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What makes a monetary union work?

Making 'EMU 2.0' work

This week we published a *Global Economics Paper* in which we revisit the economics of optimal currency areas (OCA) in light of the experience of the Euro area crisis and, on that basis, consider whether the institutional changes and structural reforms being implemented in the Euro area will be sufficient to ensure EMU's long-term survival.

Getting the institutional framework right is critical

We argue that establishing the right fiscal and financial institutional framework – both to deal with problems when they occur and to help ensure that the monetary union is credible – is more important than trying to ensure that the 'economic' conditions for a monetary union are ideal. While real wage flexibility and – to a lesser extent – labour mobility have important roles to play in the adjustment to regional shocks, business cycle synchronisation and trade integration appear to be less important.

Fiscal and financial/banking integration can be substitutes

The negotiations taking place to develop the Euro area's steady-state framework have developed along two separate institutional dimensions: one seeks closer fiscal integration, while the other seeks closer financial/banking integration. Because fiscal and financial integration can act as substitutes for each other, neither approach is necessarily 'correct'.

But progress across both dimensions is insufficient

Progress along the fiscal dimension has largely stalled. While the European Stability Mechanism (ESM) and the 'enhanced surveillance' procedure have altered the Euro area's fiscal framework, there appears little prospect of more radical options being implemented. Progress along the financial dimension remains ongoing, through efforts to establish a Euro area banking union. But the more far-reaching options along this dimension – such as the introduction of common deposit insurance – also appear unlikely to be implemented.

We argue that the changes being implemented do not (yet) make the Euro area's institutional structure sufficiently robust to deal with a future crisis.

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What makes a monetary union work?

Making 'EMU 2.0' workable

Market concerns over the survival of the Euro have subsided since ECB President Draghi made his pledge to do "*whatever it takes*" to preserve monetary union in July 2012. Yet the quest to make the Euro area a more 'workable' monetary union still faces significant challenges. At the area-wide level, institutional reform is needed to improve Euro area governance; and, at the national level, the painful processes of economic restructuring, fiscal consolidation and private-sector deleveraging all have some way to go before financial and macroeconomic imbalances are unwound and the conditions for sustainable economic growth restored.

As European policymakers negotiate the structure of 'EMU 2.0', this week we published a *Global Economics Paper*[1] that seeks to offer investors a framework to assess institutional changes and structural reforms and their implications for the Euro area's long-term survival. We do not assess the factors underlying the Euro area's broader economic performance – many economies that have low GDP per capita levels and/or growth rates still function well as a monetary union. Rather, our focus is on establishing the criteria required to ensure that internal adjustments do not prompt periodic existential crises.

A natural starting point for such an analysis is the (pre-crisis) Optimal Currency Area (OCA) literature. This proposes a list of at least seven criteria that determine the optimality of a currency union:

1. **Synchronisation of business cycles**, so that one monetary policy can fit all and the sacrifice implied by giving up monetary independence is limited.
2. A high degree of **goods market (trade) integration** between participating states, to maximise the benefit of sharing a single currency.
3. A high degree of **inter-regional labour mobility**, to aid in the adjustment to region-specific shocks.
4. A high degree of **wage flexibility**, to allow real exchange rate adjustments to play out more easily in the absence of nominal exchange rate flexibility.
5. **Mechanisms for fiscal transfers** – such as fiscal federalism – to offset the negative consequences of region-specific shocks.
6. **Financial integration** – either via a unified banking system or via greater capital market integration – to enable greater risk-sharing across the monetary union.
7. A high degree of **political and institutional integration**, to promote the acceptance of region-specific shocks (among the electorates of participating states) and the irrevocability of monetary union (in financial markets).

It is a demanding list. And, were it the case that a high degree of each of these criteria was required to ensure the Euro area's long-term survival, then the Euro area would be unlikely to survive in the long term. But few economies fully satisfy each of the criteria set out above, yet many function effectively as monetary unions. So, rather than focus on what is required to make a currency union optimal, we focus on what makes it workable – i.e., we attempt to separate the necessary from the 'nice to have'.

In this context, it is necessary to recognise that the various characteristics identified above interact with one another: on some dimensions they may be complements, while on other

[1] "What makes a monetary union work?", *Global Economics Paper* No. 224, April 29, 2014.

dimensions they may be substitutes. Moreover, if there is an insufficient degree of integration across one dimension, it can be compensated for by a greater degree of integration across another dimension. One implication of this is that there is no single combination of factors that represents the ‘correct’ way to construct a monetary union. Rather, there is a range of different combinations of factors that constitute the set of ‘workable’ monetary unions. Another implication of the substitutability of factors is that it is difficult to judge precisely where the boundary between the set of workable and unworkable monetary unions actually lies.

Institutions matter more than ‘economic’ factors

Our analysis draws on the experience of the Euro area and that of the US – a similarly-sized economy, with diverse states, which (self-evidently) functions as a monetary union.

