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Real wages and monetary policy transmission in the euro area

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Abstract

We use the Factor-Augmented Vector Autoregression (FAVAR) approach of Bernanke, Boivin and Eliasz (2005) to estimate the effects of monetary policy shocks on wages and employment in the euro area. The use of a large data set comprising country, sectoral and euro area-wide data allows us to better identify common monetary policy shocks in the euro area and their effects on labour market outcomes. At the same time the FAVAR approach gives us estimates of how relative wages and employment in the various countries and sectors respond to these common shocks. The ultimate objective of our work is to relate the estimated cross-country differences in wage and employment responses to differences in labour market institutions and sectoral composition.

JEL: E3, E4, J3, J6
Key words: VAR, factor models, rigidity, labour market

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1. Introduction

Over the past two decades, a large literature has developed on measuring the effects of monetary policy shocks on the economy using identified Vector Autoregressions.[1] As a result a set of stylized facts have emerged which can be used for model validation. Typically, following a tightening of monetary policy, real economic activity drops with a peak effect of about a year, while prices respond much slower. More recently, a number of studies have focused on the response of the labour market to a monetary policy tightening. Investigating the labour market response is useful to validate which features and frictions of modern labour-market matching models should be included in micro-founded New Keynesian DSGE models that can be used for policy analysis. However, typically the focus is on how the quantity of labour rather than the wage adjusts. Recent examples are Trigari (2005) and Simonelli and Ravn (2006). The latter study uses structural VARs to analyze the dynamic labour market effects of four identified impulses to the US business cycle. Simonelli and Ravn (2006) find that in response to a monetary policy shock employment, hours per worker and vacancies drop in line with output, while unemployment shows a hump-shaped increase. In the short-run labour productivity falls. Employment responds by much more than hours per worker. In addition, Trigari (2005) examines the effects of a monetary policy shock on the job creation and destruction rate. However, neither Simonelli and Ravn (2006) nor Trigari (2005) investigate the effect on wages.

In this paper, we analyse the effects of monetary policy shocks on labour market variables in the euro area and focus in particular on the response of prices and wages. As argued by Normandin (2006), the sign of the real wage response can give an indication of the relative importance of nominal wage versus nominal price rigidities. If nominal wage stickiness is relatively more important, then the real wage could fall following an expansionary monetary policy shock. In contrast, when price stickiness and limited participation restrictions are relatively more important, the real wage should rise in line with output. Finding the source of nominal stickiness is important for the design of optimal monetary policy. As argued by Erceg, Henderson and Levin (2002) and Onatski, Levin, Williams and Williams (2004), knowledge about the relative importance of nominal wage versus price stickiness will be important for determining how much weight to put on nominal wage inflation in the central bank's policy deliberations.

In this paper, we investigate the response of wages to a monetary policy tightening using the FAVAR approach of Bernanke et al (2005) for mainly two reasons. First, the large data-set approach allows us to concentrate on the more recent estimation period using quarterly data. As shown by Bernanke et al (2005) and Boivin and Giannone (2006) using large data sets helps pinning down the effects of monetary policy shocks, which becomes even more important if the time series dimension is relatively short. In contrast to Normandin (2006) who estimates separate VARs for different countries, we

[1] See Christiano, Eichenbaum and Evans (1999) and Peersman and Smets (2003) for an overview on US and euro area evidence respectively.

analyse the impact of a common monetary policy shock on the various euro area countries.[2] A second advantage of the FAVAR approach is that it allows us to directly compare the labour market responses across countries and sectors, which we can then be related to differences in labour market institutions.

Overall, the literature has come to different conclusions regarding how real wages respond to changes in monetary policy. Christiano, Eichenbaum and Evans (2005) find that real wages rise following an expansionary monetary policy shock. However, the increase does not appear to be very significant. This result seems to be robust to economy-wide and sector-specific measures of real wages (Eichenbaum et al, 1997). Christiano et al (2005) conclude that a key finding of the analysis is that nominal wage rigidity is crucial for their model's performance. Stickiness in prices plays a relatively less important role. This finding is based on the fact that keeping all other parameters at their estimated baseline values, the response of prices jumps up following an expansionary policy shock, whereas the response of output is much smaller and much less persistent. However, Sims and Zha (1999) and Bernanke et al (2005) indirectly appear to find that the real wage rises following a tightening of policy (to be checked). For the euro area, Peersman and Smets (2003) find that the nominal wages fall more slowly than prices, so that the real consumer wage actually rises. Also in this study, the confidence bands are, however, very wide. Their results are in contrast to Smets and Wouters (2003), which estimating a Bayesian DSGE model finds that real wages fall in a hump-shaped fashion very similar to output following a contractionary monetary policy shock. Similarly, Christoffel, Küster and Linzert (2006) estimate a DSGE model with nominal price stickiness and labour market frictions for Germany over the period 1982-2004. They find that real wages rise in response to an easing of monetary policy. In their model, there are two sorts of labour market frictions: first it is costly to hire; second; there are costs of adjusting the real wage. Finally, estimating separate VARs for each G7 country, Normandin (2006) finds that, among the three euro area countries over the sample 1983 till 2005, the real wage falls in France (indicating relatively more important nominal wage stickiness) and increases in Germany and Italy (indicating the reverse). The different findings across studies may not be surprising if both nominal price and wage rigidities are important. In fact, in his survey of the literature, Taylor (1999) concludes that there is evidence of nominal rigidities in both price and wage setting. He summarises the empirical literature by implying that an average contract duration of one year in both goods and labour markets does not appear an unreasonable assumption.

In the rest of this paper, we first briefly lay out the FAVAR methodology of Bernanke et al (2005) in Section 2 and describe the data we use. In Section 3, we then report the findings. We first show the effects on area-wide labour market variables and then proceed to discuss differences across countries. We briefly compare our preliminary results with existing information on the duration of wage contracts and the degree of price stickiness. Section 4 concludes.

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[2] Another example of a study that uses large-data-set methods to estimate differential effects of a common monetary policy shock is Sala (2002).

2. FAVAR methodology and data

2.1. Framework

In this section, we first review the FAVAR methodology of Bernanke et al (2005). Using a large-data set methodology has a number of advantages. First, it should help correctly identifying the monetary policy shocks and their effects. As emphasized by Bernanke et al (2005) and Giannone, Reichlin and Sala (2002), central banks typically use a lot of information when setting interest rates. Using a large-data-set methodology allows us to take all that data into account and summarise it into a limited number of factors. Moreover, as the key concepts that central banks try to extract such as measures of underlying inflation, the degree of overall capacity utilisation, etc. are not observable, it also avoids imprecision and possible biases in the estimates that come from the fact that any one observable may only be a poor measure of the relevant underlying concept.[3] The importance of using the cross section to improve the precision of the estimates is even greater given our constrained time dimension. Our sample starts in 1986, which is a compromise between using a time series that has enough cyclical variation to quantify the effects of policy while still preserving the number of series available in the cross section. It is also somewhat artificial to talk about a common monetary policy shock before the start of EMU in 1999 but limiting our sample to the strict period of a common policy would hamstring the entire analysis. In addition, by starting in the mid 1980s we hope to bypass any confounding break in macro-economic volatility that is argued to have occurred around the mid 1980s. Finally, we use quarterly data for lack of sufficient monthly labour market variables.

