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Applying Bayesian modification with Doan, Litterman and Sims prior (DLS) in the autoregressive distributed lags model (BARDL): A case study of the short-term and long-term impact of banking, insurance and financial intermediation on capital markets in Iran

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EXTENDED ABSTRACT

INTRODUCTION

Efficient financial institutions and markets could increase economic growth, and mutually, the financial sector shold also reflect the economic indicators changes in real sector. Given the sub-sectors of financial markets and the importance of each in the economy, the two financial structures "bank-based" and "market- based" are generally visible in countries with increasing financial development and depth. In Iran, which has mainly a bank-based financial system, banks play a key role in establishing a link between the capital market, the money market and insurance market. Creating new capacity in the real sector of the economy is one of the tasks and characteristics of financial market sub-sectors. Moreover, the precondition of this role-taking procedure is to establish organizational connection and cohesion between financial market sub-sectors.

In this study, impact of the banking, insurance and financial intermediation sector with an emphasis on value-added of financial and monetary institutions services on the capital market is examined. In fact, the main question is whether the creation of new added value in banking, insurance and financial intermediation services can affect the main indicators of the capital market? The presence or absence of this effect in the short-term and long-term can

have important implications for money market and capital market policymakers. For this purpose, "TEPIX" and "financial index" as capital markets representative indices (the dependent variable) and Bayesian ARDL (BARDL) method based on Doan, Litterman and Sims prior and Bušs (2010) is used in period of 1991-2020.

METHODOLOGY
In a Bayesian model, prior density is used in order to use the information contained in the distribution of observations and previously available information. The prior density is a tool for reflecting all the information that the researcher has in mind from observing the data. Therefore, the prior densities can be very important to be able to accurately reflect the distributive properties of the sample used within the framework of Bayesian analysis. When the prior function is combined with the likelihood function, a posterior density is obtained that embodies the nature and properties of the prior function, indicating the special importance of the prior functions in Bayesian analysis. These features mean that the prior density information provides researchers with similar interpretations to the interpretations derived from the likelihood function information. In other words, the interpretations of the prior density function of real data will be the same as the interpretations of the prior density function of the new data. We specify an ARDL model as follows:

$$y = X\beta + \varepsilon$$
$$E\varepsilon = 0, \qquad \sum := E(\varepsilon\varepsilon) = \acute{\sigma}^2 I_{T \times T}$$

The prior function will be written as:

$$r = R\beta + v$$
$$Ev = 0$$

Then $E(v\acute{v})$ will be a diagonal matrix:

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$$\Omega := E(v\acute{v}) = \begin{bmatrix} \sigma_1^2 & 0 & & & & & \\ 0 & \sigma_2^2 & & \cdots & & & 0 \\ 0 & 0 & & & & & \\ & & \sigma_p^2 & & & & \\ \vdots & & & \sigma_{10}^2 & & & \vdots \\ & & & & \sigma_{11}^2 & & \\ & & & & & \sigma_{d,q-1}^2 & 0 \\ 0 & & \cdots & & & 0 & \sigma_{dq}^2 \end{bmatrix}$$

FINDINGS

Results of modeling research data in the framework of a Bayesian model, show that monetary and financial institutions services in the short term could affect stock price index ("TEPIX" and "financial index"), therefore The short-term relationship between the banking, insurance and financial intermediation sector of economy and the financial sector (Stock Exchange market) is established but the statistical significance of this relationship in the long run is not approved and no feedback in stock price indices based on the changes in the banking, insurance and financial intermediation sector is observed.

CONCLUSION

These results on one hand indicate a significant impact of monetary variables and tools such as liquidity and price inflation on the stock market, and on the other hand is a sign of weakness in the relationship between the banking, insurance and financial intermediation sector and the stock market. Therefore, it is suggested that in critical situations (with short-term targets), monetary and price tools used to adjust stock market but in contrast, by correction of structural flaws of Stock Exchange market, the context of short term and long-term impact of the banking, insurance and financial intermediation sector on stock indices will be provided.

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