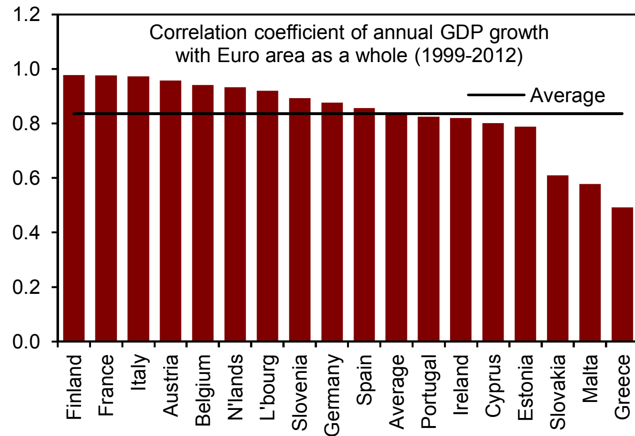
The seven criteria set out above can be broadly grouped into ‘economic’ factors (synchronisation of business cycles, the degree of trade integration, labour mobility and wage/price flexibility) and ‘institutional’ factors (mechanisms for fiscal transfers, financial integration and political union). The distinction between ‘economic’ and ‘institutional’ factors is – in some respects – somewhat artificial: for example, wage flexibility and labour mobility reflect the institutional structure of the labour market in the same way that the extent of financial integration dictates the mobility of capital across intra-Euro area borders. Nevertheless, we find it a useful organisational device for the analysis that follows.

One key finding from our analysis is that establishing the right institutions – to deal with problems when they occur and to help ensure that the monetary union is credible – is more important than trying to ensure that each of the ‘economic’ conditions for a monetary union are met. While real wage flexibility and – to a lesser extent – labour mobility have important roles to play in the adjustment to regional shocks, we argue that business cycle synchronisation and trade integration are less important than implied by the pre-crisis Optimal Currency Area literature. Specifically, we find the following:

- A high degree of **business-cycle synchronisation** does not appear to be a necessary condition in making a monetary union work. First, Euro area countries have exhibited more business-cycle synchronisation than US states on most measures since EMU began and yet the US continues to function well as a monetary union, while the Euro area faces many problems. Exhibits 1 and 2 plot the correlations of annual GDP growth rates of individual Euro area countries with growth in the Euro area as a whole and similarly for the individual states of the US, for the period 1999-2012. Over this timeframe, growth rates have been more correlated within EMU than within the US (with an average correlation coefficient of 0.84 vs. 0.65 in the US). The message presented by the static analysis above is reinforced by various dynamic measures of business cycle synchronisation that we have considered.

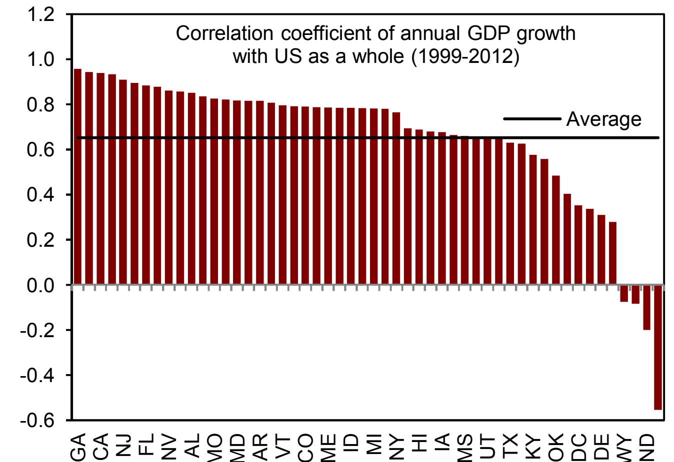
  Second, looking at the performance of US states over a longer timeframe, we find that severe and persistent state-specific economic shocks are commonplace, yet this has not prevented the US from continuing to function as a monetary union.

Exhibit 1: Correlations of growth between Euro members and the Euro area as a whole over the 1999-2012 period are higher than…



Source: Eurostat, National Statistics Offices, Goldman Sachs Global Investment Research

Exhibit 2: …the correlations of growth between US states and the US as a whole over the same period



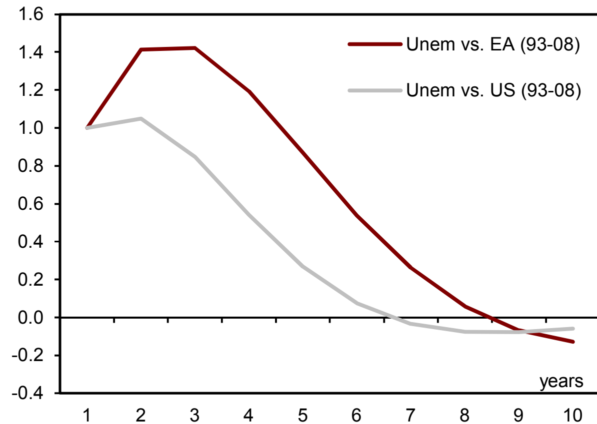
Source: US BEA, Goldman Sachs Global Investment Research

- A high degree of **goods market (trade) integration** does not appear to be a determining factor of workability: the Euro area exhibits a high degree of trade integration but has not functioned well as a monetary union.
- A high degree of **labour mobility** does not appear to be a sufficient condition of workability. While the adjustment of country-specific unemployment in the Euro area is clearly slower than the adjustment of state-specific unemployment in the US (Exhibit 3), we do not believe that differences in labour migration flows play the leading role in accounting for the US's faster speed of adjustment. Although labour flows tend to be higher in the US than in Europe, the response of net migration to unemployment differences does not appear significantly different in the Euro area from that in the US, so it is difficult to argue that labour mobility represents the key distinction between the US's functioning monetary union and the Euro area's malfunctioning union (Exhibit 4).[2]
- A high degree of **real wage flexibility** – in allowing easier real exchange rate adjustment – appears to play an important role in offsetting the effects of lost nominal exchange rate flexibility. Real wage flexibility is higher in the US than in the Euro area and this greater degree of wage flexibility appears to play an important role in US regional adjustment (Exhibit 5). However, while wages respond more flexibly in US states in the short run, wage shocks are also much less persistent in the US than country-specific wage shocks are in the Euro area.[3]

[2] This finding needs to be treated with some caution, not least because the Euro area results are based on a more limited data set than for the US. While we are comfortable that our estimates are accurate given the data available, migration data for Euro area countries are only available for the period 1999-2010 and not for every country.

