# Euro Area Policies: Selected Issues

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EURO AREA POLICIES

**Selected Issues**

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### A. Introduction

1.      **Headline and core inflation in the euro area have been sending divergent signals about underlying inflation over the past couple of years**. On annual basis, headline inflation has remained above the ECB's "close to but below" 2 percent target since 2000 and is forecast to continue to do so through 2007 (Figure I.1). Over the past several years various shocks such as increases in energy and administrative prices as well as hikes in indirect taxes have pushed headline inflation above the target. However, various core inflation measures (excluding energy and unprocessed food) have declined since 2004—to around 1½ percent in the spring of 2006—suggesting subdued inflationary pressures. Other indicators such as mild wage and unit labor cost growth also indicate little inflationary pressure in the near future, notably no second-round effects from rising oil prices.

2.      **For monetary policy, one key issues is what different indicators suggest about current underlying and future headline inflation**.[2] Specifically, where is inflation headed over the medium-term—i.e., the ECB's monetary policy horizon? How useful are indicators of underlying inflation in forecasting future inflation over that horizon? Finally, are there gains to be made in forecasting future inflation by utilizing information from a large set of underlying inflation indicators and using different modeling approaches?

3.      **Answering these questions requires an evaluation of the predictive performance and leading indicator properties of a broad range of underlying inflation measures using various methods**. Based on the results, the indicators' relative usefulness in informing monetary policy can be assessed. Furthermore, a composite indicator can be constructed that exploits the information content embedded in the large number of different measures of underlying inflation and modeling approaches. The paper is organized follows: Section B discusses theoretical foundations and the purpose of various indicators of underlying inflation. Section C discusses the properties of these indicators. Section D describes the forecasting methodology and discusses forecasting performance of the indicators of underlying inflation; and Section E concludes.

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[1] Prepared by Emil Stavrev.

[2] In this note core inflation denotes indicators by permanent exclusion, while underlying inflation stands for the unobservable component of inflation driven by fundamental factors.

4.      **The main findings are**:

• Measures derived using the generalized dynamic factor model (GDFM) overperform other measures over the monetary policy horizon and are leading indicators of headline inflation. Although weaker than GDMF indicators, trimmed means have good forecasting performance over a 24-month horizon. Indicators by permanent exclusion (notably core inflation) underperform but provide useful information about short-term dynamics. The forecasting performance of theoretically-founded models that relate monetary aggregates, the output gap, and inflation improves with the time horizon but generally falls short of that of the GDFM.

• The indicators suggest that underlying inflation has been moving broadly sideways over the past year and is currently in a range of 1½-2¼ percent, with most indicators pointing to a figure under 2 percent.

• A composite measure of underlying inflation, derived by averaging the statistical indicators and the model-based estimates, improves forecast accuracy by eliminating bias and offers valuable insight about the distribution of risks.

• Overall, the results suggest that headline inflation, presently running around 2½ percent, would be only slightly above 2 percent in 2007 and that the risks are roughly balanced.

## B.   Taxonomy of Underlying Inflation Indicators

5.      **The rationale behind indicators of underlying inflation is to facilitate disentangling the effects of idiosyncratic/temporary and policy-related/persistent forces that drive the inflation process**. Some factors have a more permanent effect, while others have a more temporary one. The permanent component is related to the fundamental driving forces of inflation such as excess demand for goods and services and ultimately the macroeconomic policy mix. The transitory component can be a result of temporary shocks such as one-off indirect tax changes, changes in relative prices, unusual seasonal patterns, or measurement errors. Transitory shocks, however, can have more lasting effects on inflation, if they trigger second-round effects.

6.      **Monetary policy is known to affect inflation with long and variable lags, and cannot offset short-term, temporary shocks to inflation**. However, it can affect the persistent component of inflation, notably through anchoring inflation expectations, and thus needs to be focused on stabilizing inflation over the medium term. Therefore, separating inflation in a persistent "common" component, driven by fundamental forces, and transient "noise," due to mostly idiosyncratic shocks, is a useful exercise from a monetary policy standpoint. This is what indicators of underlying inflation are trying to achieve with a view to providing reliable information on current and future inflation dynamics.

7.      **Measures of underlying inflation can be separated into two main groups—statistical indicators and theoretical/structural measures** (Table I.1).

- *Statistical indicators are derived using pure econometric methods*. They can be further divided into three subcategories—employing time series, cross-section distribution of prices, and panel data. Examples include, various univariate filters (time series), indicators by permanent exclusion such as core inflation or variable exclusion such as trimmed means (cross-section), and the generalized dynamic factor model, GDFM, (panel data).

- *Theoretical measures are based on economic theory*. The two most common theoretical frameworks used to estimate underlying inflation build on the long-run Phillips curve and the quantity theory of money. Vector autoregressive models (SVAR), as in Quah and Vahey (1995) and Blix (1995), and reduced form Phillips curve equations are the most common examples of the first group; money demand equations and P* models, as in Nicoletti Altimari (2001), are the most widespread examples of the second group.

### C.  Features of the Indicators

8.      **All measures of underlying inflation have pros and cons**.

- *A common advantage of the statistical indicators is that they are less volatile than headline inflation and thus, presumably, capture better fundamental price changes.* To achieve this, core inflation excludes presumed idiosyncratic shocks from headline inflation (e.g., energy prices, unprocessed food); trimmed means apply objective statistical criteria to achieve the same (Bryan and Cecchetti, 1994, 1996); while GDFM measures do so by filtering idiosyncratic shocks with the help of both the cross-section and time series dimension of the data.[3] *A general disadvantage of the statistical indicators is that they are not backed by economic theory.*[4]

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[3] Each indicator has specific advantages. In particular, GDFM measures are good coincident and leading indicators—see, for example, Cristadoro and others (2001), Hahn (2002), and Forni and others (2003); core inflation and trimmed means can be computed in real time; trimmed means are superior estimators of the central tendency if excess kurtosis of the sectoral distribution of prices is an issue—see Bryan and Cecchetti (1997).

[4] There are indicator-specific disadvantages. For example, the static nature of both permanent and variable exclusion indicators is a drawback, as their leading indicator properties could vary over time, depending on the nature of the shocks. Also, the exclusions in deriving core inflation are significantly based on subjective criteria—the results in Table I.2 as well as several other studies, among them Vega and Wynne (2002), show that the excluded components are not always the most volatile ones.

- *The main advantage of the theoretical measures is that they have macroeconomic foundations*. Consequently, they allow for an economic interpretation of the results by linking inflation developments to the macroeconomic variables relevant from a policy perspective. *The main disadvantage of the theoretical measures is that it is difficult to identify structural shocks and estimate the parameters*. Also, they suffer from behavioral invariance in that structural parameters remain constant, despite possible structural changes in the future (Lucas critique).

9. **To gauge uncertainty and provide a comparative perspective a wide set of statistical indicators and economic models are used to estimate underlying inflation**. Representatives of all standard statistical indicators are included here—specifically, a univariate spectral density filter, permanent and variable exclusion indicators, and panel methods. Theoretically-founded models are represented by a bivariate SVAR model, a reduced form Phillips curve model that controls for oil prices and the exchange rate, and a P* model. The use of a large number of measures is intended to deal with single forecast uncertainty and provide the basis for risk assessment. At the same time, it allows an evaluation of the relative usefulness of each measure in forecasting future inflation over the medium term.

10. **The analysis of the indicators' statistical properties provides insights into two main features—volatility and bias**. Regarding volatility (Table I.3), all indicators but core inflation excluding energy perform well in filtering noise—they have smaller variances than HICP inflation. However, indicators differ substantially in the degree of noise reduction. GDFM measures outperform other measures according to this criterion, with their standard deviation ranging from 32–77 percent of HICP standard deviation for indicators with 1 and 2 dynamic factors, respectively. Theoretically-based (Quah and Vahey and Phillips curve) measures follow, with standard deviations of 38 percent and 54 percent, respectively. Trimmed mean indicators rank third, with their variability declining as the share of excluded goods increases. Core inflation indicators rank last. Regarding bias, GDFM and model-based indicators are unbiased, trimmed means have a small (0.1 percentage points) but statistically significant downward bias, while core measures again underperform, displaying the highest downward bias (0.2 percentage points in the sample).

11. **A visual inspection of headline inflation and the indicators gives a sense about the indicators' performance in signaling inflationary pressure over the sample** (Figures I.2-I.5). *Qualitatively*, GDFM measures seem to have good leading indicator properties, as they signaled the inflation pickup that started in 1999. They suggest that underlying inflation has remained stable since 2002. Both core and trimmed mean indicators performed well over 1997–99, lagged headline inflation during 1999-2001, and now imply declining (core indicators) or stable underlying inflation (trimmed means) since 2004. Model-based estimates (Quah and Vahey and Phillips curve) anticipated the 1999 pickup in

inflation and indicate roughly stable underlying inflation over the past few years; only the Phillips curve indicator points to a slight increase of inflation since mid-2004, driven by high energy prices. *Quantitatively*, the indicators suggest that underlying inflation has been moving broadly sideways over the past year and is currently in a range of 1½-2¼ percent, with most indicators pointing to a figure under 2 percent.

## D. Forecasting Methodology and Assessment of Forecasting Performance

**Forecasting methodology**

12.     **Forecasting performance of the statistical indicators is assessed using several methods based on simulated out-of-sample forecasts**.[5,6] Specifically, for the statistical indicators (core, trimmed means, and GDFM) univariate, bivariate, and multivariate specifications are used to forecast headline inflation. In addition, inflation forecasts are produced with non-price variables (industrial production, monetary aggregates, wages, unit labor cost, unemployment, and interest rates). Simulated out-of-sample 24-month ahead forecasts start in November 2000. The equations are re-estimated each time a new month is added. At the time of the forecast, all right-hand side variables are assumed to be unknown and are projected using a nonparametric spectral density filter. A brief description of the equations used in the paper follows.

- **Static equation**

    The static equation is used to forecast headline inflation with both the statistical and theoretically-founded indicators. The equation is defined as $\pi_t = x_{t-h} + \varepsilon_t$, where $\pi_t$ is headline inflation, $x_{t-h}$ is the indicator of underlying inflation, and $\varepsilon_t$ is an error term. Headline inflation at time $t$ is simply equal to the value of the indicator of underlying inflation $x$ at time $t-h$.

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[5] Two estimation methods were used: (i) an expanding window—the initial point of the sample remains fixed, while the end point is extended each time by one month, and, (ii) a 4-year rolling window—both the initial and the end points are moved forward by one month each time a new observation is added—the results from both methods are similar.

[6] The sample period is January 1997–November 2005 for the estimates with year-on-year data and February 1996–November 2005 for the estimates using seasonally adjusted month-on-month data. To eliminate the effect of the sample period on forecast evaluation, the forecasting performance of the measures was assessed over a common sample. As a result, the length of the sample period was restricted by the GDFM, as 4-digit disaggregated HICP data used to estimate the model are available only since January 1996.

- **Spectral density filter**

  The spectral density filter is similar in nature to the Box-Jenkins autoregressive moving average model (ARMA). However, there are some key differences. First, this is a nonparametric technique, which does not depend on the lag selection procedure, and, second, the model is estimated in the frequency domain instead of the time domain (see Hamilton, 1994).

- **Semi-structural equation controlling for oil and exchange rate**

  This equation is an unrestricted version (the coefficient on $x_{t-1}$ is estimated instead of being restricted to 1) of the static equation extended with oil prices and the exchange rate to control for these shocks. From a practical perspective, the semi-structural equation is attractive because forecasts are typically made conditional on certain exchange rate and oil price assumptions. Formally: $\pi_t = \alpha + \beta x_{t-1} + \gamma oil_{t-1} + \delta z_{t-1} + \varepsilon_t$, where $oil_{t-1}$ is oil prices in euros, $z_{t-1}$ is the exchange rate. As noted above, the 24-month ahead simulated out-of-sample forecast with this equation (and all equations described below) is done in two steps: first, the right-hand side variables ($x_{t-1}$, $oil_{t-1}$, and $z_{t-1}$) are forecast with the spectral density filter, and, second, the equation is solved for the headline inflation $\pi_t$.[7]

- **Distributed lag equation**

  The distributed lag equation has the following form:
  $\pi_t = \alpha + A(L)\pi_{t-1} + B(L)x_{t-1} + \varepsilon_t$, where $A(L)$ and $B(L)$ are lag polynomials (the lag selection is determined by the Akaike and Schwartz information criteria), $x_{t-1}$ stands for the indicator of underlying inflation or the non-price variables (this model is also estimated with the non price variables).

- **Gap equation**

  Depending on the indicators, two forms of the gap equation are estimated. For the *statistical indicators*, it has the following form: $\pi_t - \pi_{t-1} = \alpha + \beta(x_{t-1} - \pi_{t-1}) + \varepsilon_t$, where $\pi_t$ is headline inflation and $x_{t-1}$ is one of the statistical indicators (GDFM, core, or trimmed means). The equation allows to assess whether there is a tendency for headline inflation to converge to the estimate of underlying inflation over the medium term. If underlying inflation is leading the headline number, the coefficient $\beta$

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[7] An alternative is to estimate the model with the right-hand side variables lagged 6, 12, 18, and 24 months, respectively. However, this not only quickly reduces the degrees of freedom in the estimation, but also results in worse goodness of fit indicators (root mean square error and bias) for the simulated out-of-sample forecast.

should be positive. For the *non-price variables* $c_t$, (wages, monetary aggregates, etc.) the above equation is estimated in deviation from the means, namely: $\pi_t - \bar{\pi} = \alpha + \beta(c_{t-1} - \bar{c}) + \varepsilon_t$, where $\bar{\pi}$ is headline inflation mean and $\bar{c}$ stands for the mean of the non-price variables.

13.     **The forecast with the theoretically-founded models is done with the estimated equations for each model**. A short description of each model follows below.

- **Reduced form Phillips curve model**

   This model is a version of the traditional Phillips curve, with inflation depending on the deviation of output from its potential instead of unemployment from its non accelerating inflation rate (NAIRU). Similar models have been used to describe inflation dynamics in the forecasting and policy analysis models in several central banks—see for example Coletti et al. (1996) and Coats (2000). Inflation dynamics are specified as: $\pi_t = \alpha + \beta\pi_{t-1} + \gamma gap_{t-1} + \delta z_{t-1} + \eta oil_{t-1} + \varepsilon_t$, where $gap_{t-1}$ is output gap, $z_t$ is the change in the exchange rate, and $oil_{t-1}$ is the change in oil prices.[8]

- **P\* model**

   Following Nicoletti Altimari (2001), the quantity equation of money gives the P\* indicator as: $p_t^* = m_t + v_t^* - y_t^*$, where $y_t^*$ denotes potential output, $m_t$ is the current money stock and $v_t^*$ is equilibrium velocity; all variables are in natural logarithms. Inflation dynamics are given by the following equation: $\pi_t = (1-\lambda)\pi_{t-1} + \lambda\Delta p_{t-1}^* - \alpha(p_{t-1} - p_{t-1}^*) + \varepsilon_t$, which implies that after the shocks disappear the price level returns to its long-run equilibrium P\*.

- **Bivariate SVAR**

   In this model, it is assumed that two types of exogenous shocks affect headline inflation—one that has no impact on output beyond the short-term,[9] and, the other that might have significant medium- to long-run effects on output (a supply shock that shifts potential output for instance). Underlying inflation is, therefore, defined as the unobserved component of headline inflation that is driven by the first type of shocks. Given the above assumptions, the bivariate SVAR can be written as:

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[8] The output gap, the exchange rate, and the oil prices are forecast with the spectral density filter.