Second, the large-data-set methodology also allows us to analyse and compare the effects of a common policy shock on a number of area-wide, country-specific and sector-specific variables. This is particularly useful for our purposes as we would like to analyse differences in responses across countries and sectors of a number of key macro-economic variables.

Following Bernanke et al (2005), assume that the informational time series X_t are related to a number of unobservable factors F_t and the observed policy-controlled interest rate R_t by an observation equation of the following form:

$$X_t = \Lambda_f F_t + \Lambda_R R_t + e_t \quad (1)$$

where Λ_f is an NxK matrix of factor loadings, Λ_R captures the effect of the short-term interest rate and e_t is a Nx1 vector of error terms with a mean equal to zero.[4]

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[3] One example highlighted by Bernanke et al (2005) is the appearance of a price puzzle in typical small-scale identified VAR estimates of monetary policy shocks.

[4] The implication of equation (1) that the information variables depend only on the current and not lagged values of the factors is not restrictive in practice, as the factors can be interpreted as including arbitrary lags of the fundamental factors.

The joint dynamics of the unobservable factors and the policy rate are given by the following transition equation:

$$(2) \qquad \begin{bmatrix} F_t \\ R_t \end{bmatrix} = \Phi(L) \begin{bmatrix} F_{t-1} \\ R_{t-1} \end{bmatrix} + \upsilon_t$$

where $\Phi(L)$ is a conformable lag polynomial of finite order d and υ_t is a mean zero error term with covariance matrix Q.

In order to estimate system (1) and (2), we will follow the Bernanke et al (2005) two-step principal components approach. In the first step, we estimate the space spanned by the factors using the first K+1 principal components of the vector of information variables. Obtaining an estimate of the unobservable factors involves determining the part of the space that is not spanned by the policy rate. In the second step, the FAVAR, equation (2), is estimated by standard methods, replacing F_t by its estimate from the first step. As the two-step approach implies the presence of "generated regressors" in the second step, we obtain accurate confidence intervals on the impulse response functions by implementing a bootstrap procedure that accounts for the uncertainty in the factor estimation.[5]

Also regarding the identification of the monetary policy shock in equation (2), we follow the approach taken by Bernanke et al (2005). We assume that the policy rate is ordered last in a standard recursive identification scheme. The idea is that unexpected policy changes do not contemporaneously (i.e. within the quarter) affect the unobserved fundamentals of the economy as captured by the estimated factors. While this obviously is only approximately true, it is reasonable to assume that the fundamentals only move slowly in response to such policy news. This identification scheme does not preclude that policy innovations do have a contemporaneous effect on each of the information variables.

2.2. Empirical implementation

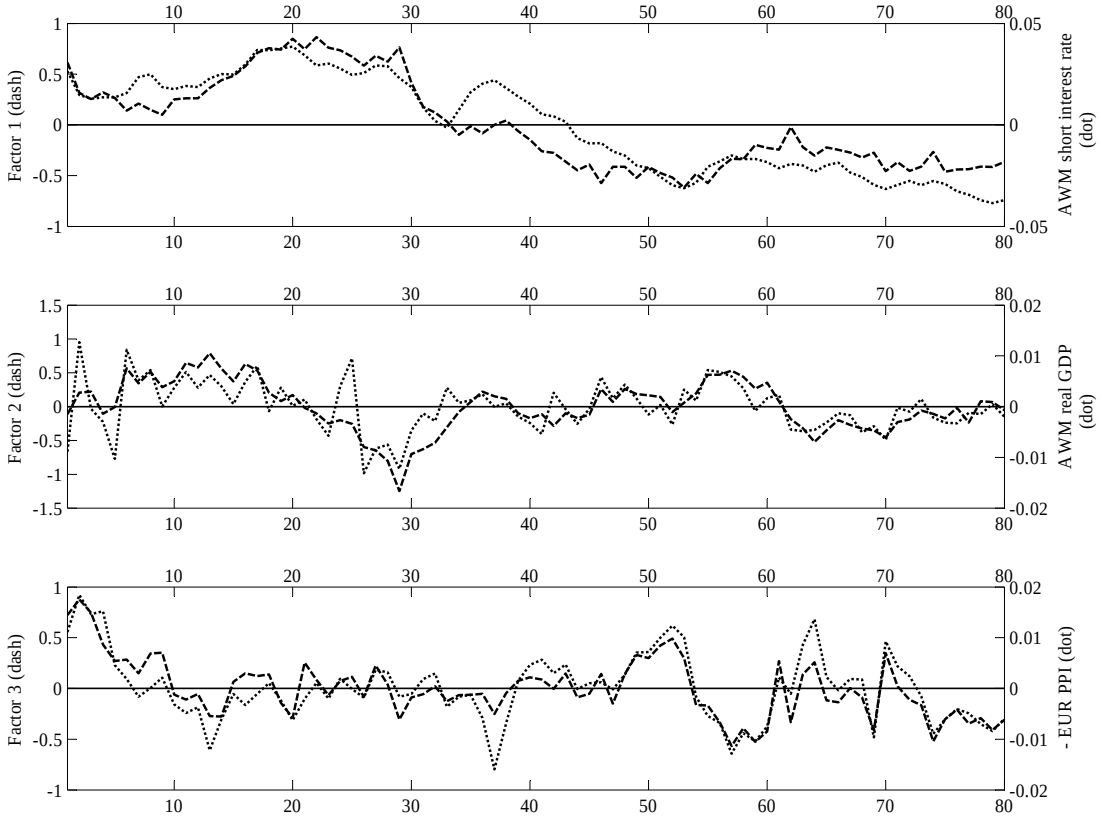
In our application of the FAVAR methodology, the set of information variables consists of a balanced panel of 168 quarterly macro-economic time series for the euro area. The data span the period from 1986:Q1 through 2005:Q4. The data set consists of 19 area-wide variables taken from the AWM data set of Fagan, Henry and Mestre (2001), a number of country-specific time series for Germany, France, Italy, Spain, the Netherlands, Belgium, Finland, Portugal, Greece, Ireland and a number of foreign (mostly US) variables. As is usual, the series are initially transformed to induce stationarity. Borderline cases are the nominal interest and inflation rate series. In a number of countries there is a clear trend in those variables over the sample period. To remain consistent with the literature and to

[5] See Bernanke et al (2005) for a detailed description of the two-step estimation procedure.

have a common treatment across similar variables in the data set, we enter those variables in levels. Table 1 in the appendix describes the data set, its sources and the transformations used. In future work, we intend to also add sectoral labour market data to explore differences across sectors. However, as these are typically only available at an annual frequency we will have to modify this methodology after, for example, Stock and Watson (2002) or Bernanke and Boivin (2003), in order to utilise an unbalanced, mixed-frequency dataset.