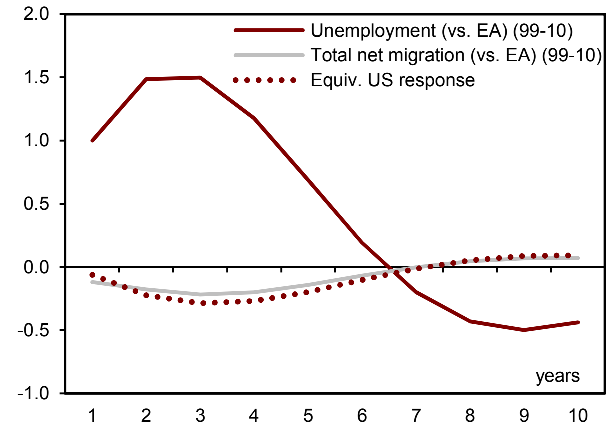
[3] This is not surprising. If there is little labour market flexibility – in quantities or prices – it is not the case that the relative adjustment that is required will simply be avoided. Rather, the adjustment is likely to take longer and be more painful (in the sense that unemployment will have to rise by more to achieve the same decline in real wages) than would have been the case under the flexible labour market scenario.

Exhibit 3: Country-specific unemployment shocks more persistent in Euro area than US
Impulse response to 1pp state/country-specific unemployment shock (1993-08



Source: BEA, Eurostat, OECD, Goldman Sachs Global Investment Research

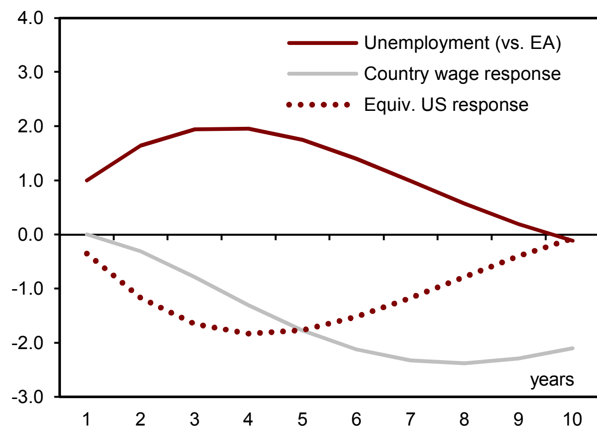
Exhibit 4: Greater persistence of Euro area unemployment shocks not due to migration
Impulse response to 1pp country-specific unemployment shock



Source: Eurostat, OECD, Goldman Sachs Global Investment Research

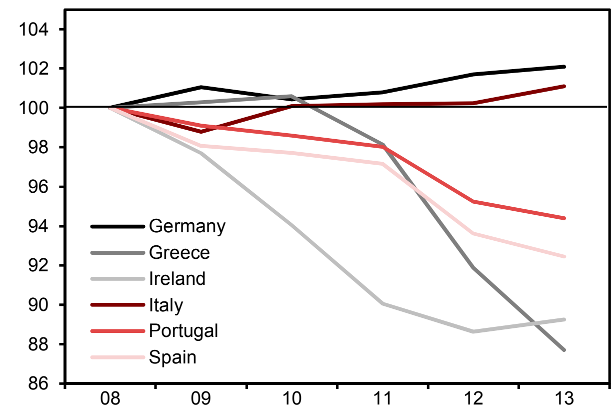
Painful as the price of adjustment may be in the Euro area, it is a price that peripheral countries have so far been prepared to pay. Unemployment has risen sharply in the periphery, but clear progress is being made in regaining competitiveness. Exhibit 6 displays whole economy ULCs relative to the Euro area for Germany and the peripheral states from the start of the crisis (2008) onwards. With the exception of Italy, all of the peripheral states have made significant progress in regaining competitiveness.

Exhibit 5: Wage response in Euro area countries takes longer to come through
Impulse response to 1pp country/state-specific unemployment shock



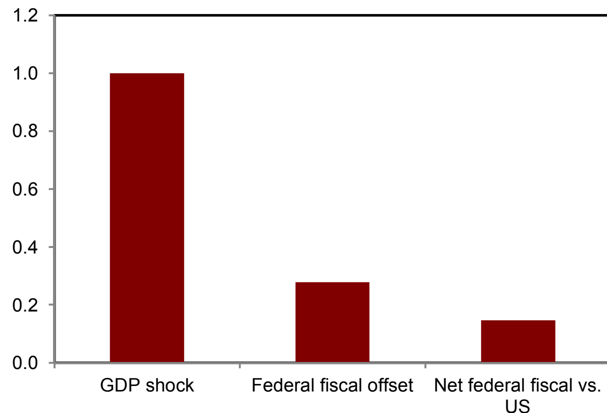
Source: BEA, OECD, Goldman Sachs Global Investment Research