[9] This assumption implies a vertical long-run Phillips curve and provides the necessary identification restriction for the SVAR coefficients (see Quah and Vahey, 1995, for further details).

$$\begin{pmatrix} \Delta y_t \\ \pi_t \end{pmatrix} = D(L) \begin{pmatrix} \varepsilon_t^1 \\ \varepsilon_t^2 \end{pmatrix},$$

where $\Delta y_t$ is the change in industrial production, $\pi_t$ is headline inflation, and $\varepsilon_t^1$, $\varepsilon_t^2$ are the two disturbances. This presentation implies that inflation can be decomposed as:

$$\pi_t = \sum_{j=0}^{\infty} d_{21}(j)\varepsilon_{t-j}^1 + \sum_{j=0}^{\infty} d_{22}(j)\varepsilon_{t-j}^2 ,$$

with underlying inflation defined as:

$$x_t = \sum_{j=0}^{\infty} d_{21}(j)\varepsilon_{t-j}^1 .$$

**Assessment of forecasting performance**

14.     **Forecasting performance is evaluated by two statistics—root mean square error (RMSE) and bias**. These two statistics are estimated for forecast horizons of 6, 12, 18, and 24 months. Given that the simulated out-of-sample forecasts start in November 2000 and the sample ends in November 2005, there are 61 forecast rounds. The number of observations available to estimate the RMSE and the bias are equal to the number of forecast rounds minus the length of the forecast horizon (i.e., there are 37, 43, 49, and 55 observations for the 24, 18, 12, and 6 months horizons respectively). The RMSE and the bias are calculated as follows:

$$RMSE_h = \sqrt{\sum (\pi_{t+h} - \hat{\pi}_{t+h})^2 / T} , \text{ and}$$

$$Bias_h = \sum (\pi_{t+h} - \hat{\pi}_{t+h}) / T ,$$

where $T$ is the number of observations.

15.     **The measures can be compared across two dimensions—forecast horizons and models**. The benchmark for comparison is the random walk forecast of headline inflation, in which future inflation is simply equal to current inflation. In addition to the random walk forecast, two spectral density forecasts (in levels and first differences) are produced with headline inflation. The GDFM, core, and trimmed mean indicators are used for two types of

forecasts—a static one, in which headline inflation is forecast as the current value of the indicator; and, a model-based one, in which distributed lag, gap, and semi-structural equations are used (a bivariate model-based forecasts are done also with the non-price variables). Finally, structural forecasts are done the SVAR, Phillips curve, and P* models.

16.     **GDFM measures outperform other statistical measures, including the random walk forecast, across time and models** (Table I.4).[10] GDFM performance is superior according to both assessment statistics—the RMSE and the bias.[11] Trimmed means come second, although they are performing slightly worse than the random walk by the RMSE statistic. The trimmed means, however, are the best indicators for the short-run— 6-12 months. Core indicators have the worst performance. Labor market variables (wages, unit labor cost, and unemployment) perform on average better than the three monetary aggregates (M1-M3) by the RMSE statistics, however, they are somewhat worse than the monetary aggregates by the bias criterion.

17.     **The static equation overperforms all other specifications at the 24-month horizon**. The gap equation comes second—it has a good performance with labor market variables (and monetary aggregates less M3) over the long run. The RMSE of the gap equation with these variables improves significantly with the forecast horizon. This result is in line with theoretical findings that the forecast performance of labor market variables and monetary aggregates should improve with the length of the forecast horizon. The semi-structural equation controlling for oil and exchange rate has a good performance with GDFM and trimmed means. The distributed lag model has acceptable performance over the short-run (6-12 months), however, its performance deteriorates significantly towards the medium-term across all indicators.

18.     **The measures derived from the theoretical models, particularly the Phillips curve, provide valuable insights into the driving forces of inflation**. The Phillips curve-based models outperform the P* model at the 24-month horizon, ranked by the RMSE criterion.[12] The Phillips curve models have comparable performance to trimmed means and

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[10] The results in Table I.4 are for estimates using year-on-year data. In that case, a central estimate of 2 percent and a RMSE of 0.4 percentage points suggest that with 70 percent probability year-on-year inflation is forecast to be in the range of 1.6-2.4 percent.

[11] The large number of disaggregate information used in the GDFM could be behind its superior performance over the sample period used here—as Hendry and Hubrich (2006) show, disaggregate information should, in theory, help forecasting the aggregate. However, they also find that including disaggregate information does not always improve forecasts of the aggregate inflation for the euro area, in particular at longer forecast horizons, as changing collinearity among the components undermines the performance of disaggregated models.

[12] The performance of the SVAR model is similar to that of the Phillips curve. However, their usefulness as a tool for monetary policy analysis is questionable, as the probability of measurement error exceeding 0.5 percentage points is in the range of 40-60 percent—see Folkertsma and Hubrich (2001) for details.

labor market variables, while the P* model performs significantly worse. One explanation for the relatively worse performance of the P* model could be the instability of money velocity over the sample period (see Faruqee, 2005). From a policy standpoint, the Phillips curve model provides useful information about the contribution of the relevant macroeconomic variables to inflation. As shown in Figure I.6, the pickup of inflation in 1999 was caused by an inflationary impulse from both domestic and external factors—in particular, excess demand captured by the positive output gap, exchange rate depreciation, and a positive oil price shock. Regarding driving forces of inflation over the past couple of years, the pickup of underlying inflation projected by the model is driven mainly by higher energy prices, with a negligible effect of the output gap, compared to the previous period.[13] Looking ahead, the out-of-sample forecast with the Phillips curve equation suggests declining inflation by 2007. This is driven by oil price and exchange rate stabilization as well as remaining excess capacity (Figure I.7).[14]

19.     **Combining forecasts improves forecast performance.** A simple average of all forecasts results in zero bias and a RMSE similar to the best performing indicators and has also a reasonable in-sample forecasting error for the 24-month ahead forecast (Figure I.9). In addition to having better accuracy by practically eliminating the bias, there are several other gains from combining the forecasts. As shown in Hall and Mitchell (2004), the combined forecasts provide a measure of uncertainty surrounding the "central tendency" of the point forecasts. They offer policy makers a fuller picture beyond the uncertainty associated with the individual forecasts, including the distribution of the risks around the central forecast over the forecast horizon. Pooled forecasts, as pointed in Timmermann (2005), also improve efficiency and, as shown in Aiolfi and Timmermann (2004), perform better in the presence of structural breaks than single model forecasts.

20.     **The combined forecast results suggest declining inflationary pressures over the next two years, however, the degree and the speed of the decline are less certain**. As Figures I.10–I.12 show, a common feature of all forecasts is that inflation declines towards the end of the forecast horizon. The static equation-based measures and the semi-structural equation controlling for oil and exchange rates predict that inflation will decline to around 1¾ percent by the end of 2007. Including inflation inertia, distributed lag specifications show inflation slightly above 2 percent. Among economic model-based estimates, the Phillips

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[13] While providing useful insights about the driving forces of inflation, the reduced form Phillips curve model is missing an important component, namely, monetary policy. To gauge what is its contribution over the sample period, a structural model with monetary policy reaction function would have to be used.

[14] Notice that he exchange rate, oil prices, and the industrial production-based output gap are forecast with an ARMA process (Figure I.8). Using WEO projections for oil and the exchange rate and replacing the industrial-production based output gap with the WEO output gap for the whole economy would yield a lower inflation forecast.

curve and the bivariate SVAR models forecast inflation slightly below 2 percent, while the P* model projects declining inflation, but it remains above 2 percent by 2007. Finally a combination of all forecasts projects inflation declining to slightly above 2 percent.

21.     **The projected pace of decline of inflation depends critically on whether the forecast equation features lagged inflation**. The coefficient for lagged inflation is high. However, it is unclear to what extent this high coefficient is a result of the repeated hikes in oil and administrative prices since 2001 or because of true persistence, i.e., shocks that trigger indirect and second round effects on wages and therefore have lasting effects on inflation.[15] Firm conclusions require deeper analysis. Findings in the literature on inflation persistence have been mixed. For example, O'Reilly and Whelan (2004) find that the inflation persistence parameter (the sum of the coefficients on the lagged dependent variable) has been quite stable over the post-1970 period, although there is evidence about a break in the mean of the inflation process. Altissimo et al. (2005), by contrast, find that at the aggregate level inflation persistence appears to be very high for a long sample period but declines considerably after allowing for time variation in the inflation mean. Also, sectoral inflation is found to be less persistent, mainly due to transitory sector-specific shocks. The empirical models used here do not allow for falling inflation persistence over time.

22.     **Assessment of inflation risks over the forecast horizon can be done by analyzing the distribution of the forecasts**. Most inflation targeting central banks incorporate judgment in their model-based inflation forecasts to express their assessment of the risks to price stability and the forecasts over the forecast horizon. A common approach for central banks to implement their judgment for the forecast period is to describe the uncertainty and asymmetric risks in the forecast. This is usually done by employing a probability distribution that allows for skewness.[16]

23.     **The analysis of the distribution of the forecasts suggests roughly balanced inflation risks over the medium term**. The risks assessment in this paper differs from the one explained above in that it does not use judgment but, in a sense, relies entirely on the data, as the parameters of the distribution are estimated. Assuming that these parameters are correctly estimated, if the distribution is skewed to the right (the outliers are to the left of the mean) the risks are considered negative, while the risks are viewed positive, if the

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[15] The estimates from a 4-year rolling AR1 process (Figure I.13) suggest declining coefficient on lagged inflation. Given the persistence of the oil shocks since early 2004, this decline of the coefficient could suggest falling inflation persistence in the euro area over the past several years (perhaps reflecting increased competition due to globalization).

[16] An example of such a distribution is the two-piece normal distribution, in which the distributions on each side of the mode are proportional to a normal distribution with different standard deviations (for details see Blix and Sellin, 1999).

distribution is skewed to the left. As shown in Figures I.14-I.16, the static equation forecasts lower average inflation but suggests upside risks, while the rest of the models forecast higher average inflation but imply downside risks. Overall, the distribution for all forecasts implies roughly balanced inflation risks, with inflation falling to close to 2 percent in the course of 2007.

### E. Concluding Remarks

24.     **The paper has evaluated the forecasting performance of a large set of underlying inflation measures**. The results show that the GDFM indicators overperform all other measures reviewed over the two-year policy horizon and are leading indicators of inflation. Trimmed means rank second, with good predictive power, while standard core indicators underperform. A simple average of the indicators improves forecasting in two ways. First, it enhances accuracy by eliminating the bias without losing efficiency. Second, the analysis of the distribution of the forecasts allows for a better assessment of inflation risks over the forecast horizon.

25.     **Measures derived from theoretically-founded models are valuable assets for policy analysis and forecasting**. The reduced form Phillips curve, for example, has a rich theoretical underpinning and good forecasting ability, which is comparable to that of trimmed means according to the RMSE criterion. In general, an important advantage of the theoretical models over the statistical indicators is that they allow a decomposition of driving forces of inflation on domestic demand factors, exogenous supply shocks, exchange rate effects, offering useful information for monetary policy decision making.

26.     **The results suggest that underlying inflation has been moving broadly sideways over the past year and is currently in a range of 1½-2¼ percent, with most indicators pointing to a figure under 2 percent**. Going forward, headline inflation is set to decline to around 2 percent in the course of 2007. The analysis of the forecast distribution suggests roughly balanced inflation risks over the medium term.

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Figure I.1. Euro Area: Headline and Core Inflation
(In percent)
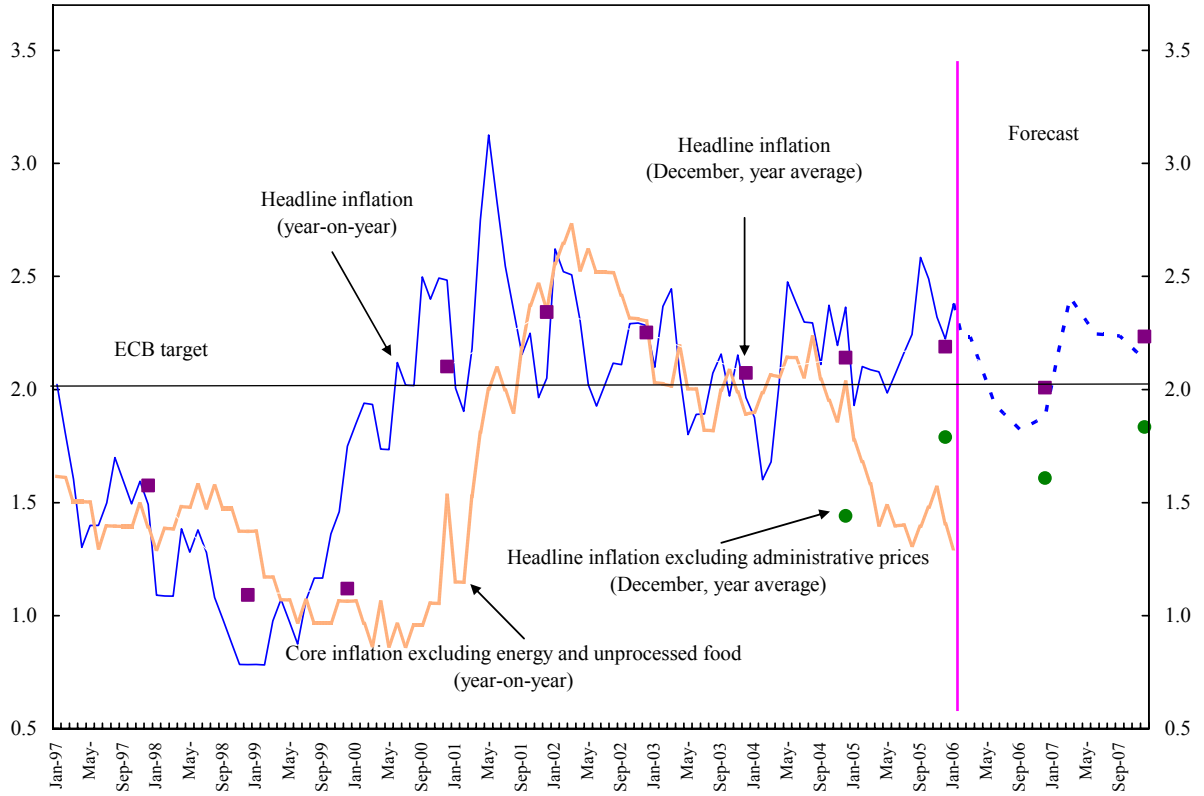
Figure I.2. Euro Area: Headline and GDFM Estimates of Underlying Inflation
(In percent)



