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Comment on Chapter 4*

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Introduction

This nice paper contains three main ideas. First, the euro area business cycle
is less dispersed than it used to be. Second, it does not seem that the euro has
contributed in any way to this change. Third, the euro area business cycle
is the U.S./global business cycle. This is therefore a paper with a minimalist
view on the role of the euro on the euro area business cycle.

My first reaction after reading the paper was: could we really expect any
different result? We know since Baxter and Stockman (1989) that, at least
in developed countries, exchange rate regimes are almost irrelevant to the
characteristics of the business cycle. If anything, we should expect that in
a currency area, the inability to use the nominal exchange rate as a tool to
induce a fast and correct adjustment of relative prices should lead to a higher
relevance of country-specific shocks. Hence the paper should be interpreted
not only as suggesting that it is too soon to tell, but more broadly as a con-
firmation of the Baxter-Stockman view of the quasi-irrelevance of exchange
rate regimes for the business cycle.

The authors find that the euro area business cycle is less dispersed than it
used to be. They attribute this outcome to the Great Moderation, but their
proof is informed a little bit too much by eyeballing the situation. The idea
seems to be the following. Suppose there are no shocks in any economy
of the area. This implies zero volatility in all countries, and therefore zero
dispersion. However, the Great Moderation refers to a concept of absolute
volatility, whereas the reduction in the dispersion of the volatility is a relative
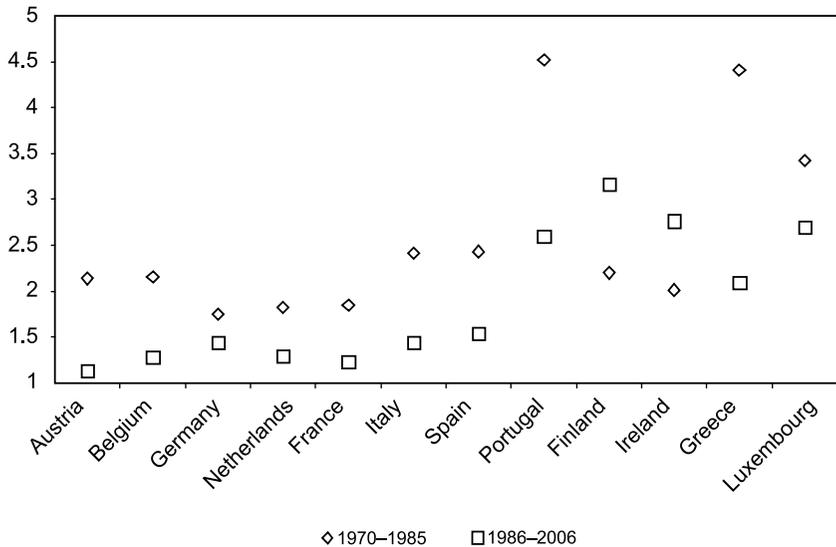concept: in other words, volatility must have dropped more in some coun-

Figure 4C.1   **Standard deviation of GDP growth**

tries relative to others to induce a fall in the dispersion of business cycles. Figure 4C.1 compares, for each country of the euro area, the standard deviation of GDP growth across two subsamples:[1] 1970–1985, and 1986–2006. We see the volatility moderation at work, but we also see some heterogeneity. The Great Moderation has been particularly strong in Portugal and Greece, and less so in Italy and Spain. There is very little evidence of the Great Moderation in Germany, whereas Ireland and Finland experienced the opposite, a Great Amplification rather than moderation. It is legitimate to think that the transition to the euro (rather than the euro per se) did have some effect here. Despite the euro being a common enterprise, it obviously produced differential effects across countries. But why exactly did these differential effects occur? Was it because some countries had to forcefully reduce nominal exchange rate volatility? Was it because the unpredictable component of monetary policy was minimized in those countries? Or was it instead because a better-anchored monetary policy during the transition also produced relatively more macroeconomic stability? Surprisingly, we do not know much about this indirect effect of the euro, neither from theory nor from any empirical analysis.

