

**Comparing the Price of Sin: Abnormal Returns of Cross-Listed Casino Gaming Stocks
in the Hong Kong and US Markets**

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Comparing the Price of Sin: Abnormal Returns of Cross-Listed Casino Gaming Stocks in the Hong Kong and US Markets

Abstract

While a number of hospitality researchers have investigated hospitality stock returns, few examine the stock returns of casino gaming companies. In finance, these stocks are often termed as ‘sin’ stocks. The purpose of this study is to compare the stock returns of cross-listed casino gaming stocks in Hong Kong and New York stock exchanges. Four pairs of casino gaming stocks are currently cross-listed in both exchanges, allowing for comparison. The cross-listing sample consists of 3,138 firm-day observations from January 2009 to December 2013. Preliminary analyses, using time-series regression, show that the average daily returns and standard deviations of casino gaming stocks are much higher than market indices in both jurisdictions. Most importantly, casino gaming stocks listed in Hong Kong exchange have a significantly higher abnormal return than their cross-listed counterparts in the US. The reason may be due to cultural issues. These findings will have meaningful implications to investors of casino gaming companies.

Keywords

Sin Stocks; Casino Gaming; Hong Kong; USA

Comparing the Price of Sin: Abnormal Returns of Cross-Listed Casino Gaming Stocks in the Hong Kong and US Markets

A number of hospitality researchers have investigated hospitality stock prices and returns (e.g., Chen et al., 2007; Chen, 2012; Singal, 2012). Chen et al. (2007), for example, examined hospitality stocks prices and their fundamental values in Taiwan. They found that hospitality stock prices, although fluctuate from time to time, will always return to their fundamental values based on earning per share and dividend per share. Chen (2007a) examined the relationship between Taiwanese government’s monetary policies and the country’s hotel stock returns. Their results showed that Taiwanese hotel stocks returns fluctuate with different monetary conditions. Lee and Jang (2012) investigated the link between the stock returns of

hospitality companies and their real estate property values. In general, Chen (2007b) found that Chinese hotel stock returns are more sensitive to macro-variables. Despite these studies, few hospitality researchers examine issues relating to casino gaming stocks. In the past years, casino gaming stocks have received wide coverage by equity analysts (i.e., in Wall Street and Hong Kong), in part, because of the successes of Macau, the only city in China with legalized casino gambling (Kudla, 2013). Among all, international casino operators with a major presence in Macau include Las Vegas Sands, Wynn Resorts, and MGM Resorts International. In finance, casino gaming stocks are commonly defined as one type of ‘sin’ stocks.

The unique characteristics of ‘sin’ stocks were previously investigated by a number of researchers, mostly in the field of finance (see Fabozzi et al., 2008). Generally, sin stocks are publicly traded stocks of companies that are involved in the production of alcohol, tobacco, and gaming services (Schueth, 2003; Hong and Kacperczyk, 2009). According to Schueth (2003), there is a pervasive neglect of sin stocks among investors often because of religious reasons. Socially responsible investors tend to avoid sin stocks (Statman and Glushkov, 2009). In fact, many public stakeholders generally have a negative view of sin stocks (Morsing and Schultz, 2006) and some institutions set up ‘sin’ screen as part of their socially responsible investing (SRI) philosophy (Entine, 2003).

Stock prices, including prices of hospitality and gaming firms, should reflect all information available in an efficient market (Chen, 2012). According to Kim and Venkatachalam (2011), sin stocks are avoided because of social norms, scrutiny by regulatory authorities, and litigation risk; hence, resulting in lower institutional ownership and higher excess returns compared to other stocks. However, ‘sin’ companies have better financial reporting quality and this could have attributed to their superior stock performances (Kim and Venkatachalam, 2011). Hong and Kacperczyk (2009) examined in details the effect of social norms on sin stocks. The researchers found sin stocks that are listed in the US, Canada, and Europe are less held by institution investors because of social norms (i.e., deliberate avoidance because it is ‘sinful’ to do so). As such, these stocks have higher risk premium, which results in higher abnormal returns than comparable stocks in the markets. Galema et al. (2008) also found that sin stocks have higher returns than other stocks and less likely to be held by pension funds. Based on data for 18 European countries from 1975 to 2006, Salaber (2007) found that sin

stocks outperform their comparable stocks when litigation risk is higher and when there is higher excise tax. Moreover, Protestants are found to be more 'sin averse' than Catholics. This suggests that culture may play an influencing role in the performance of sin stock.