**Based on year-on-year data**

Headline inflation

2 dynamic factors

1 dynamic factor

**Month-on-month versus Year-on-year Data**
(2 dynamic factors)

Headline inflation

Underlying inflation
based on month-on-month data

Underlying inflation
based on year-on-year data
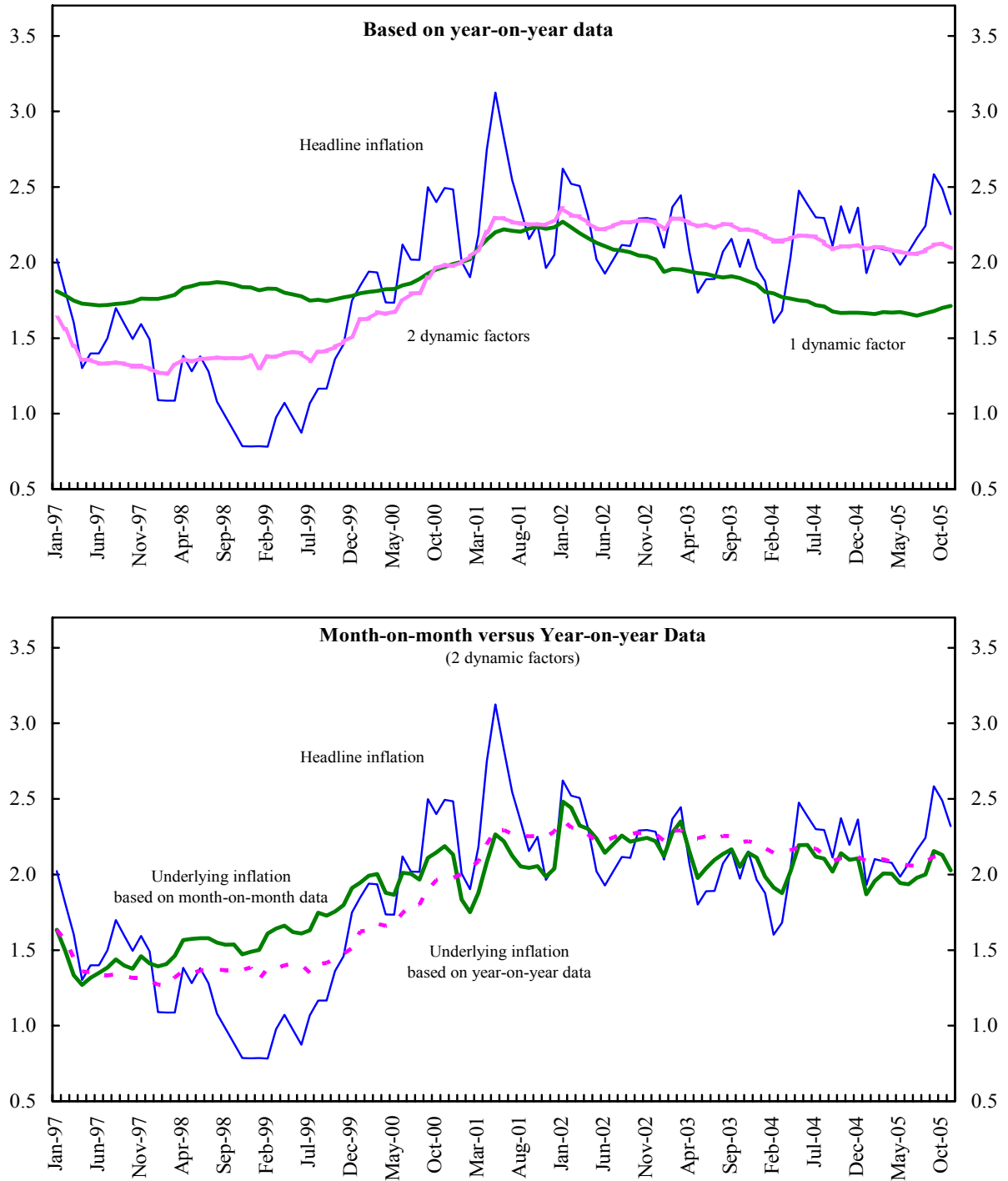
Source: IMF staff estimates.

Figure I.3. Euro Area: Headline and Permanent Exclusion Core Inflation
(Year-on-year, in percent)
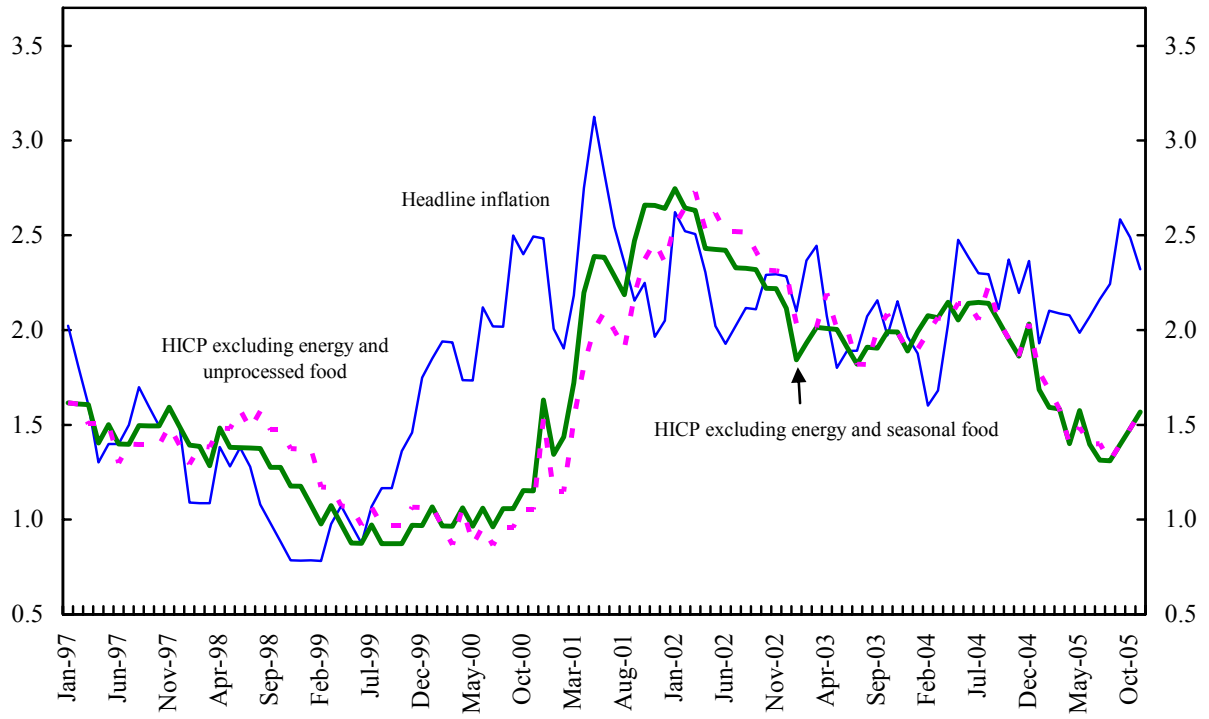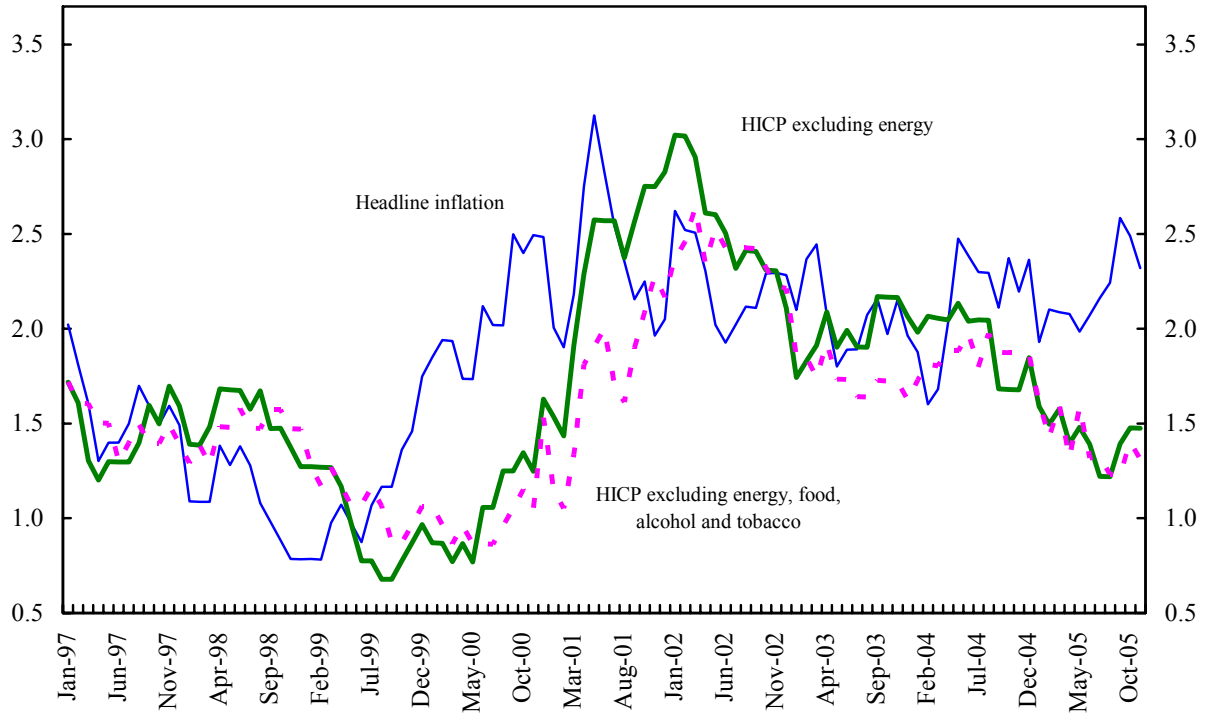


Source: Eurostat.

Figure I.4. Euro Area: Headline and Variable Exclusion Core Inflation
(Year-on-year, in percent)
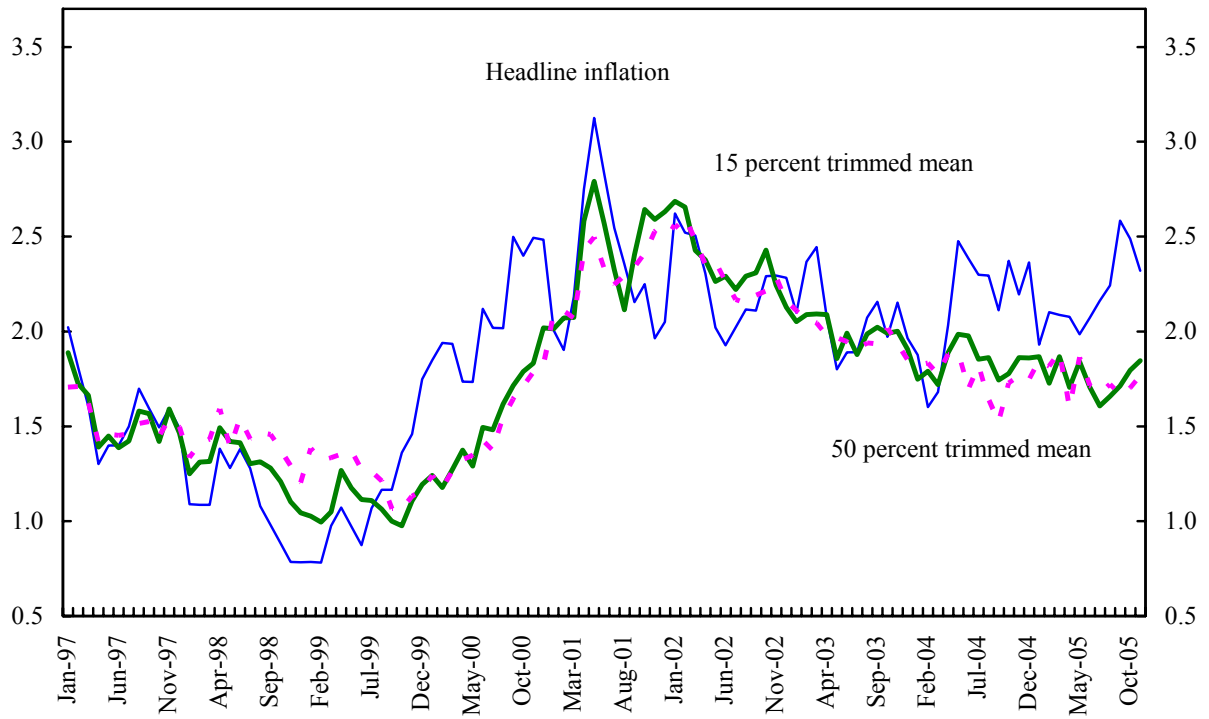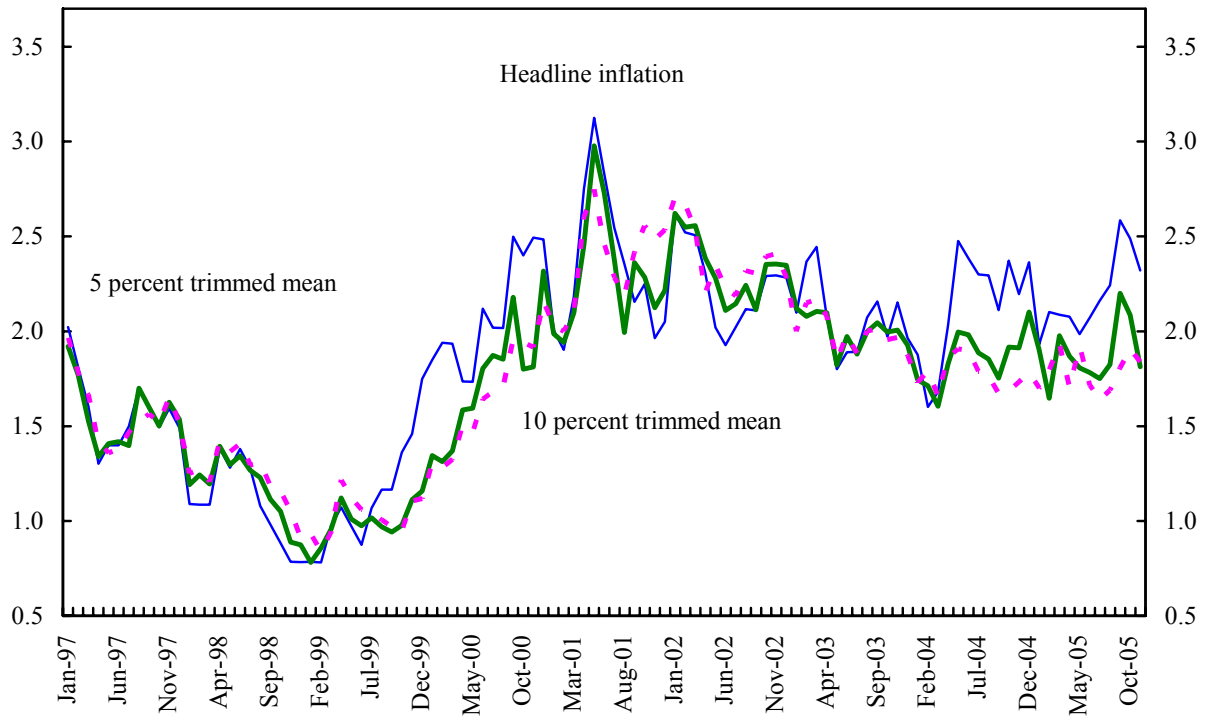


Source: IMF staff estimates.