Exhibit 6: Most peripheral economies have gained competitiveness since 2008
Real unit labour costs relative to the Euro area (2008=100)



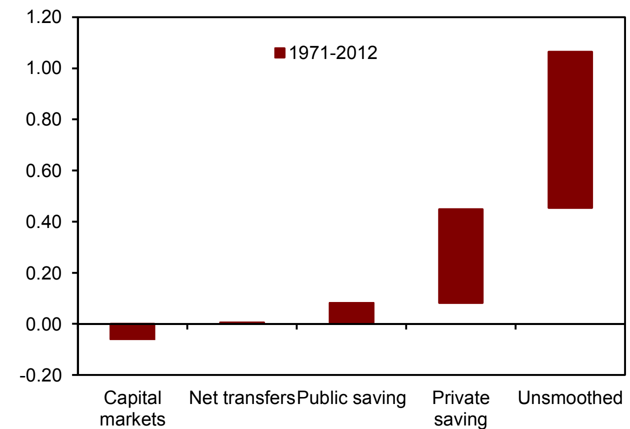
Source: EU Commission

Exhibit 7: US federal fiscal policy offsets 25% of income shocks, but only half is due to inter-regional insurance
Estimated response of federal fiscal policy to GDP shock



Source: Goldman Sachs Global Investment Research.

Exhibit 8: There has been little/no cross-country fiscal or capital market risk-sharing among Euro area countries
Estimated channels of income smoothing (share of shock to income)

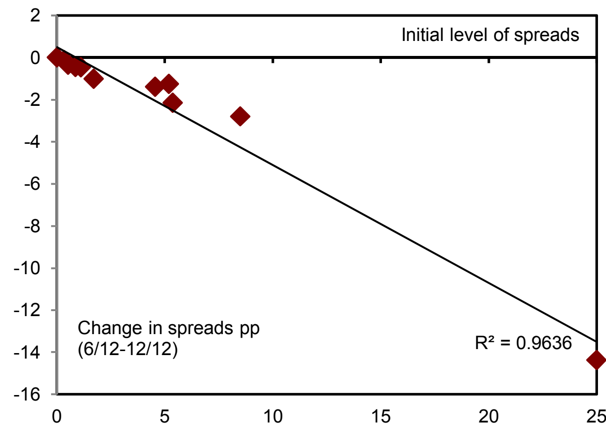


Source: Goldman Sachs Global Investment Research.

- **Fiscal transfers** play an important role in offsetting region-specific shocks in the US but not in the Euro area. We find that the US's federal fiscal system directly offsets around 25-30% of the initial effect on income from state-specific economic shocks, but that only half of this is due to inter-regional insurance (Exhibit 7). The other half is due to inter-temporal smoothing, which can be provided by national tax systems.[4]
- **Integrated financial and banking markets** provide an important means of risk-sharing in the US and other monetary unions. To the extent that private financial markets facilitate the sharing of region-specific shocks, this can offset the need for fiscal risk-sharing (all else equal). The US's integrated capital and credit markets play an important role in smoothing the impact of region-specific shocks in that economy. By contrast, we find that there has been little or no cross-country fiscal or capital market risk-sharing among Euro area countries in the past 40 years and the degree of risk sharing has fallen since EMU began (Exhibit 8).
- The importance of greater institutional integration is reinforced by **the self-fulfilling aspect of the perception of irrevocability** (among investors and electorates). An important reason why the 'US Dollar zone' functions as a monetary union – despite the existence of frequent and substantial state-specific shocks – is because few question its existence. When a US state is hit by a negative shock, it does not face the additional burden of a rise in funding costs resulting from the perceived risk that it may leave the Dollar zone. By contrast, the defining characteristic of the Euro crisis has been the emergence of what Mr. Draghi has labelled "*convertibility risk*". As concerns about a possible exit from the Euro area emerged in some countries, the (natural) financial market response (of widening spreads and increasing risk premia) exacerbated those concerns rather than dampened them and the Euro area was placed on a destructive path.

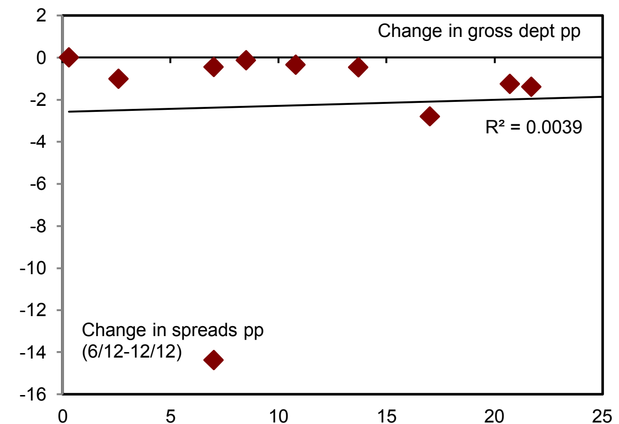
[4] One view – held by a number of German policymakers – is that the inter-temporal smoothing capability of national fiscal policies should be sufficient to deal with temporary shocks, and that permanent shocks require the real adjustment of wages and other costs in the long run.

Exhibit 9: "*Whatever it takes*" triggered a large compression in spreads…
Change in Euro area sovereign spreads vs. initial spreads



Source: Goldman Sachs Global Investment Research.

