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## Financial market stability—A test

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### ABSTRACT

This paper proposes a definition for financial market stability and an econometric test. It analyzes the impact of systematic and systemic shocks on developed and emerging market stock indices in normal and extreme market conditions. Financial market stability is defined as a constant impact of systematic shocks in normal and extreme market situations. Empirical results show that the impact of systematic shocks is significantly larger in extreme market conditions than in normal conditions for emerging markets. In contrast, the relationship is stable for developed markets. Hence, only developed markets meet an essential condition for financial market stability.

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## 1. Introduction

The crises in East Asia, Russia and Brazil in 1997 and 1998 have raised concerns about the adequate functioning and the stability of the financial system. This has triggered a large literature on contagion which attempts to measure and explain the spread of country-specific shocks across markets. In contrast, the literature on the stability of financial markets is relatively scarce compared to the contagion literature even though the topics are closely linked to each other. Moreover, there is no common definition of ‘financial stability’ which resembles the situation at the time of the Asian crisis when there was no standard definition for ‘contagion’.

This paper is motivated by the observation that there is no generally accepted definition of financial stability and no respective econometric test. Moreover, there is no study explicitly analyzing the role of systematic shocks in crises periods or in extreme market conditions. This gap in the literature is surprising since shocks of the systematic risk component can also affect individual financial

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markets and the financial system as a whole. Examples for an increased importance of systematic shocks are manifold. The impact of the sub-prime crisis in the US on global stock markets is a recent example showing that idiosyncratic shocks are more systematic in nature today than they were in the past.

Studies defining or analyzing financial stability are rare. An overview of definitions for financial stability can be found in [Schinasi \(2004\)](#). Other definitions are given by the IMF ([IMF, 2003](#)) and the ECB ([Padoa-schioppa, 2003](#)). Official (central bank) statements that there remains no consensus on how financial stability should be defined can be found in [Federal Reserve Board \(2006\)](#) and [Bank of England \(2004\)](#). Academic papers support this statement (e.g. see [Cihak, 2007](#); [Goodhart, 2006](#); [Oosterloo and de Haan, 2004](#)).

Most of the contributions define financial stability in a broad sense, that is, these definitions include the entire financial system and its linkages to the real sector. In contrast, this paper aims to analyze financial stability in a stock market context thereby advocating a more narrow definition of financial stability, that is, financial market stability. The study contributes to the literature by proposing a definition of financial market stability and an econometric testing framework. The framework tests the impact of systematic and systemic shocks on financial markets and can assess whether a country exhibits financial market stability or not.

The literature on contagion or financial crises in general usually focuses on the spread or transmission of country-specific or idiosyncratic shocks. Statements of policy makers and regulators suggest that this focus is not appropriate or sufficient in a financial stability context. A broader focus is consistent with definitions put forward by the [IMF \(2003\)](#) and the ECB through [Padoa-schioppa \(2003\)](#) that financial stability is the constant propagation of shocks to the financial system across markets. Since 'shocks to the financial system' comprise more than one or two markets, an analysis of a type of shock that is affecting more than one country simultaneously seems more adequate. A natural candidate is a systematic risk component given by an index comprising certain regions of stock market indices or firms. An analysis of country-specific shocks would be too narrow in a financial stability context. Moreover, such country-specific shocks or idiosyncratic shocks have been analyzed extensively in the contagion literature while no particular attention has been paid to the role of systematic shocks.

The empirical results for a selection of emerging and developed markets show that the impact of systematic shocks varies considerably and is significantly larger in highly volatile regimes for some emerging markets. In contrast, most developed markets exhibit a constant dependence on systematic risk. Hence, only those developed markets meet an essential condition for financial market stability. There are a number of explanations for this finding. First, developed stock markets are larger in terms of market capitalization and liquidity. Second, developed markets are better regulated. Third, investor's portfolios are better diversified and thus more effective in absorbing shocks. Fourth, emerging markets might be more exposed to global investors' sentiment and therefore are potentially the first to be affected when markets start to fall. It is thus possible that emerging markets suffer more from phenomena like flight-to-quality and contagion.

The paper is structured as follows: Section 1 presents several definitions of financial stability and proposes a model to test the degree of financial market stability. Section 2 presents the empirical results obtained by a quantile regression analysis. Section 3 provides several different model specifications to check the robustness of our approach. Section 4 contains a simulated case study that aims to explain the potential sources of an increasing dependence in extreme market conditions. The conclusions summarize our findings.

## 2. Financial market stability

There is no clear consensus of what is 'financial stability' and people seem to find it more convenient to define financial instability (see [Padoa-schioppa, 2003](#)). Interestingly, 3 years after the speech of ECB representative Padoa-Schioppa, officials of the Federal Reserve Board in the US ([Federal Reserve Board, 2006](#)) confirm this statement with 'The term 'financial instability' is often poorly defined'. Moreover, many definitions are relatively broad either in terms of the conditions of financial stability or with regard to the effects of financial stability. For example, a Financial Stability Report of the ECB

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