Responses to Referee2

We are very grateful for the Referee's valuable feedback and comments, which have brought up good questions to our attention for further discussion and clarification. Here we provide our response as below:

1. Q: Cumulative abnormal return (CAR) is typically calculated over the length of the event window/forecast interval. In the dummy variable approach (Karafiath 1988) there is a dummy variable for each day of the event window giving rise to as many dummies as the number of days in the event window. These "coefficients may then be aggregated to provide the traditional cumulative prediction error (abnormal return) over a desired interval" (op. cit. p. 354). But the authors for some inexplicable reason and contrary to established practice add the abnormal return from different calendar years and thus different event window for the same firm in years 2011, 2014 and 2015 and report this as CAR (Table 4). This doesn't make sense. Further no significance test is done for CAR.

   Answer:

   Typically, a cumulative abnormal return (CAR) is necessary to accommodate a multiple-day event window. According to MacKinlay (1997), $\widehat{CAR_\iota}(\tau_1, \tau_2)$ is defined as the sample cumulative abnormal return (CAR) from τ_1 to τ_2 where $T_1 < \tau_1 \leq \tau_2 \leq T_2$. The CAR from τ_1 to τ_2 is the sum of the included abnormal returns,

   $\widehat{CAR_\iota}(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \widehat{AR_{\iota\tau}}$. Karafiath (1988) uses a dummy variable for each day of the event window as many dummies as the number of days in the event window. These "coefficients may then be aggregated to provide the traditional cumulative prediction error (abnormal return) over a desired interval".

   In this study, we use **short event window method and include only ONE day, the announcement day, in the event window**. Therefore, there is only one dummy variable for the event window. Thus, the AR of one event window in this study actually equals to the CAR of that window. We will also indicate this special case in the footnote of the table in the final version of our manuscript.

   On the bottom line of Table 4, we originally attempted to summarize the total abnormal return of the casinos during these three events, rather than reporting the classic CAR of one event window. In retrospect, we come to realize that we did not use the term of CAR rigorously by its standard meaning and might have caused misunderstanding. To be consistent with the classic literature, we will delete the bottom line of Table 4 in our final manuscript and change the format of Table 4. Please refer to Table 4 on Page 4 of this response letter for your reference.

2. Q:The authors address non-normality and heteroscedasticity of residuals by using bootstrapped standard errors. But it is not clear how other issues such as correlation between residuals and Rmt are addressed.

Answer:

We would like to address the Referee's concerns from two aspects.

First, our inferences will be robust even there exists autocorrelation in the residuals. 1) In short-window event methods, the test-statistic is not highly sensitive to the assumptions about the time-series dependence of abnormal returns (Khotari & Warner, 2006; Konchitchki & O'Leary, 2011). This is in contrast to long-window event methods that are sensitive to different returns-related assumptions. Accordingly, Konchitchki & O'Leary (2011) recommend that using the test-statistic that does not control for auto-correlation can be appropriate and straightforward in many settings of short-event tests. 2) Bootstrapping method adopted in this study also demonstrates remarkable robustness even in the presence of time-series dependence structures (Kramer, 2001; Hein & Westfall, 2004; Ferstl, Utz & Wimmer, 2012). We will further clarify this point in our final manuscript.

Second, "correlation between residuals and Rmt" points to the endogeneity of the market return variable, i.e., there are some unexplained factors which affect the stock return of a particular casino firm may also affect the market return. If that was the case, the estimated parameters will be biased/ inconsistent. However, since market return models are commonly used in literature, which suggests that the endogeneity of the market return variable is not a major concern.

3. Q: More seriously the authors have not controlled for event clustering which will lead to contemporaneous correlation and thus over rejection of null when it is in fact true (Kolari and Pynnonen Rev. Financ. Stud. 2010). In fact, Karafiath (op. cit.) proposes combining the dummy variable technique with Zellner's seemingly unrelated regressions (SUR) estimation procedure as a solution to the problem of event clustering.

Answer:

Traditionally, many event studies pools firms into groups to test the abnormal returns upon an event (MacKinlay (1997). The cross-sectional correlation may be a major concern in this type of event study. Indeed, Kolari and Pynnonen (2010) considers the cross-sectional correlation in event studies as follows:

"*In forthcoming theoretical derivations, we make the conventional assumption that asset returns* $r_{1t}, r_{2t}, \dots, r_{nt}$ *of* ***n firms*** *for calendar time period* t *are serially independently multivariate normally distributed random variables with constant mean and constant covariance matrix for all* t. ***We consider the problem induced by cross-correlation in the***

simple setting of testing for zero-mean abnormal with a t-ratio on a single common vent day."

