A Closer Look at the Ghost Month in the Philippine Stock Market

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ABSTRACT

Largely, this paper partially developed the work of Almonte (2016) by revisiting the ghost month in the Philippine equity market. Inferential statistics indicated that, based on the Gregorian calendar, the ghost month was only evident in three of eight indices. These were the Financials, Holding Firms, and Industrial indices. Furthermore, descriptive statistics showed that, by and large, indices did poorly during November, May, and August. The existence of the ghost month in the local market was held to be inconclusive.

Keywords: ghost month, Philippine stock market, stock indices, August.

1. INTRODUCTION

1.1. Overview

The ghost month was described as a Chinese belief that spirits wander with human beings through the lunar year's month number seven (Gimenez, 2006, September 4; Pesobility Blog, 2013, July 31; Sy, 2016, August 1). Countless Chinese considered this time to be ominous so some equity markets were weak (Gimenez, 2006, September 4; Pesobility Blog, 2013, July 31). Moreover, it was the time when the majority of Western investment managers took their leaves (Gimenez, 2006, September 4; Villafuerte, 2016, July 29). According to Villafuerte (2016, July 29), the combination of the Chinese belief and the absence of Western investment professionals do not bode well for equities.

The strict definition of the ghost month comprised specific dates that do not all necessarily fall under August (Gimenez, 2006, September 4; acknowledged by Pesobility Blog, 2013, July 31; My Time….Chinese temple in Malaysia, 2016; Sy, 2016, August 1). However, some (Pesobility Blog, 2013, July 31; Bongat, 2016, January 5; Almonte, 2016; Villafuerte, 2016, July 29; Sy, 2016, August 1) used a relaxed definition (i.e. the ghost month and August represented the same thing).

For the main analysis, this research explored the ghost month from both the traditional Chinese and loose descriptions.

While an auxiliary analysis [see Section 1.3 for a list of authors; also refer to Sections 1.4 (para. 2), 2.2 (para. 5), and 3.2] was performed, similar to Arugaslan, Edwards, and

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Samant (2008), such was intended to provide information for those inside and outside the academic environment.

Furthermore, as with Almonte (2016), evidence of the ghost month meant statistically significantly lower equity values.

1.2. Hypothesis

The research hypothesis was principally developed from Pesobility Blog (2013, July 31) and Almonte (2016):

Philippine stock market indices demonstrated lower returns during the ghost month.

1.3. Literature

Published academic literature specifically about the ghost month and the stock market was difficult to come by (the reader may refer to Almonte (2016) for a list of associated works pertaining to the ghost month). It appeared that Almonte (2016) was the first to scholarly write about the subject matter when she examined the ghost month, based on the Gregorian calendar, in the PSEi. The results of her research showed that the ghost month manifested itself convincingly in all periods: the overall period, spanning more than two decades, had a confidence level of 99% while both subperiods, each covering more than a decade, used a confidence level of 95% (Almonte, 2016). In addition, she conveyed that August had the largest losses in the overall period and one subperiod (Almonte, 2016).

On the other hand, literature targeted towards the lay person was comparatively easier to find. Gimenez (2006, September 4) stated that August as well as September were terrible for equities. Several years later, Bongat (2016, January 5) noted that based on more than a decade's worth of data, most of the time, money could be made in the local equity market by purchasing during the beginning of August and selling by said month's end. After a few months, Villafuerte (2016, July 29) mentioned that between 2006 and 2015, the PSEi declined six out of 10 times during August. In another article, Sy (2016, August 1) imparted that, using almost three decades of data and two types of calendars, the worst returns of the PSEi occurred during the ghost month.

Thus, the literature was unanimous in maintaining that August was a buying opportunity for equity traders and/or investors.

1.4. Research Gap

This study, for the most part, updated the work of Almonte (2016) in several areas: the ghost month was studied in all the indices of the Philippine stock market, i.e. PSEi, All Shares Index, Financials Index, Holding Firms Index, Industrial Index, Mining and Oil Index, Property Index, and Services Index (Philippine Stock Exchange, Inc., The, 2011, May); a shorter coverage period, six years for the overall period and three years for each

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subperiod, was selected; and instead of just using a single measure (the ghost month based on the Gregorian calendar) to determine the presence of the ghost month, two measures (the ghost month based on both the Gregorian and lunar calendars) were utilized.

Furthermore, comparable to what others (see Section 1.3 for a list of authors) have done, as mentioned in Section 1.1 (para. 4), an analysis [see Sections 2.2 (para. 5) and 3.2] that could be appreciated by both those inside and outside the academe (Arugaslan, et al., 2008) was made. However, instead of just having the PSEi as the local sample, as previously mentioned, all eight indices were incorporated and a shorter period was selected to contrast with previous literature that used longer periods (see Section 1.3).