Figure 1

Estimated factors (K=3)



In the first step, we need to determine the number of factors that characterize our data set. In the benchmark case, we will assume that the data set can be described by three factors. Eckmeier (2006) uses five factors to describe a similar sized data set for the euro area. Our results are not materially affected if we choose either five or seven factors. Figure 1 gives an estimate of the three factors, while Table 1 gives the fifteen series in our data set that have the highest correlation with each of the factors. From this analysis, it is clear that the first factor basically measures the secular decline in inflation that characterizes the euro area in this period. This is captured in a high correlation of this factor with the nominal interest rates in core countries of the euro area, the euro area long-term interest rate and changes in euro area wide GDP and consumption deflator. The second factor mainly captures the real side of the euro area economy. It has a high correlation with euro area employment and real GDP growth. Finally, the third factor mostly captures cyclical variations in inflation as captured by changes

in the euro area producer price index. These three factors explain about …% of the variation in the complete data set.

Table 1

Correlation between factors and macro-economic variables

	Factor 1		Factor 2		Factor 3	
	R^2	Variable	R^2	Variable	R^2	Variable
1	0.91	BEL short interest rate	0.60	AWM employment	0.74	EUR PPI
2	0.91	FRA short interest rate	0.60	FRA unemployment rate	0.70	AWM import deflator
3	0.88	NLD short interest rate	0.59	FRA employment	0.67	NLD PPI
4	0.88	PRT short interest rate	0.59	AWM unemployment rate	0.60	BEL PPI
5	0.87	FIN short interest rate	0.54	AWM real GDP	0.58	DEU PPI
6	0.84	AUT short interest rate	0.48	ESP employment	0.55	ESP PPI
7	0.80	AWM long interest rate	0.47	NLD unemployment rate	0.53	AWM export deflator
8	0.79	DEU short interest rate	0.47	AWM real import	0.48	AUT PPI
9	0.78	ESP short interest rate	0.47	USA 3M t-bill	0.41	ITA PPI
10	0.76	GRC GDP deflator	0.47	ESP unemployment	0.37	FIN PPI
11	0.74	ITA short interest rate	0.46	BEL unemployment	0.34	BEL CPI
12	0.74	ITA CPI	0.44	ITA capacity utilisation	0.32	AWM commodity prices
13	0.73	AWM GDP deflator	0.44	FRA real GDP	0.29	BEL consumption deflator
14	0.72	AWM consumption deflator	0.43	AWM personal consumption	0.24	PRD GDP deflator
15	0.72	PRT consumption deflator	0.41	AUT unfilled vacancies	0.18	AWM effective exchange rate

3. The effects of monetary policy on the labour market in the euro area

In this section, we present the main results. First, we discuss the effects of an identified monetary policy shock on area-wide variables and compare those to Peersman and Smets (2003), who use a different methodology and a different sample. Then we analyse cross-country differences in the interest rate, price and output effects. Finally, we focus on differences in the labour market responses.

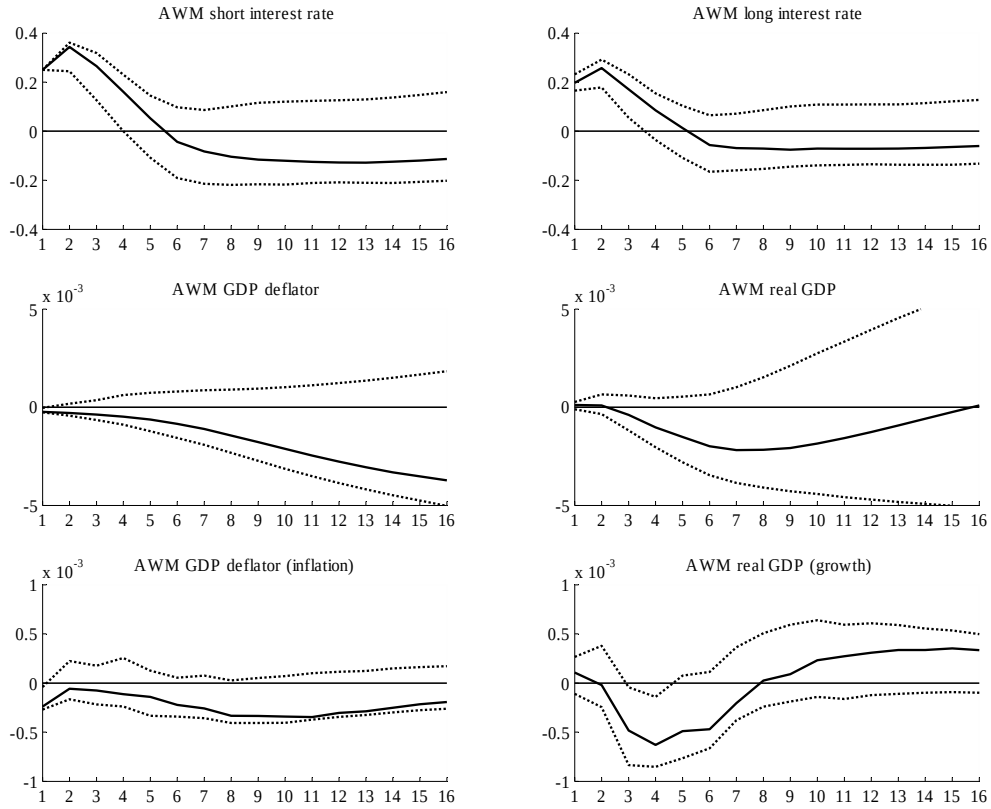
3.1. Area-wide effects of changes in monetary policy

In this section we compare the area-wide effects of a monetary policy shock with those obtained by Peersman and Smets (2003). Peersman and Smets (2003) use a small-scale VAR in output, inflation, the nominal short-term interest rate and the exchange rate to estimate the effects of a monetary policy shock using a variety of identification schemes. They derive the impulse responses of a number of other variables such as the components of GDP, the labour market and asset prices by recursively

adding those variables one-by-one to the identified VAR. Our study mainly differs in three respects. First, we use the complete data set to estimate the identified FAVAR as discussed above. Second, all variables are made stationary before estimation. Third, the sample period is different. Peersman and Smets (2003) cover the period 1980 till 1998, which precedes the establishment of EMU. Our data sample, instead, starts later (in 1986), but covers the first seven years of EMU. It is therefore interesting to see whether the estimated transmission process of monetary policy has changed.

