1159-60-8 **Md Al Masum Bhuiyan*** (bhuiyanm@apsu.edu), 103 King Cole Dr., Clarksville, TN 37042, **Maria C. Mariani**, 500 W University Ave., El Paso, TX 79968, **Maria P. Beccar Varela**, 500 W University Ave, El Paso, TX 79968, and **Ionut Florescu**. *ANALYSIS OF HIGH FREQUENCY FINANCIAL DATA USING DYNAMIC FOURIER MODELS.*

This work deals with the modeling of high frequency financial stock market data. A sequence of return values of stock market in each minute and on each day is studied in this work. It has been observed that there is a correlation among the numbers of data points at successive time intervals. The mean-reverting behavior, stationary behavior, and long memory behavior of financial data are analyzed. These behaviors help to characterize the autocorrelation of data at different levels. We study a Discrete Fourier Transform (DFT) to determine the power spectrum of returns in a stationary condition. A tapering process with DFT technique has been used to avoid the spectral leakage or discontinuity in the sequence of financial data. To estimate the power spectrum, the smoothed periodograms of data are computed by using the Daniell kernel window. Our results suggest that the power spectrums are effective in making difference between the minute-based data and the day-based data corresponding to their frequencies. The frequency-based power spectrum is important as well in detecting the financial crash of stock market, which facilitates prediction. (Received May 09, 2020)