2. METHODOLOGY

2.1. Data

This research covered the calendar years 2010 until 2015 with two subperiods: the first subperiod ran from calendar years 2010 until 2012 while the second subperiod comprised calendar years 2013 until 2015 [the use of subperiods was analogous to what was performed by Almonte (2016) and others (see Almonte, 2016 for a list of various works)]. The subperiods comprised three years because of the assumption of a medium-term holding period and, referring to Kufs (2010, July 11), to have at least 50 observations for the ghost month.

Similar to Almonte (2004, 2012b, 2012c, 2016), indices' daily closing values were employed.

The data for the eight market indices was gathered from Technistock (Philippines), Inc. (2016). On the other hand, specific dates for the Chinese Ghost Month were collected from My Time….Chinese temple in Malaysia (2016).

2.2. Computations

As with Almonte (2016), Reilly and Brown's (2012, pp. 5-6) book was used as a resource to determine returns [and as mentioned in Almonte (2016), the computation of returns was identical to Almonte (2012a)].

For the primary analysis, data categorization involved two versions: the first version mimicked Almonte (2016) wherein the ghost month equaled August (Pesobility Blog, 2013, July 31; Bongat, 2016, January 5; Almonte, 2016; Villafuerte, 2016, July 29; Sy, 2016, August 1) while the second version used the traditional Chinese description of the ghost month (Gimenez, 2006, September 4; acknowledged by Pesobility Blog, 2013, July 31; My Time….Chinese temple in Malaysia, 2016; Sy, 2016, August 1). The proponent recognized that, like Almonte (2016), the paper by Ward and Huffman (1997) was used as a resource for categorizing data.

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Like Almonte (2016), the working files (i.e. data sets) were created in Microsoft Excel for Mac 2011 [14.1.0 (110310)] and the statistics were accomplished via XLSTAT for Mac (2015.3.01.19253).

According to Addinsoft (2015a), when conducting normality tests, the Shapiro-Wilk test worked well for observations below 5,000. Hence, this particular normality test was employed in this paper. Incidentally, the Shapiro-Wilk test was one of two normality tests utilized by Almonte (2016). In all instances, the returns of the eight indices were not normally distributed, $p < .0001$. Therefore, as with Almonte (2016), the hypothesis was investigated via a one-tailed Mann-Whitney test (Addinsoft, 2015b).

Moreover, referring to Sections 1.1 (para. 4) and 1.4 (para. 2), an analysis of the average daily returns of each month for every index for all periods was performed. As such, grouping the indices' returns for various months followed Almonte (2012a, 2012b, 2016). The study of said returns (see Section 3.2) were similar to Almonte (2012a, 2016) and Sy (2016, August 1) and related to Gimenez (2006, September 4), Bongat (2016, January 5), and Villafuerte (2016, July 29).

2.3. Limitations

Three data points were excluded, namely: All Shares Index (no data for July 26, 2010) and Services Index (April 14, 2010 and January 5, 2011 had the same value as that of their respective previous trading day). This procedure was akin to Almonte (2016).

Only the Gregorian calendar was used to segregate the different months for the auxiliary analysis (Section 3.2) as said calendar was universally used (Time and Date AS, ca. 1995-2016). This was in line with the previously mentioned objective of including readers outside the academe [see Sections 1.1 (para. 4) and 1.4 (para. 2); inspired by Arugaslan, et al. (2008)].

3. RESULTS

3.1. Main Analysis

Tables 1 until 8 exhibited the average returns, number of observations, and results of the Mann-Whitney test using both the Gregorian and lunar calendars.

Based on the Gregorian calendar (Tables 1 until 8, Panel A), the ghost month was only evident in three indices, namely: the Financials Index (Table 3), the Holding Firms Index (Table 4), and the Industrial Index (Table 5). Specifically, the ghost month was found in the Financials Index for the period 2010 to 2015, $p = .051$; the Holding Firms Index for the period 2013 to 2015, $p = .091$; and the Industrial Index for the periods 2010 to 2015, $p = .072$ and 2010 to 2012, $p = .069$.

When the lunar calendar (Tables 1 until 8, Panel B) was used, the ghost month was statistically insignificant for all indices even if the average returns of month number seven were, in most occasions, lower than other periods.

