

Influence of Asian Equity Markets on Major European Stock Exchanges

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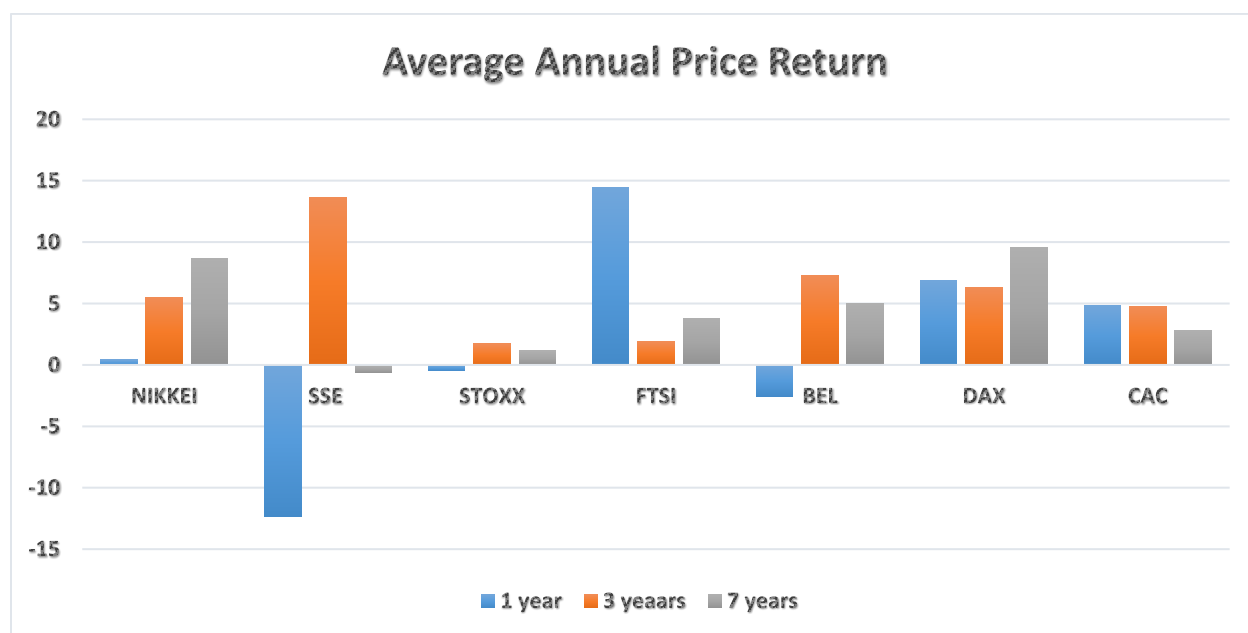
DETAILED ABSTRACT

Many studies have delved into the identification of global equity market relationships and have computed stock price correlations among various stock indexes around the world. However, there are few studies which clearly demonstrate the potential gains from employing a worldwide strategy which takes advantage of stock price correlations and time zone differences. Moreover, there are few studies which provide specific, actionable information about these relationships that may inform or guide investors in their efforts to increase investment returns. To fill this void in the literature, the current study estimates the daily price correlations between seven major world equity markets (i.e., two in the Asia and five in Europe) for the most recent seven-year period and, subsequently, measures the potential gains from employing various investment strategies specifically designed to take advantage of these price correlations and time zone differences.

Specifically, this study employs stock price data for the Chinese SSE composite and Japanese Nikkei 225 together representing Asian markets indexes along with the European stock market indexes STOXX 50, FTSE 100, BEL 20, DAX, and CAC 40 for the period January 1, 2010 through December 31, 2016. Various statistical analyses between the daily price indexes are conducted to determine which exchanges influence the other(s), with the ultimate goal of achieving improved investment returns by taking advantage of intertemporal correlations. The daily values for these global equity market indexes were obtained from the Yahoo Finance website. This total period covers 7 years or 2,546 days. For the individual indexes, it includes 1702 days of reported values for the SSE; 1732 days of reported values for the Nikkei 225; 1742 days of reported values for STOXX; 1768 days of reported values for the FTSE 100; 1796 days of reported values for the BEL; 1788 reported values of DAX; and 1795 days of reported values for the CAC. Overall, it includes 1528 days during which all the indexes reported values.