Figure 2

Response of area-wide output and prices to a monetary policy shock

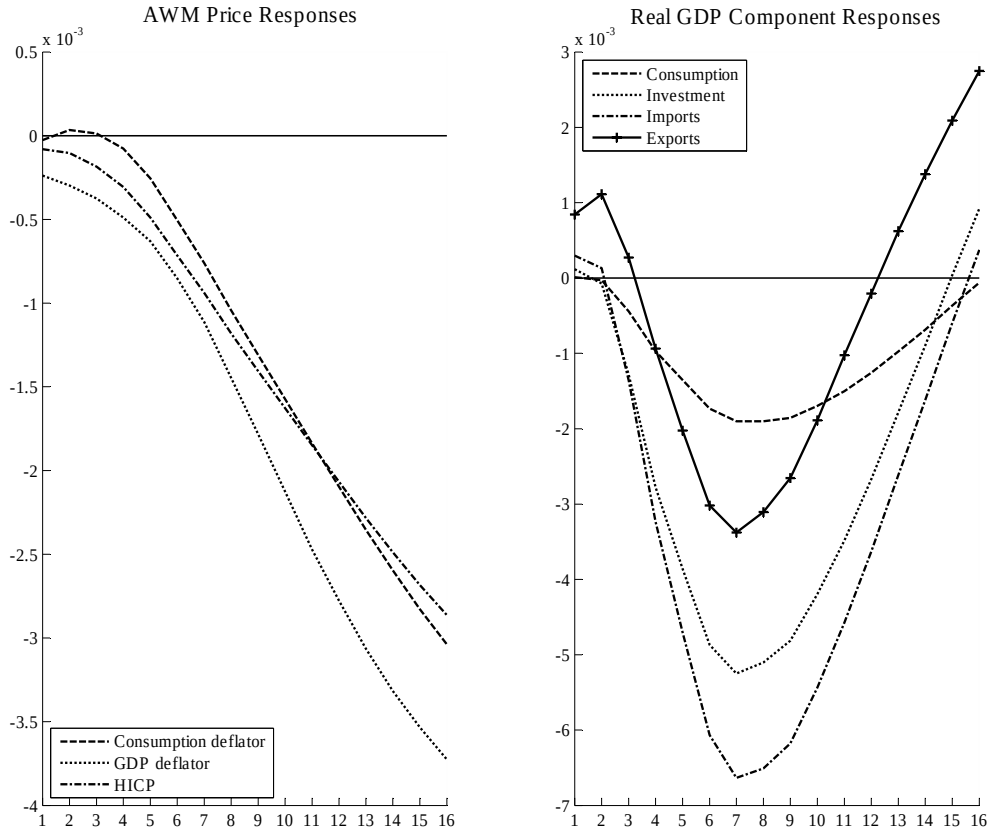


Given those differences in the sample and the methodology, it is quite striking how, overall, our results are very similar to those obtained by Peersman and Smets (2003). Figure 2 plots the response of the short-term interest rate, the long-term interest rate, real GDP and the GDP deflator to a standard deviation monetary policy shock. The typical interest rate impulse lasts for about a year and has a size of about 25 basis points. As a result, real GDP gradually falls with a cumulated peak effect of somewhat less than 0.2 percent after 7 quarters. These effects are a bit more persistent than those estimated in Peersman and Smets (2003). This higher persistence may be due to the higher persistence of the impulse to the short-term interest rate. This may also explain why the impact on the long-term rate is more pronounced in Figure 2. The most significant negative effects on growth take place two to three quarters after the monetary impulse. There is no price puzzle: the GDP deflator does not respond

very much during the first three quarters, but than gradually falls. Also in this case, the size of the cumulative effect on prices is about the same as in Smets and Peersman (2003).

Figure 3

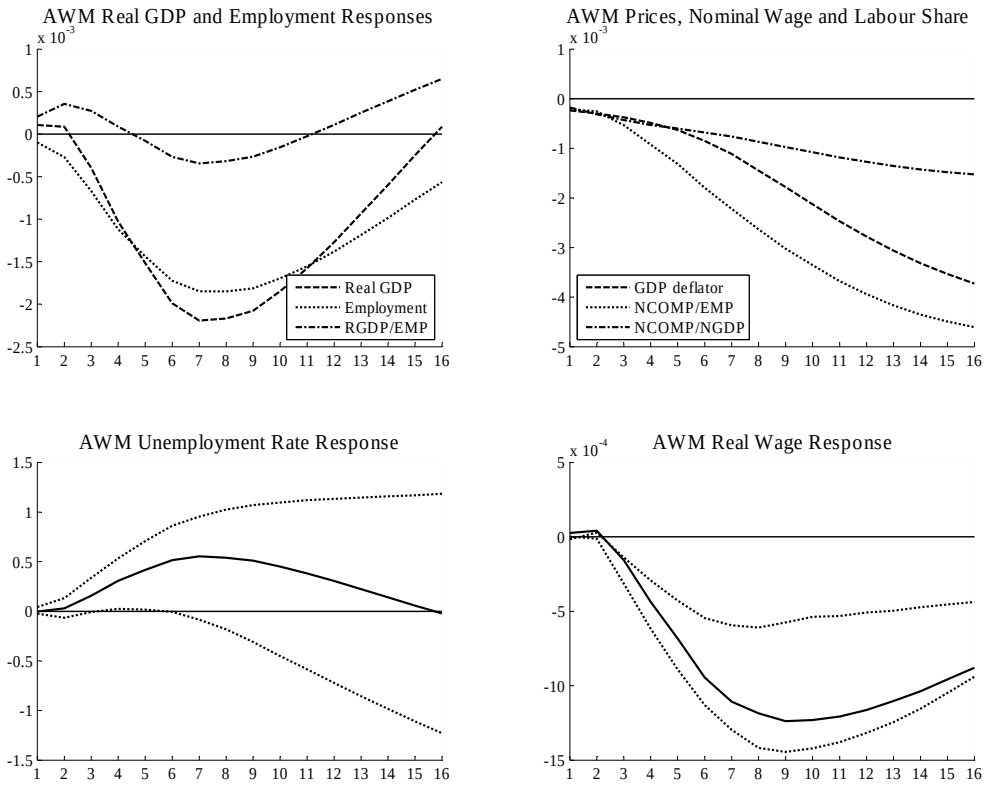
Response of prices and GDP components to monetary policy shock



Turning to the various components of GDP and the price indicators in Figure 3, it is clear that, as is well-known, investment is about 2 to 3 times more responsive than consumption. Imports are about as sensitive to the policy shock as investment, while exports respond by less. As a result, the real trade balance improves following a tightening of policy, similar to the findings in Peersman and Smets (2003). The higher responsiveness of imports relative to consumption is partly due to the fact that investment has a high import content. Consumer prices and the consumption and GDP deflator all fall gradually following the policy shock and do not exhibit a price puzzle. This is consistent with the results of Bernanke et al (2005), which show that using a large data set helps resolving the price puzzle also in the United States. The cumulative effect is somewhat higher than in Peersman and Smets (2003).

