Advanced economies and emerging markets: Dissecting the drivers of business cycle synchronization

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ABSTRACT

What are the divers of business cycle synchronization within and between advanced and emerging economies at the sector level? This question is addressed by analysing international co-movements of value added growth in a multi-sector dynamic factor model. The model contains a world factor, region factors, sector factors, country factors, and idiosyncratic components. The model is estimated using Bayesian methods for 9 disaggregated sectors in 5 developed economies (G5) and 19 emerging economies for the 1972–2009 period. The results suggest that, while there exists a common 'regional business cycle' in the G5, fluctuations in sectoral value added growth are dominated by country-specific factors in the emerging markets. Despite that, the international factor (the sum of world and sector factors) is more important than the region factor, suggesting that the emerging markets are more synchronized with the G5. A simple regression shows that (i) the world factor would be more important the larger the share of agriculture in output; (ii) in more open economies the sector factor is more important in explaining sectoral value added growth fluctuations; (iii) the region factors is more important the richer and the less volatile the economy. Finally, a comparison of the variance of sectoral value added growth accounted for by each factor from the pre- to the post-globalization period shows convergence of the business cycles within the G5 and EM, respectively. The changes in the contribution of the world, sector and region factor are due to changes in the importance of those factors within sectors. However, for the emerging markets, the fall in the importance of the country factors is dominated by changes in the structural composition of the economies. Therefore, the evolution of the structural composition in the emerging markets could be an important driver for more synchronized business cycles at the regional and international level.

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1. Introduction

The global economy has seen ample shifts since the mid-1980s. Emerging markets (EM) faced a process of increased trade and financial integration with the world and are gradually becoming major players. Has this process led to higher business cycle (BC) synchronization within EM and across the world? Given the increasingly integrated role of the EM and their increased share in the world economic growth, understanding the dynamics of BC in EM and dissecting the drivers

of their co-movements has become a priority for policy-makers and international organizations, such as the World Bank and the IMF. As explained in World Bank (2016), since 2010, EM have displayed a synchronous slowdown in growth which could have significant spillovers on the rest of the world through not only trade and financial linkages but also through the confidence channel. Whether increased integration in trade and finance has led to more synchronized BC within EM and between EM and advanced economies remains an important empirical question. Economic theory provides only nuanced guidance about the impact of greater international linkages on output co-movement across countries. On the one hand, theory suggests that higher bilateral trade between country pairs is associated with more correlated BC. On the other hand, it suggests that if trade increases specialization and if industry-specific shocks are dominant, the degree of BC co-movement should decrease as trade linkages strengthen.

In this paper, we examine the dynamics of BC co-movements over time in a multi-sector and multi-country setting to provide an empirical characterization of common business cycle linkages at a disaggregate level among the EM and the advanced economies. We address the following questions. Firstly, what are the major factors driving BC synchronization in advanced economies and EM at the sector level? Second, what is the relationship between economic structural characteristics and the role of each dynamic factor in explaining value added (VA) growth volatility? Third, has the globalization period led to increased BC synchronization? Fourthly, are structural changes accountable for changes in the importance of these factors? This study will shed light on the ever growing debate on the two opposing views about whether international BC are converging or decoupling.

We address these questions by estimating common components for VA growth for 9 sectors of 5 advanced economies, namely, the US, France, Italy, Japan and the UK, (*hereafter*, the G5)[1] and 19 EM for the period covering 1972–2009, using the Groningen Growth and Development Centre (GGDC) dataset. A Bayesian dynamic latent factor model is estimated that comprises of a world factor, common to all sectors in all countries; a region factor, common to all sectors and countries in a given region[2]; a sector factor, common to the same sector across all countries; a country factor, common to all sectors within the same country; and, an idiosyncratic term specific to each sector time series. This model will also be estimated for 2 sub-samples (pre- and post-1990) to evaluate the implications of globalization.

This study dissects the drivers of the G5 and the EM BC synchronization and examines the dynamics of those factors. Our results support the existence of a common 'regional BC' at the disaggregate level for the G5 but not for the EM. For the latter group of countries, it is the county factor that is found to account for the largest sectoral VA growth variability. Despite that, the international factor (the sum of world and sector factors) is more important than the region factor, providing evidence for the BC of EM being more synchronized with the 'world business cycle'. Moreover, the sectoral analysis of the variance decomposition suggests that international factors play a more important role in explaining fluctuations in VA growth in sectors that are tradeable. Further, our simple regression analysis demonstrates that (i) the world factor would be more important the larger the share of agriculture in output; (ii) in more open economies the sector factor is more important in explaining sectoral VA growth fluctuations; (iii) the region factors is more important the richer and the less volatile the economy. Then, when looking at the dynamics of international business cycles from the pre- to the post-globalization period, we find that the BC of the G5 and the EM have substantially converged within their respective regions. For the EM, this result is driven by the BICS (i.e, Brazil, India, China and South Africa), implying that downturns in BICS could lead to more and more synchronous recessions in other EM. Finally, the variance decomposition changes in the contribution of the world, sector and region factor from the pre- to the post-globalization period are due to changes in the importance of those factors within sectors (i.e., the 'within effect'). However, for the EM, the fall in the importance of the country factors is dominated by changes in the structural composition of the economies and this effect also dominates for the change in the sector factor of the BICS. Therefore, the evolution of the structural composition in the EM could be an important driver for more synchronized business cycles at the regional and international level.

The rest of the paper is organized as follows. Next section presents the literature review. Section 3 describes the empirical methodology. In Section 4, we provide a description of the data. Section 5 presents and discusses the empirical results. Section 6 presents the results for the pre- and globalization period and the sources of changes. Finally, we conclude this study in Section 7.

2. Literature review

A large body of both theoretical and empirical literature can be related to our study. A number of studies have examined the role of trade and financial linkages on BC synchronization. For instance, trade was placed at the centrum of international BC spillovers by Frankel and Rose (1998) who established that country pairs that increase bilateral trade are also displaying more correlated BC. Baxter and Kouparitsas (2005) also argue that the most important channel for BC co-movement is international trade. However, Imbs (2004) attributes co-movement to the correlation of shocks between countries. He argues that two countries with similar production structures will face greater BC co-movement if individual industries

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[1] The GGDC dataset doesn't have sectoral data for Canada and only has data for West Germany. This is why we restrict our study to 5 out of the G7 economies.

[2] By region, we mainly refer to the level of development of the countries as we will be looking into an Advanced Economies factor and an EM factor.