Perhaps among the first to examine sin stocks in Asia is a relatively recent research Visaltanachoti et al. (2011). Like previous researchers, Visaltanachoti et al. (2011) found that sin stocks listed in Hong Kong, Shanghai and Shenzhen generally outperform their market indices (by 5.94% in Mainland China and 29.11% in Hong Kong). A more recent study by Durand et al. (2013) further investigated sin stocks across Australia, India, Japan, South Korea, Malaysia, New Zealand and Singapore. Like others, the researchers found that sin stocks in these countries also have considerable higher returns than their comparables. In addition, there are indeed considerable differences with the returns of sin stocks among these countries, which the researchers suggest is due to cultural differences.

So far, few studies compare cross-listed (i.e., the same 'sin' company that listed in two different stock exchanges) sin stocks. Even fewer examine the effect of 'sin' on the stocks of casino gaming companies in Asia. Given the explosion of casino gaming entertainment in Asia, particularly in Macau and Singapore, we believe it is worthwhile to conduct a comparison between cross-listed casino gaming stocks in Asia and US. Earlier studies point to the role of culture in affecting the value of returns in sin stocks. In particular, recent research by Durand et al. (2013) suggests that the cultural dimension of individualism and collectivism may play an important role in sin stock returns. In Asia (e.g., Hong Kong), individuals tend to score higher in collectivistic values versus individuals in the US (Hofstede, 1991). The importance of groups and society over individuals would compel institutions to conform to societal values. Therefore the Hong and Kacperczyk (2009)'s effect of social norms on institutional investment in sin stock may be higher in Asia than in the US. Following this line of thoughts, we hypothesized in this exploratory study that casino gaming stocks listed in Hong Kong will have higher abnormal returns than comparable casino gaming stocks (i.e., stocks of the same company) listed in the US.

Research Method and Results

To test our hypothesis, we compare gaming stocks that are cross-listed in two major global exchanges: Hong Kong (Hong Kong Stock Exchange) and US (New York Stock Exchange and NASDAQ Stock Market). We found only four casino gaming companies that are cross-listed in these two exchanges. The four US casino gaming stocks are (1) Las Vegas Sands (NYSE:LVS), (2) MGM Resorts International (NYSE:MGM), (3) Wynn Resorts, Limited (NASDAQ:WYNN), and Melco Crown Entertainment Ltd (NASDAQ:MPEL). Their corresponding stocks in Hong Kong are (1) Sands China Ltd (HKG: HK:1928), (2) MGM China Holdings Ltd (HKG: HK:2282), (3) Wynn Macau Ltd (HKG: HK:1128), and (4) Melco Crown Entertainment Ltd (HKG: HK:6883). Our cross-listing sample consists of 3,138 firm-day observations from January 2009 to December 2013, all trading days included. Our daily stock returns are from Bloomberg. We cross check the validity of our data using Center for Research in Security Prices (CRSP) for US-listed stocks and Datastream for Hong Kong-listed stocks. We are aware of the specific data structure of long time-series and small cross-sections of our sample. The inclusion of only gaming stocks cross-listed in HK and US is highly restrictive. The advantage of this sample is that we control, arguably, all firm level differences between the HK-listed stock and their US-listed stock (counterpart). As such, any difference in the return characteristics (between HK and US) would not be related to firm fundamentals but only to country characteristics such as culture. Table 1 reports the summary statistics of our return variables. Average daily return is 0.002 for our cross-listed casino gaming stocks, in both US and Hong Kong, which is much higher than 0.001 for S&P 500 (US) and 0.000 for Hang Seng Index (HK). The standard deviations of our casino gaming stocks are also higher than that of market indexes, suggesting higher risks associated with casino gaming stocks relative to the market.