Figure 4

Response of employment and wages to a monetary policy shock



The focus in this paper is on the effects of monetary policy shocks on the labour market as depicted in Figure 4. The upper left panel shows that employment falls by about the same amount as real GDP, and as a result average labour productivity is not much affected. This result contrasts somewhat with the finding in Peersman and Smets (2003), where employment responds less strongly than real GDP and as a result, labour productivity moves procyclically. One possible explanation is that in the light of the labour market reforms that took place over the past two decades, firms adjust labour more quickly in response to business cycle developments. In line with this result, the unemployment rate deteriorates temporarily and reaches a maximum effect of less than 0.1 percentage points after about 7 quarters. [Similar to Ciccarelli?] Turning to the upper-right panel, another difference with Peersman and Smets (2003) becomes apparent. The nominal wage per employee responds somewhat faster and by more than the GDP deflator. As a result, the real wage per employee drops following the monetary policy shock. Again, it may be that the faster response of nominal wages may be a result of labour market or other structural reforms.

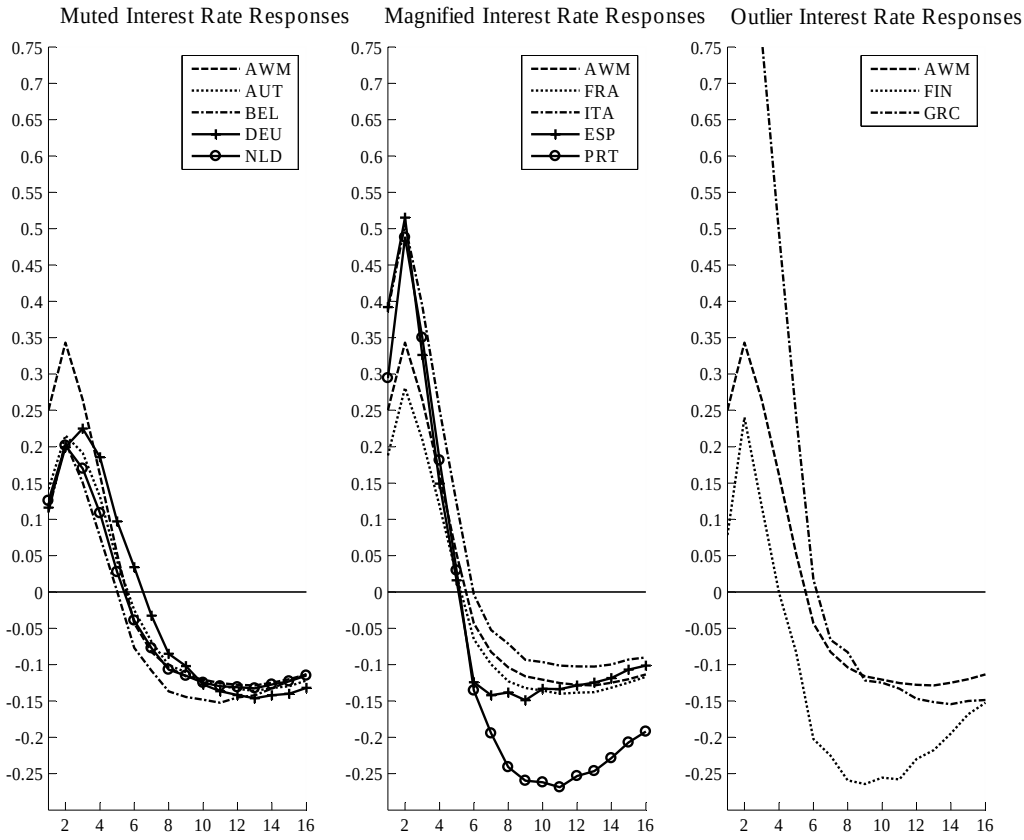
3.2. Cross-country differences in monetary transmission

Next, we turn to the country effects of the common monetary policy shock. First of all, it is important to re-emphasize that an important part of the sample takes place before the start of EMU. As a result, the identified monetary policy shock may not be completely homogenous across countries. This is illustrated in Figure 5, which plots the short-rate responses in each of the countries. The size of the interest rate response is less than 25 basis points in Germany, Austria, Belgium, France and the Netherlands. It is higher at almost 50 basis points in Italy, Spain, Ireland and Portugal and much

higher in Greece. This is, of course, a reflection of the fact that an important part of the sample takes place before the start of EMU at which time there was no single monetary policy and the common shocks may have had different effects in the various countries.

Figure 5

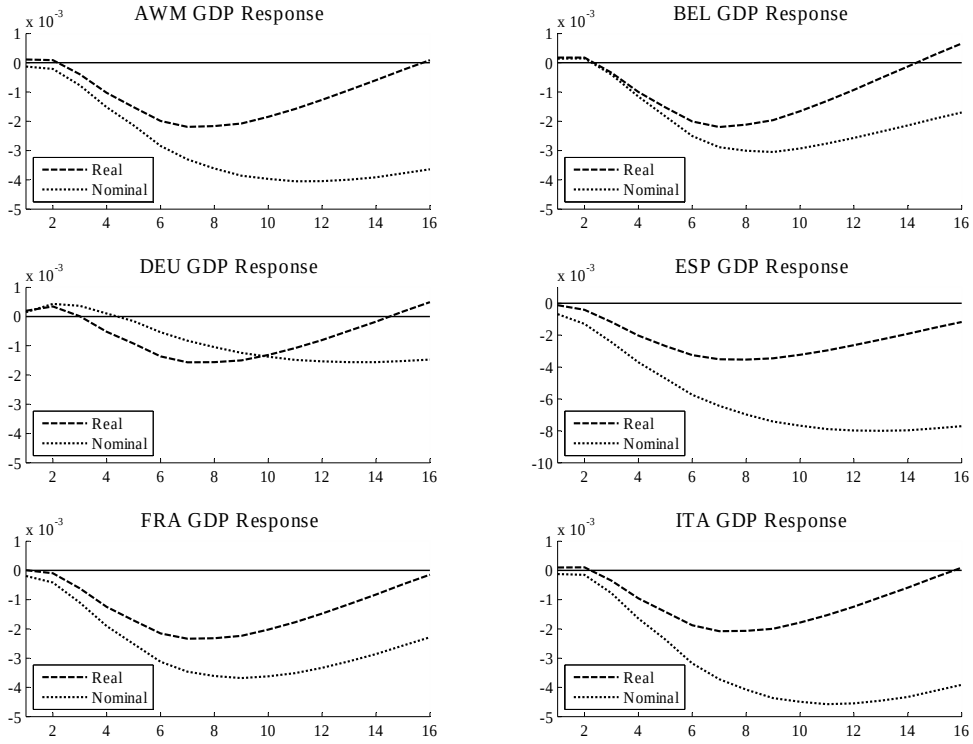
Crosss-country short-term interest rate responses



