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Financial imbalances and macroprudential policy in a currency union

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I De Nederlandsche Bank, Financial Stability Division. We would like to thank Arnoud Boot, Gabriele Galati and Dirk Schoenmaker for useful comments on an earlier version. The usual disclaimer applies.

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Abstract

We examine financial imbalances and macroeconomic policy in the EMU economies over the past two decades. Country-specific imbalances surged after the introduction of the euro and can be related to divergent monetary conditions as well as unsustainable economic developments. Given limitations to traditional macroeconomic policies, especially in a currency union, national macroprudential tools are key to address heterogeneous financial cycles.

1 Introduction

The credit crisis and ensuing sovereign crisis illustrate the limitations of traditional macroeconomic policies to contain financial imbalances. Despite discussions on the desirability to dampen credit cycles and asset price fluctuations, most countries have long been reluctant to include this in policy objectives. Recent experiences have reignited this debate and have led to the development of macroprudential instruments to supplement monetary and fiscal policy.

These new instruments are particularly relevant in the context of a currency union, such as the Economic and Monetary Union (EMU) in Europe. Indeed, country-specific imbalances grew in the first decade after the start of the euro, as reflected in rapid credit growth and asset price inflation, in combination with increasing current account deficits and weakening competitiveness in several jurisdictions. Such imbalances could no longer be countered by monetary policy, while the scope for fiscal policy was also limited by institutional arrangements. Member states were well aware of this at the start of EMU: they had committed themselves to pursue budget surpluses in good times and to make their economies more flexible, which would allow them to deal with adverse asymmetric shocks. However, while the benefits of the single currency – in terms of price stability and deeper financial markets – have been largely realized, member states failed to make their economies more robust to asymmetric, especially financial disturbances.

This paper examines the interaction of financial imbalances and macroeconomic policies for the countries that joined EMU at the start in 1999 or – in the case of Greece – soon afterwards. We find that country-specific imbalances surged once EMU took effect. With economic prospects differing between countries, the uniform monetary policy translated into divergent national monetary conditions, thereby contributing to unsustainable economic developments. Our key message is that, especially in a currency union with heterogeneous financial cycles, national macroprudential tools are needed to address financial imbalances at the country-level.

This paper is organised as follows. Section II discusses the relationship between financial imbalances and macroeconomic policy. Section III presents empirical evidence, comparing developments under EMU with those in the decade prior to EMU, as well as EMU economies with a set of advanced economies that did not join EMU. Section IV discusses policy implications. Section V concludes.

2 Financial imbalances and macroeconomic policy

According to the conventional view, the main goal of macroeconomic stabilization policy is to dampen the economic cycle and keep inflation under control. Monetary policy aimed at price stability over a medium-term time horizon tends to have a countercyclical impact, while fiscal policy can reduce output swings through automatic stabilisers. In fact, macroeconomic policies were successful in reducing output fluctuations and bringing down inflation from the 1980s until the outbreak of the financial crisis.

There has been little recognition that stabilization policy should also directly address macro-financial imbalances, which have become much more important over the past decades.² Following deregulation and liberalization, the financial system has expanded much faster than the real economy and now represents a multiple of national income in most advanced economies. While this has brought important advantages such as wider access to financial services, it has also fuelled the build-up of financial exposures in the economy, as reflected in rising credit-to-GDP ratios and upward pressure on asset prices.

The credit crisis has made clear that a re-orientation of macroeconomic policymaking is needed to deal with financial imbalances.³ Several proposals have been made, most of which can be grouped into three approaches:

- Monetary and fiscal policy mandates may be extended to take into account excessive credit growth and asset prices. Especially monetary policy can be effective in containing credit booms, although critics argue that this may complicate the goal of price stability.4
- Financial resilience may be improved through measures at the micro-level.5 A key example is to re-design tax systems to reduce the preferential treatment

² Exceptions include Crockett (2000) and Borio (2003).

³ See Blanchard et al. (2010), Galati and Moessner (2012), Dell'Ariccia et al. (2012).
4 Borio and Lowe (2002) are early supporters for a re-orientation of monetary policy to take into account macro-financial imbalances. Agur and Demertzis (2013) investigate how monetary policy would change if it also takes into account financial imbalances.

