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Monetary and Financial Integration: Evidence from the EMU

Most economists would argue that monetary integration leads to financial integration; in other words, when a set of countries has a common currency, as in the European Monetary Union (EMU), for example, those countries also would tend to have more extensive international financial activity. Two main reasons are generally cited. First, monetary integration reduces "currency risk," which is the risk that the value of debt obligations would change due to fluctuations in currency values. Second, membership in a monetary union might make a borrowing nation more averse to defaulting on its debt obligations for fear of sanctions from the other members.

These two channels by which monetary integration can enhance financial integration lead to different predictions about whether a new monetary union member's increased international borrowing and lending would be biased towards the other members. For example, if currency risk were the main determinant, then the reduction in currency risk resulting from monetary union accession would disproportionately lead to borrowing from monetary union partners. Currency risk in lending to monetary union partners would be completely eliminated by the formation of a monetary union, as debts would be serviced in the union currency. In contrast, if the increased default penalty were the main determinant, then it is unclear that joining the monetary union would bias borrowing towards a nation's monetary union partners. In all recent cases, when sovereign default occurs, it occurs on all international obligations simultaneously. As such, anything that increased the severity of a default penalty would make a nation an equally safer borrower from monetary union and non-union partners alike.

Because these alternative channels lead to different predictions about whether or not financial activity would be biased towards union partners, we can look at the impact of monetary union accession on the pattern of lending among its members to assess their relative plausibility. In this *Economic Letter*, I summarize the results of a recent paper that focuses on lending patterns in Portugal before and after the 1999 launch of the EMU (Spiegel 2004).

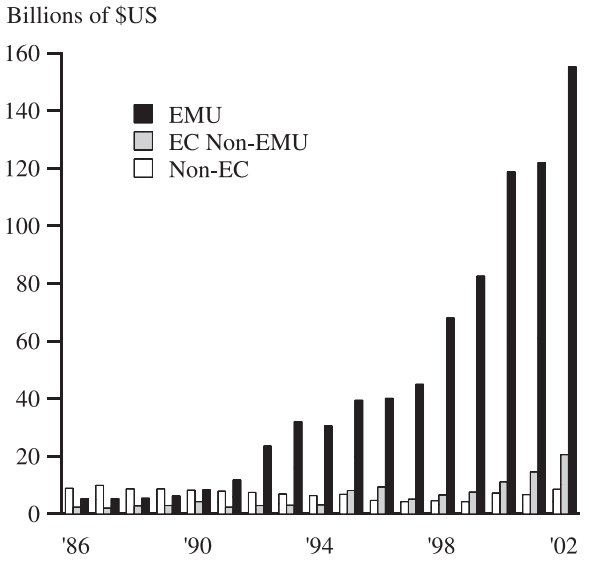
Why focus on Portugal?

The Bank of International Settlements (BIS) publishes consolidated data on bilateral foreign claims of reporting banks for 20 creditor countries and a large number of borrowing countries. However, the BIS did not release data on bilateral borrowing by the 20 creditor countries themselves before 1999. As those creditor countries include the great majority of the original EMU members, this would appear to pose an insurmountable obstacle to observing the change in bilateral lending patterns resulting from the launch of the EMU.

Fortunately, there is one exception: Portugal was not a reporting BIS creditor country before 1999, so bilateral claims on that country from all 20 creditor nations are available before and after the launch of the EMU. Therefore, disparities in lending to Portugal by EMU and non-EMU countries before and after the launch of the union can provide an indicator of the impact of the monetary union on financial integration.

Figure 1 illustrates the changes in the pattern of bilateral lending to Portugal from 1986 to the present for the 16 creditor countries in our sample. Two broad patterns emerge from the picture. First, as noted by Blanchard and Giavazzi (2001), there was a dramatic increase in Portuguese borrowing throughout the 1990s. Second, there was an equally dramatic movement towards borrowing from EMU partner countries. The share of borrowing from the EMU-partner nations in the sample more than doubled, from 37.5% of overall borrowing on average per year during the period before 1991, to 85.6% of overall borrowing on average per year after 1999.

Figure 1
Geographic pattern of Portuguese borrowing (1986-2002)



Statistical evidence of financial integration

Spiegel (2004) uses disparities in lending to Portugal by EMU and non-EMU countries before and after the launch of the union as an indicator of the impact of the monetary union on financial integration. The methodology used in the paper is commonly known as a "difference-in-differences" exercise, and it is used in a wide variety of applications in economics to assess the impact of a policy change. With this methodology, we can compare the impact of the policy change in the experimental group to observed changes in an identified control group. In the case of EMU formation, the experimental group is the set of creditor countries that joined the EMU in 1999, and the control group is the set of countries that did not join the EMU. Because creditor countries differ in other characteristics that might influence their proclivity to lend to Portugal, Spiegel allows for fixed and random creditor country effects and introduces a number of conditioning variables to adjust for differences among creditor countries.