Exhibit 10: ...that was unrelated to fundamentals
Change in Euro area sov. spreads vs. change in gross govt. debt 2011-2013



Source: Goldman Sachs Global Investment Research.

One indication of the importance of convertibility risk in driving the high level of Euro area periphery spreads in 2011H1/2012H2 is simply to observe the extent to which those spreads narrowed once Mario Draghi made his "*whatever it takes*" commitment in July 2012 (on the basis that Mr. Draghi's statement altered perceptions of convertibility risk but left bond market fundamentals otherwise unchanged). Exhibit 9 plots the change in Euro area spreads between June and December 2012 against the initial level of those spreads. There is a strong link between the two, with an R-squared of 0.96 (falling to 0.93 if Greece is excluded). By contrast, it is difficult to find a strong relation between the change in spreads and conventional bond market fundamentals (Exhibit 10).

Institutional reform plans are not yet sufficiently robust

The conclusion that 'institutional' factors (fiscal transfers, financial integration and political union) and wage flexibility are more important than other 'economic' factors (cyclical symmetry, the degree of trade integration and labour mobility) is – tentatively – positive for the Euro area. This is because European policymakers have it within their power to adjust institutional factors and to implement reforms that would increase wage flexibility, whereas there is little they can do to adjust deeper economic relationships (such as business cycle synchronisation and trade integration). This is not to suggest that adjusting Euro area institutions or implementing labour market reforms to make EMU work is easy – as it clearly isn't – but it is at least possible.

In determining which criteria are necessary and which factors a monetary union can work without, we also need to recognise that there is more than one way to make a monetary union workable. As Huw Pill has argued in previous research, progress towards deeper integration in one dimension can be a substitute for making progress along another.[5] For instance, the size of cross-country fiscal transfers in the Euro area may never match inter-state transfers in the US, but a greater degree of risk-sharing through a more integrated financial system could be sufficient to make EMU work.

[5] "Creating a workable monetary union", Huw Pill, *European Economics Daily*, October 23, 2012.

The negotiations taking place to develop the Euro area's steady-state framework have developed along the two institutional dimensions discussed here: fiscal/political and financial/banking. As the Euro area's principal creditor country, Germany has fought to ensure that fiscal and financial risks will not be shared across either dimension without countries first displaying a willingness and ability to consolidate and reform. It has also been one of the strongest advocates for greater fiscal/political integration over the medium term, while displaying markedly less enthusiasm for financial/banking integration. France, by contrast, displays greater enthusiasm for financial/banking integration, while being reluctant to relinquish fiscal/political sovereignty.

Because fiscal and financial integration can act as substitutes for each other, neither approach is necessarily 'correct'. Moreover, there is an element of complementarity between them: banking integration may require a common area-wide fiscal backstop for the financial system, which raises fundamentally fiscal issues. There is also a question of the sequencing of changes: Germany may justifiably claim that sharing fiscal risks requires that its partners have demonstrated a willingness and ability to make necessary but painful adjustments, whereas France and countries in the periphery can equally justifiably argue that, without explicit financial support from Germany, adjustment is infeasible in economic and/or political terms. Finally, the choice of how to proceed across these dimensions of reform and adjustment has important distributional consequences along national lines, which can naturally complicate the ongoing negotiation process.

Partly as a result of these complications, there has been a marked reduction in the impetus to implement changes across either dimension since market pressures in the Euro area have abated following Mr. Draghi's "*whatever it takes*" intervention:

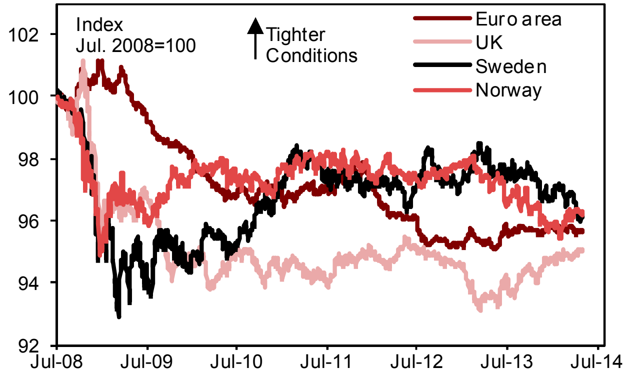
- In terms of **fiscal/political integration**, there appears to be a reluctance to move beyond the 'enhanced surveillance' procedures set out in the revamped Stability and Growth Pact. We are sceptical that the changes implemented to date imply a sufficient degree of fiscal/political integration to ensure the Euro area's long-term survival (at least in the absence of much deeper financial/banking integration).
- In terms of **financial/banking integration**, the introduction of a common supervisory framework is a necessary – but not sufficient – step towards deeper financial integration. However, there has been back-tracking on an earlier commitment to introduce direct recapitalisation of peripheral banks from the ESM bailout fund – precisely one of the banking issues that potentially has deep fiscal implications.

Progress has been made but, in our view, Euro area institutions are not yet sufficiently robust to deal with the possibility of future crises. While institutional reforms that would represent a sufficient steady-state framework have been discussed, they do not (yet) appear likely to be implemented to a sufficient degree. The marked reduction in Euro area tensions since Mario Draghi's famous "*whatever it takes*" commitment – although very welcome in itself – has brought with it a risk of complacency among European policymakers and financial markets regarding the need to strengthen the Euro area's institutional architecture. It may be that the Euro area 'needs' a renewed bout of market tension to provide policymakers with the impetus required to complete the construction of a workable monetary union in order to overcome some of the impediments noted above.