Figure I.5. Euro Area: Headline and Model-based Underlying Inflation

(Year-on-year, in percent)



Quah-Vahey underlying inflation

Reduced form Phillips curve underlying inflation
(Dynamic simulation)

Headline inflation
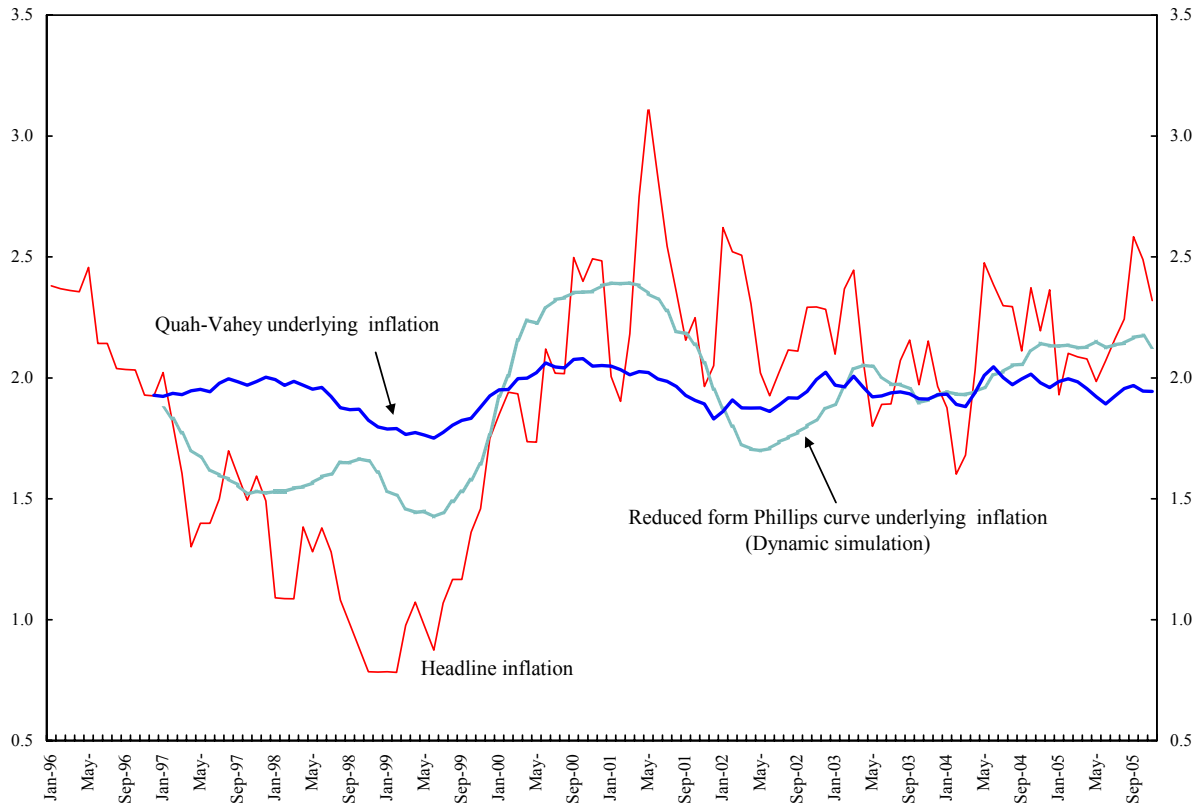
Figure I.6. Euro Area: Underlying Inflation and Macroeconomic Factors 1/
(Year-on-year, in percent)



Oil Price Effect

Oil prices
(LHS)

Underlying inflation
(RHS)

Output Gap Effect

Underlying inflation
(RHS)

Industrial production gap
(In percentage points)

Exchange Rate Effect

Underlying inflation
(RHS)

Exchange rate: + = depreciation
(LHS)
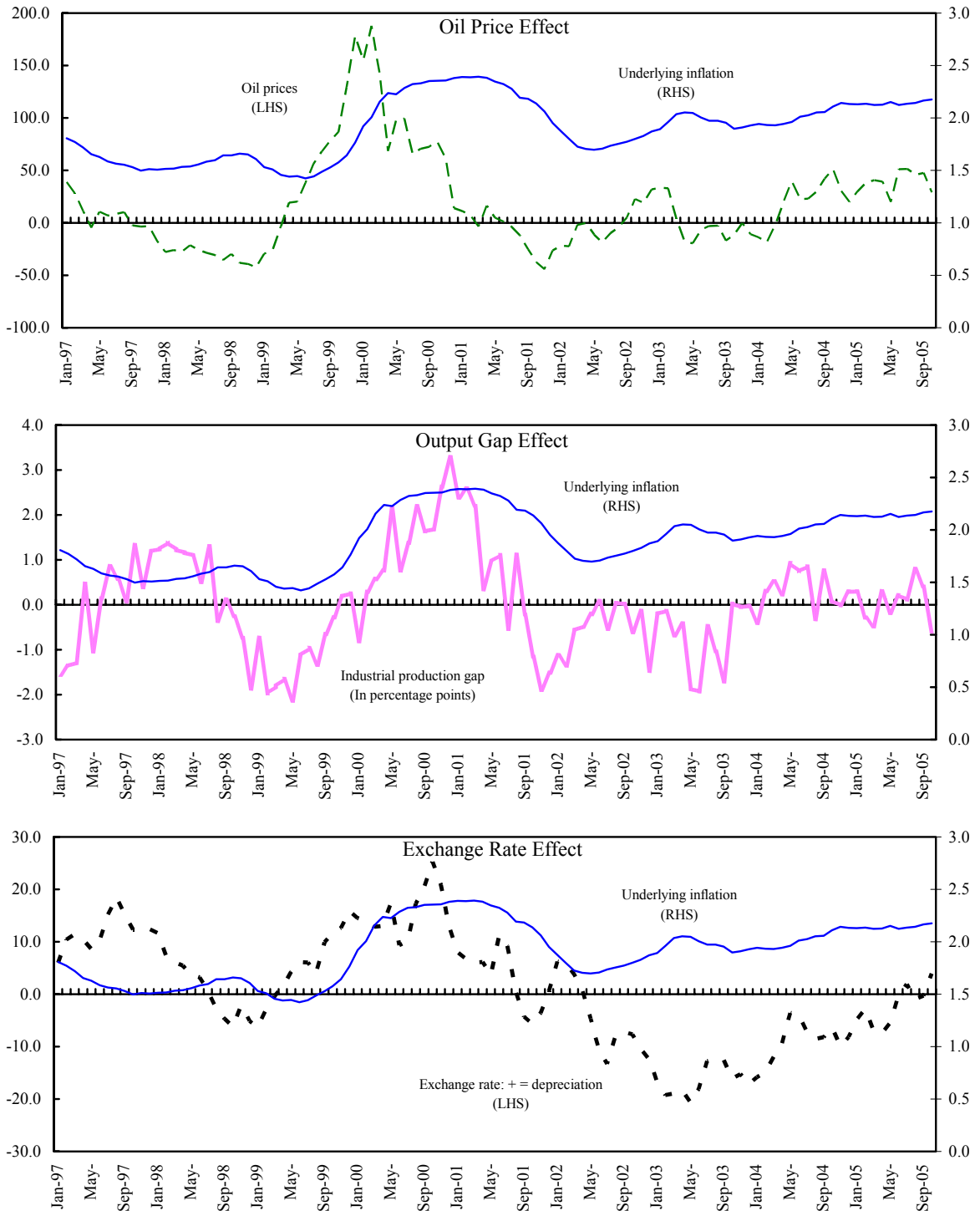
Source: Fund staff estimates.

1/ Dynamic real time forecast with reduced form Phillips curve.

## Figure I.7. Euro Area: Underlying Inflation and Macroeconomic Factors 1/
### (Year-on-year, in percent)
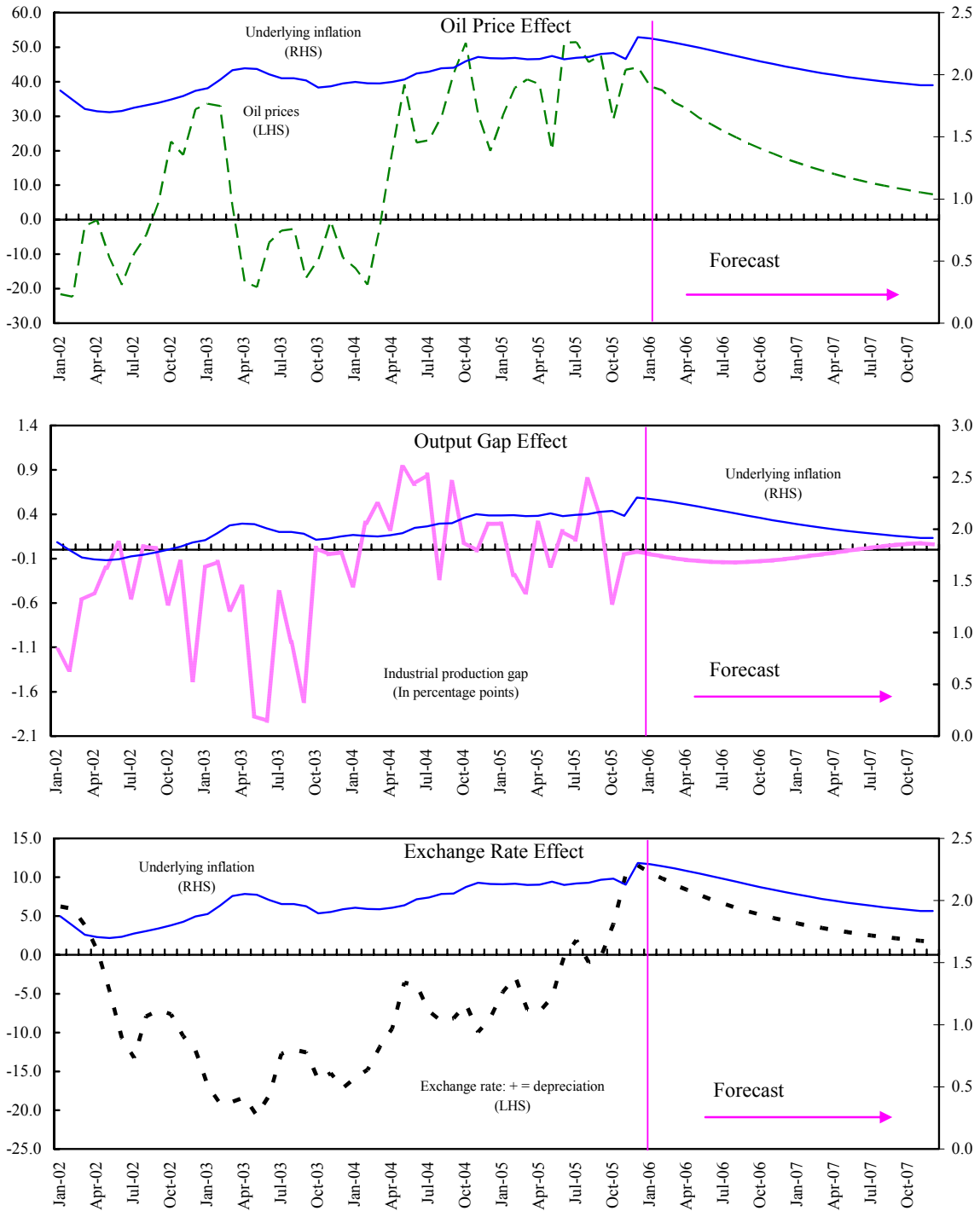


Source: Fund staff estimates.

1/ Out-of-sample forecast with reduced form Phillips curve; oil prices, industrial production gap, and exchange rate are forecast with an ARMA process.

Figure I.8. Euro Area: Projection Comparisons
(Year-on-year, in percent)

**Oil**

WEO
(Interpolated from quarterly data)

ARMA forecast

Forecast

**GDP and Industrial Production Gaps**

Industrial production
(ARMA forecast)

GDP
(Interpolated from annual data)

Forecast

**Exchange Rate**

ARMA forecast

Forecast

WEO
(Interpolated from quarterly data)
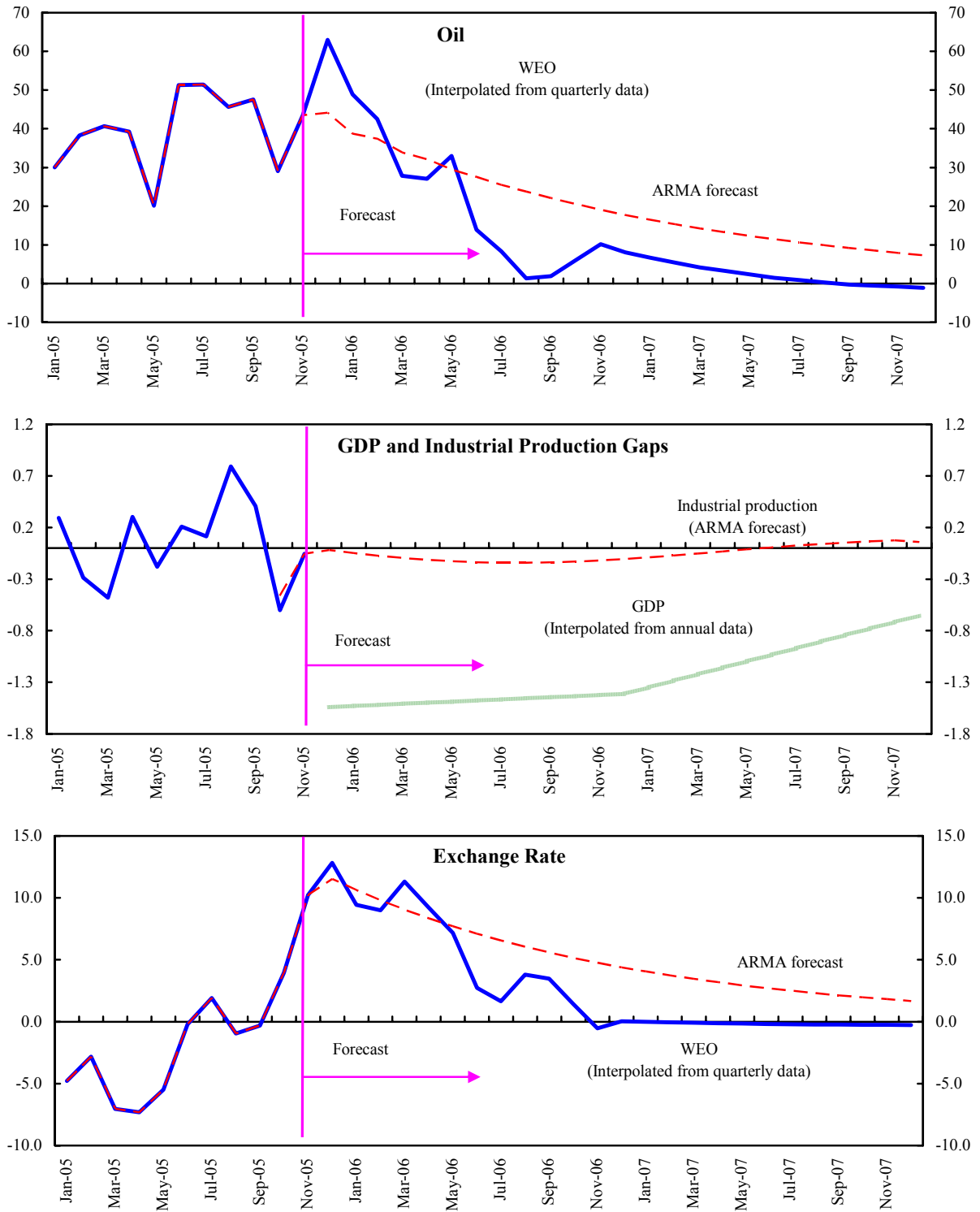
Source: Fund staff estimates.

