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### **Empirical symptoms of catastrophic bifurcation transitions on financial markets: A phenomenological approach**

The principal aim of this work is the evidence on empirical way that catastrophic bifurcation breakdowns or transitions, preceded by ickering phenomenon, are present on notoriously significant and unpredictable nancial markets. Overall, in this work we developed various metrics associated with catastrophic bifurcation transitions, in particular, the catastrophic slowing down (analogous to the critical slowing down). All these things were considered on a well-dened example of nancial markets of small and middle to large capitalisations. The catastrophic bifurcation transition seems to be connected with the question of whether the early-warning signals are present in nancial markets. This question continues to fascinate both the research community and the general public. Interestingly, such early-warning signals have recently been identied and explained to be a consequence of a catastrophic bifurcation transition phenomenon observed in multiple physical systems, e.g., in ecosystems, climate dynamics and in medicine (epileptic seizure and asthma attack). In the present work we provide an analogical, positive identification of such phenomenon by examining its several dierent indicators in the context of a well-dened daily bubble; this bubble was induced by the recent worldwide nancial crisis on typical nancial markets of small and middle to large capitalisations.