It is important to see whether these differences have affected the size of the nominal response of the economy. This is shown in Figure 6. Not surprisingly, it turns out that the nominal GDP responses are larger in those countries that experienced larger changes in the short-term interest rate. In particular, the response of nominal GDP in Italy and Spain is larger than that in Germany, Belgium and France. In order to see how much of the total nominal GDP response translates in real developments, Figure 6 also plots the real GDP response. It is clear that while the overall nominal shock is smaller in Belgium and Germany than in the other countries, the cumulative loss in real GDP necessary to bring down prices is relatively larger in those countries (Table 2). This is also reflected in the fact that prices take longer to respond to the monetary policy shock in Belgium and Germany.

Figure 6

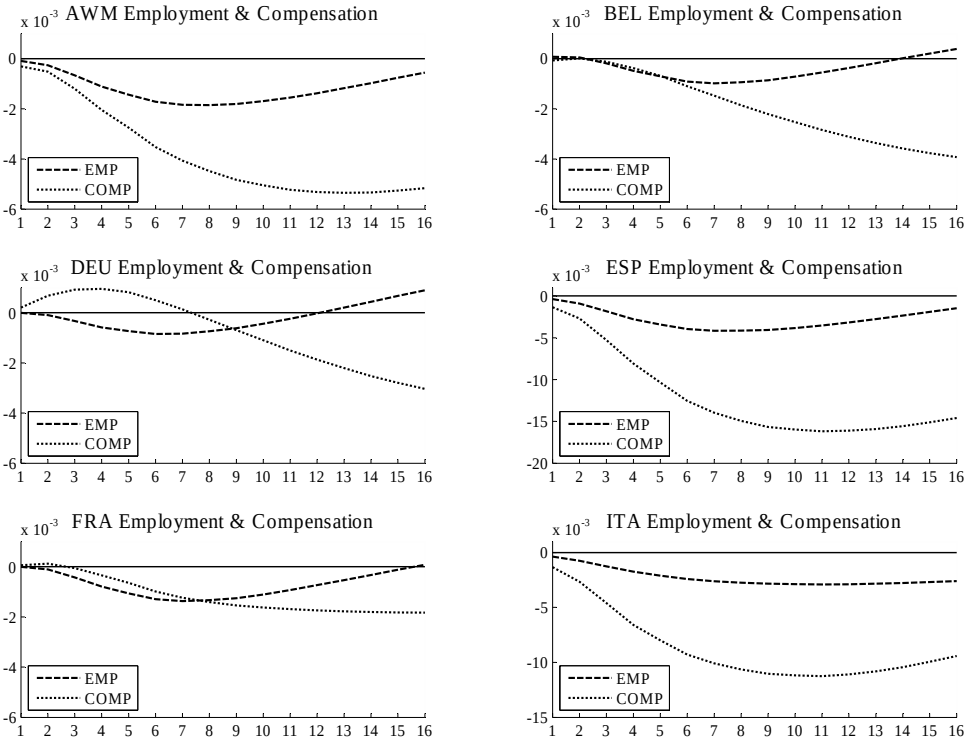
Cross-country real and nominal GDP responses



A similar exercise can be done for the labour market. Figure 7 plots the response of total nominal wage compensation and employment. In all cases with the exception of Germany, total nominal wage compensation and employment fall following the monetary policy tightening. However, overall the share of real adjustment relative to the nominal adjustment is lower in the labour market, suggesting that wages have responded more quickly (Table 2). The ranking across countries is about the same as in the case of the goods market. The total nominal response is quite large in Italy and Spain and much smaller in Germany, Belgium and France. Also in this case, the cumulative loss in employment necessary to bring down wages is relatively larger in the latter countries.

Figure 7

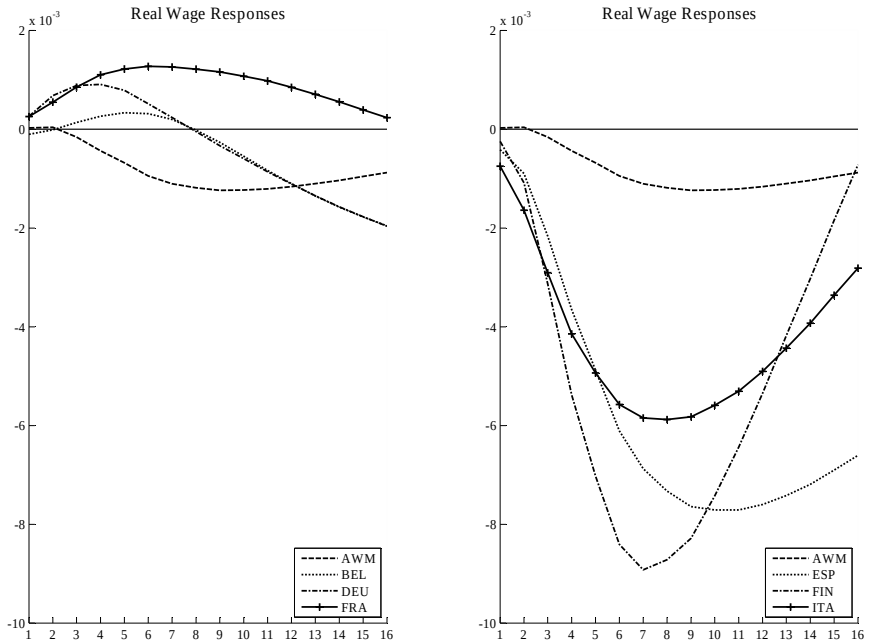
Cross-country employment and wage compensation responses



The difference in the relative labour market adjustment in these two groups of countries is most clear from Figure 8. It shows that in Belgium, France and Germany, the real wage initially rises. On the other hand, real wages fall strongly in Italy and Spain. This may suggest that nominal wage stickiness is relatively more important than price stickiness in the former countries than in the latter.

