the buy-and-hold strategy. Panel B presents the results of their investment strategy for the January effect and shows that the full sample and each subsample cannot beat the buy-and-hold strategy. Panel C shows that for TOM effect, the investment strategy outperforms the buy-and-hold strategy with a breakeven transaction cost of 0.44%.

Similarly, Kumar (2016a) examines the DOW, the January, and the TOM effects in developed, advanced and emerging currencies from 1985–2014. He finds that the returns on Monday, Tuesday and Wednesday are positive and significantly different from zero the returns on Thursday and Friday are negative and significantly smaller than the returns during first three days of the week. January returns are higher than the returns during rest of the year, and TOM returns are negative and significantly lower than that of non–TOM returns. However, these calendar anomalies disappear by the last subsample which suggests that the investors might not be able to earn excess profits by timing their positions in some particular currencies taking the advantage of calendar effect which in turn indicates that the currency markets have become more efficient.

He next forms portfolios for developed, advanced and emerging currencies using equal weights of each currency in that portfolio. The returns of currency portfolios generated by his implied trading strategy outperform the buy-and-hold strategy in the initial subsamples for all calendar anomalies. However, in the recent times, the buy-and-hold strategy generates more returns relative to the implied trading strategy indicating that calendar anomalies are no more significant to generate excess returns.

4. Conclusion

We review the evolution of calendar anomalies in the stock and currency markets. Specifically, we analyze the presence or otherwise of day-of-the-week effect, the January effect, and the turn-of-month effect. While a common finding in the literature of DOW effect in stock markets is the presence of negative Monday returns and positive Friday returns, the opposite hold true for the currency markets. In the currency market, many studies have a consensus of positive Monday to Wednesday returns and negative Thursday and Friday returns. While there are a number of explanations for the DOW effect, the most accepted has been provided by Lakonishok and Levi (1982) who argue that the DOW effect could be attributed to the difference between trading time and settlement time. The DOW effect in currency markets is explained in detail in McFarland et al. (1982) who state that the information flows more actively over weekend in currency markets relative to other financial markets.

Among several other explanations of January effect, the most accepted is the tax loss selling hypothesis (Agnani and Array, 2011). Many investors prefer to sell their securities before the end of the year to claim capital loss for tax purposes. Again, in January, they reinvest their money causing the security prices to rise. Therefore, the security prices have a tendency to fall in December and rise in January and significant higher returns are observed in the month of January. For the TOM effect, we argue that the standardization in the payments process in the US leads to a monthly irregularity in the securities' returns.

However, in the recent times, these calendar anomalies have almost vanished from the market. It could be argued that during the 1980s and early 90s, the lack of co-ordinated and a competitive market making operating on a twenty four hour basis across currency markets might have prevented these anomalies from being arbitraged away (Cornett et al., 1995). They further state that these anomalies would change over time as these markets would develop. Therefore, the disappearance of calendar anomalies in the recent times could partially be explained by the fact that the investors might have become increasingly aware and taking advantages of such anomalies would have led to the elimination of earning abnormal returns. Moreover, high volatility along with economic instability post 1997 Asian financial crisis and 2008 global financial crisis must have resulted in altering the uninformed investors' decision and led to the disappearance of these anomalies. Overall, we argue that these calendar anomalies would have disappeared due mainly to more informed and experienced investors, progresses in information technology, well-coordinated currency markets operating twenty four hours and thus lower cost of information etc.

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