Kevin Daly

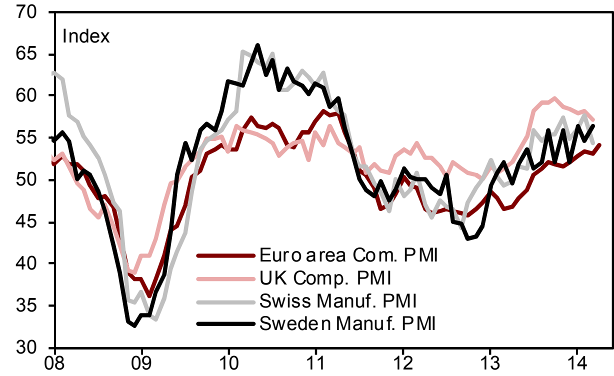
Key European Indicators

Financial conditions have eased in Sweden recently
European financial conditions



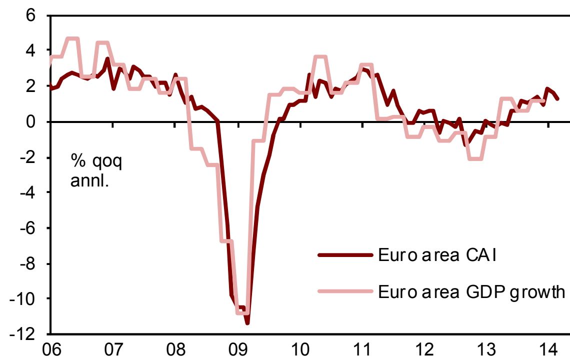
Source: Goldman Sachs Global Investment Research.

Business sentiment has been rising since early 2013
European business sentiment



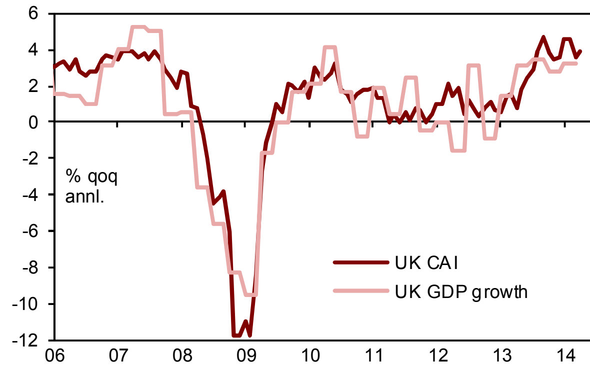
Source: Markit, SVME, Swedbank, Goldman Sachs Global Investment Research.

Our Euro area *Current Activity Indicator* points to growth of 1.4% annualised... Euro area GDP and Current Activity Indicator



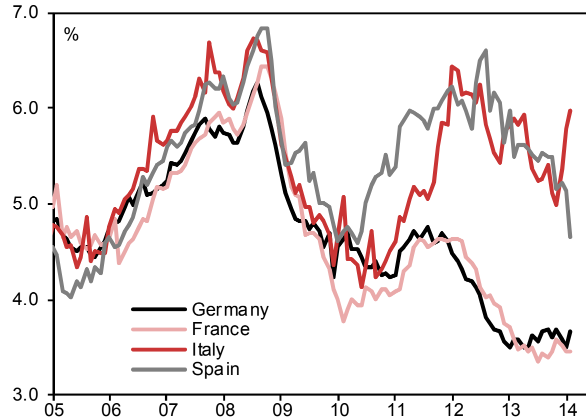
Source: Goldman Sachs Global Investment Research.

...and our UK *Current Activity Indicator* is consistent with growth of 3.9%qoq annualised
UK GDP and Current Activity Indicator



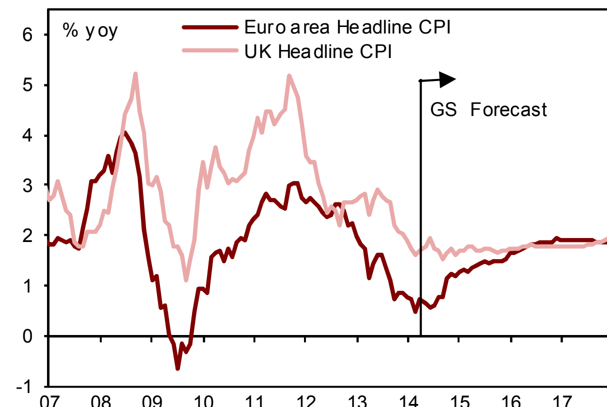
Source: Goldman Sachs Global Investment Research.

Bank lending rates to companies remain divergent, but had been trending down in Italy and Spain
% pa, interest rates on business loans up to €1mn with maturity between 1 and 5 years



Source: Goldman Sachs Global Investment Research.

We expect Euro area inflation to remain around current levels until October
Inflation forecasts



Source: Eurostat, ONS, Goldman Sachs Global Investment Research.