Figure 4C.2 displays the correlation of GDP growth in country i with GDP growth in country j, for all $j \neq i$, and averaged across j. This is a measure, computed over ten-year rolling windows, of the comovement of GDP

1. The GDP data are annual PPP adjusted, and have been kindly provided by the authors.
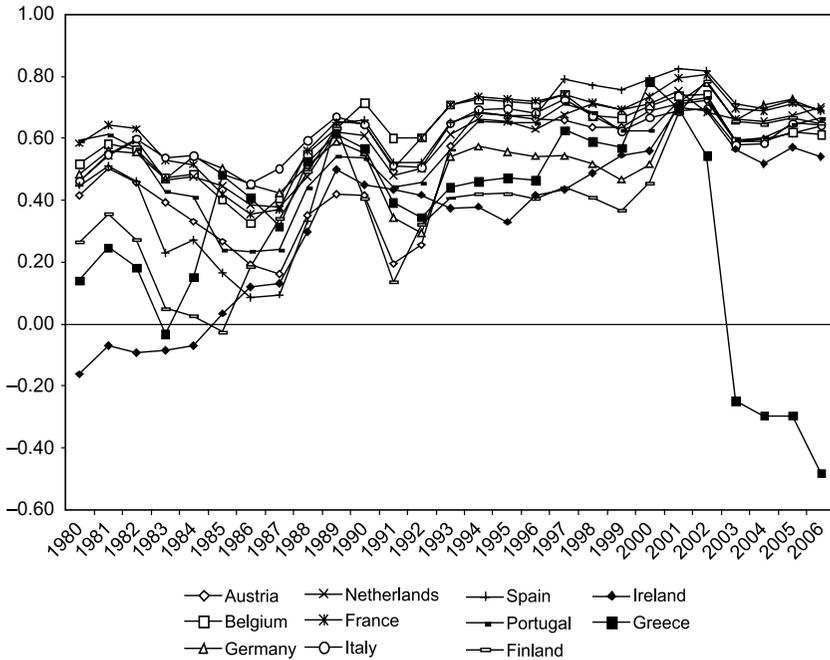
Figure 4C.2   Rolling correlation of GDP growth with remaining euro area countries (average)

growth of country *i* with the rest of the area. We clearly see evidence of convergence, especially for the countries of the so-called periphery (Portugal, Ireland, Greece, and Spain). Yet we also see that this convergence process is by no means coincident with the introduction of the euro, but progressed gradually from the early 1980s on.[2]

While it may seem almost conventional wisdom that a process of convergence in business-cycle comovement started much earlier than the introduction of the euro, it is less easy to come up with a well-identified explanation. Some usual suspects quickly come to mind: was it trade or was it financial integration? Was it policy convergence instead? Or rather, was it simply good luck? Identifying the appropriate explanation would require an extensive empirical analysis that is virtually absent in the literature. Here, however, I would like to make the following simple point. Choose your favorite usual suspect as an explanation of the convergence in business cycles in the euro area: the existing theory would not be very helpful.

2. Notice the breakdown in the correlation of GDP growth in Greece with the rest of the area, due to a deep unsynchronized recession in the early 1990s.

Suspect I: Trade

There is strong empirical evidence that higher trade enhances cofluctuations (Frankel and Rose [1998]; Clark and van Wincoop [2001]; Otto et al. [2001]). In Kose and Yi (2006), doubling the median trade intensity increases bilateral cross-correlation of GDP growth by 0.06 in OECD countries. The problem, though, comes with the theory. It is very difficult to generate a link between trade and comovement within standard dynamic equilibrium models (Kose and Yi [2001]). If asset markets are complete (and even if productivity shocks are correlated across countries), a higher trade intensity leads to a lower cross-country correlation of output. The idea is that increased openness enhances the swings in international relative prices (terms of trade), thereby exacerbating the negative comovement across countries. Here comes a double irony. First, lower transport costs (symbolizing globalization) make the problem worse, because they are isomorphic to increasing openness. Second, if one increases the elasticity of substitution between domestically produced and imported goods, the problem gets even worse. The irony here is that it is trade theorists—not international macroeconomists—who think that that elasticity of substitution is particularly high.