[Insert Table 1 here]

Next, we conducted a number of time-series regressions following Hong and Kacperczyk (2009). Table 2 reports the average coefficients obtained from the time-series regressions of a portfolio that is long gaming stocks on a four-factor model of stock returns including Fama-French three factors of stock returns (Fama and French, 1992, 1993) and Carhart (1997) momentum factor, for firm i in market j on day t :

$$ret_{i,j,t} = \alpha_{i,j} + \beta_{MKT,i,j}MKT_{i,j,t} + \beta_{SMB,i,j}SMB_{i,j,t} + \beta_{HML,i,j}HML_{i,j,t} + \beta_{MOM,i,j}MOM_{i,j,t} + \epsilon_{i,j,t}$$

where $i = LVS, MGM, MPEL, WYNN$, $j=HK, US$, and day t is from the 1st trading day of 2009 to the last trading day of 2013.

[Insert Table 2 here]

Each regression is estimated using daily data in a five-year period from 2009 to 2013. The Fama-French three-factor model is a standard model in asset pricing which uses the returns of the market portfolio, firm size and growth to describe individual stock returns (Fama and French, 1992, 1993). In our regressions, MKT is the excess monthly return of the value-weighted Center for Research in Security Prices (CRSP) index. SMB is the return of a portfolio long small stocks and short large stocks. HML is the return of a portfolio long high book-to-market stocks and short low book-to-market stocks. Carhart (1997) momentum factor captures the Jegadeesh and Titman (1993) momentum anomaly. MOM is the return of a portfolio long past 12-month return winners and short past 12-month return losers. Standard errors are adjusted for serial correlation using the Newey-West (1983) correction. Our variable of interest is the ‘Alpha’, $\widehat{\alpha}_{i,j}$, which is equal to the estimated abnormal returns of a firm in our sample period after controlling for the Fama-French 3-factors and the Carhart momentum. A significant positive ‘Alpha’ suggests excess returns of our cross-listed casino gaming stocks relative to their corresponding market indexes after adjusting for the Fama-French and Carhart factors.

Table 2 reports the time-series regression results. We find that in the US, Alpha, which measures the excess monthly return relative to the CRSP index, is 0.184% (p-value < 0.05) for US casino gaming stocks and 2.57% (p-value < 0.05) for those listed in Hong Kong exchange. This shows that casino gaming stocks have a significantly higher return over the benchmark index for the period (2009 to 2013) under investigation. Moreover, casino gaming stocks listed in Hong Kong exchange outperform the HK market index more than their US-listed counterparts outperform the US market index.

Discussion and Implications

This exploratory study compares the returns of casino gaming stocks that are cross-listed in stock exchanges in Hong Kong and US. The results show that casino gaming stocks that are cross-listed in both countries have higher abnormal returns than their respective benchmark market returns. Previous studies found higher abnormal returns among sin stocks compared to their comparables (e.g. Hong and Kacperczyk, 2009; Visaltanachoti et al., 2011). This is observed in current study.

Most importantly, current study found that casino gaming stocks in Hong Kong have significantly higher abnormal returns than their comparable casino gaming stocks listed in the US. So far, no researcher has examined cross-listed sin stocks and their associated risk premium and returns. We believe this finding may be due, in part, to cultural reason. Past research found that the effects of social norms on sin stocks could lead to greater higher abnormal returns (Hong and Kacperczyk, 2009). We argue that, in a collectivistic Asia, this effect may be stronger given the manifestation of groupthink. This stream of thoughts is echoed recently by Durand et al. (2013), who found significant differences in sin stocks returns even among countries within Asia-Pacific. Consumer sentiment is related to the stocks prices of hospitality firms (Singal, 2012). Similarly, stock prices of hospitality firms (casino gaming stocks in this case) may reflect the sentiment and culture of their customers.