Figure 8

Cross-country real wage responses



It is interesting to compare this ranking with the features of goods and labour markets in those countries. Table 2 reports some basic statistics from the Inflation Persistence Network and the Wage Dynamics Network. Interestingly, Spain and Italy do appear to have the lowest frequency of price adjustment among the five countries or, in other words, the highest price stickiness. However, at least on the basis of average wage contract duration, there is no indication that they also have the more flexible labour markets. Obviously, it is very difficult to draw any firm conclusions on the basis of five countries. As we extend our analysis to more euro area countries and different sectors, we hope to improve the robustness of our findings.

Table 2

	Euro area	BEL	DEU	ESP	FRA	ITA
Cumgoods	0.38	0.47	0.76	0.38	0.50	0.33
Cumlabour	0.31	0.20	0.28	0.23	0.62	0.26
Frequency	15.1	17.6	13.5	13.3	20.9	10.0
Wage duration	--	2 years	2 years	2.5 years	1.5 year	2 years

Notes: Cumgoods gives the cumulative share of the real GDP response in the total nominal GDP response after 16 quarters. Cumlabour gives the cumulative share of the employment response in the total wage compensation response after 16 quarters. Frequency refers to frequency of monthly price changes from Dhyne et al (2005). Wage duration refers to average wage contract duration from Du Caju et al (2007).

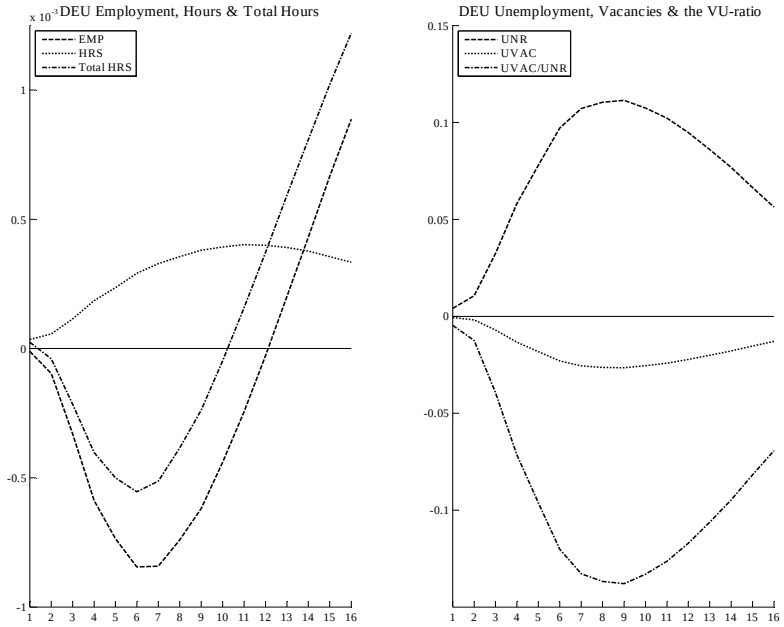
4. Conclusions

In this short paper we have re-examined the impact of monetary policy shocks on the euro area economy using the FAVAR approach of Bernanke et al (2005). The objective is to derive some stylized facts about how the labour market, both quantities and prices, adjust in the euro area as a whole and across the various countries and sectors. These facts can then be used to validate the frictions of modern labour market matching models that need to be introduced in New Keynesian DSGE models. Our preliminary findings suggest that area-wide employment responds very significantly and very much in line with real GDP to a monetary policy shock. An interest rate tightening also leads to a significant fall in euro area real wages. However, this aggregate response masks a quite different response across some of the largest euro area countries. In Germany, Belgium and particularly France real wages initially rise, while in Italy and Spain they fall quite significantly. This happens in spite of the fact that the real GDP response is comparable across countries. At this stage, it is too early to draw any conclusions about the relative importance of nominal wage and price rigidities in driving this result.

The results reported in this draft of the paper represent only a first step in our project. First, we want to extend the data set to include the key labour market variables of a larger number of euro area countries. This will allow us to gain more confidence in the cross-country analysis. Second, we want to include more labour market variables such as average hours worked per employee and vacancies to analyse respectively the relative importance of the extensive versus the intensive margin of labour market adjustment and the importance of matching frictions and vacancy costs. Figure 9 reports the results for Germany on those two accounts. The results suggest that in Germany the intensive margin is not very important, as average hours per employee actually increases following a tightening (although not significantly). Vacancies do drop quite significantly, so that in conjunction with the significant rise in unemployment labour market tightness drops significantly.

Figure 9

Response of average hours per employee and vacancies in Germany



Third, we need to check the robustness of our findings by varying the sample, by changing the number of factors, by changing the transformation of some of the non-stationary variables. More importantly, it would be nice to check the results with an alternative methodology such as the large Bayesian VAR methodology of Doz et al (2006). Fourth, we are also interested in deriving the response of sectoral labour market data. As these are only available at an annual frequency, we will need to extend the analysis to take care of mixed quarterly and annual frequencies. Finally, we would like to look at alternative shocks, in particular a productivity shock.

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Data Appendix

The dataset is comprised of 168 variables spanning 1986:q1 to 2005:q4 from various European statistical sources, the OECD, and the ECB’s Area Wide Model. US data is provided by the Fred II database at the Federal Reserve Bank of St. Louis. The “Country” column lists the area scope of the variable, “Definition” provides just that, “Transformation” is 1- no transformation; 2- first difference; 4- logarithm; 5-first difference of logarithm. The “Fast/Slow” column denotes variables that are assumed to be fast-moving in the estimation. All variables that are not fast, are slow-moving. “Seasonal” lists the type of seasonal adjustment where: S- adjusted by the statistical source and T- TRAMO/SEATS adjusted using an identical procedure across series.