Since we are most interested in the differentiated market responses made by the casino firms, rather than the average effect of abnormal return of the industry, we test the stock returns of the casinos on an individual basis, rather than pooling the casino firms. Specifically, we run the regression models one casino firm a time. Hence, there is no cross-sectional correlation in the residuals in our empirical models (Only autocorrelation may exist in the residuals. Furthermore, with bootstrapped standard errors, the inference will not be affected by potential existence of autocorrelation in the residuals). Results in Table 4 are generated by running separated regressions for individual casino firms. Admittedly, we should make this explanation clearly when reporting our results.

"Zellner(1962)'s Seemingly Unrelated Regressions (SUR) is useful in future study if we combine all the six firms together and wish to study CAR under a longer event window. Considering the aims of the present study, applying SUR method will not be helpful to answer our research questions.

4. Q: The authors have decided to restrict the event window to the actual event day (1 day). This relies heavily on the assumption of efficient markets. At the same time the market model they use (equation 4) has lagged market return which would suggest markets have memory and contradicts the assumption of efficient markets.

Answer:

The referee has brought up a very good question. One-day event window with a lagged term of market model seem to be confusing to some readers. We would like to clarify as follows and will strengthen the discussion in our final manuscript.

First, the short window test approach actually does not rely on the assumption of efficient market. The key to a powerful short window method depends on a precisely defined event date and the abnormal performance is concentrated in the event window (Khotari & Warner, 2006). Both conditions have been met in this study. The event dates are precisely defined and the event windows are clearly cut. Also, the concentration of the announcement effects in this study is well justified. 1) Hong Kong Stock market is among the most efficient financial markets in the world and has semi-strong efficiency. 2) There was a heated debating about the smoking bans in casinos in Macao, therefore, the potential impacts of smoking bans have been well analyzed and estimated. Upon the actual announcement, the financial market just acted to reflect the information without delays. Additionally, the short window method aims to capture ***the majority***

of the market reactions (Fama, 1991; Konchitchki & O'Leary, 2011), rather than ***all*** market reactions. We discussed on P14 of the discussion paper,

Second, we adopted the market model with a lagged term (Hartley, 2012), because we think this model reflects a unify of the debates and can better reflect the market situation in the real world. There has been a heated debating about the market efficiency and the irrationality of the market (Summers, 1986; Poterba & Summers,1988). On another hand, Khotari & Warner (2006) indicates that "with short-horizon methods the test statistic specification is not highly sensitive to the benchmark model of normal returns ..... This contrasts with long-horizon methods, where specification is quite sensitive to assumptions about the return generating process ".

To avoid readers' potential confusion, in our final manuscript we have decided to drop the lagged term of the market index and to adopt the single market index model. The results are reported in Table 4 below. As shown by sample results in Table 4b below, there is no significant differences in models with or without lagged term of the market index. (Table 4b will not be reported in our final manuscript.)

Table 4. The abnormal returns during Macao smoking ban events (OLS, single market index model)

Firms	AR (2011/02/15)	AR (2014/03/19)	AR (2015/01/29)
Galaxy	-0.0160***	-0.0305***	-0.0110***
	(0.0019)	(0.0007)	(0.0010)
SJM	-0.00584***	-0.001	0.0151***
	(0.0020)	(0.0008)	(0.0010)
Sands China	0.00467***	0.0054***	0.0007
	(0.0018)	(0.0007)	(0.0009)
Wynne Macao	0.0329***	0.0007	0.0031***
	(0.0017)	(0.0007)	(0.0011)
Melco Crown		-0.0037***	0.0092***
		(0.0012)	(0.0014)
MGM Macao		-0.0185***	-0.0023**
		(0.0009)	(0.0010)

Note:

1. Melco listed on Nasdaq and Nasdaq market index is applied accordingly.
2. The test period is from January 1st, 2010 to February 15th, 2011. Melco Crown Entertainment and MGM Macao went public later in 2011.
3. The test period for the first four casinos is from 2010.01.01~ 2014.03.20. The test period for Melco Crown Entertainment and MGM Macao is from 2012.01.01~ 2014.3.19.
4. The test period is from January 1st, 2012 to January 29th, 2015 for all six firms.
5. Bootstrapped (with repetition of 1000 times) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
6. Since we use One-day event window method in this study, there is only one dummy variable for one event window. The AR of one event window actually equals to the CAR of that window.
7. Bootstrapped (with repetition of 1000 times) standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
8. All results are based on estimation equation: $R_{i,t} = \alpha + \beta_1 R_{m,t} + \lambda_i D + \varepsilon_{i,t}$.