These results are particularly relevant to the hospitality industry and to equity investors in general. Hong and Kacperczyk (2009) established the result that sin stocks receive less attention from institutions and equity analysts because of social norms. In this study, we go one step further and found that the effect of social norms on cross-listed gaming stocks may possibly be larger in HK than in the U.S. As such, our results suggest that investors, who invest in emerging markets like HK, should pay closer attention to gaming firms and their stocks. Moreover, casino gaming firms may need to further examine how to attract the unexplored clientele of socially responsible investors, who are more likely to avoid sin stocks in certain Asian markets like HK compared to the US.

In any case, readers should be cautious when making any further generalizations beyond what is covered in this study. Note that each Alpha is measured against its own market benchmark performance and the comparison between two Alpha values from two different jurisdictions may not be intuitive. The objective of current exploratory study is merely to offer an insight into the economic magnitude of each Alpha relative to its own market.

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Table 1: Summary Statistics

Panel A: Summary Statistics of US and HK Stock Markets								
Variable	Min	25%	Median	Mean	75%	Max	SD	N
Ret_HK	-0.065	-0.013	0.000	0.002	0.017	0.070	0.027	3138
Ret_HSI	-0.032	-0.006	0.000	0.000	0.007	0.031	0.012	3138
Ret_US	-0.064	-0.011	0.001	0.002	0.016	0.072	0.025	3138
Ret_SP	-0.029	-0.004	0.001	0.001	0.006	0.030	0.010	3138

Panel B: Cross-listed Stock Pairs Summary Statistics								
Company	Hong Kong listings				US listings			
	N	Median	Mean	SD	Median	Mean	SD	
LVS	991	0.000	0.002	0.002	0.001	0.029	0.026	
MGM	631	0.000	0.001	0.001	0.002	0.029	0.027	
MPEL	502	0.002	0.003	0.003	0.004	0.022	0.024	
WYNN	1014	0.000	0.002	0.002	0.001	0.028	0.024	

Note: This table reports summary statistics of return variables of our cross-listing sample. Panel A reports return distributions of our sampling firms and market indexes. Ret_HK is the return of stock listed in Hong Kong. Ret_US is the return of stock listed in US. Ret_HSI is the return of Hang Seng Index. Ret_SP is the return of S&P500. Panel B reports return distributions of each individual company in ticker symbol.

Table 2: Return Performance of Gaming Stocks Cross-Listed in Hong Kong and US Stock Exchanges

Exchange	Alpha	mkt_rf	smb	hml	mom
US	0.00184*	0.0185***	0.0001	-0.0073	-0.0052
	(1.65)	(6.23)	(0.01)	(1.21)	(1.28)
	0.0013**	1.6461***			
	(2.48)	(34.09)			
HK	0.0257*	0.0086***	0.0024	0.0065	-0.0034
	(1.68)	(2.85)	(0.60)	(1.02)	(0.92)
	0.0019***	1.2556***			
	(3.14)	(24.19)			

Exchange		
US		
ALPHA	0.0013**	0.00184*
	(2.48)	(1.65)
MKT_RF	1.6461***	0.0185***
	(34.09)	(6.23)
SMB		0.0001
		(0.01)
HML		-0.0073
		(1.21)
MOM		-0.0052
		(1.28)
HK		
ALPHA	0.0019***	0.0257*
	(3.14)	(1.68)
MKT_RF	1.2556***	0.0086***
	(24.19)	(2.85)
SMB		0.0024
		(0.6)
HML		0.0065
		(1.02)
MOM		-0.0034
		(0.92)

Note: This table reports the average coefficients obtained from the time-series regressions of a portfolio that is long gaming stocks on Fama-French 3 factors. Each regression is estimated using monthly data in a period of 2009 – 2013. MKT is the excess monthly return of the value-weighted CRSP index. SMB is the return of a portfolio long small stocks and short large stocks. HML is the return of a portfolio long high book-to-market stocks and short low

book-to-market stocks. MOM is the return of a portfolio long past12-month return winners and short past12-month return losers. Standard errors are adjusted for serial correlation using the Newey-West (1987) correction. *** 1%; ** 5%; and * 10% significance.