The 1-year, 3-year, and 7-year average annual returns (i.e., capital gains yields) to each of these indexes are shown in Figure 1, below. As can be seen, these average annual returns displayed significant variability over the various time periods, to say the least.

Figure 1 (January 2010-December 2016)
Selected Asian and European Equity Market Indexes Annual Price Returns



In addition, this study computed and evaluated the intertemporal correlation coefficients between the daily returns on these stock market indexes for the same day, the “next day” and the “previous day.” To illustrate the nature of the analysis, the data (see Table 1, below) reveal that changes in the value of the SSE and Nikkei indexes had the most significant influence on the performance of the daily same day returns on FTSE 100 index (with $r = 0.194$ and $r=0.276$ respectively). By contrast, changes in the value of SSE and Nikkei had the least significant influence on the performance of the same day DAX (with $r = .153$ and $r=0.250$ respectively). The daily correlation coefficients between the SSE and Nikkei along with the five European equity market indexes, for the “same day”, the “next day” and the “previous day,” are shown in Table 1, Table 2, and Table 3 below (respectively).

Table 1 (2010-2016)
Daily Correlation Coefficients between the SSE and Nikkei Indexes versus the Same Day Values of the European Equity Market Indexes

	Nikkei	SSE	STOXX	FTSI	BEL	DAX	CAC
Nikkei	1						

SSE	0.267868	1					
STOXX	0.26209	0.15755	1				
FTSI	0.27666	0.194772	0.845186	1			
BEL	0.271517	0.165617	0.917255	0.845269	1		
DAX	0.250832	0.153385	0.94016	0.837542	0.890702	1	
CAC	0.264108	0.169223	0.969774	0.867303	0.925659	0.933533	1

Table 2 shows how Asian equity markets influence the performance of the “Next Day” European stock market indexes. The correlation coefficient values reveal that such association is very insignificant. Additionally, Table 3 reveals that the strongest influence between an Asian and European stock index relates to Nikkei and “Previous Day” CAC ($r=.345$).

Table 2 (2010-2016)

Daily Correlation Coefficients between the SSE and Nikkei Indexes versus the Next Day Values of the European Equity Market Indexes

	Nikkei	SSE	STOXX +1	FTSI +1	BEL +1	DAX +1	CAC +1
Nikkei	1						
SSE	0.267865	1					
STOXX +1	-0.02345	-0.04407	1				
FTSI +1	-0.02695	-0.03068	0.845268	1			
BEL +1	-0.02278	-0.0305	0.917517	0.845282	1		
DAX +1	0.006102	-0.02749	0.940162	0.837662	0.891025	1	
CAC +1	-0.02821	-0.03264	0.969777	0.867354	0.925862	0.933546	1

Table 3 (2010-2016)

Daily Correlation Coefficients between the SSE and Nikkei Indexes versus the Previous Day Values of the European Equity Market Indexes

	Nikkei	SSE	STOXX -1	FTSI -1	BEL -1	DAX -1	CAC -1
Nikkei	1						
SSE	0.267851	1					
STOXX -1	0.338705	0.130376	1				
FTSI -1	0.319033	0.141683	0.845222	1			
BEL -1	0.308889	0.14347	0.917254	0.845316	1		
DAX -1	0.336864	0.15014	0.940159	0.837586	0.890699	1	
CAC -1	0.344551	0.138872	0.969773	0.867339	0.925658	0.933532	1

Figures 2 and 3, below, show exactly how the Asian equity market (as represented by the SSE and Nikkei 225) influences, and is influenced by, the five selected European equity markets. More specifically, Figure 2 shows the correlation coefficients between the closing prices for the SSE and Nikkei 225 and the “same day” and “Previous Day” closing prices of the selected European equity market indexes. . The data suggest that the closing prices of the Asian equity markets have relatively little impact on the (same day) performance of European. equity market. By contrast, the closing prices for the SSE and Nikkei have a moderate relationship with the “Previous Day” European stock prices.