There are at least two options to fix this problem. The first is to assume financial autarky, but this is obviously unrealistic. The second is vertical specialization of production. Vertical specialization occurs when countries specialize in only particular stages of a good's production sequence. Yi (2003) shows that vertical specialization explains a substantial share of the increase in world trade after World War II. Vertical specialization is certainly a phenomenon that has widely characterized the increase in trade within the euro area in the past twenty-five years. Although this concept has found very limited application in the business cycle literature, it seems a promising avenue to strengthen the ability of standard models to generate realistic cross-country comovement.

Suspect II: Financial Integration

Financial integration (FI) is an alternative potential candidate to explain the business-cycle convergence observed in the euro area over time. The existing empirical evidence suggests that FI enhances cofluctuations (Imbs [2004]). However, once again, theory is not particularly helpful. A standard two-country dynamic general equilibrium (DGE) model with complete international financial markets (as in Backus et al. [1994]) would predict that stronger financial integration leads to a lower international correlation of output. Intuitively, access to complete asset markets allows the diversifying of idiosyncratic (country-specific in this case) risk. Hence generating stronger cofluctuations endogenously via stronger international risk-sharing
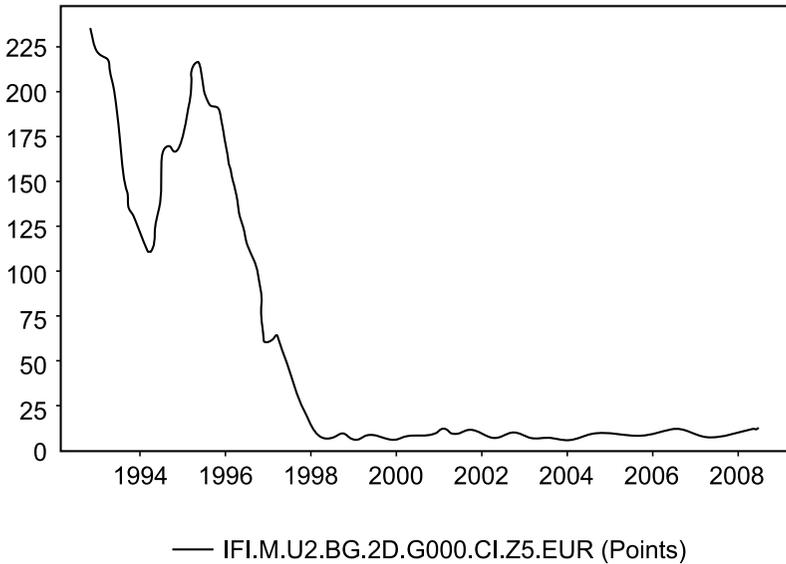
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Figure 4C.3   Dispersion in ten-year bond yield spreads
Source: European Central Bank

is a challenge for open-economy DGE models. At the same time, empirically, it is not completely clear whether the euro area has become fully financially integrated. It is obvious that it has, if one looks at the government bonds market. Figure 4C.3 displays the dispersion in the ten-year government bonds spreads across euro area countries, and shows a dramatic decline in the past fifteen years.

When one looks at credit markets, though, the picture is far less clear. Figure 4C.4 shows, for instance, the cross-country dispersion in (comparable) mortgage loan rates in the euro area countries. The degree of dispersion is still sizeable and, surprisingly, has even increased substantially over time. In general, it is widely acknowledged that large differences remain among the institutional characteristics of mortgage markets in the euro area. This is particularly relevant for the centralized transmission mechanism of monetary policy in the euro area.[3]