Figure I.9. Euro Area: 24-month In-sample Forecast with the Composite Indicator
(Year-on-year, in percent, all indicators excluding ARDL)
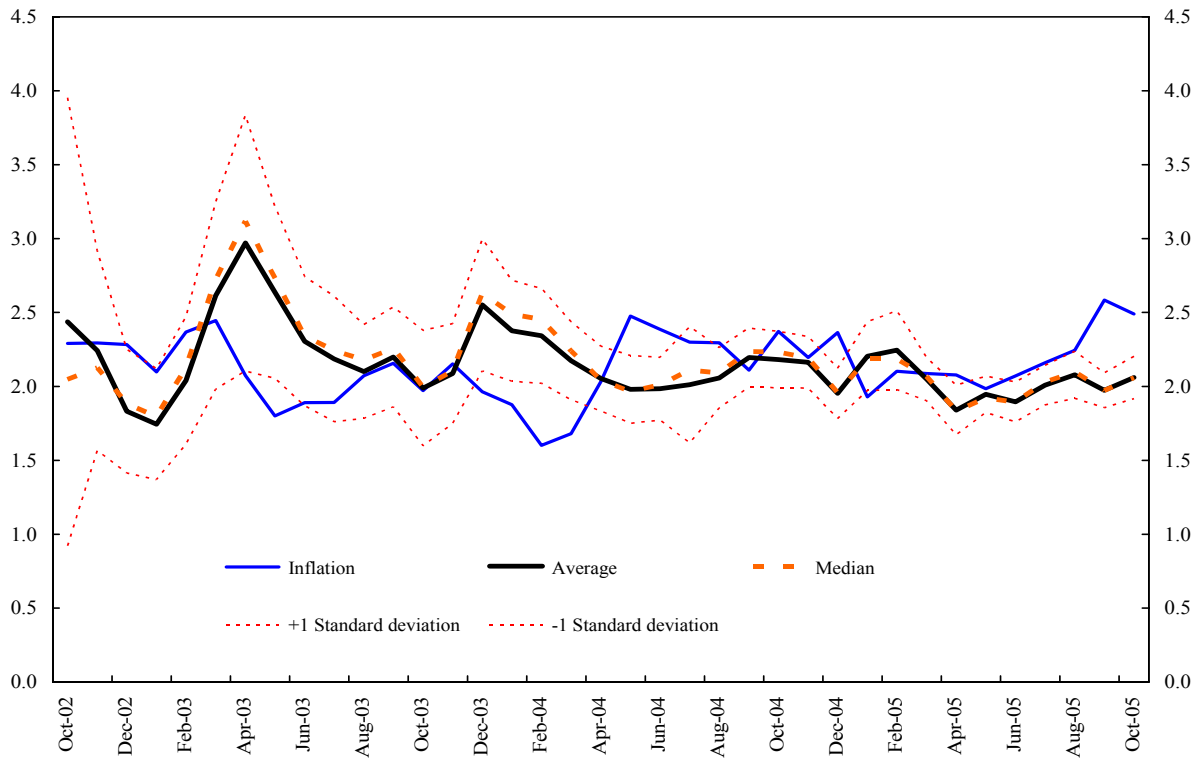
Figure I.10. Euro Area: Static Equation Forecasts
(Year-on-year, in percent)

**Static Equation**

Headline Inflation

Average

Median

+1 Standard deviation

-1 Standard deviation

**Static Equation Forecasts Controlling for Exchange Rate and Oil Prices**
(13 Forecasts)

Headline Inflation

Average

Median

+1 Standard deviation

-1 Standard deviation
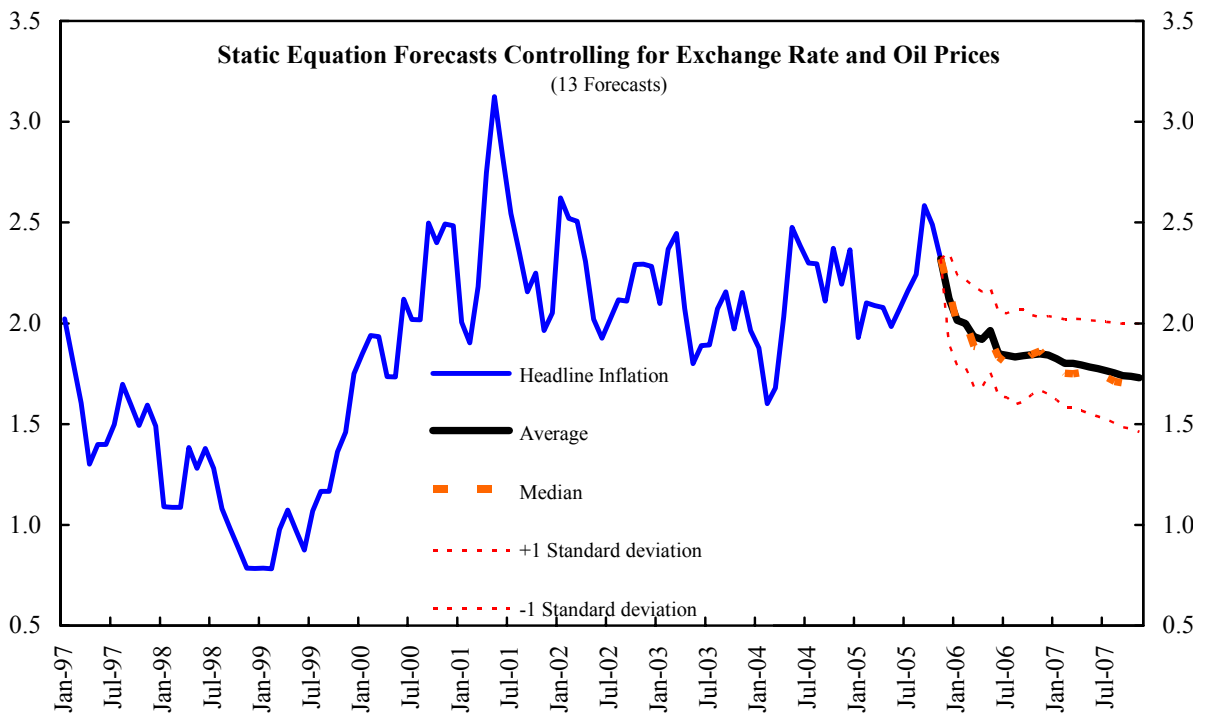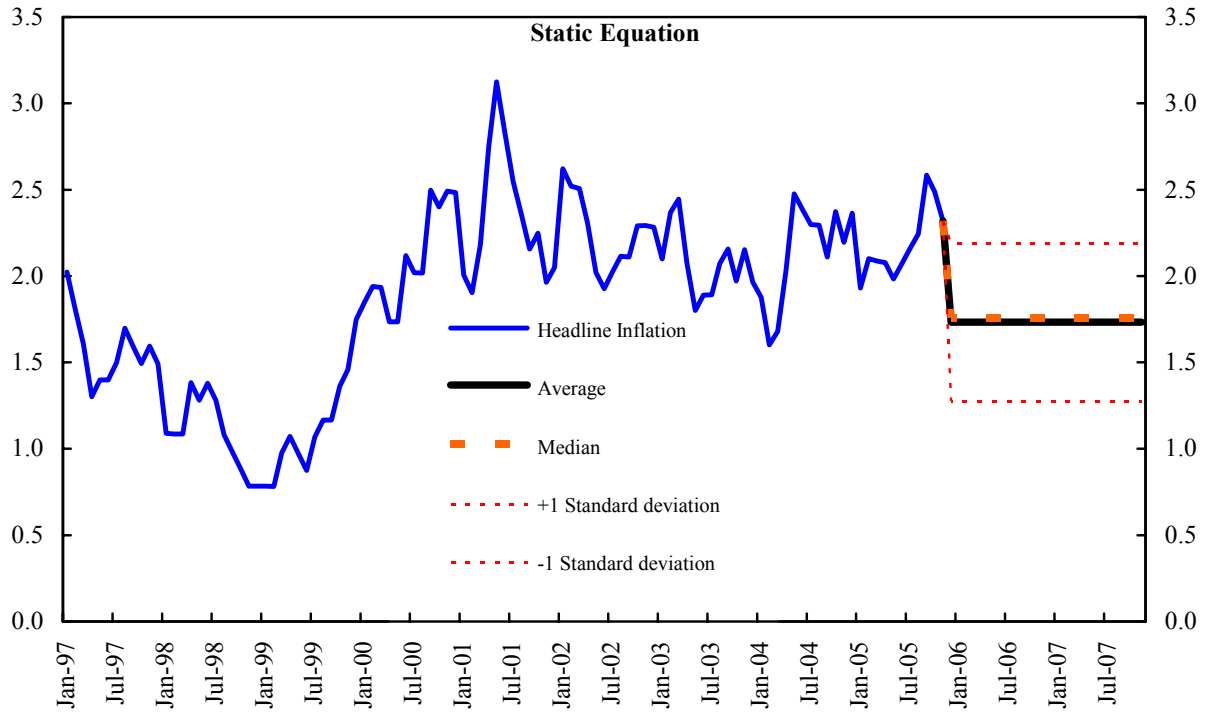
Source: Fund staff estimates.

Figure I.11. Euro Area: Time Series Models Forecasts
(Year-on-year, in percent)
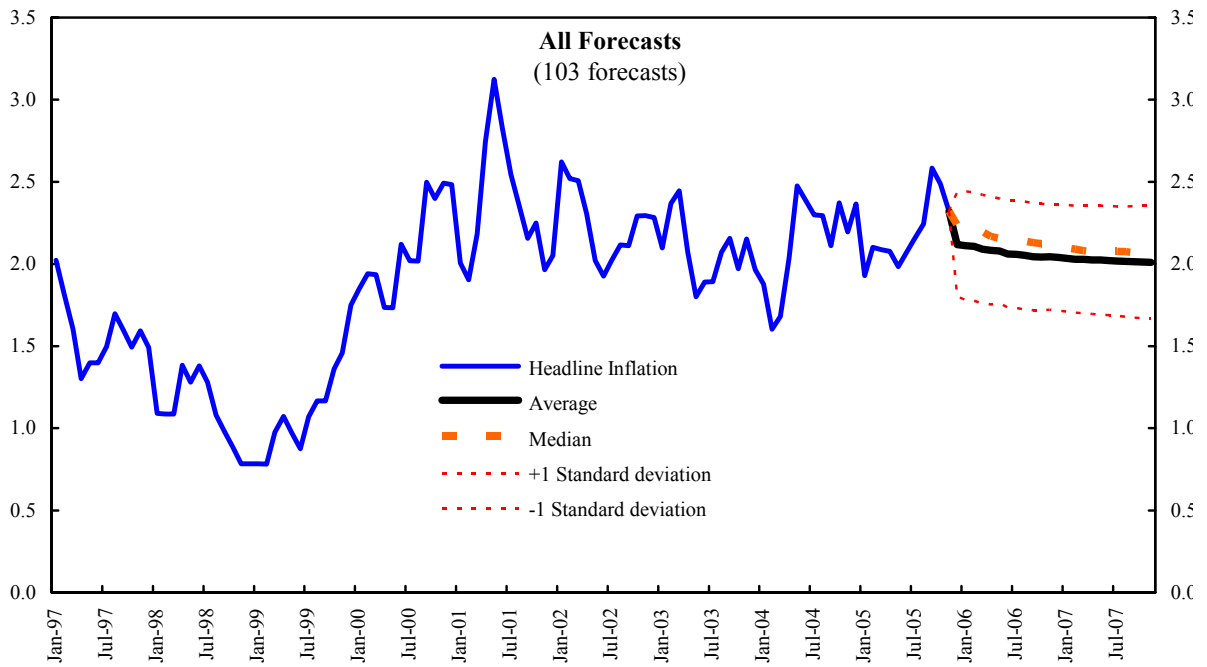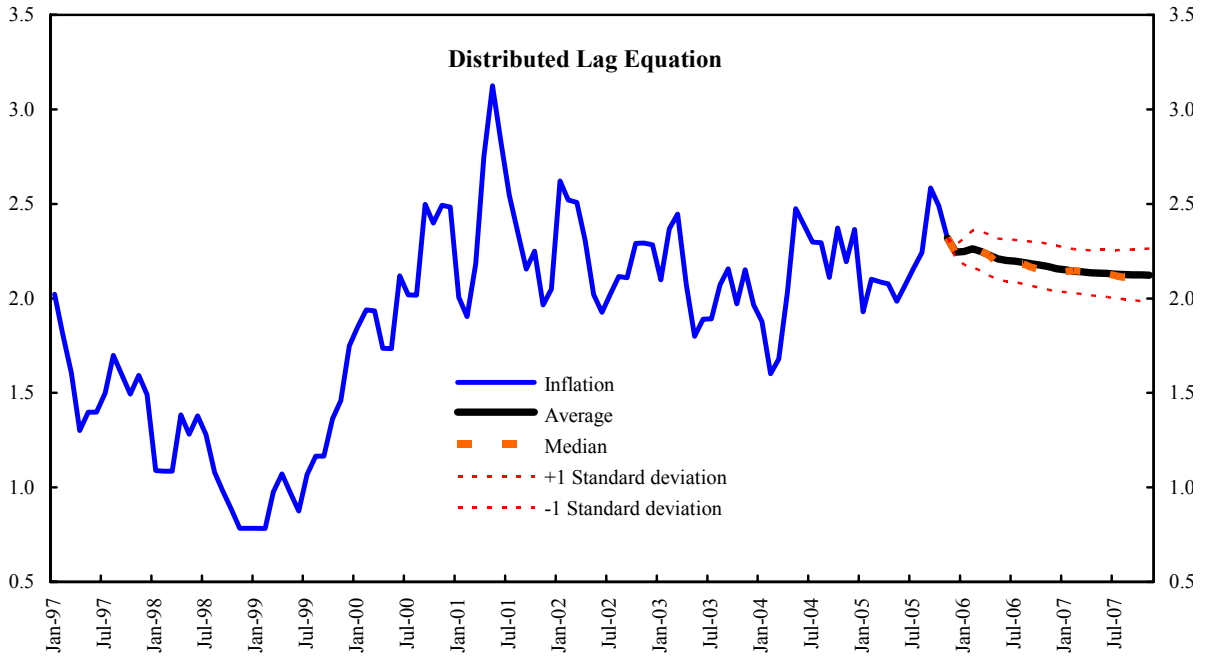


Source: Fund staff estimates.