Country	Definition	Transformation	Fast/Slow	Seasonal
AWM	Commodity Prices	5	F	S
AWM	Effective exchange rate (EER12)	5	F	S
AWM	Government Expenditure	5		S
AWM	Harmonised Price Index	5		S
AWM	Gross Investment Deflator	5		S
AWM	Real Gross Investment	5		S
AWM	Total Employment (persons)	5		S
AWM	Long-term interest rate	1	F	S
AWM	Imports of Goods and Services Deflator	5		S
AWM	Real Imports of Goods and Services	5		S
AWM	Personal Consumption Deflator	5		S
AWM	Personal Consumption	5		S
AWM	Short-Term interest rate	1	F	S
AWM	Unemployment rate	2		S
AWM	Compensation to Employees	5		S
AWM	Exports of Goods and Services Deflator	5		S
AWM	Real Exports of Goods and Services	5		S
AWM	GDP Deflator	5		S
AWM	Real GDP	5		S
EUR	Euro 12 Producer Price Index	5		T
AUT	Consumer Price Index	5		T
AUT	Short-term interest rate	1	F	T
AUT	Producer Price Index	5		T
AUT	Unfilled Job Vacancies	5		S
AUT	Unit Labour Costs	5		T
AUT	Unemployment rate	2		T
AUT	Compensation of Employees	5		T
BEL	Capacity Utilisation rate	1		T
BEL	Compensation to Employees	5		T

BEL	Consumer Price Index	5		T
BEL	GDP Deflator	5		T
BEL	Personal Consumption Deflator	5		T
BEL	Total Employment (persons)	5		T
BEL	Real Final Consumption Expenditures	5		T
BEL	Real GDP	5		T
BEL	Short-term interest rate	1	F	T
BEL	Producer Price Index	5		T
BEL	Unemployment rate	2		T
DEU	Capacity Utilisation rate	1		T
DEU	Private Final Consumption	5		T
DEU	Compensation to Employees	5		T
DEU	Consumer Price Index	5		T
DEU	DAX 30 Index	5	F	T
DEU	GDP Deflator	5		T
DEU	Personal Consumption Deflator	5		T
DEU	Total Employment (persons)	5		T
DEU	Real Final Consumption Expenditures	5		T
DEU	Real GDP	5		T
DEU	Hours Worked per Employee in Total Economy	5		T
DEU	Short-term interest rate	1	F	T
DEU	Labour Productivity	5		T
DEU	Producer Price Index	5		T
DEU	Unfilled Job Vacancies	5		S
DEU	Unit Labour Costs	5		T
DEU	Unemployment rate	2		T
DEU	Compensation Deflator, Business Sector	5		T
ESP	Capacity Utilisation rate	1		T
ESP	Compensation to Employees	5		T
ESP	Consumer Price Index	5		T
ESP	GDP Deflator	5		T
ESP	Personal Consumption Deflator	5		T
ESP	Total Employment (persons)	5		T
ESP	Real Final Consumption Expenditures	5		T
ESP	Real GDP	5		T
ESP	Short-term interest rate	1	F	T
ESP	Producer Price Index	5		T
ESP	Industrial Production	5		T
ESP	Unemployment rate	2		T
FIN	Personal Consumption	5		T
FIN	Compensation to Employees	5		T
FIN	Consumer Price Index	5		T
FIN	GDP Deflator	5		T
FIN	Personal Consumption Deflator	5		T
FIN	Real Domestic Demand	5		T
FIN	Total Employment (persons)	5		T
FIN	Real Final Consumption Expenditures	5		T
FIN	Real GDP	5		T
FIN	Gross Value Added, Basic Prices	5		T
FIN	Hours Worked per Employee in Total Economy	5		T
FIN	Short-term interest rate	1	F	T
FIN	Labour Productivity	5		T
FIN	Producer Prices	5		T
FIN	Unfilled Job Vacancies	5		S
FIN	Unit Labour Costs	5		T
FIN	Unemployment rate	2		T
FIN	Compensation Deflator, Business Sector	5		T

FRA	Capacity Utilisation rate	1		T
FRA	Private Final Consumption	5		T
FRA	Compensation to Employees	5		T
FRA	Consumer Price Index	5		T
FRA	GDP Deflator	5		T
FRA	Personal Consumption Deflator	5		T
FRA	Total Employment (persons)	5		T
FRA	Real Final Consumption Expenditures	5		T
FRA	Real GDP	5		T
FRA	Hours Worked per Employee in Total Economy	0		S
FRA	Short-term interest rate	1	F	T
FRA	Labour Productivity	5		T
FRA	Producer Prices	5		T
FRA	Unit Labour Costs	5		T
FRA	Unemployment rate	2		T
FRA	Compensation Deflator, Business Sector	5		T
GRC	Capacity Utilisation rate	1		T
GRC	GDP Deflator	5		T
GRC	Short-term interest rate	1	F	T
GRC	Producer Price Index	5		T
IRL	Capacity Utilisation rate	1		T
IRL	Private Final Consumption	5		T
IRL	Consumer Price Index	5		T
IRL	GDP Deflator	5		T
IRL	Personal Consumption Deflator	5		T
IRL	Hours Worked per Employee in Total Economy	5		T
IRL	Short-term interest rate	1	F	T
IRL	ISEQ Equity Index	5	F	T
IRL	Labour Productivity	5		T
IRL	Producer Prices	5		T
IRL	Unit Labour Costs	5		T
IRL	Unemployment rate	2		T
IRL	Compensation Deflator, Business Sector	5		T
IRL	Compensation of employees	5		T
ITA	Capacity Utilisation rate	1		T
ITA	Personal Consumption	5		T
ITA	Compensation to Employees	5		T
ITA	Consumer Price Index	5		T
ITA	GDP Deflator	5		T
ITA	Personal Consumption Deflator	5		T
ITA	Real Domestic Demand	5		T
ITA	Total Employment (persons)	5		T
ITA	Real Final Consumption Expenditures	5		T
ITA	Real GDP	5		T
ITA	Gross Value Added, Basic Prices	5		T
ITA	Hours Worked per Employee in Total Economy	5		T
ITA	Short-term interest rate	1	F	T
ITA	Labour Productivity	5		T
ITA	Producer Price Index	5		T
ITA	Unemployment rate	2		T
NLD	Amsterdam Exchange index	5	F	T
NLD	Capacity Utilisation rate	1		T
NLD	Personal Consumption	5		T
NLD	Compensation to Employees	5		T
NLD	Consumer Price Index	5		T
NLD	GDP Deflator	5		T
NLD	Personal Consumption Deflator	5		T

NLD	Real Domestic Demand	5		T
NLD	Real Final Consumption Expenditures	5		T
NLD	Real GDP	5		T
NLD	Hours Worked per Employee in Total Economy	5		T
NLD	Short-term interest rate	1	F	T
NLD	Labour Productivity	5		T
NLD	Producer Price Index	5		T
NLD	Unit Labour Costs	5		T
NLD	Unemployment rate	2		T
NLD	Compensation Deflator, Business Sector	5		T
PRT	Capacity Utilisation rate	1		T
PRT	Consumer Price Index	5		T
PRT	GDP Deflator	5		T
PRT	Personal Consumption Deflator	5		T
PRT	Short-term interest rate	1	F	T
PRT	Unfilled Job Vacancies	5		S
PRT	Unemployment rate	2		T
USA	Consumer Price Index	5		S
USA	Real GDP	5		S
USA	GDP Deflator	5		S
USA	Industrial Production	5		S
USA	Personal Consumption Expenditures	5		S
USA	3 Month Treasury Bill	1	F	S
USA	Trade Weighted Exchange Index: Major Currencies	5	F	S