Physica A 395 (2014) 499–510

Contents lists available at ScienceDirect

Physica A

journal homepage: www.elsevier.com/locate/physa

Emerging markets in the global economic network: Real(ly) decoupling?

Tiago Trancoso *

Lusíada University, 4760 VNF, Portugal

HIGHLIGHTS

- Evidence of accelerating interdependence within and across development groups.
- Process particularly evident among ADV economies and between ADV and EM economies.
- Evidence of a trend in the network towards economic development clustering.
- However, EM do not form a cohesive pole in the global economic network.
- East Asia branch intensely converging with ADV business cycles dynamics since 1996.

ARTICLE INFO

Article history:
Received 9 July 2013
Received in revised form 14 October 2013
Available online 26 October 2013

Keywords:
Global economic network
Emergent economies
Decoupling hypothesis
International business cycles
Minimum spanning tree
Dynamic correlations

ABSTRACT

We evaluate the degree of business cycle interdependence in the global economic network, focusing on the hypothesis that emergent market (EM) economies have decoupled from advanced economies in the recent period of globalization. We employ a novel methodological approach to the study of business cycles synchronization that combines network analysis and dynamic correlations. We find a process of increasing transnational interdependence within and across all economic development groups. Our results suggest that EM do not form a cohesive group and support the view of an increasingly multipolar and interdependent global economic network.

1. Introduction

In this paper we evaluate the degree of business cycles interdependence, focusing on the hypothesis that emergent market (EM) economies have decoupled from advanced economies in the recent period of globalization. During the past two decades, EM economies have greatly increased their share in the global economy. With average growth over 5% in the period 1996–2010, they presently account for 36% of global GDP. According to the World Bank 2011 Global Development Horizons prospects, by 2025 six major emerging economies – Brazil, China, India, Indonesia, South Korea, and Russia – will account for more than half of global growth. World Bank [1] report argues that emerging growth poles will alter the balance of global growth, leading to a multipolar international economy that will bring benefits and pose new challenges for both developing and advanced economies.

A significant part of business cycle synchronization (BCS) literature presents evidence for an emerging process of transnational synchronization of business cycles. Record high levels of global synchrony during the first decade of 21st century, unprecedented or at least not seen in the post-war era, is a phenomenon also observed by studies applying diverse

* Tel.: +351 933155151.
E-mail addresses: tiagotrancoso@gmail.com, tiagotrancoso@estg.ipvc.pt.

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http://dx.doi.org/10.1016/j.physa.2013.10.031

methodological approaches. The majority of BCS empirical studies are based on samples comprised of advanced economies, with a particular incidence on European Union [2–5], G7 [6,7] and OECD economies [8,9]. Are EM business cycles taking part of the synchronization process shared by advanced economies? During the 2000's several emergent market economies have undertaken reforms designed to insulate them from adverse shocks from the rest of the world. Accordingly, research from institutions like IMF [10] have argued that these economies would hardly be affected by the subprime crisis of 2007–2008 and suggested that growth in EM economies would carry the world for several years while the United States and Europe recovered.

Following this framework, a branch of BCS literature investigates the real decoupling hypothesis, enquiring if EM business cycles have decoupled from advanced economies in the recent period of globalization. On the one hand, economic theory predicts that the deepening of economic linkages between advanced and emerging economies should bring their cycles closer and make them more interdependent and vulnerable to common shocks. On the other hand, the fact that the EM themselves became sources of growth could make them more independent and resilient to shocks arising in advanced economies. Recent empirical studies suggest that during the recent period of globalization there has been a convergence of business cycles within the groups of advanced and emerging markets economies but a decoupling between the two groups [11,12]. However, several studies show that such real decoupling process has been accompanied by a financial recoupling process [13,14] while others argue that a recoupling process, rather than decoupling, has emerged between the groups [15].

We employ a novel methodological approach that combines network analysis and dynamic correlations and apply it to the study of business cycle synchronization in the period 1952–2011. Economies are classified as advanced (ADV), emergent market (EM) or other developing (DEV) economies and grouped according to their degree of economic development. We address the real decoupling hypothesis by examining (1) if business cycles have decoupled within and across development groups and (2) if the EM economies group forms a cohesive and coherent pole in the global economic network (GEN). The remainder of this paper is organized as follows. Section 2 introduces the methodological approach, deriving the dynamic conditional correlations model and the minimum spanning tree resultant from the selected network filtering procedure. Section 3 provides the results of the empirical analysis, discussing separately the enquiries above. Section 4 concludes and suggests further topics for research.

2. Methodological approach and data

The majority of BCS empirical research has applied correlation-based indicators to measure the degree of business cycle synchronization [3]. As the Pearson correlation coefficient provides a single result for a specific time interval, dynamic studies of economic synchronization have adopted rolling windows or fixed intervals techniques for determining time-varying coefficients. However, these approaches limit a comprehensive description of period-by-period dynamics, as in both cases the correlation coefficient for a given period attributes significant weight to information from previous periods. We employ a dynamic conditional correlation model that allows us to determine a full time-varying measure of bilateral business cycle correlations, which we apply to a world sample composed of growth rates of 102 economies from 1952 to 2011. Dynamic correlations are transformed into geodesic distances between economies and then submitted to a network filtering procedure denominated as minimum spanning tree.

2.1. Data

We adopt the classical concept of business cycle as introduced by Burns and Mitchell [16], consisting of annual growth rates of gross domestic product (GDP). We use data from the January 2012 version of the Total Economy Database (TED) maintained by The Conference Board and the Groningen Growth and Development Centre.[1] TED GDP series up to 1990 are mostly derived from historical series collected by Angus Maddison. We selected 102 economies with complete GDP series available for the period 1952–2011. GDP series are expressed in 1990 US dollars and converted at "Geary–Khamis" purchasing power parities (PPPs). Economies are classified as advanced (ADV), emergent market (EM) or other developing (DEV) economies and grouped according to their degree of economic development, following the International Monetary Fund (IMF) classification as of April 2012. Appendix provides further information on data source and classification procedure.

2.2. The dynamic correlation model

A wide collection of dynamic covariance models and dynamic correlation models has been presented since the seminal paper of Robert Engle introducing the Autoregressive Conditional Heteroskedasticity model in 1982. While modelling time series volatility has been traditionally the main center of attention, in the last two decades researchers focused on extending the considerations to multivariate models based on Generalized Autoregressive Conditional Heteroskedasticity (GARCH)

[1] Available at http://www.ggdc.net.