Figure I.12. Euro Area: Forecasts with Theoretical Models
(Year-on-year, in percent)
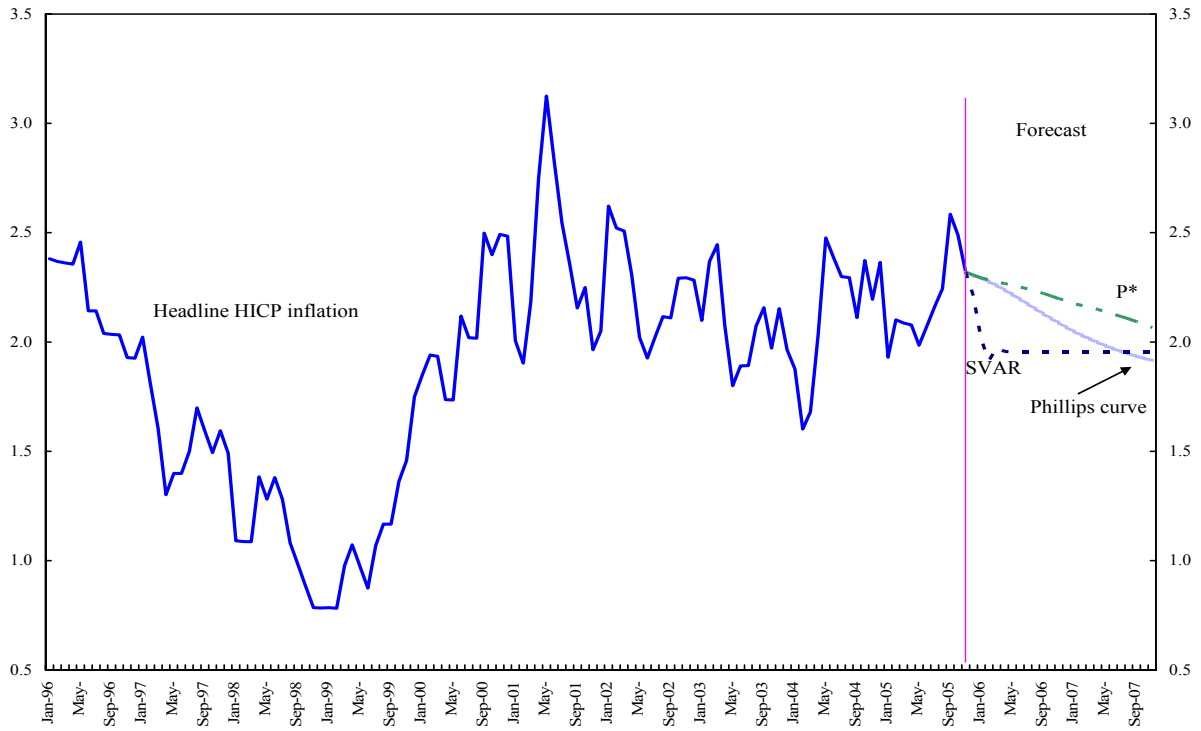


Figure I.13. Euro Area: Persistence of Headline Inflation
(Estimates from a 4-year rolling regression)
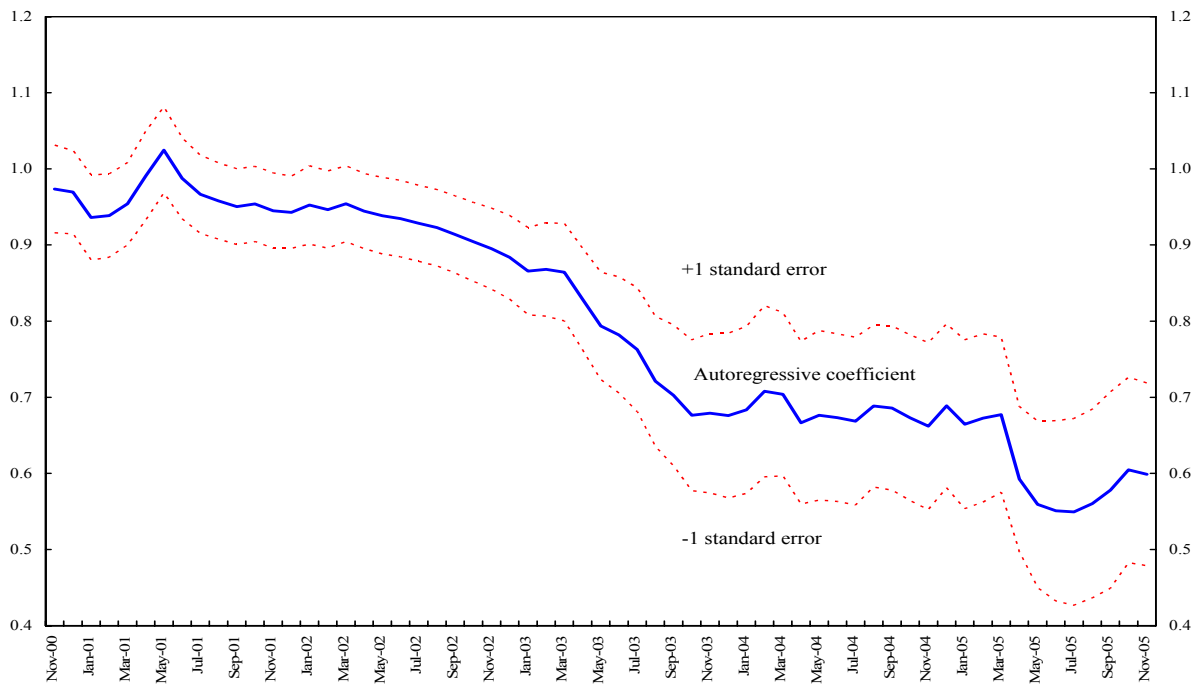
Figure I.14. Static Model Forecasts

(Probability Distribution Function and Kernel Density Estimates)



skew = 0.2449
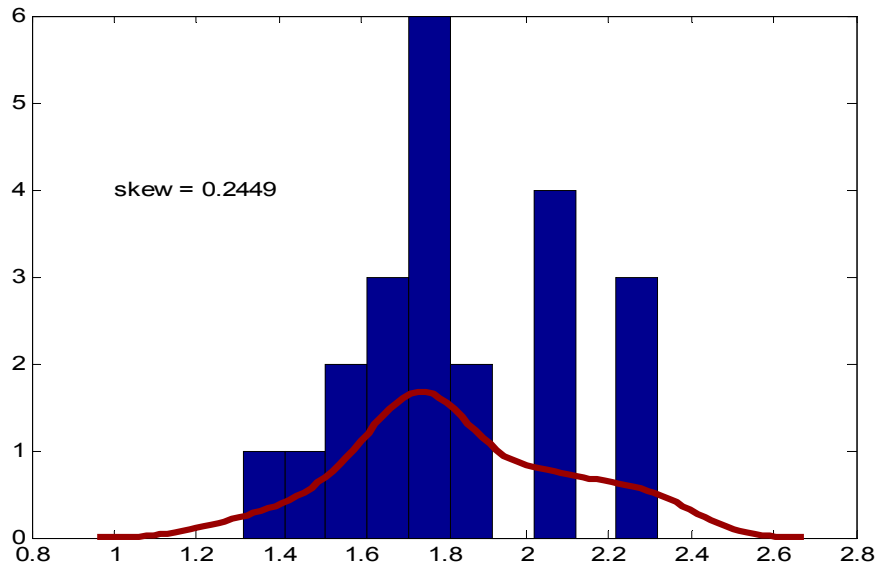
Figure I.15. Bivariate and Multivariate Model Forecasts

(Probability Distribution Function and Kernel Density Estimates)



skew = -0.2678
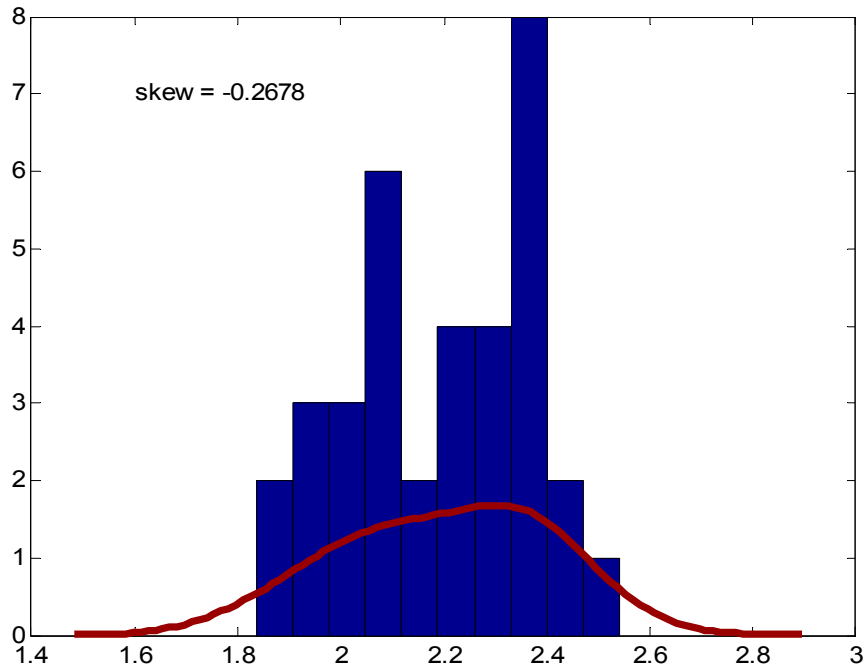
Figure I.16. All Forecasts
(Probability Distribution Function and Kernel Density Estimates)



skew = -0.25338
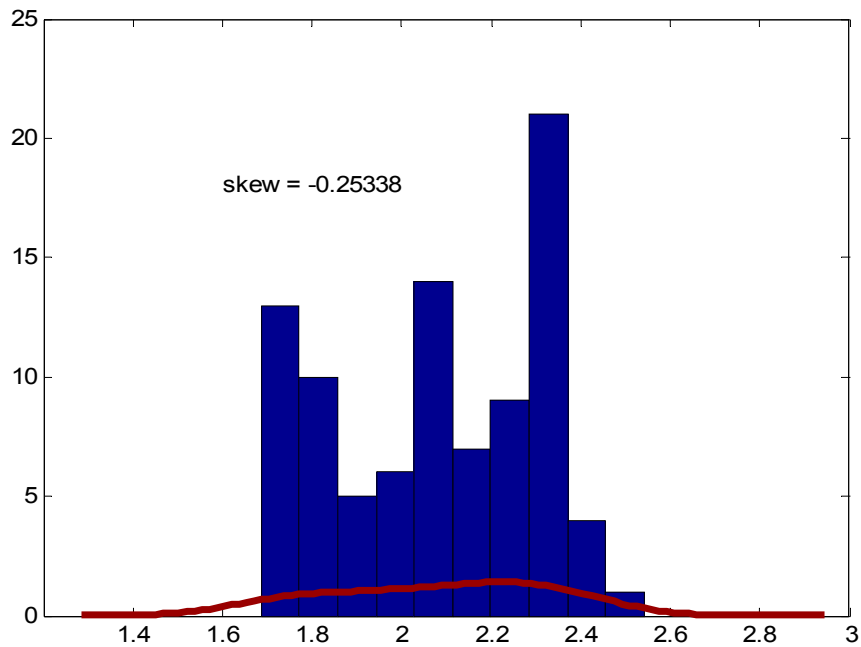
Table I.1. Taxonomy of Underlying Inflation Indicators

| | Data set | Theoretical/Structural measures | Statistical indicators | |
| --- | --- | --- | --- | --- |
| | | Time series | Cross-section | Panel |
| Statistical indicators | HICP components inflation | Bottom up approach: forecast HICP components using various econometric techniques and aggregate them | Exclusion measures: Permanent exclusion excluding energy Variable exclusion: trimmed means | Dynamic factor models Generalized dynamic factor models |
| | Aggregate HICP inflation | Moving averages; Hodrick-Prescott and other univariate filters and smoothing techniques | -- | -- |
| Theoretical/Structural measures | HICP: aggregate or components. Other macroeconomic variables: wages, industrial production, unemployment, exchange rate interest rate, monetary aggregates. | Structural VARs Single Phillips curve equations Aggregate supply/demand models Money demand models P* models | -- | Dynamic factor models Generalized dynamic factor models with long-run identifying restrictions |

Table I.2. Euro Area: Descriptive Statistics of HICP Components

| Code | Description | 2005 Weight | Mean m-o-m 1/ | Mean y-o-y | Standard Deviation m-o-m 1/ | Standard Deviation y-o-y |
|------|-------------|-------------|---------------|------------|------------------------------|---------------------------|
| | All-items HICP | 1000.0 | 1.9 | 1.9 | 1.5 | 0.5 |
| **1** | **Food and non-alcoholic beverages** | 154.8 | | | | |
| 1.1 | Food | 142.4 | | | | |
| 01.1.1 | Bread and cereals | 25.2 | 1.2 | 1.2 | 5.1 | 0.8 |
| 01.1.2 | Meat | 37.6 | 2.1 | 2.0 | 3.0 | 1.1 |
| 01.1.3 | Fish | 11.9 | 0.9 | 0.9 | 1.4 | 1.0 |
| 01.1.4 | Milk, cheese and eggs | 21.9 | 2.8 | 2.7 | 2.0 | 0.6 |
| 01.1.5 | Oils and fats | 5.1 | -0.9 | -0.8 | 2.2 | 1.0 |
| 01.1.6 | Fruit | 11.7 | 2.2 | 2.3 | 2.5 | 0.8 |
| 01.1.7 | Vegetables | 15.1 | 1.2 | 1.0 | 2.2 | 1.2 |
| 01.2.1 | Coffee, tea and cocoa | 3.7 | -0.2 | -0.3 | 6.8 | 4.7 |
| **2** | **Alcoholic beverages, tobacco** | 41.5 | | | | |
| 2.2 | Tobacco | 26.3 | 5.7 | 5.8 | 9.2 | 3.1 |
| **3** | **Clothing and footwear** | 74.4 | | | | |
| 3.1 | Clothing | 59.4 | | | | |
| 03.1.1 | Clothing materials | 0.3 | 1.3 | 1.2 | 7.1 | 1.1 |
| 03.1.2 | Garments | 54.8 | 0.8 | 0.8 | 5.1 | 0.9 |
| 03.1.3 | Other articles of clothing and clothing accessories | 2.5 | 1.2 | 1.2 | 5.1 | 0.8 |
| 3.2 | Footwear | 15.0 | | | | |
| 03.2.1/2 | Shoes and other footwear including repair and hire of footwear | 0.0 | 1.6 | 1.6 | 5.4 | 1.0 |
| **4** | **Housing, water, electricity, gas and other fuels** | 150.0 | | | | |
| 04.5.1 | Electricity | 19.5 | 0.8 | 0.7 | 5.1 | 1.9 |
| 04.5.2 | Gas | 13.6 | 4.5 | 4.3 | 9.6 | 6.4 |
| 04.5.3 | Liquid fuels | 7.9 | 8.7 | 9.4 | 50.2 | 19.3 |
| 04.5.4 | Solid fuels | 0.7 | 2.1 | 2.0 | 3.0 | 1.1 |
| 04.5.5 | Heat energy | 4.5 | 4.4 | 4.5 | 9.1 | 7.6 |
| **6** | **Health** | 41.4 | 3.1 | 3.2 | 6.2 | 1.9 |
| **7** | **Transport** | 153.1 | | | | |
| 07.3.3 | Passenger transport by air | 5.2 | 3.1 | 2.9 | 18.1 | 2.7 |
| 07.3.4 | Passenger transport by sea and inland waterway | 1.0 | 2.6 | 2.5 | 20.9 | 3.2 |
| **8** | **Communication** | 28.2 | | | | |
| 8.1 | Postal services | 2.3 | 2.1 | 2.1 | 5.9 | 1.8 |
| 08.2/3 | Telephone and telefax equipment and telephone and telefax services | 26.0 | -2.5 | -2.6 | 6.9 | 2.8 |
| **9** | **Recreation and culture** | 94.6 | | | | |
| 9.1 | Audio-visual, photographic and information processing equipment | 14.9 | | | | |
| 09.1.1 | Equipment for the reception, recording and reproduction of sound and pictures | 5.1 | -4.4 | -4.3 | 2.7 | 1.8 |
| 09.1.2 | Photographic and cinematographic equipment and optical instruments | 1.4 | -4.7 | -4.4 | 3.9 | 3.0 |
| 09.1.3 | Information processing equipment | 3.5 | -14.2 | -13.5 | 8.5 | 5.3 |
| 09.2.3 | Maintenance and repair of other major durables for recreation and culture | 2.4 | 3.3 | 3.5 | 4.9 | 1.9 |
| 09.4.2 | Cultural services | 13.9 | 1.9 | 1.9 | 4.6 | 1.4 |
| 9.6 | Package holidays | 15.2 | 2.6 | 2.4 | 27.4 | 3.1 |
| **11** | **Restaurants and hotels** | 94.6 | | | | |
| 11.2 | Accommodation services | 17.0 | 3.3 | 3.4 | 7.3 | 1.1 |
| **12** | **Miscellaneous goods and services** | 81.6 | | | | |
| 12.5.2 | Insurance connected with the dwelling | 2.3 | 2.1 | 2.0 | 5.9 | 1.7 |
| 12.5.4 | Insurance connected with transport | 7.7 | 1.7 | 1.8 | 8.9 | 3.8 |
| 12.6 | Financial services n.e.c. | 5.9 | 3.6 | 3.5 | 8.7 | 2.0 |

Sources: EUROSTAT; and Fund staff estimates.