The primary result is that the formation of the EMU had a positive and statistically significant impact on bilateral borrowing from EMU partner nations in all specifications. More importantly, the test shows that EMU formation had an economically significant impact on the pattern of Portuguese borrowing, indicating that EMU accession was expected to result in a tripling of bilateral commercial bank claims on Portugal, holding all else equal, from an average level of $536 million to $1.46 billion.

Testing for the robustness of the results

The above result was subjected to a number of robustness checks. First, Portugal's entry into the EMU was widely anticipated. From the ratification of the Maastricht Treaty at the end of 1993, it was considered almost certain that some form of monetary union would emerge in Europe and that Portugal would be a member. This implies that Portugal's accession to the EMU was anything but a surprise and raises the possibility that banks responded in anticipation of the EMU launch to gain an early market share advantage. From the changes in market share in Figure 1, it is clear that lending patterns to Portugal, particularly those from prospective EMU partner countries, changed dramatically long before the EMU's formal launch.

To accommodate the possibility that lending patterns changed in anticipation of the EMU launch, Spiegel repeats the exercise for earlier break dates. The earlier intervention dates correspond to the ratification of the Maastricht Treaty at the end of 1993 and the announcement of the launch date for the EMU at the end of 1995. Specifications using these earlier intervention dates are again shown to enter positively and significantly for all of the specifications considered with estimated coefficient values comparable in magnitude to those obtained with the 1999 launch date.

Second, there is likely to be an information advantage to producers in creditor countries with greater Portuguese lending relations, giving exporters from creditor countries with more lending to Portugal a competitive edge over those from nations with less financial contact. Spiegel therefore also uses instrumental variables estimation to allow for this possibility, first using the geographic variables as instruments and then examining the robustness of the results using these instruments by using lagged values of the time-varying variables as instruments. The results are robust to this correction.

Finally, the observations prior and subsequent to policy changes often have correlated errors, commonly referred to as serial correlation, which implies that that they are not truly independent. A simple robustness check advocated by Bertrand et al. (2004) to deal with this issue is to remove the time dimension in the sample by aggregating the data into two time periods. This approach can work only for applications where the treatment is applied simultaneously, which is the case of accession to EMU. Spiegel repeats the difference-in-differences exercise with this aggregation. Again, EMU acces-

sion is shown to lead to increased borrowing by Portugal from its monetary union partners.

Preliminary evidence from Greece

Greece was a late entrant into the EMU at the beginning of 2001. Because the sample extends only through the end of 2002, this leaves just four semiannual observations for each creditor country to examine whether the composition of Greek borrowing was also focused towards its EMU partners after its accession to the monetary union. However, Spiegel examines this preliminary evidence as a check on the Portugal results.

The results for Greece with the same specification treating the start of 2001 as the intervention date show the Greek experience to be quite similar to the Portuguese one. The policy intervention variable is again positive and significant, entering with an even larger coefficient than that obtained for Portugal. The Greek results also survive the battery of robustness tests described above, suggesting that Greek accession to the EMU also skewed its borrowing towards its EMU partner nations.

While the Greek results are preliminary, they provide important support for the Portuguese results in light of the extensive liberalization that was simultaneously taking place in the Portuguese financial market during the 1990s. While there is no a priori reason that this liberalization should skew borrowing towards Portugal's monetary union partners, the similarity of Greece's experience supports the conclusion that the motivation for the increased financial integration was the formation of the EMU. Greece also liberalized its financial markets in some dimensions during the 1990s, but the degree of change was nothing like that which took place in Portugal.

Policy implications

The results strongly suggest that monetary integration facilitates financial integration. Moreover, the results suggest that the increased opportunities for borrowing or lending afforded by accession to a monetary union are skewed towards their monetary union partner nations. These changes in the pattern of Portuguese borrowing raise the possibility of "financial diversion," in other words, the possibility that increased Portuguese borrowing from its monetary union partners after EMU accession came at the expense of borrowing from non-EMU sources. There is a large literature on the possibility of "trade diversion" resulting from the formation of free trade areas. This literature demonstrates that the potential for lost trade with countries outside of a free trade zone makes it possible that a free trade zone reduces welfare, even for free trade zone members.

The question then naturally arises whether the concept of welfare reduction due to trade diversion also applies to financial diversion due to the formation of a monetary union. Fortunately, the analogy is not exact. Financial diversion is likely to be the result of true cost reductions in borrowing from monetary union partner nations, such as those that would emerge from a reduction in the level of currency risk associated with international borrowing. If this were the case, it would be likely that the financial integration effect of monetary integration would further increase overall welfare, although lenders from non-EMU nations may suffer from lost market share.

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