Chapter 4
Optimum Currency Area Theory and Business Cycle Convergence in EMU: Considering the Sovereign Debt Crisis

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ABSTRACT
Which countries should be in Economic and Monetary Union (EMU)? This question has been debated frequently in the aftermath of the Sovereign Debt Crisis. But this has been asked in every stages of European integration. This discussion has rooted in the Optimum Currency Area (OCA) theory. The theory simply reveals that; if the countries have similar business cycles, one size fits all monetary policy would able to address the problems of member countries. Otherwise, no single monetary policy could be able to satisfy all members. In this respect, we test the business cycle convergence in EMU12 countries over time and we have also analyzed the effects of crisis on this convergence. We have found that business cycles converged over time in these countries. This convergence rises in the times of crisis as they slump together after the shock, but falls sharply in the aftermath of the crisis. This reflects the divergent recovery paths of the countries and put a pressure on single monetary policy especially after crisis.

INTRODUCTION
Optimum currency area (OCA) theory has been one of the widely discussed theories of international monetary economics as it has been evolved from the debate between the fixed and flexible exchange rates. However, there is no consensus on the significance of the theory. Krugman (1993) defines the
OCA theory as “the centerpiece of international monetary economics”, but Buiter (2000) describes it as the “low point of post- World War II monetary economics”.

OCA theory was suggested by Mundell (1961) in his seminal paper. Mundell attempted to determine the geographical area in which economic efficiency would be maximized by using a single currency. A country would cede its monetary sovereignty after joining the monetary union. Mundell and his predecessors attempted to put forth the criteria that the countries should abide in order to overcome the cost of ceding monetary policy.

OCA simply suggests the criteria to join a monetary union and the developments in the theory go hand in hand with the developments in monetary integration in Europe. After an upsurge of research in the 1960s, as Tavlas (2009) famously expressed, the theory was consigned to an intellectual limbo for 20 years. The theory turned into intellectual discussions with the beginning of 1990s following the acceleration of European integration process. In the new era of research, the symmetry of shocks and the business cycles have begun to be analyzed rather than determining the criteria. Here the emphasis was, even if the countries face similar shocks or similar business cycles, common monetary policy would not pose a problem. Furthermore, Frankel and Rose (1997) suggested that even the members of a monetary union do not have similar business cycles ex ante, they would have similar cycles ex post. This argument was presented as an endogeneity of OCA and became a triggering argument for European monetary integration.

Moreover, when the theory came back, the assumptions of the theory were ruined with the demise of Keynesianism. In addition, with the reign of Monetarism, the role of monetary policy began to change. According to Friedman, monetary policy should be devoted to ensure price stability rather than used as a stabilization tool. So, losing the autonomy in monetary policy began to be regarded as less costly.

In the framework of these discussions, EMU countries formed a monetary union. In order to force countries to converge, several criteria have been imposed to the candidate countries which are also known as Maastricht Criteria. But these criteria focused on macroeconomic fundamentals rather than microeconomic criteria proposed by the OCA theory.

The aim of this study is to analyze the convergence between the business cycles of EMU12 countries. The cyclical convergence is important for the optimality of the monetary union. If the members of the monetary union have similar business cycles, pursuing a union-wide monetary policy would not pose a problem. This fact becomes more important in times of crisis. Even if the countries’ business cycles are synchronized in times of crisis, it is easier for the monetary authority to respond the crisis and address the problems of member countries.

In this framework, we have analyzed the convergence of business cycles considering the Global Financial Crisis and Sovereign Debt Crisis. Thus, we analyzed the quarterly real GDP series of respective countries between 1980 and 2014. In order to obtain cycles we de-trend the series by using Hodrick-Prescott (HP) filter. To measure the convergence between these cycles, we use bilateral correlation coefficients. We obtained the mean values of bilateral correlation coefficients in a two-year rolling window following Masmann and Mitchell (2003). Additionally, we identified five periods and calculated the mean for these periods. These periods are EMS period (1980Q1-1991Q4), Single Market (1992Q1-1998Q4), Euro period (1999Q1-2008Q2), Global Financial Crisis (2008Q3-2010Q1) and Sovereign Debt Crisis (2010Q2-2014Q4). By examining the sample by dividing into sub-samples, we are able to detect the changes in the business cycle convergence via the advancements in the monetary integration process. Furthermore, we can follow the changes in times of crisis periods.
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