⁵ See CGAP (2002) for a discussion of the role of micro policies to reduce asset price volatility.

of debt over equity financing. Higher microprudential capital requirements also increase resilience at the aggregate level. Another example is to develop remuneration standards that link financial incentives to long-term performance. Specific macroprudential tools can be developed for a new type of macroeconomic policy, alongside monetary and fiscal policies.⁶ These instruments directly address financial imbalances, independently from other policies, which is attractive from a Tinbergen rule perspective. Nonetheless, their execution is likely to involve central banks, micro-prudential regulators and treasuries. Examples are countercyclical capital buffers, loan-to-value (LTV) restrictions and extra capital buffers for systemically important institutions. There may be some overlap with the second approach, insofar as macroprudential instruments also include structural measures.⁷

The third approach – additional tools to counter financial imbalances – is particularly relevant for countries that are part of EMU.⁸ In these countries, monetary policy can no longer be tailored to domestic circumstances while fiscal policy is constrained by institutional barriers such as the Stability and Growth Pact. At the same time, important factors that drive the financial cycle – like housing markets, mortgages and tax policy – are still predominantly domestic. In these circumstances, the risks associated with divergences in national financial cycles can be mitigated by macroprudential policy instruments.

⁶ See CGFS (2010) for a discussion on macroprudential instruments. n'Diaye (2009) explores how macroprudential policy can support monetary policy in reducing output fluctuations while promoting financial stability.

⁷ Some recently proposed macroprudential tools, like LTV restrictions, are similar to earlier proposals that were referred to as micro-instruments (see e.g. CGAP, 2002). This holds particularly for instruments addressing the structural (cross-sectoral), rather than the cyclical (time) dimension of macroprudential risks (Borio, 2003).

⁸ See Persaud (2013).

3 Empirical evidence

This section discusses the evolution of financial imbalances in the past two decades in the euro area and other economies. When this time period is split into half, a striking difference emerges between the first half before, and the second half after the launch of the currency union. Indeed, after the start of EMU, the development of financial imbalances became increasingly related to domestic monetary conditions. This is illustrated by the tight relationship between credit gaps and the domestic monetary policy stance in the top-right corner of Graph I. The credit gap is the deviation of the credit-to-GDP ratio from its long-term trend, which is widely considered to reflect the build-up of financial imbalances.⁹ The domestic monetary policy stance is measured by the deviation of the actual policy rate – set by the European Central Bank (ECB) – from the country-specific Taylor rate.¹⁰ Interestingly, the large cross-national differences in monetary stance before the start of the common monetary policy did not decline hereafter and became increasingly related to credit imbalances (Graph 2).

The patterns in Graphs 1 and 2 are supported by pooled panel regressions explaining the credit gap by monetary conditions and a measure of fiscal stance, the cyclically adjusted primary deficit (Table 1). Monetary conditions are significant and positively related to the credit gap only in the second period; fiscal stance does not have any explanatory power in both sample periods. Only the first lag of monetary stance is statistically significant; other studies have documented a more prolonged impact of monetary policy on credit.^{π}

⁹ The Basel Committee has identified the credit gap as the preferred indicator of macro-financial vulnerabilities. It is used as a common reference guide for the build-up of the countercyclical capital buffer in the Basel III framework (BCBS, 2010).

¹⁰ We calculated Taylor interest rates as originally proposed by Taylor (1993): $2 + \text{current inflation} + 0.5^{\circ} \text{output gap} + 0.5^{\circ}(\text{current inflation minus} - 2), i.e. assuming that the equilibrium real interest rate and the inflation target are both 2. We also considered other specifications, with alternative equilibrium rates (average real interest rates or GDP growth) and inflation goals (average inflation over the period considered), which lead to very similar results. Other studies (e.g. Hofman and Bogdanova, 2012) also find that the outcomes of different Taylor rule specifications outcomes are quite robust.$

II See the extensive empirical literature following Bernanke and Blinder (1992).

Graph 1 Country-specific imbalances before and after EMU

Correlations between monetary stance and credit gaps, sub-period averages by country. Monetary stance is the Taylor interest rate minus the actual policy rate; the credit gap is calculated according to the Basel Committee methodology (trend deviation credit/GDP based on HP- filter). Significant correlation (99 percent level) is indicated by ***.



Source: own calculations, based on BIS credit data (Dembiermont et al., 2013), OECD statistics and several national sources.



Correlations between country-specific monetary conditions and credit gaps (see Graph 1), based on ten-years moving window panel observations.



Table 1 Pooled regressions explaining domestic credit gaps

Variable	1986-1998		1999-2007		
	Coefficient	St error	Coefficient	St error	
Mon_exp _{t-1}	-0.35	0.41	4.08***	0.93	
Mon_exp _{t-2}	-0.29	0.37	-0.87	0.90	
Fisc_exp _{t-1}	0.39	0.76	0.36	1.02	
Fisc_exp _{t-2}	-I.04	0.79	-0.78	1.00	
Observations	136		99		
F statistic	3.2**		9.2***		
R ²	0.09		0.28		

*** Significance at 99 percent level ** Significance at 95 percent level

Monetary policy was most expansionary for those economies that turned out to be most vulnerable in the crisis: Greece, Ireland, Italy, Portugal and Spain (the GIIPS countries). At the same time, monetary policy was closer to neutral for the other EMU members, including the two biggest ones – Germany and France. Graph 3 presents the annual development of credit gaps for the EMU as a whole and the individual GIIPS economies. In particular Ireland, Spain and Portugal have been at the upper side of the distribution – even above the 10-90 percent range – for extended periods.