Table 4b. Abnormal Returns on the announcement of total smoking ban on 01-29-2015 (OLS regression)

	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
VARIABLES	PIPE_r	PIPE_r	SJMH_r	SJMH_r	SNDC_r	SNDC_r	WYNN_r	WYNN_r	MCHL_r	MCHL_r
HNGKNGI_r	1.239***	1.243***	0.910***	0.912***	1.166***	1.171***	0.908***	0.914***	0.902***	0.904***
	(0.0731)	(0.0730)	(0.0700)	(0.0727)	(0.0743)	(0.0730)	(0.0803)	(0.0835)	(0.0745)	(0.0730)
HNGKNGI_r1	0.193**		0.110		0.219***		0.271***		0.0701	
	(0.0852)		(0.0807)		(0.0745)		(0.0893)		(0.0793)	
d20150129	-0.0114***	-0.0110***	0.0148***	0.0151***	0.000242	0.000684	0.00253**	0.00307***	-0.00242**	-0.00228**
	(0.00101)	(0.00102)	(0.000968)	(0.000995)	(0.000963)	(0.000935)	(0.00109)	(0.00107)	(0.00110)	(0.00103)
Constant	0.00107	0.00114	-0.000288	-0.000244	0.000406	0.000495	-4.29e-05	6.72e-05	0.000646	0.000674
	(0.000751)	(0.000756)	(0.000637)	(0.000674)	(0.000693)	(0.000673)	(0.000811)	(0.000741)	(0.000701)	(0.000675)
Observations	803	803	803	803	803	803	803	803	803	803
R-squared	0.254	0.248	0.171	0.169	0.256	0.247	0.153	0.140	0.155	0.154

Standard errors in parentheses (bootstrapped 1000 times) *** p<0.01, ** p<0.05, * p<0.1

5. The explanatory regressions on abnormal returns (AR) in Table 6 are based on very small sample size (10/16) and their relevance may be limited.

Answer:

Admittedly, results in Table 6 are based on very small sample size. The research method of the present study is a two-step approach. Step one is to identify heterogeneous abnormal returns of different casino firms. Step two is to further investigate the reasons behind (the determinants on those heterogeneous abnormal returns). The observations have been unavoidably small in the empirical models in step two in this study due to limited number of casino firms. We have tried our best to mitigate the limitation by using the appropriate regression method mentioned on page 17 of the discussion paper.

Despite of the limitation of the small sample size of the ARs, the association relationship between ARs and the casino characteristics are still of meaningful policy implication for the smoking ban policy making in Macao.

Reference:

Corrado, C. J., & Truong, C. (2008). Conducting event studies with Asia-Pacific security market data. *Pacific-Basin Finance Journal*, *16*(5), 493-521.

Fama, E. F. (1991). Efficient capital markets: II. *The Journal of Finance*, *46*(5), 1575-1617.

Ferstl, R., Utz, S., & Wimmer, M. (2012). The effect of the Japan 2011 disaster on nuclear and alternative energy stocks worldwide: an event study.*BuR-Business Research*, *5*(1), 25-41.

Hartley, J. (2012). Health Care Reform and Health Care Stocks: Evidence from the A ffordable Care Act Supreme Court Ruling. *Becker Friedman Institute for Research in Economics Working Paper*, (2012-009).

Hein, S. E., & Westfall, P. (2004). Improving tests of abnormal returns by bootstrapping the multivariate regression model with event parameters. *Journal of Financial Econometrics*, *2*(3), 451-471.

Karafiath, I. (1988). Using dummy variables in the event methodology. *Financial Review*, *23*(3), 351-357.

Kolari, J. W., & Pynnönen, S. (2010). Event study testing with cross-sectional correlation of abnormal returns. *Review of Financial Studies*, *23*(11), 3996-4025.

Konchitchki, Y., & O'Leary, D. E. (2011). Event study methodologies in information systems research. *International Journal of Accounting Information Systems*, *12*(2), 99-115.

Kothari, S., & Warner, J. (2007). Econometrics of event studies. handbook of corporate finance: Empirical corporate finance. B. espen eckbo.

Kramer, L. A. (2000). Alternative methods for robust analysis in event study applications. *Available at SSRN 278109*.

MacKinlay, A. C. (1997). Event studies in economics and finance. Journal of Economic Literature, 35(1), 13-39.

Summers, L. H. (1986). Does the stock market rationally reflect fundamental values?. *The Journal of Finance*, *41*(3), 591-601.

Poterba, J. M., & Summers, L. H. (1988). Mean reversion in stock prices: Evidence and implications. *Journal of financial economics*, *22*(1), 27-59.

Zellner, Arnold (1962). "An efficient method of estimating seemingly unrelated regression equations and tests for aggregation bias". *Journal of the American Statistical Association* **57**: 348–368. doi:10.2307/2281644.