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Remarkably, while Almonte (2016) showed compelling evidence of the ghost month, the results of this paper did not. As mentioned, Almonte (2016) found statistical significance in the PSEi using confidence levels of 99% (for the overall period) and 95% (for both subperiods). On the other hand, this study discovered statistical significance in the Financials, Holding Firms, and Industrial indices all using a confidence level of 90%; however, none of these indices had consistent significant results in all periods. What was similar with that of Almonte (2016) is that, in all instances, the ghost month was found only when it was equated to August.

An industry specialist shared that "several stock [*sic*] in the 3 sectors that exhibit the ghost month are among those with the highest market values . . . thus a gradual or large decline in prices are reflected accordingly in their respective indices" (J.J.F. Lago, personal communication, August 2, 2016, para. 1). He also expressed that institutional investors control the local market and that they effect portfolio rebalancing around the middle of the year (J.J.F. Lago, personal communication, August 2, 2016). Furthermore, in the four times per calendar year the MSCI makes a statement about index composition, investors traditionally reacted exceedingly aggressive during August, i.e. stocks that were about to join an index were bought up while those that were expected to leave an index were sold down (J.J.F. Lago, personal communication, August 2, 2016).

Table 1. PSEi

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.001	0.000	-0.002
Observations	116	61	55
Other months			
Mean return	0.001	0.001	0.001
Observations	1,345	676	669
Mann-Whitney Test			
U	73,946.000	19,636.000	17,272.000
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	-0.001	0.001	-0.002
Observations	111	58	53
Other months			
Mean return	0.001	0.001	0.000
Observations	1,350	679	671
Mann-Whitney Test			
U	74,168.000	20,080.000	16,955.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: Following Almonte (2016), the decimal format was used for mean returns.
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Table 2. All Shares Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.001	0.000	-0.002
Observations	116	61	55
Other months			
Mean return	0.001	0.001	0.000
Observations	1,344	675	669
Mann-Whitney Test			
U	73,375.000	19,669.000	16,940.000
Expected value	77,952.000	20,587.500	18,397.500
Variance (*U*)	18,981,312.000	2,528,831.250	2,223,031.25
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	-0.001	0.001	-0.002
Observations	111	58	53
Other months			
Mean return	0.001	0.001	0.000
Observations	1,349	678	671
Mann-Whitney Test			
U	74,010.000	20,128.000	16,807.000
Expected value	74,869.500	19,662.000	17,781.500
Variance (*U*)	18,230,723.250	2,415,149.000	2,148,597.917

Note: Following Almonte (2016), the decimal format was used for mean returns.
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Table 3. Financials Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.001	0.000	-0.002
Observations	116	61	55
Other months			
Mean return	0.001	0.001	0.000
Observations	1,345	676	669
Mann-Whitney Test			
U	70,885.000†	18,838.000	16,589.000
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	0.000	0.002	-0.002
Observations	111	58	53
Other months			
Mean return	0.001	0.001	0.000
Observations	1,350	679	671
Mann-Whitney Test			
U	73,632.000	20,491.000	16,190.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: †$p < .10$, one-tailed.
Following Almonte (2016), the decimal format was used for mean returns.
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Table 4. Holding Firms Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.002	0.000	-0.004
Observations	116	61	55
Other months			
Mean return	0.001	0.002	0.001
Observations	1,345	676	669
Mann-Whitney Test			
U	72,481.000	19,591.000	16,405.000†
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	-0.001	0.001	-0.003
Observations	111	58	53
Other months			
Mean return	0.001	0.002	0.001
Observations	1,350	679	671
Mann-Whitney Test			
U	73,997.000	19,924.000	16,891.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: †$p < .10$, one-tailed.
Following Almonte (2016), the decimal format was used for mean returns.
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Table 5. Industrial Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.001	-0.001	-0.001
Observations	116	61	55
Other months			
Mean return	0.001	0.001	0.000
Observations	1,345	676	669
Mann-Whitney Test			
U	71,649.000†	18,253.000†	17,550.000
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	0.000	0.000	-0.001
Observations	111	58	53
Other months			
Mean return	0.001	0.001	0.000
Observations	1,350	679	671
Mann-Whitney Test			
U	71,682.000	18,906.000	16,896.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: †$p < .10$, one-tailed.
Following Almonte (2016), the decimal format was used for mean returns.
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Table 6. Mining and Oil Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	0.000	0.002	-0.001
Observations	116	61	55
Other months			
Mean return	0.000	0.001	-0.001
Observations	1,345	676	669
Mann-Whitney Test			
U	79,659.000	20,482.000	19,517.000
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	0.002	0.004	-0.002
Observations	111	58	53
Other months			
Mean return	0.000	0.001	-0.001
Observations	1,350	679	671
Mann-Whitney Test			
U	80,131.000	21,791.000	18,281.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: Following Almonte (2016), the decimal format was used for mean returns.
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Table 7. Property Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	0.000	0.001	-0.002
Observations	116	61	55
Other months			
Mean return	0.001	0.001	0.001
Observations	1,345	676	669
Mann-Whitney Test			
U	78,674.000	21,181.000	18,191.000
Expected value	78,010.000	20,618.000	18,397.500
Variance (*U*)	19,008,436.667	2,536,014.000	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	-0.001	0.001	-0.002
Observations	111	58	53
Other months			
Mean return	0.001	0.001	0.001
Observations	1,350	679	671
Mann-Whitney Test			
U	74,072.000	19,734.000	17,305.000
Expected value	74,925.000	19,691.000	17,781.500
Variance (*U*)	18,256,725.000	2,421,993.000	2,148,597.917