Main Forecasts

Economic Forecasts

	GDP (Annual % change)			Consumer Prices (Annual % change)			Current Account (% of GDP)			Budget Balance (% of GDP)		
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Euro area	-0.4	1.2	1.5	1.4	0.9	1.5	2.1	2.5	2.6	-3.1	-2.7	-2.3
Germany	0.5	2.0	2.1	1.6	1.4	2.5	7.0	6.8	5.9	-0.5	-0.5	0.0
France	0.3	0.9	1.1	1.0	1.0	1.3	-1.9	-1.9	-1.7	-4.3	-4.0	-3.5
Italy	-1.8	0.6	1.0	1.3	0.9	1.3	0.1	0.1	0.1	-3.1	-2.8	-2.3
Spain	-1.2	0.9	1.2	1.5	0.3	0.6	0.9	2.9	3.6	-6.4	-5.2	-4.6
UK	1.7	3.0	2.7	2.6	1.7	1.7	-4.4	-3.6	-3.6	-6.4	-5.0	-3.5
Switzerland	2.0	1.9	2.1	-0.2	0.4	1.3	14.0	12.2	11.3	0.0	0.1	0.2
Sweden	1.5	3.6	3.4	0.0	0.1	1.5	6.2	5.9	5.9	-1.1	-0.7	0.0
Denmark	0.4	0.9	1.9	0.5	0.8	1.6	5.7	6.7	7.2	-2.1	-4.1	-5.1
Norway*	2.1	2.8	3.2	2.1	2.0	1.5	12.8	13.7	14.7	-	-	-
Poland	1.5	3.2	3.3	0.9	1.3	2.0	-1.3	-2.3	-2.4	-4.2	4.5	-3.2
Czech Republic	-0.9	2.6	2.4	1.4	0.9	1.8	-1.4	-1.2	-1.6	-2.1	-2.8	-2.8
Hungary	1.2	2.2	2.0	1.7	0.8	2.7	3.0	1.5	1.0	-2.9	-3.0	-3.0

*Mainland GDP growth
Source: Goldman Sachs Global Investment Research.

Interest Rate Forecasts

%			3 Month Horizon		6 Month Horizon		12 Month Horizon	
		Current	Forward	Forecast	Forward	Forecast	Forward	Forecast
Euro area	3M	**0.3**	**0.3**	**0.3**	**0.4**	**0.3**	**0.4**	**0.3**
	10Y	**1.5**	**1.5**	**2.1**	**1.6**	**2.2**	**1.7**	**2.5**
UK	3M	**0.5**	**0.5**	**0.5**	**0.7**	**0.5**	**1.1**	**0.5**
	10Y	**2.7**	**2.8**	**3.1**	**2.8**	**3.2**	**3.0**	**3.4**
Sweden	3M	**0.9**	**0.8**	**0.9**	**0.8**	**0.9**	**0.9**	**0.8**
	10Y	**2.0**	**2.0**	**2.7**	**2.1**	**2.7**	**2.2**	**2.9**
Switzerland	3M	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
	10Y	**0.8**	**0.9**	**1.3**	**0.9**	**1.4**	**1.0**	**1.7**
US	3M	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.5**	**0.3**
	10Y	**2.7**	**2.8**	**3.0**	**2.9**	**3.2**	**3.0**	**3.4**
Canada	3M	**1.2**	**1.3**	**1.5**	**1.3**	**1.6**	**1.4**	**1.7**
	10Y	**2.4**	**2.5**	**3.2**	**2.5**	**3.3**	**2.6**	**3.4**
Australia	3M	**2.7**	**2.7**	**2.4**	**2.7**	**2.6**	**2.9**	**2.9**
	10Y	**3.9**	**4.0**	**4.2**	**4.0**	**4.2**	**4.2**	**4.4**
Japan	3M	**0.1**	**0.1**	**0.3**	**0.1**	**0.3**	**0.2**	**0.3**
	10Y	**0.6**	**0.7**	**0.9**	**0.7**	**1.0**	**0.8**	**1.1**

Close: April 30 2014, mid-rates for major markets. We are currently using June 2014, September 2014 and March 2015 contracts for 3-month forward rates.
Source: Goldman Sachs Global Investment Research.

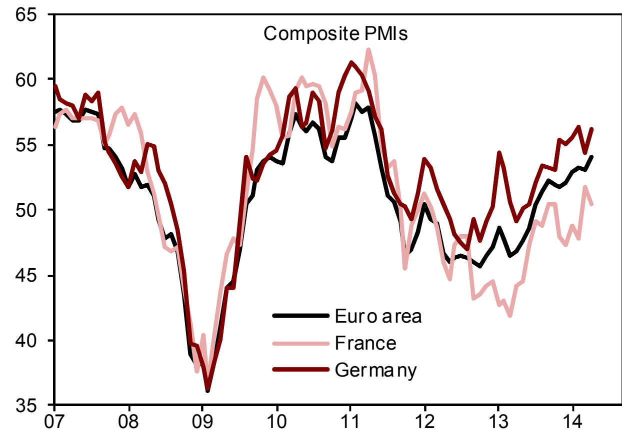
European Calendar

Focus for the two Weeks Ahead

Final **Service and Composite PMIs** for April are the main data points next week. The Euro area Services PMI rose from 52.2 to 53.1 on the flash estimate. Taking this together with the flash estimates for France and Germany suggests an average rise in the Services PMIs in Italy and Spain of around 1.8pt.

