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The Impact of the Global Financial Crisis on the Entertainment Tourism Industry: A Financial Engineering Case Study of Macao from 2007 to 2010

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Abstract

Macao has long been a typical entertainment (especially, gaming) tourism city in the Asia-Pacific region. Sparked by the collapse of United States' subprime mortgage securities in 2007, a global financial crisis swept through the global financial markets and economy in the several subsequent years. Macao's entertainment tourism industry was not spared. This paper attempts to construct a financial engineering model to link Macao's gross entertainment revenue with the key performance indicators of the global financial markets over these years. Results reveal that Macao's entertainment tourism industry closely correlated with the performance of the global financial markets, with the former lagging behind by two months in a specific manner. This model may provide Macao and other entertainment tourism cities with forecasts for strategic planning.

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Keywords: entertainment tourism; gaming tourism; global financial crisis; service and financial engineering; statistics; Macao

1. Introduction to Entertainment Tourism in Macao

Macao, neighboring and similar in status to Hong Kong, is a special administrative region of China. Since the liberalization (de-monopolization) of her entertainment (gaming) industry in 2002 and the implementation of mainland China's "Individual Visit Scheme"[2] in 2003, Macao's economy grew dramatically, and its entertainment tourism industry, overwhelmingly supported by mainland Chinese, particularly flourished [1],[2]. The entertainment tourism industry has since then been further established as the pillar industry of Macao's economy [1],[2], making Macao a typical entertainment tourism city in the Asia-Pacific region and even the world. Indeed, as early as 2006, with the thriving entertainment tourism industry, Macao's gross domestic product (GDP) per capita surpassed that of Hong Kong for the first time ever [3], and Macao's entertainment industry emerged as the world's largest in 2006

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[2] From 28 July 2003 onwards, the Individual Visit Scheme (or simply, IVS) enables residents of designated regions of mainland China to visit Macao by applying to local Public Security Bureaux for relevant permits. These permits are limited to visits to either Hong Kong or Macao.

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[4], further demonstrating the contribution of the entertainment tourism industry to Macao. By 2010, Macao's entertainment tourism industry accounted for at least 87.24% of her GDP, 19.9% of her total employment, and 86.36% of her government revenue [5].

2. The Study

Entertainment tourism or the tourism industry at large is generally conceived of as a luxury product industry and thus believed to be vulnerable to economic recession. Leiper and Hing [6] contains a qualitative event log highlighting the cessation of a long tourism growth period in the Asia-Pacific region in the wake of financial/economic/political crises towards the end of the last century. Notwithstanding the focus of Prideaux et al [7] on forecasting methods, it also qualitatively mentions the negative effects of financial/economic/political/cultural crises on tourism. Both Song and Lin [8] and Song et al [9] empirically prove and predict the negative impact of a financial/economic crisis on tourism in Asia using autoregressive distributed lag models (ADLM) with factors generally perceived to bear on tourists' consumer behavior, for example, tourists' income levels and prices for tourists (e.g., hotel prices). Furthermore, Papatheodorou et al [10] provides a summary of perspectives on the negative consequences of the global economic crisis with respect to tourism. Whilst all such earlier literature no doubt have already offered considerable contributions to modeling the impact of global financial crises on the tourism industry, this study attempts to additionally introduce financial engineering perspectives, in particular, global financial market performance as an indicator of global financial crises for modeling such an impact on the entertainment tourism industry. In fact, global financial market performance is considered by the financial engineering community as the best indicator of the global financial condition and thus global financial crises. Specifically, the said modeling in this study is based on the recent global financial crisis and the entertainment tourism industry in Macao.

Presumably caused by United States' subprime mortgage problems in 2007, a global financial crisis swept through the global financial markets and economy in the several subsequent years. In particular, the crisis was marked by a drastic downturn in the American and European real estate market, a global liquidity shortfall, financial difficulties and government's takeover of mortgage industry giants Freddie Mac and Fannie Mae, the investment bank Lehman Brothers' filing for bankruptcy protection, the investment bank Merrill Lynch's acquisition by the Bank of America, American International Group's almost total acquisition by the United States government, Chrysler's, General Motors', CIT Group's, and Japan Airlines' filing for bankruptcy protection, the debt crisis of State-owned Dubai World, the downgrading of the Greek sovereign debt rating and similar European debt ratings, the panic selling of the euro and thus the European sovereign debt crisis. [11],[12]

In the face of such a global financial crisis spanning a number of years, Macao's entertainment tourism industry was not spared. With the decline of the number of inbound tourists and moratoria on tourism-related projects, Macao's GDP contracted for three successive quarters from the fourth quarter of 2008. However, inbound visitor figures and the GDP significantly rebounded starting from the third quarter of 2009. To some extent, this coincides with the up-and-down cycles of the global financial crisis over those years. [13]

This paper attempts to construct a financial engineering model to link Macao's gross entertainment revenue with the key performance indicators of the global financial markets over these few years of turmoil. It is hoped that such a model can provide Macao and other entertainment tourism cities with forecast data for the strategic planning of entertainment tourism industry development even though the model by no means aims to expound on the causality in respect of entertainment revenues and global financial market performance in general.

3. How to Measure the Global Financial Crisis

In the course of the interwoven events mentioned in Section 2 above, the global financial markets as efficient markets under the efficient market hypothesis of financial theory [14] should reflect in a timely manner the positive and/or negative impacts of all such events [14] through the markets' fluctuations. Therefore, this study adopts global financial markets' performances as an indicator of the global financial condition (and thus the global financial crisis). In order to gauge the performance of individual financial markets globally, this study resorts to the market portfolio concept of financial theory, that is to say, the use of the market portfolio performances of individual financial markets to measure the corresponding financial markets' performance. The market portfolio of a financial market is