Note: Following Almonte (2016), the decimal format was used for mean returns.
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Table 8. Services Index

	2010 to 2015	2010 to 2012	2013 to 2015
Panel A. Ghost Month Based on the Gregorian Calendar			
August			
Mean return	-0.001	-0.001	-0.002
Observations	116	61	55
Other months			
Mean return	0.000	0.000	0.000
Observations	1,343	674	669
Mann-Whitney Test			
U	75,902.000	20,189.000	17,861.000
Expected value	77,894.000	20,557.000	18,397.500
Variance (*U*)	18,954,206.667	2,521,658.667	2,223,031.250
Panel B. Ghost Month Based on the Lunar Calendar			
Month 7			
Mean return	-0.001	0.000	-0.003
Observations	111	58	53
Other months			
Mean return	0.000	0.000	0.000
Observations	1,348	677	671
Mann-Whitney Test			
U	73,541.000	19,910.000	16,896.000
Expected value	74,814.000	19,633.000	17,781.500
Variance (*U*)	18,204,740.000	2,408,314.667	2,148,597.917

Note: Following Almonte (2016), the decimal format was used for mean returns.
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3.2. Auxiliary Analysis

Table 9 showed how many indices for each month for every period generated negative average daily returns (see Section 2.2, para. 5).

For 2010 to 2015 (Table 9), the worst months were May and November as well as August. The results for 2010 to 2012 (Table 9) essentially kept to the results of 2010 to 2015 as November and May were once again the poorest performers. On the other hand, 2013 to 2015 (Table 9), demonstrated that August, November, and December were the ghastliest months since all eight indices achieved losses.

Almost half of the incidences of negative average daily returns befell in the last three years (Table 9). Furthermore, for the period 2013 to 2015, at least one index demonstrated negative average daily returns two-thirds of the calendar year (Table 9). One could not help ponder if this is a sign of a market slowdown and/or, as an industry participant explained (see Section 3.1, para. 5), a result of material statements (J.J.F. Lago, personal communication, August 2, 2016).

On the whole (Table 9), the worst months were November (21 out of 81), May (17 out of 81), and August (16 out of 81). Parenthetically, these three months were connected with MSCI's index actions (see Section 3.1, para. 5; J.J.F. Lago, personal communication, August 2, 2016).

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Table 9. Prevalence of Negative Average Daily Returns: Philippine Stock Indices

Month	2010 to 2015	2010 to 2012	2013 to 2015	Total
January	-	3	-	3
February	-	2	-	2
March	-	-	1	1
April	-	-	-	-
May	7	5	5	17
June	1	-	6	7
July	-	-	2	2
August	6	2	8	16
September	2	-	2	4
October	-	-	-	-
November	7	6	8	21
December	-	-	8	8
Total	23	18	40	81

Note: Sample interpretation: For the period 2010 to 2015, seven out of eight indices exhibited negative average daily returns for May.

4. CONCLUSION

As previously stated, this paper principally digressed from other works (see Section 1.3) by including seven other local indices in addition to the PSEi as well as employing a shorter period of study.

The main results, found in Tables 1 until 8 and as realized from several resources (see Section 1.3 for a list of authors), illustrated that the ghost month was only strongly evident in samples that made use of data spanning at least a decade long. Only the Financials, Holding Firms, and Industrial indices (Tables 3 until 5, Panel A) reflected the ghost month. The auxiliary results, found in Table 9, showed that November, May, and August were particularly poor for the local stock market. Overall, sharp movements could be ascribed to portfolio rebalancing (see Section 3.1, para. 5; J.J.F. Lago, personal communication, August 2, 2016) and/or placing excessive faith in the ghost month.

Thus, the existence of the ghost month in the Philippine stock market was thought to be uncertain.

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