Monetary policy meetings take place at the ECB, BoE and Norges Bank next week. We expect no change in policy from any of these central banks. Looking further ahead, we expect the ECB to reinforce its current policy stance should financial conditions tighten undesirably. Judging from its latest statements, the hurdle for further action is low and, on this basis, we judge there to be a 40% probability of a cut in policy rates and/or liquidity measures in the coming months.

Gap between French and German PMIs widened in flash



Source: Markit, Goldman Sachs Global Investment Research

Economic Releases and Other Events

Country	Time (UK)	Economic Statistic/Indicator	Period	Forecast* mom/qoq	Forecast* yoy	Previous mom/qoq	Previous yoy	EMEA-MAP Relevance
Fri 2nd May								
Spain	08:15	PMI - Manufacturing	Apr	—	—	52.8	—	—
Switzerland	08:30	PMI - Manufacturing	Apr	—	—	54.4	—	4
Italy	08:45	PMI - Manufacturing	Apr	—	—	52.4	—	—
France	08:50	PMI - Manufacturing	Apr (Final)	50.9	—	50.9 (Flash)	—	5
Germany	08:55	PMI - Manufacturing	Apr (Final)	54.2	—	54.2 (Flash)	—	4
Euro area	09:00	PMI - Manufacturing	Apr (Final)	53.3	—	53.3 (Flash)	—	5
United Kingdom	09:30	PMI - Construction	Apr	—	—	62.5	—	4
Euro area	10:00	Unemployment Rate	Mar	—	—	+11.9%	—	5
Mon 5th May								
Sweden	08:30	Industrial Production	Mar	—	—	+2.2%mom	+1.7%	3
Tue 6th May								
Spain	08:15	PMI - Services	Apr	—	—	54.0	—	—
Spain	08:15	PMI - Composite	Apr	—	—	54.2	—	—
Italy	08:45	PMI - Composite	Apr	—	—	51.1	—	—
Italy	08:45	PMI - Services	Apr	—	—	49.5	—	—
France	08:50	PMI - Composite	Apr (Final)	50.5	—	50.5 (Flash)	—	5
France	08:50	PMI - Services	Apr (Final)	50.3	—	50.3 (Flash)	—	5
Germany	08:55	PMI - Composite	Apr (Final)	56.3	—	56.3 (Flash)	—	4
Germany	08:55	PMI - Services	Apr (Final)	55.0	—	55.0 (Flash)	—	4
Norway	09:00	Unemployment Rate	Apr	—	—	+2.9%	—	4
Euro area	09:00	PMI - Services	Apr (Final)	53.1	—	53.1 (Flash)	—	5
Euro area	09:00	PMI - Composite	Apr (Final)	54.0	—	54.0 (Flash)	—	5
United Kingdom	09:30	PMI - Services	Apr	—	—	57.6	—	4
Euro area	10:00	Retail Sales	Mar	—	—	+0.4%mom	+0.8%	—
Wed 7th May								
Switzerland	06:45	Unemployment Rate	Apr	—	—	+3.2%	—	4
Germany	07:00	Factory Orders	Mar	—	—	+0.6%mom	+6.1%	4
France	07:45	Industrial Production	Mar	—	—	+0.1%mom	–0.8%	5
Switzerland	08:00	Foreign Exchange Reserves	Apr	—	—	CHF437.9bn	—	—
Thu 8th May								
United Kingdom	00:01	RICS Housing Market Survey	Apr	—	—	57.0	—	—
Germany	07:00	Industrial Production	Mar	—	—	+0.4%mom	+4.8%	5
Spain	08:00	Industrial Production	Mar	—	—	+0.7%mom	+2.8%	5
Switzerland	08:15	CPI	Apr	—	—	—	+0.0%	—
Norway	09:00	Monetary Policy Meeting	May	+1.5%	—	+1.5%	—	—
Norway	09:00	Manufacturing Production	Mar	—	—	+0.2%mom	+2.1%	4
United Kingdom	12:00	MPC Meeting	May	0.5%, £375bn	—	0.5%, £375bn	—	—
Euro area	12:45	ECB Meeting	May	0.0%, 0.25%	—	0.0%, 0.25%	—	—
Fri 9th May								
Italy	09:00	Industrial Production	Mar	—	—	–0.5%mom	+0.4%	5
Norway	09:00	Consumer Prices (CPI-ATE)	Apr	—	—	—	+2.6%	—
United Kingdom	09:30	Trade in Goods	Mar	—	—	–£9.1bn	—	—
United Kingdom	09:30	Trade Balance	Mar	—	—	–£2.1bn	—	1
United Kingdom	09:30	Industrial Production	Mar	—	—	+0.9%mom	+2.7%	3
United Kingdom	09:30	Manufacturing Production	Mar	—	—	+1.0%mom	+3.8%	—
United Kingdom	09:30	Construction	Mar	—	—	–2.8%mom	+2.8%	—

*Source: Bloomberg, Goldman Sachs Global Investment Research. Economic data releases in calendar are subject to change at short notice. Complete calendar available via GS360 — https://360.gs.com/gs/portal/events/econevents/. * In the case of the PMIs, the Forecast is simply the Flash estimate where available (Flash PMIs are published by Markit for the Euro area, Germany and France 1-2 weeks before the end of the reference month).*

Disclosure Appendix

Reg AC

We, Huw Pill, Kevin Daly, Dirk Schumacher, Andrew Benito, Lasse Holboell Nielsen, Antoine Demongeot and Sebastian Graves, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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