1/ Annualized.

Table I.3. Euro Area: Headline and Underlying Inflation Indicators: Descriptive Statistics /1

(Year-on-year, in percent)

|  | Mean | Median | Maximum | Minimum | Standard Deviation 2/ |
|---|---|---|---|---|---|
| Headline inflation | 1.9 | 2.0 | 3.1 | 0.8 | 1.00 |
| GDFM indicators |  |  |  |  |  |
| prices only: 1 dynamic factor | 1.9 | 1.8 | 2.3 | 1.6 | 0.32 |
| prices only: 2 dynamic factors | 1.9 | 2.1 | 2.3 | 1.2 | 0.77 |
| price and non-price data: 1 dynamic factor | 1.9 | 1.8 | 2.3 | 1.6 | 0.34 |
| price and non-price data: 2 dynamic factors | 1.9 | 2.1 | 2.4 | 1.3 | 0.73 |
| Core indicators |  |  |  |  |  |
| Headline excluding energy | 1.7 | 1.6 | 3.0 | 0.7 | 1.08 |
| Headline excluding energy, food, alcohol and tobacco | 1.6 | 1.6 | 2.6 | 0.9 | 0.83 |
| Headline excluding seasonal food | 1.7 | 1.6 | 2.7 | 0.9 | 0.98 |
| Headline excluding unprocessed food | 1.7 | 1.5 | 2.7 | 0.9 | 0.94 |
| Trimmed means/median |  |  |  |  |  |
| 5 percent | 1.8 | 1.8 | 3.0 | 0.8 | 0.90 |
| 10 percent | 1.8 | 1.8 | 2.7 | 0.8 | 0.89 |
| 15 percent | 1.8 | 1.8 | 2.8 | 1.0 | 0.87 |
| 20 percent | 1.8 | 1.8 | 2.7 | 1.0 | 0.85 |
| 50 percent | 1.8 | 1.7 | 2.6 | 1.1 | 0.74 |
| Model measures |  |  |  |  |  |
| Vahey&Quah | 1.9 | 1.9 | 2.4 | 1.5 | 0.38 |
| Phillips curve | 1.9 | 1.9 | 2.4 | 1.4 | 0.54 |

Sources: Eurostat; and Fund staff calculations.

1/ Sample: January, 1997-December, 2005.
2/ Relative to headline inflation.

Table I.4. Euro Area: Forecast Performance of Indicators of Underlying Inflation 1/

(Root mean square error/RMSE/ and Bias in percentage points)

| Indicator | Univ 6 RMSE | Univ 6 Bias | Univ 12 RMSE | Univ 12 Bias | Univ 18 RMSE | Univ 18 Bias | Univ 24 RMSE | Univ 24 Bias | DistLag 6 RMSE | 6 Bias | 12 RMSE | 12 Bias | 18 RMSE | 18 Bias | 24 RMSE | 24 Bias | Gap 6 RMSE | 6 Bias | 12 RMSE | 12 Bias | 18 RMSE | 18 Bias | 24 RMSE | 24 Bias | MV 6 RMSE | 6 Bias | 12 RMSE | 12 Bias | 18 RMSE | 18 Bias | 24 RMSE | 24 Bias |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Univariate:** Spectral density equation / Static equation | | | | | | | | | **Bivariate:** Distributed lag equation | | | | | | | | Gap equation | | | | | | | | **Multivariate:** Semi-structural equation with exchange rate and oil | | | | | | | |
| HICP inflation (First difference) | 0.35 | 0.05 | 0.41 | 0.07 | 0.41 | 0.13 | 0.51 | 0.17 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| HICP inflation (Level) | 0.36 | -0.08 | 0.42 | -0.22 | 0.36 | -0.27 | 0.40 | -0.30 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **HICP inflation (Random walk--benchmark)** | **0.32** | **-0.16** | **0.34** | **-0.18** | **0.48** | **0.37** | **0.44** | **-0.05** | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **GDFM estimates of underlying inflation** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HICP components only: 1 factor | 0.48 | 0.31 | 0.41 | 0.23 | 0.35 | 0.17 | 0.38 | 0.14 | 0.41 | 0.10 | 0.48 | 0.05 | 0.51 | -0.07 | 0.64 | -0.23 | 0.41 | 0.21 | 0.41 | 0.21 | 0.38 | 0.13 | 0.41 | 0.01 | 0.54 | 0.30 | 0.50 | 0.34 | 0.57 | 0.29 | 0.47 | 0.12 |
| HICP components only: 2 factors | 0.37 | 0.18 | 0.34 | 0.13 | 0.32 | 0.10 | 0.36 | 0.06 | 0.42 | 0.20 | 0.45 | 0.12 | 0.44 | 0.02 | 0.52 | -0.12 | 0.40 | 0.18 | 0.41 | 0.16 | 0.39 | 0.08 | 0.45 | -0.04 | 0.44 | 0.25 | 0.35 | 0.27 | 0.51 | 0.22 | 0.46 | 0.01 |
| HICP components and non-price data: 1 factor | 0.47 | 0.30 | 0.39 | 0.22 | 0.34 | 0.16 | 0.38 | 0.14 | 0.47 | 0.23 | 0.46 | 0.15 | 0.45 | 0.00 | 0.57 | -0.14 | 0.41 | 0.19 | 0.40 | 0.20 | 0.37 | 0.13 | 0.41 | 0.02 | 0.55 | 0.31 | 0.53 | 0.35 | 0.59 | 0.30 | 0.47 | 0.13 |
| HICP components and non-price data: 2 factors | 0.37 | 0.19 | 0.34 | 0.14 | 0.32 | 0.10 | 0.36 | 0.07 | 0.42 | 0.20 | 0.44 | 0.13 | 0.43 | 0.03 | 0.50 | -0.10 | 0.40 | 0.18 | 0.40 | 0.16 | 0.38 | 0.09 | 0.43 | -0.02 | 0.45 | 0.23 | 0.36 | 0.26 | 0.51 | 0.21 | 0.47 | 0.02 |
| **Core inflation measures by exclusion** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| excluding energy | 0.56 | 0.06 | 0.57 | 0.00 | 0.79 | 0.53 | 0.77 | 0.15 | 0.62 | 0.44 | 1.09 | 0.80 | 1.49 | 1.11 | 1.81 | 1.39 | 0.39 | 0.00 | 0.52 | -0.07 | 0.62 | -0.11 | 0.89 | -0.20 | 0.62 | 0.19 | 0.71 | 0.33 | 0.90 | 0.42 | 0.81 | 0.41 |
| excluding energy, food, alcohol and tobacco | 0.54 | 0.27 | 0.54 | 0.24 | 0.94 | 0.80 | 0.76 | 0.42 | 0.63 | 0.38 | 1.15 | 0.71 | 1.66 | 1.03 | 2.17 | 1.32 | 0.42 | -0.03 | 0.59 | -0.14 | 0.75 | -0.26 | 1.16 | -0.45 | 0.68 | 0.32 | 0.86 | 0.54 | 1.06 | 0.72 | 1.04 | 0.76 |
| excluding energy and seasonal food | 0.50 | 0.10 | 0.50 | 0.06 | 0.80 | 0.61 | 0.71 | 0.23 | 0.59 | 0.39 | 1.16 | 0.77 | 1.82 | 1.22 | 2.61 | 1.73 | 0.39 | 0.00 | 0.51 | -0.09 | 0.60 | -0.15 | 0.85 | -0.25 | 0.61 | 0.18 | 0.68 | 0.31 | 0.90 | 0.41 | 0.82 | 0.42 |
| excluding energy and unprocessed food | 0.53 | 0.14 | 0.54 | 0.10 | 0.86 | 0.66 | 0.75 | 0.29 | 0.62 | 0.40 | 1.12 | 0.76 | 1.62 | 1.11 | 2.08 | 1.43 | 0.40 | -0.01 | 0.52 | -0.10 | 0.60 | -0.18 | 0.87 | -0.30 | 0.68 | 0.27 | 0.80 | 0.47 | 0.98 | 0.63 | 0.95 | 0.65 |
| **Trimmed means/median** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 percent | 0.31 | -0.02 | 0.32 | -0.05 | 0.57 | 0.47 | 0.48 | 0.05 | 0.47 | 0.23 | 1.00 | 0.58 | 2.19 | 1.31 | 4.93 | 2.90 | 0.39 | -0.01 | 0.55 | -0.09 | 0.81 | -0.19 | 1.50 | -0.38 | 0.37 | 0.05 | 0.30 | 0.09 | 0.60 | 0.09 | 0.60 | -0.01 |
| 10 percent | 0.34 | -0.01 | 0.35 | -0.04 | 0.58 | 0.46 | 0.49 | 0.04 | 0.60 | 0.30 | 1.59 | 0.76 | 3.97 | 1.84 | 10.47 | 4.58 | 0.39 | 0.03 | 0.53 | -0.02 | 0.65 | -0.10 | 1.10 | -0.25 | 0.38 | 0.06 | 0.34 | 0.10 | 0.59 | 0.08 | 0.53 | -0.03 |
| 15 percent | 0.36 | 0.00 | 0.37 | -0.03 | 0.62 | 0.48 | 0.53 | 0.07 | 0.58 | 0.31 | 1.20 | 0.65 | 2.15 | 1.18 | 3.95 | 2.06 | 0.37 | 0.03 | 0.45 | -0.01 | 0.48 | -0.06 | 0.64 | -0.12 | 0.44 | 0.05 | 0.44 | 0.10 | 0.67 | 0.09 | 0.57 | 0.01 |
| 20 percent | 0.36 | 0.00 | 0.37 | -0.04 | 0.61 | 0.48 | 0.53 | 0.06 | 0.58 | 0.31 | 1.13 | 0.61 | 1.85 | 1.02 | 3.12 | 1.65 | 0.37 | 0.03 | 0.43 | -0.01 | 0.44 | -0.06 | 0.54 | -0.11 | 0.47 | 0.05 | 0.47 | 0.11 | 0.69 | 0.11 | 0.58 | 0.02 |
| 50 percent | 0.34 | 0.05 | 0.35 | 0.02 | 0.63 | 0.53 | 0.52 | 0.12 | 0.61 | 0.33 | 1.10 | 0.61 | 1.55 | 0.89 | 2.24 | 1.24 | 0.37 | 0.05 | 0.43 | 0.02 | 0.41 | -0.04 | 0.49 | -0.09 | 0.45 | 0.10 | 0.53 | 0.20 | 0.67 | 0.22 | 0.44 | 0.17 |
| **Non-price indicators** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.48 | 0.32 | 0.50 | 0.36 | 0.51 | 0.35 | 0.55 | 0.34 | 0.52 | 0.39 | 0.50 | 0.32 | 0.52 | 0.22 | 0.39 | 0.10 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| M2 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.52 | 0.08 | 0.83 | -0.08 | 1.30 | -0.36 | 2.29 | -0.70 | 0.59 | 0.44 | 0.54 | 0.39 | 0.50 | 0.28 | 0.46 | 0.25 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| M3 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.50 | 0.19 | 0.65 | 0.06 | 0.74 | -0.18 | 0.98 | -0.40 | 0.53 | 0.23 | 0.51 | 0.09 | 0.53 | -0.11 | 0.65 | -0.29 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Wages | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.52 | 0.30 | 0.50 | 0.33 | 0.43 | 0.30 | 0.43 | 0.29 | 0.60 | 0.50 | 0.55 | 0.46 | 0.55 | 0.39 | 0.45 | 0.38 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| ULC | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.46 | -0.08 | 0.81 | -0.28 | 1.11 | -0.53 | 1.11 | -0.80 | 0.53 | 0.34 | 0.42 | 0.26 | 0.36 | 0.19 | 0.40 | 0.18 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Unemployment | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.43 | 0.22 | 0.54 | 0.36 | 0.59 | 0.47 | 0.64 | 0.53 | 0.58 | 0.46 | 0.54 | 0.44 | 0.50 | 0.43 | 0.50 | 0.45 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Industrial production | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.54 | 0.16 | 0.88 | 0.13 | 1.29 | 0.07 | 2.18 | -0.03 | 0.67 | 0.45 | 0.59 | 0.38 | 0.56 | 0.28 | 0.51 | 0.25 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Interest rates | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.44 | 0.08 | 0.68 | 0.06 | 0.82 | 0.01 | 1.24 | -0.05 | 0.61 | 0.46 | 0.58 | 0.47 | 0.55 | 0.47 | 0.62 | 0.52 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Structural measures of underlying inflation** (Structural measures (bi- or multivariate)) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Quah&Vahey SVAR | 0.53 | 0.37 | 0.55 | 0.36 | 0.49 | 0.34 | 0.50 | 0.35 | 0.47 | 0.36 | 0.47 | 0.36 | 0.42 | 0.34 | 0.43 | 0.34 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Reduced form Phillips curve | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.49 | 0.13 | 0.40 | 0.24 | 0.51 | 0.32 | 0.51 | 0.30 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| P* model | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0.41 | 0.06 | 0.26 | 0.08 | 0.68 | 0.04 | 0.91 | -0.09 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Composite indicators:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| All measures | 0.37 | 0.14 | 0.32 | 0.09 | 0.32 | 0.04 | 0.38 | -0.01 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Bivariate equations | 0.36 | 0.12 | 0.33 | 0.07 | 0.34 | 0.02 | 0.42 | -0.04 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

Source: Fund staff estimates.
1/ Forecast evaluation for estimates with year-on-year inflation.

## II.  Lessons from Successful Labor Market Reformers in Europe[17]

### A.  Introduction

27.    **A vigorous debate is underway in Europe over the future of economic reform and equity**. Arising from its history, including the massive upheavals during the first part of the twentieth century, Europe has developed a solid attachment to the principal of solidarity. But notwithstanding some reforms and progress, unemployment remains persistently high and per capita income has been stuck at about three-quarters of the United States level since the mid-1970s. More recently, productivity also suffered a protracted slowdown, as countries found it difficult to adapt to ongoing technological change and globalization. The upshot is stalled growth, with limited prospects for improvement in light of the impending onset of population aging. In the unfolding debate, many point the finger at Europe's welfare states, arguing that high levels of taxes and transfers hurt employment, while underlying rigidities hinder an effective reallocation of resources.

28.    **Some argue that efficiency and equity are by no means incompatible**. Sapir (2005), for instance, points to the "Nordic" countries as having the best of both worlds, combining high employment with high degrees of equity. In contrast, the "Mediterranean" countries—which rely more on employment protection legislation (EPL) than income support—score poorly on both counts. Others lie in the middle, with the "Anglo-Saxon" countries scoring high on efficiency and low on equity, while the opposite is true for "Continental" countries characterized by generous unemployment benefits and strong unions.