Figure 2 (2010-2016)
Daily Correlation Coefficients between SSE and Nikkei vs Previous Day Values of Asian Equity Markets Indexes

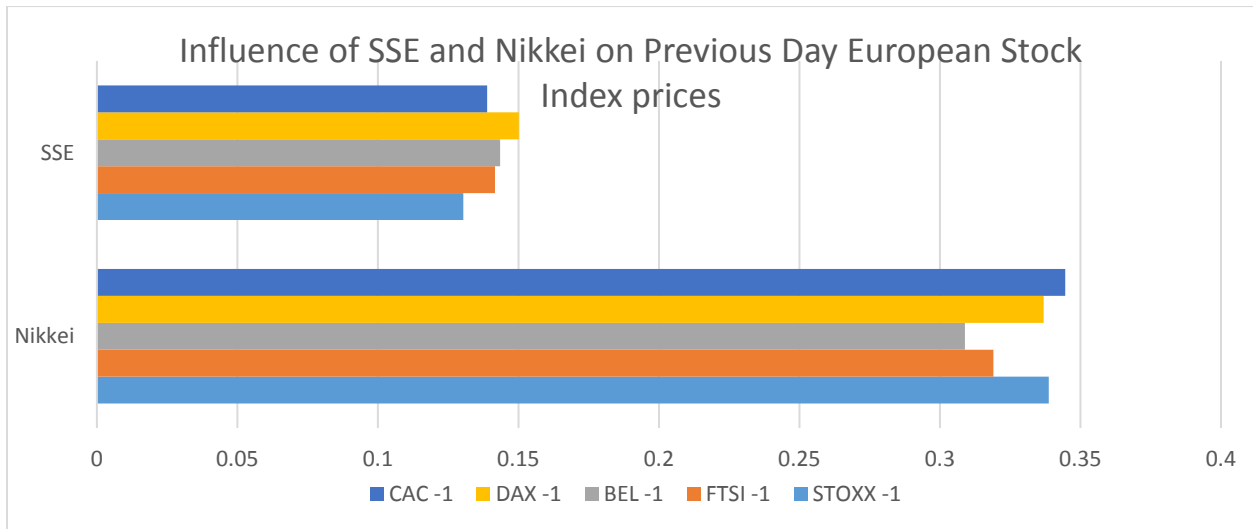
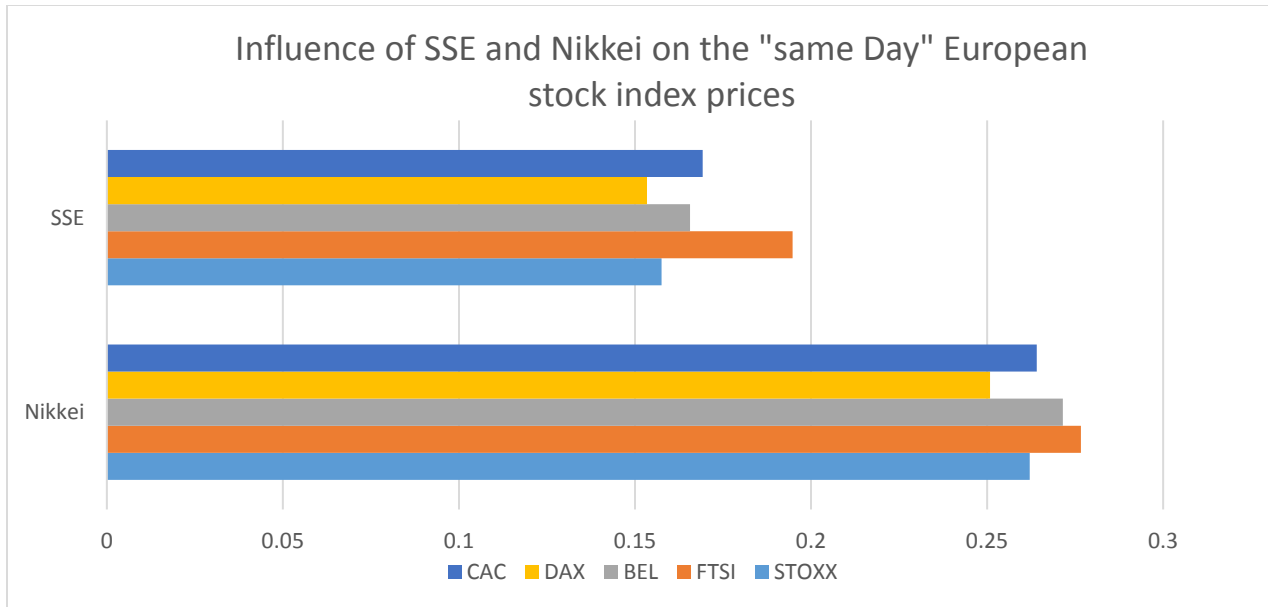


