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journal homepage: [www.elsevier.com/locate/jfstabil](http://www.elsevier.com/locate/jfstabil)Financial integration, globalization, and real activity<sup>☆</sup>Gianni De Nicolò<sup>a,b,\*</sup>, Luciana Juvenal<sup>a</sup><sup>a</sup> International Monetary Fund, 700 19th Street, N.W., Washington, DC 20431, United States<sup>b</sup> CESifo, Germany

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## ABSTRACT

Using data for 48 advanced and emerging market economies during 1985–2008, this paper examines the impact of measures of financial integration and globalization on several dimensions of real activity. We find that both advances in financial integration and globalization are associated with higher growth, lower growth volatility, and lower probabilities of severe declines in real activity, with the positive impact of financial integration on macroeconomic stability enhanced by improvements in corporate governance. Thus, we find no evidence of a trade-off between advances in financial integration, globalization, and growth and macroeconomic stability.

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## 1. Introduction

A vast empirical literature surveyed by [Kose et al. \(2009\)](#) has analyzed empirically the impact of financial openness and financial liberalization on growth, offering contrasting results. More recently, the 2007–2008 financial crisis and the attendant historically sharp drop in real activity have raised the question of whether financial integration and unfettered globalization can be sources of macroeconomic instability (see, e.g. [Stiglitz, 2010](#)).

[Obstfeld \(2009, p. 63\)](#) observed that “there is strikingly little convincing documentation of direct positive impacts of financial opening on the economic welfare levels or growth rates of developing countries.” [Broner and Ventura \(2010\)](#) observed that the absence of a consensus regarding the real effects of financial liberalization policies is in part due to the difficulty in separating the effects of such policies from other policies. In particular, it is

difficult to disentangle the potentially different effects captured by *de-jure* and *de-facto* liberalization measures. Additionally, work by [Quinn and Toyoda \(2008\)](#) indicates that some of the inconclusive results of the literature may be due to problems of measurement of financial openness following liberalization, although some recent studies (e.g. [Bonfiglioli, 2008](#); [Bekaert et al., 2009](#)) find a positive impact of financial openness on productivity growth, a key driver of long-term growth.

With regard to macroeconomic and financial stability, [Kose et al. \(2009\)](#) observed that “there is little formal empirical evidence to support the oft-cited claim that financial globalization in and of itself is responsible for the spate of financial crises that the world has seen over the last three decades” (op. cit., 2009, p. 28). On the one hand, few studies have examined empirically the relationship between financial openness and growth volatility. [Buch et al. \(2005\)](#) do not find a significant impact of financial openness on growth volatility, while studies that use sectoral or firm level data find the reverse (see e.g. [Levchenko et al., 2009](#); [Kalemi-Ozcam et al., 2010](#); [Popov, 2011](#)). On the other hand, those few studies that have focused on the impact of financial openness on financial crises find contrasting results as well. [Bekaert et al. \(2009\)](#) examine the impact of measures of financial openness on a binary indicator of “banking crisis”, and find no significant relationship between financial openness and the probability of a “banking crisis”. [Boyd et al. \(2010\)](#) find some evidence of a positive relationship between financial openness and indicators of systemic bank shocks for country level data, but no relationship between financial openness and

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the probability of systemic bank failures in Logit regressions based on firm-level data. By contrast, Popov (2011) finds that measures of levels of financial openness and financial liberalization are followed by an increase in the skewness of output growth, which is taken as a measure of downside risks to real growth, as in Rancière et al. (2008).

With regard to financial integration, the finance literature has focused on the impact of measures of equity market integration and liberalization on growth, finding a positive impact (Bekaert et al., 2005, 2006, 2007, 2011). To our knowledge, however, no study has examined empirically the joint impact of financial integration and globalization – here defined as advances in financial openness – on several dimension of real activity. Examining financial integration and globalization as distinct phenomena is important, since globalization may be necessary for financial integration to occur, but it may not be sufficient to guarantee that a country's financial system is integrated with world markets in ways that foster an efficient allocation of capital (see, e.g. Abiad et al., 2008). Considering globalization as advances in financial openness allows us to capture developments that may not be exclusively driven by financial liberalization, which, in itself, is necessary but not sufficient to prompt financial openness, possibly because of underdevelopment of the institutional environment (see e.g. Stultz, 2005). For these reasons, empirical specifications that do not include measures of financial integration as distinct from measures of globalization may be potentially affected by an omitted variable problem. Moreover, many papers in the literature do not employ empirical specifications that control for the persistence of growth or growth volatility.