Of course, the increased correlation with monetary conditions may also reflect factors unrelated to the currency union. For instance, there may be an asymmetry between the impact of tight (prior to EMU) versus expansionary (after 1998) monetary policy on credit aggregates.¹² Indeed, several studies have documented that after 2000, monetary policy was accommodative in most advanced economies due to deflationary concerns.¹³ This holds for both EMU and non-EMU countries, although for the latter the correlation between the monetary stance and imbalances remained statistically insignificant (Graphs 1 and 2). If asymmetry plays a role,

- 12 Kakes (2000) presents evidence for European countries that expansionary monetary conditions stimulate credit growth more than tight monetary policy reduces it. A possible explanation is downward rigidity in nominal credit aggregates. Maddaloni and Peydró (2013) provide evidence that low monetary policy rates lead to softer lending conditions in the euro area.
- 13 Hofman and Bogdanova (2012) establish that monetary policy was accommodative in most advanced and emerging economies since the early 2000s. Bernanke (2010) discusses US monetary policy in relation to deflationary pressures. Borio and Lowe (2004) and Ravn (2011) present evidence of asymmetric monetary policy responses, always reducing interest rates in a bust but not raising rates in a financial boom as long as there are no inflationary pressures.

Graph 3 Credit gap: distribution EMU economies

Percentage deviation credit-GDP-ratio from long-term trend; EMU aggregate 10-90 percentile interval and GIIPS countries.



this would imply that it is particularly important to address macro-financial imbalances when monetary conditions are loose. Part of our results may also be due to transitional factors. Especially for countries with high inflation prior to 1999, joining EMU constituted a regime change. Besides catching-up effects, there may have been an element of money illusion underlying investment and consumption behaviour as well as wage developments in some member states.¹⁴

To get more insight in underlying imbalances, Graph 4 presents key variables for the GIIPS countries. After the start of EMU, all of these countries experienced a steep decline in interest rates, rising asset prices, deteriorating competitiveness and growing current account deficits.¹⁵ Total public and private sector debt ratios, which were around the German ratio in 1999, increased to much higher levels after the start of EMU. But there are also marked differences. In Ireland and Spain, real estate prices and private sector debt more than doubled in a few years while government debt declined. By contrast, in Greece, Italy and Portugal house prices and private sector debt increased more slowly while government debt ratios remained high (Greece, Italy) or increased significantly (Portugal) due to persistent budget deficits. Finally, the Irish case is different because its vulnerability was exacerbated by a relatively large financial sector.

Altogether, these developments suggest that inappropriate interest rates facilitated an economic expansion in the GIIPS countries, financed with rising debt ratios. This expansion was not sustainable, as it was accompanied by growing current account deficits and an erosion of competitiveness. At the same time, sharply rising indebtedness and overvaluation of asset prices made these countries vulnerable to macroeconomic and financial shocks. Moreover, when these vulnerabilities crystallized, official support measures by the government were complicated by banks' concentrated exposures on this same government. When the cycle turned, this interlinkage fuelled a negative spiral of financial sector losses and deteriorating public finances.

¹⁴ For the developments in Spain before and after the start of EMU, see Estrada et al. (2009) and

Juselius and Ordóñez (2009). 15 The real effective exchange rate is used as an overall indicator of competitiveness. Especially in Ireland, a further breakdown shows that growth in unit labour costs was strongly driven by the construction sector and not by tradable goods sectors such as manufacturing (DNB, 2013).



Graph 4 Developments in GIIPS countries and Germany

Private debt only includes the non-financial sector, i.e. households and non-financial corporations.

Source: BIS, Eurostat, OECD

4 Policy implications

Would macroprudential policies have been sufficient to effectively reduce financial imbalances? This is difficult to prove for a past period in which these instruments were not available, as we do not know how banks would have responded. Nonetheless, Table 2 illustrates the order of magnitude banks' capital buffers might have been in the GIIPS countries if macroprudential policies had been actively implemented, in line with the prospective European policy framework. Given the large credit gaps, the countercyclical capital buffer would probably have been accumulated to the maximum level of 2¹/₂ percent (or even more, if the authorities had so decided).¹⁶ In addition, a substantial part of the banking sectors in these countries would have been considered systemic, implying an additional capital buffer of at least one to two percentage points.

