

New economic model may prevent problems with capital flow

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The sudden halt of capital flow within a country indicates, according to experts, a bottleneck related to its foreign finance: That is to say, the bankruptcy of the country, as it leads to the contraction of international capital flows and the purchase and sale of foreign assets.

Early detection—which is key to the effectiveness of the macroeconomic policies of a country against the risk derived from such stops of capital flows—has been previously studied. However,

researchers at the UMA have taken a step forward by designing a new and more accurate prediction model, based on a sample of 103 countries, including emerging (73) and developed (30) countries, that were analysed for the period 1960-2016, thanks to the World Bank database.

"This event has significant negative effects on the [global economy](#), as it has been proved that it leads to a drop in GDP growth, causes significant drops in production and employment, and gives rise to serious financial crises, hence, the importance of predicting it," explains researcher M. Belén Salas, main author of this study published in the scientific journal *PLOS ONE*.

"Sudden stops of capital flows is the new global prediction model proposed by this research team of the UMA; it represents an analysis of some economic parameters of these countries using decision trees, an innovative method never used before in this type of work."

Economic variables for decision-making

The ultimate goal of this research is to develop a model for emerging countries, another for developed countries and one last model at a global level—thus far models have only been developed for emerging countries—that identify which economic factors have a direct connection to the stop of capital flows with the aim of predicting it as much as one year in advance and preventing it.

Thus, the researchers assert that some of the more explanatory variables used to predict the 'Sudden Stop' event in developed countries are the country's real interest rate, the monetary aggregate growth (M2), the rate of return of the stock market, the VIX index (an indicator that measures the volatility of the US stock market), the GDP growth ([gross domestic product](#)), the central government debt to GDP or the domestic credit to GDP.

"Hence, developed countries must be alert to the behaviour of these variables, since high real interest rates, public debt to GDP, M2 growth, the level of domestic credit and the volatility index are all linked to a higher probability of a sudden stop of capital flow," says Salas, who adds that a higher GDP growth and performance of the stock index are negatively related to the possibility of this event.

This represents a new model that can be used as a reference for setting the macroeconomic policy of a country, as it provides tools to be considered to achieve financial stability. It has been designed by the Foreign Trade Expert M. Belén Salas, with the participation of the researcher David Alaminos and Professors Manuel Ángel Fernández and Francisco López Valverde from the Faculty of Economy and the School of Computer Science Engineering of the UMA, respectively.

More information: M. Belén Salas et al, A global prediction model for sudden stops of capital flows using decision trees, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0228387](https://doi.org/10.1371/journal.pone.0228387)

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