This paper contributes to the literature by providing new evidence on the joint impact of financial integration and globalization on aggregate growth, growth volatility and measures of real tail risks. Our study is most closely related to Popov (2011), who considers the impact of measures of levels of financial openness and financial liberalization on industry output growth, as well as volatility and the skewness of output growth. In contrast to our analysis, however, he does not analyze financial integration and globalization as a change in financial openness simultaneously. Importantly, his empirical specification does not take into account the persistence of output growth and growth volatility.<sup>1</sup>

Using a dataset that includes data for 48 countries during the period 1985–2008, this paper empirically examines the impact of *de-facto* measures of financial integration and globalization on growth, growth volatility, and the probability of a severe decline in real activity. Financial integration is captured by a simple *distance* measure of a country's excess returns from the group average at each date, which tracks the movement toward equality of discount factors used to price traded assets, as dictated by standard finance theory. Financial globalization is measured by the *growth rate* of a metric of financial openness. We also construct two measures of capital flow volatility to gauge their real effects jointly with financial integration and globalization.

We find that advances in financial integration and globalization are both associated with higher growth and lower growth volatility, whereas the volatility of capital flows does not have significant impact on both variables. Importantly, we also find that advances in financial integration and globalization, as well as capital flow

volatility, significantly predict lower probabilities of severe declines in real activity, thereby enhancing macroeconomic stability. Moreover, the positive impact of financial integration on macroeconomic stability is stronger when a country improves corporate governance and the quality of institutions. Thus, our evidence is at odds with the view that financial integration and globalization in and of themselves are detrimental to country real prospects. On the contrary, our results suggest that financial integration and globalization appear to yield *benefits* in the form of enhanced countries' growth, lower growth volatility, and lower probability of severe declines in real activity.

The remainder of the paper consists of three sections. Section 2 presents our measures of financial integration and globalization used in the subsequent regression analysis, and describes statistics of the data used in our investigation. Section 3 presents the analysis of the relationship between financial integration, globalization and capital flow volatility for growth, growth volatility, and measures of systemic real risk. Section 4 concludes. The Appendix details data sources and measurements of all variables used.

## 2. Measurement and data

### 2.1. A simple proxy measure of financial integration

As financial markets become more integrated, the cost of capital for assets bearing similar risks should converge. As stressed by Stulz (1999), such convergence would allow investors to achieve better diversification, as they would be able to allocate investments to a more diversified market portfolio.

Following Bekaert and Harvey (1995), the simple measure of financial integration used in our empirical analysis is motivated as follows. Consider  $N$  countries, and denote with  $E_t R_{t+1}^i$  the expected conditional market excess return in country  $i \in N$ . Suppose that the CAPM holds and there is no exchange rate risk. Under full integration, for each  $i \in N$ ,  $E_t R_{t+1}^i$  satisfies:

$$E_t R_{t+1}^i = \lambda_t \text{cov}(R_{t+1}^i, R_{t+1}^N) \quad (1)$$

where  $R_{t+1}^N$  is the return on a value-weighted region portfolio, and  $\lambda_t$  is the expected world price of (covariance) risk. By contrast, in a fully segmented market

$$E_t R_{t+1}^i = \lambda_t^i \text{var}(R_{t+1}^i) \quad (2)$$

where  $\lambda_t^i$  is the expected *local* price of risk. In a partially integrated country, expected excess returns can be proxied by:

$$E_t R_{t+1}^i = \alpha_t^i \lambda_t \text{cov}(R_{t+1}^i, R_{t+1}^W) + (1 - \alpha_t^i) \lambda_t^i \text{var}(R_{t+1}^i). \quad (3)$$

where  $\alpha_t^i \in [0, 1]$  is an estimate of the likelihood that a market is integrated. Eq. (3) cannot be viewed as a restriction on expected returns implied by an explicit asset pricing model. However, Bekaert and Harvey (1995) show that it can be useful to obtain a proxy measure of financial integration. If the term  $\alpha_t^i$  converges toward unity, then convergence in expected excess returns can be interpreted as a result of increased integration. Adjaouté and Danthine (2004) also use such a convergence-type measure as a simple proxy of advances in financial integration. Thus, we gauge advances in financial integration by the *distance* of the market excess returns of a country from a measure of central tendency of the cross-country distribution of market excess returns. Specifically, for country  $j$  in year  $t$  and a sample of  $N$  countries, this measure, called *ISPEED*, is given by

$$ISPEED_{jt} = \left( R_t^j - \frac{1}{N} \sum_{i=1}^N R_t^i \right)^2, \quad (4)$$

<sup>1</sup> Differing from our work and many others', Popov (2011) carries out an examination of the joint impact of financial openness on growth, growth volatility and growth risk via estimation of a system of equations, finding results that differ from those obtained with individual estimations. However, in Popov's specifications the persistence of growth and growth volatility are not taken into account: this makes it difficult to interpret these different results.

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