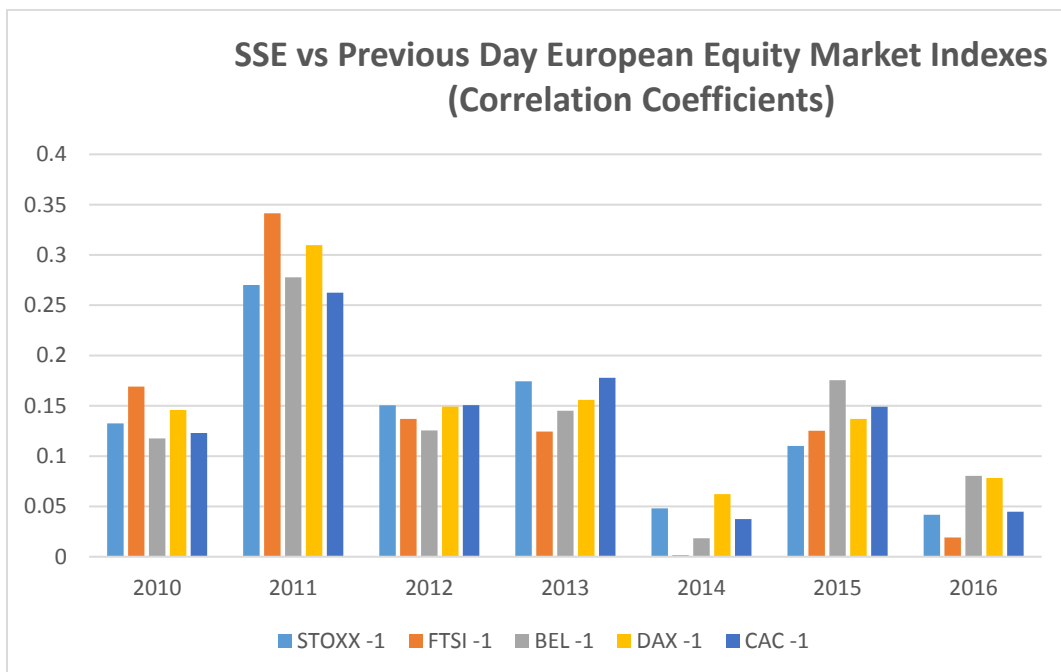
Figure 3 (below) shows the correlation coefficients between the NDX 100 closing prices and the “next day” closing prices of the Nikkei, STI, HSI, SSE, KR11, and TWII indexes. The data reveal that the closing prices of the NDX 100 index have a moderate influence on the performance of Nikkei 225 and HIS indexes. By contrast, the closing prices of the NDX 100 have a weak, but positive, influence on the next day Shanghai equity market.

Figure 3 (2010-2015)
Daily Correlation Coefficients between the NDX 100 and the Next Day Values of the Asian Equity Markets Indexes



Lastly, Figure 4 (below) indicates the correlation coefficients between the SSE closing prices with the “previous day” closing prices of the Selected European stock market indexes. In this case, the correlation values reveal that the closing prices of the SSE are most influenced by the European Equity markets’ previous day closing prices during 2011 and least influenced during 2015.

Figure 4 (2010-2016)
Daily Correlation Coefficients between SSE and the Previous Day Values of the European Equity Markets Indexes



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