Suspect III: Policy Integration (PI) versus Good Luck

Figure 4C.5 gives a dramatic visual impression of how striking the process of monetary policy convergence has been in the euro area. Was policy integration per se in any way responsible for the observed degree of conver-
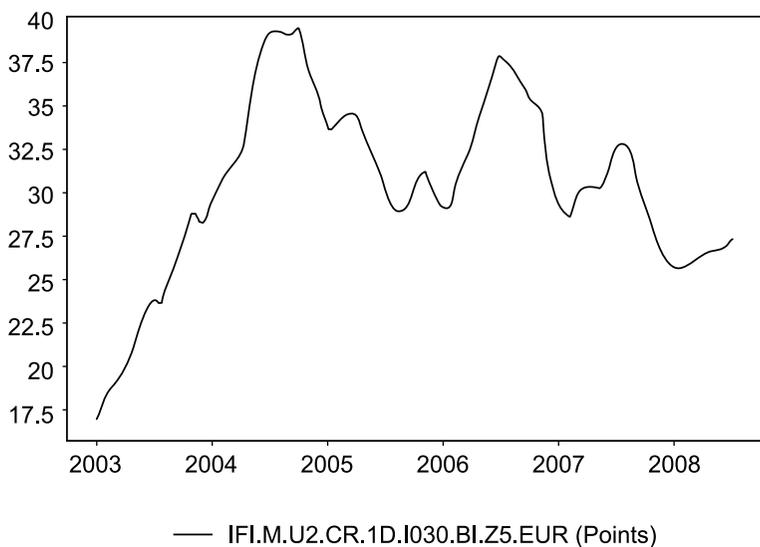
3. See Calza et al. (2008).

Figure 4C.4   Dispersion in five-to-ten-year mortgage loan rates
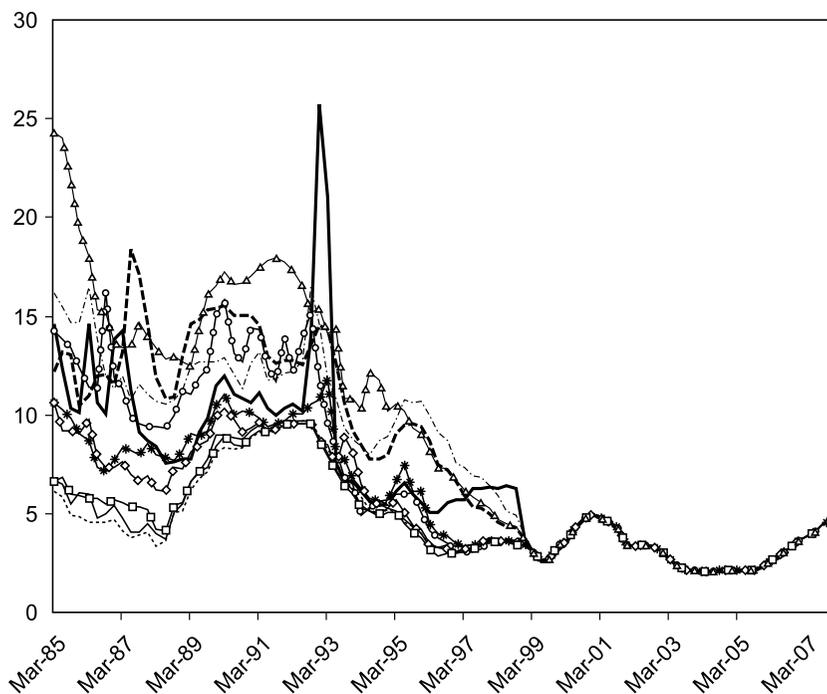*Source:* European Central Bank

Figure 4C.5   Short-term interest rates in the euro area

gence in business cycles in the euro area? Surprisingly, we know very little about this issue. One thing we know, though, is that answering this question requires the virtues of a fully structural DGE model, and we have made substantial progress on this front recently.[4]

Armed with these tools, it would seem particularly urgent to pursue a research agenda that we could summarize in the following questions: (i) Does PI lead to stronger cofluctuations (and has this actually happened in the euro area)? (ii) Is it "convergence per se" or is it "convergence to good policy"? (iii) Has policy integration contributed to the Great Moderation in Europe, as well as to the differential impact of the Great Moderation in different countries (as argued above)? (iv) Can we disentangle policy integration from simple good luck?

Conclusions

This paper presents a series of key facts that characterize the business cycle in the euro area. It argues convincingly that the euro per se is unlikely to have produced any form of convergence in business cycles. At the same time it leaves two fundamental questions still open: (i) What was the cause of the convergence? (ii) Can theory help us to differentiate among alternative hypotheses? I have tried to argue that addressing the latter question is more difficult than may have been anticipated, and that progress on this front remains limited. As Europeans, we should not be particularly proud.

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4. See for instance Smets and Wouters (2007).

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