16 IMF (2013) considers the hypothetical evolution of macroprudential instruments in a set of countries including Ireland and Spain, and concludes that the countercyclical buffer would have been activated prior to the crisis and saved a significant share if the fiscal costs for the authorities in both countries.

Table 2 Indication of macroprudential buffers

The size of the buffer is calculated on the basis of total risk-weighted assets in 2008. All figures are in EUR billions.

	Total assets 2008	Additional buffer (4 percent)	Banks' profits/losses			
			2009	2010	2011	2012
Greece	458	II.I	0.7	-1.5	-40.7	-11.8
Ireland	1621	25.6	-23.2	-36.4	-7.5	-9.2
Italy	2758	65.2	9.4	8.1	-24.4	1.8
Portugal	477	12.7	1.7	2.2	-I.I	-1.3
Spain	3637	82.8	20.I	17.8	-I.I	-53-4

Source: Consolidated Banking Data (ECB)

Suppose that each GIIPS country would have imposed 4 percentage points extra (risk-weighted) capital buffers which banks were allowed to draw down during the crisis. This would have protected banks' balance sheets and significantly alleviated the burden on taxpayers. Moreover, it would have countered the build-up of these imbalances prior to the crisis. Specifically, in the cases of Italy, Portugal and Spain, these buffers would have absorbed most, if not all banking system losses in 2009-2012. In the case of Ireland, buffer requirements for systemically important banks would have had to have been higher to provide the necessary safeguards. Only Greece's public debt problems were too large to shield banks with macroprudential policies.

In addition, more specific macroprudential instruments would have helped to target risks in real estate markets. In Ireland and Spain, LTV restrictions may have been effective to dampen the increase in house prices and to ensure adequate buffers at the level of households.¹⁷ In Greece, Italy and Portugal it would have been more effective to bring down government debt at an earlier stage. In all cases, additional capital buffers and concentration limits on exposures to national governments would have contributed to breaking the negative spiral of deteriorating public finances and risks in the financial sector, thereby also limiting the credit crunch after the cycle turned.

An essential element of macroprudential policy is an effective institutional set-up. All jurisdictions have now established macroprudential authorities, or intend to do so in the near future, as recommended by the International Monetary Fund (IMF) and the European Systemic Risk Board (ESRB).¹⁸ National macroprudential authorities are probably in the best position to assess domestic imbalances and related country-specific circumstances. With the right mandates, they also have the incentive to activate macroprudential instruments.¹⁹ At the same time, coordination at the European level is important to avoid undesired cross-border effects and to further discipline national authorities. Various degrees of centralisation are possible.²⁰ According to the draft regulation for the new European Single Supervisory Mechanism, the ECB and national authorities are co-responsible for macroprudential policies relating to banks. In practice, this means that in most cases national authorities may take the initiative to activate macroprudential instruments. Such measures are binding for the ECB, allowing only upward departures – i.e. higher requirements or more stringent measures – from national proposals. This

¹⁷ Maddaloni and Peydró (2013) find evidence that higher levels of bank capital and LTV restrictions help to reduce the impact of expansionary monetary conditions on lending standards.

¹⁸ See IMF (2011), ESRB (2011).

¹⁹ Houben et al. (2012) discuss how macroprudential policy can be further operationalized.

²⁰ Schoenmaker (2013) makes a distinction between a centralised model, in which the ECB controls policy tools and national authorities make recommendations based on their knowledge of local conditions, and a more de-centralised model in which the ECB formulates the overall policy framework and national authorities control policy instruments.

creates incentives at both the national and European level to build up buffers as vulnerabilities develop and therewith to ensure buffers are actually available when the downturn sets in. This asymmetric set-up counters the inaction bias that has been evident in policymaking in the past and fosters macroprudential requirements above the minimum level set by microprudential regulation.

5 Concluding remarks

The global financial crisis calls for a re-orientation of stabilization policies, with a new role for macroprudential policy instruments. This is particularly relevant for EMU, which is struggling with a financial crisis and in which country-specific imbalances cannot be offset by the uniform monetary policy and hardly by the institutionally constrained fiscal policy. With limited labour mobility and market flexibility, the move to a banking union will add harmonized microprudential requirements for the banking sector. In this context, it is crucial that macroprudential policies are developed and implemented at the domestic level to offset divergences in national financial cycles. Looking back, appropriate macroprudential policies would have fostered the banking systems' solvency throughout the recent crisis years. Ironically, differences in macroprudential policies will thus serve to safeguard the common European internal market. By acknowledging the primarily domestic nature of financial imbalances, these instruments will help sustain Europe's economic and financial integration.

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