

Co-movement and Causality between Assets Market (Housing and Financial Assets): In the Iranian Economy: Wavelet Analysis

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Abstract

Using the method of continuous wavelet, this article examines the contagion between the asset markets including housing, stock, currency, gold, and the banking sector in Iran's economy based on the return on assets in the form of co-movement or correlation and causality. For this purpose, annual return data of the mentioned assets and bank deposit interest rates have been used between 1991 and 2016. The results of the co-movement and the wavelet phase difference also indicate that in the short run, the causal direction is from the exchange rate toward the housing market and from the housing market to the stock market. Also, based on the results, an increase in the exchange rate and a decrease in the bank's interest rate in the short run cause an increase in the stock market return and an increase in the exchange rate would increase the stock return rate in the long run. The results also indicate that on the basis of co-movement in the short run, the increase in the bank interest rate is the cause of reduced exchange rate. The results from this study and the obtained relations can be used in policy-making in the housing sector, especially in the field of prices, as well as the foreign exchange market for the correction and control of the exchange rate and the prosperity of the capital market.

Keywords: Financial assets return, Housing return, Continuous Wavelet, Co-movement, Causality

JEL Classification: C49, E44, G11.

1. Introduction

Increment in convergence and interactions between financial markets in recent decades has intensified the transfer of information between them as any change in any market could cause a change in other markets. This topic has focused the attention of researchers on how market volatility is transferred between markets and the effect of one on the other. The fluctuations in returns flow are transferred between financial and commodity markets or overflow, in a way that any change in a one market can make other markets subject to change. In the financial literature, the overflow and the relationship between markets are referred to by such words as co-movement or joint movements and causality. In Iran, financial

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markets are one of the most important markets and has been always focused on in economics, government and policy makers. The connection between these markets is one of the most interesting subjects in the financial literature.

The existing literature has recognized at least three possible theories of contagion, i.e., through financial linkages, trade links, and herding behavior. The financial linkages theory stipulates that contagion might occur through three mechanisms: Information correlation, liquidity correlation, and portfolio rebalancing.

2. Background

Information channel states that contagion can arise due to social learning when investors base their behavior on noisy observations of the others' actions in foreign markets. In this case, investors act according to their beliefs about the apparent similarity between these two markets and these beliefs become self-fulfilling when the crisis (that could have been avoided) is spread to the second market. In both of these cases, speculation is exacerbated by incomplete and asymmetric information among investors and between investors and governments. Liquidity correlation points to the fact that when markets are illiquid, market liquidity is highly sensitive to further changes in funding conditions. This is due to two liquidity spirals: first, a "margin spiral" emerges if margins are increasing in market illiquidity because a reduction in speculator wealth lowers market liquidity, leading to higher margins, and tightening speculators' funding constraint further. Second, a "loss spiral" arises if speculators hold a large initial position that is negatively correlated with customers' demand shock. In this case, a funding shock increases market illiquidity leading to speculator losses on their initial position, forcing speculators to sell more, which causes a further price drop. Portfolio rebalancing is based on the idea that contagion emerges when agents readjust their portfolio in response to large losses in one market. Indeed, investors have an incentive to liquidate their positions in different markets in times of crisis since they have lower wealth, which pushes the prices downward. Eventually, this creates a certain co-movement in the returns of assets going beyond economic fundamentals. This contagion channel relies on the analysis of the trading activity dynamics. Indeed, trading activity increases in one market subsequent to extreme negative returns (i.e., equivalent to a crisis period) in another market if there were contagion. Trade links focus on cross-country links. For example, financial problems and illiquidity in one market may force financial intermediaries to liquidate assets in other markets. The imitative, herd-like behavior of market participants is often linked to another widely recognized feature of financial markets, i.e., the strong co-movements among seemingly unrelated financial assets. During 1997, for instance, financial asset prices plunged in most emerging markets, following the financial crisis that hit some Asian economies. This high

degree of co-movement across markets that are very different in size and structure and are located in different regions of the world is not a peculiarity of the Asian crisis. When decisions are sequential, the earliest actions may have a disproportionate effect on the choices of the following agents and herd behavior may arise.

3. Methodology

Many studies in Iran and abroad have tried to investigate these connections and most of these studies focus on econometric methods. The studies in Iran have mainly focused on the relationship between gold, exchange and stock markets. While studies outside of Iran have generally focused on the relationship between the housing market and the stock market, because these two markets form a large portion of portfolios. In most of the studies, the results of the estimation indicate that there is a significant relationship between markets.

4. Model estimation results

These methods use a series of assumptions, including variables stability in the modeling process, but the multi-dimensional nature of the data points to the need for a methodological review and development of new techniques. One of these methods is wavelet analysis, which can decompose time series at different time scales. Using time-frequency analysis, this method has many applications in economic and financial time series modelling and is used broadly in non-station time series.

This study to investigate the linkage between financial markets (gold, exchange, stock and banking system) and housing market in Iran using Wavelet analysis tries. For this purpose, annual data related to market returns for the period of 1991-2016 was used. The results of estimation show that as Wavelet analysis provides appropriate results upon co-movement and causality, it can show the linkage between markets in details and decompose series into time and frequency.

5. Conclusion

The results of this study are as follows: The co-movement between the housing and stock market in Iran is negligible and there is no regular causality between the two markets; the co-movement between the housing market and the exchange rate has been increasing over the short term and the exchange rate led to the housing market; the short-term co-movement between the housing market and the gold market is more intense than the long-term co-movement, and the direction of causality varies in different periods. The co-movement between housing and banking sector has happened on a smaller scale and the causality is from the housing market to the banking sector. The co-movement between stock market and exchange rate has taken place over the short term and the exchange rate has been the driving force of the stock market. The co-movement between the stock and gold markets has been intense over the short and medium term and the direction of causality is from the gold to stock market. The co-movement between

the stock market and the banking sector is almost mild, with two series moving out of phase. The co-movement between gold and exchange markets during the study period has always been intense and the causal direction has moved from the exchange to the gold market. The co-movement between gold market and the interest rate on bank deposits has been mild. The co-movement of exchange market and the banking sector has existed in the short and long terms and the return of exchange has been driven toward the banking sector.

The findings from this study could help policy makers to forecast the movement of markets in order to control the target markets. Also, due to the interaction between exchange market and other markets, policy makers are to provide a solution for neutralizing the effect of exchange market on other markets.

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