29.    **Rather than enter the "social models" debate directly, this chapter focuses on successful European reform experiences**. It singles out four countries in particular— Denmark, Ireland, the Netherlands, and the United Kingdom—that have achieved some degree of success in reducing unemployment and stimulating job growth, despite vastly differing economic conditions. To complement the case study analysis, empirical techniques (event studies and econometric analysis) will also be utilized. In this process, all aspects of reform will be considered including background, political economy context, fiscal policy behavior, the role of labor market institutions, and patterns of poverty and inequality. The goal is to lay out a set of basic conclusions about what reform strategies work in the European context that can be used as a guide for the future.

30.    **The four case study countries stand out in terms of their success in reducing unemployment and increasing employment** (see Table II.1). Four of the lowest five unemployment rates can be found in these countries, and they also covered the most ground over two decades (Denmark slightly less than others, but only because its peak unemployment was in the early 1990s, not the early 1980s). Broadening the picture to look at the overall employment rate conveys similar information, with Ireland and the Netherlands leading the pack (Figures II.1 and II.2); the same holds true for both male and female

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[17] Prepared by Anthony Annett.

employment (Figures II.3 and II.4). While all case study countries succeeded in lowering unemployment, Ireland and the Netherlands took further advantage of female participation catch-up[18]. Ireland also benefited from uniquely favorable demographics (Table II.2).[19] But the gains in male employment were effectively neutralized by declining male participation, a pattern also evident in Denmark and the United Kingdom.

31.     **Adjusting for government employment and hours worked reveals some differences, especially for Denmark**. Stripping the government component out of total employment does not change the story for Ireland or the Netherlands, as employment gains in these countries came unambiguously from the private sector (Figure II.1). In terms of the other countries, the United Kingdom looks somewhat better, and Denmark somewhat worse.[20] Although part-time prevalence increased, especially in the Netherlands (Figure II.5), total hours in the business sector nonetheless grew robustly (Figure II.1). Still, in relative terms, the Netherlands slips behind the United Kingdom, while Denmark's performance was average, recording practically no growth in hours since 1980.

## B.  Crisis and Reform: A Cursory Overview

**The setting**

32.     **In the face of an adverse global supply shock at the start of the 1980s, the case study countries all made policy mistakes**. Some countries, including Ireland and Denmark, responded inappropriately by engaging in an expansionary demand policy in the face of a supply shock. Wages spiraled out of control in some countries, most starkly in the Netherlands, where the wage share hit 95 percent, 12 percentage points higher than a decade earlier (Bakker, 1999). In the United Kingdom, unit labor costs also expanded throughout the 1970s, as workers gained large wage increases in the face of persistent low productivity growth, and unions struck a particularly belligerent attitude. The Netherlands also engaged in an overly-rapid increase in the expenditures, prompted partly rising natural gas revenues.[21]

33.     **By the early 1980s, as a result, all four countries faced severe macroeconomic crises**. Denmark, the Netherlands, and the United Kingdom all faced two consecutive years

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[18] The literature shows that female participation is affected positively by such factors as maternity leave, childcare costs, and availability of part-time work—all part of the Nordic social model (see Jaumotte, 2003; Genre, Salvador, and Lamo, 2005). Denmark remains the leader of the pack in this regard, while both Ireland and the Netherlands lagged.

[19] Following a "baby bulge" in the 1960s and 1970s, the birth rate declined toward average European levels by 1980. Emigration, especially to the United Kingdom, was also a constant in Ireland in the postwar period, giving rise to a large pool of potential returning immigrants.

[20] The results do not change if business employment is used instead.

[21] The number of welfare recipients—enrolled in unemployment, sickness, and disability programs—more than doubled, from 8 percent of working age population in 1970 to 18 percent by 1982 (Bakker, 1999).

of negative growth, with real GDP declining by 2½ percent, 2 percent, and 3½ percent respectively. Inflation rose across the board, hovering around 18–20 percent in Ireland and the United Kingdom, and reaching 10–12 percent in Denmark, and 7 percent in the Netherlands. Likewise, unemployment trended upwards, reaching 8–10 percent in Denmark, the Netherlands, and the United Kingdom, and surpassing 16 percent in Ireland.

34.    **Not surprisingly, public finances also spiraled out of control, at least in three of the four countries**. Underlying imbalances combined with rising interest rates in the early 1980s and led quickly to unstable debt dynamics. Large fiscal deficits emerged in Denmark (8½ percent of GDP), Ireland (13 percent of GDP), and the Netherlands (6 percent of GDP). But public finances in the United Kingdom were relatively well behaved: the general government deficit averaged 3¾ percent of GDP between 1979–81, no major change over the previous five years.

**The reform strategy**

35.    **In response to the crises, the case study countries all leveraged the complementarities between fiscal consolidation and reforms to enhance labor supply** (see text table for a basic summary of reforms). Ireland and the Netherlands centered their reforms on consensus-based agreements between social partners, trading wage moderation for labor tax cuts. Instead, the United Kingdom weakened the power of unions. Rather than address union behavior directly, Denmark concentrated on benefits reform, by combining

Text Table. Matrix of Reforms

|  | Denmark | Ireland | Netherlands | United Kingdom |
|---|---|---|---|---|
| Consensus-based agreement with unions |  | xx | xx |  |
| Curbing the power of unions |  |  |  | xx |
| Reducing tax wedges on labor income | x | xx | xx | xx |
| Cutting unemployment benefits generosity |  | x | x | xx |
| Reducing benefits duration | xx |  | xx |  |
| Toughening benefits enforcement | xx |  | xx | xx |
| Expanding Active Labor Market Policies | xx |  | xx |  |
| Reducing permanent employment protection legislation | 1/ | 1/ |  | 1/ |
| Reducing temporary employment protection legislation | xx | 1/ | xx | 1/ |
| Reducing product market legislation | xx | x | xx | xx |
| Fiscal adjustment | xx | xx | xx | xx |
| Reducing size of government |  | xx | xx | x |
| Reducing government employment |  | xx | x | xx |

Source: Author's assessment.

xx = significant reform; x = moderate reform.
1/ No reforms but low to start with.

continued generosity with lower duration, tougher conditionality, and stricter activation requirements. Most countries addressed benefits reform to varying degrees. All four countries also reduced tax wedges on labor income. Furthermore, Denmark and the Netherlands boosted active labor market policies (ALMPs). These countries also loosened restrictions on temporary (but not permanent) employment protection legislation (EPL).

However, the case study countries tended to be among the most liberal in terms of labor market restrictions. Also, all liberalized product markets over this period. Another key point is that all four countries engaged in complementary fiscal adjustment, often substantial. And three of the four countries set the stage for a long-term decline in the size of government (except Denmark).

36. **While crisis spurred reforms in all countries, the continuation of reforms depended on favorable macroeconomic circumstances**. The case study countries all experienced growth and employment booms following the advent of the labor market reform phase. And the employment booms were not achieved at the expense of labor productivity. In Ireland and the Netherlands in particular, reforms continued over an extended period of time, and even intensified, as growth remained solid. But in Denmark, unit labor costs increased on the back of large wage increases in 1987, and growth came to a temporary standstill, giving rise to a pause in the reform agenda. In the United Kingdom, reforms took some time to bear fruit as unemployment remained elevated for almost a decade, perhaps due to inadequate monetary policy credibility (Pissarides, 2003). Over the longer horizon, however, the reform momentum was maintained in all countries.

### C. Labor Market Reform

37. **At the cornerstone of reforms in all countries was a desire to boost labor supply**. Based on a model whereby unions and employers bargain over wages, "wage moderation" can be interpreted as structural changes in unions' approach to wage bargaining, or an outward shift in the labor supply, or wage, curve.[22] The wage variable used in this paper is the productivity- and cyclically-adjusted real hourly compensation rate.[23] A number of factors can lead to outward shifts in the wage curve: (i) changes in the attitudes of unions and workers, placing a greater emphasis on employment; (ii) falling labor taxation, allowing workers to accept lower gross wages for the same net wage; (iii) unemployment benefit reform, reducing the reservation utility of union members; (iv) reducing government employment or government wages, also reducing reservation utility, given that government employment is an alternative to private employment (see Ardagna, 2004). The reforming countries did indeed place structural increases in labor supply high on the agenda (Figure II.8 and Table II.3). Looking across the two decade horizon, the countries exhibiting the biggest shifts in labor supply are Ireland, Finland, Sweden, the United Kingdom, and the

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[22] For details, see Decressin and others (2001), and Estevao (2005).

[23] The hourly compensation rate in the business sector is deflated by the private consumption deflator and an index of labor-augmenting technical progress. But since changes in wages may simply reflect cyclical changes in unemployment, or a movement along the wage (labor supply) curve, the growth in wages is also adjusted for the change in the unemployment rate, based on an elasticity of wage costs to unemployment of 0.1, a standard assumption in the literature.

Netherlands. More countries joined them in the late 1990s and early 2000s, including Italy, Spain, and Germany.

**Behavior of unions**

38.    **Wage moderation was abetted in Ireland and the Netherlands by coordinated agreements between social partners, while the United Kingdom focused on reducing the power of unions**. The Netherlands enjoyed a long history of corporatism and consensus-driven policymaking, especially in the domain of wage bargaining (Hartog, 1999). Moreover, certain aspects of the legal institutional framework fostered the consensus-based approach. Laws from the interwar period made any agreement with a union binding on all the workers in the firm, and allowed the government to extend a collective agreement that covered a large majority of the industry to the entire industry. Ireland, on the other hand, had no such corporatist history, but unions had a vested interest in aligning themselves with this new approach, given the gravity of the crisis and the fact that union membership was waning.[24] Some believed that such a strategy would have been impossible in the decentralized bargaining system in the United Kingdom (Nickell and van Ours, 1999).[25] But given the Irish institutional transformation, perhaps its size and heterogeneity, as well as the greater ideological polarization, played a greater role in hindering a consensus-based approach from emerging in the United Kingdom.

39.    **At the core of the Dutch and Irish programs was the strategy to mitigate the effects of lower nominal wage growth with labor tax cuts**. The seminal *Wassenaar* agreement in the Netherlands was signed in 1982 between the leading labor federation and the employer's federation, trading wage restraint for working hour reductions, alongside government commitments to reduce labor taxes and social security contributions. Unions also ceased their opposition to part-time jobs. While the gross real wage of the average worker increased by less than 1 percent between 1983–98, the corresponding real net wage rose by nearly 15 percent (Bakker and Halikias, 1999). Ireland adopted a similar strategy in 1987, without the emphasis on working hours. Although the wage agreements applied only explicitly to the unionized sector, the agreements acted as a more general benchmark for wage expectations. Given its success, this strategy has continued unabated in both countries. The *Wassenaar* agreement was updated in 1989, 1993, and 1997, and a total of six medium-

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[24] Membership in unions declined from around 48 percent of the labor force in 1980 to around 40 percent a decade later (Honohan and Walsh, 2002).

[25] Early industrialization provided the United Kingdom with a particular set of institutions that were never reformed as it was undefeated in the war: a banking system specializing in trade credits instead of industrial finance; an industrial structure dominated by single-plant firms; and a fragmented craft-based unionism (Eichengreen, 1996).

term agreements were negotiated in Ireland.[26] As the fiscal accounts improved, tax cuts became more feasible.

40.      **In the United Kingdom, union power was reduced progressively throughout the 1980s**. Statutory recognition procedures were abolished, actions that force contracts with union employers were prohibited, the grounds for refusing to join a union were extended, picketing was limited, union immunities were weakened, and pre-strike ballots were required. Significantly, the closed shop was banned, allowing employers to hire non-union workers. Many firms chose not to recognize unions at workplaces at all, and others insisted on plant-specific agreements (Blanchflower and Freeman, 1993). With the exception of the public sector, unions were concentrated in the older manufacturing sector, the very sector which experienced the greatest decline over this period. Overall, union density fell from 50 percent in 1980 to 30 percent by end of the 1990s. More revealingly, union coverage, the percentage of employees subject to a union agreement, fell from 70 percent in 1980 to only 35 percent at this time.

41.      **Unlike in the other cases, a shift in wage bargaining behavior was not a key aspect of the Danish reforms**. As in the United Kingdom, the Danish government initially adopted a confrontational approach with unions, which led to major industrial unrest and ultimately failed to restrain wage growth. Following this, the wage bargaining system became increasingly decentralized over the 1990s, as employers largely abandoned coordinated bargaining, and the government switched direction and focused instead on reforming labor market institutions (see next page).

**Labor market institutions**[27]

42.      **To boost labor supply, the reforming countries all engaged in institutional reform, but focused on different aspects**. To varying degrees, the four case study countries cut tax wedges, reformed the benefits regime, made recourse to ALMPs, and reduced EPLs.

43.      **A common factor among the four countries was the steady reduction in tax wedges over the period in question**. The overall tax wedge on labor income[28] declined markedly over two decades in Ireland, the Netherlands, and the United Kingdom and

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[26] The agreements are: (i) the *Programme for National Recovery*, 1987–91; (ii) the *Programme for Economic and Social Partnership*, 1991-93; (iii) the *Programme for Competitiveness and Work*, 1994–96; (iv) *Partnership 2000*, 1997–99; (v) the P*rogramme for Prosperity and Fairness*, 2000–02; (vi) *Sustaining Progress*, 2003–05. For details, see Hunt (2004).

[27] See Appendix I for more in-depth discussion of the different reform programs.

[28] The tax wedge is defined as employees' and employers' social security contributions and personal income tax less transfer payments as percent of gross labor costs, averaged between single and married workers.

modestly in Denmark (Figure II.8). This was not a common trend, as the wedge actually rose in half of the EU countries at this time. Also, while Ireland and the United Kingdom are positioned on the lower end, Denmark and the Netherlands are around average, lower than countries like France, Germany, Italy, Belgium, Finland, and Sweden. In Ireland, the Netherlands, and the United Kingdom, the decline in the tax wedge represented a clear government policy of compensating for wage moderation by cutting taxes on labor income.

44.     **The case study countries all engaged in some aspect of benefit reform, reducing the level of unemployment benefits, or their duration, or strengthening eligibility requirements**. In this context, Figure II.8 shows that the gross replacement rate in the first year of unemployment declined in Denmark, Ireland, and the United Kingdom over the relevant period.[29] Reforms led to less generous benefits in the United Kingdom and the Netherlands in particular (the latter focused on sickness and disability as well as unemployment), while in Ireland, benefits failed to keep pace with after-pay income. But, despite changes, the replacement rate in Denmark and the Netherlands remained high, near the top in the EU, while Ireland and the United Kingdom sit on the other end of the scale. But lessening the replacement rate was only one dimension of reforms. Denmark and the Netherlands also cut the maximum duration of unemployment benefits, while three of the four countries (bar Ireland) tightened up eligibility requirements for receipt of benefits. In Denmark, policies deliberately allowed for generous benefits in the face of shorter duration and tougher eligibility conditions. Indeed, Grubb (2000) noted that a notable common factor among reformers was a stricter enforcement of job search and better surveillance of eligibility.

45.     **In the 1990s, the Netherlands also shifted toward the "privatization" of social security, as risks were shifted to employers and private insurance schemes**. The whole system was decentralized, minimizing the role of social partners. The old system created some poor incentives, as all parties—workers, employers, and the governments—had their own motives for preferring the disability to the unemployment benefit channel (Barrell and Genre, 1999). From 1994, employers were made responsible for the first six weeks of sick leave, and this was extended to a full year in 1996, after which the person moved to disability status. From 1998, disability premia were fully paid by employers, and differentiated by enterprise. From 1997, management of the social security system, until then in the hands of the unions and employers organizations—was contracted out to social security agencies, which were allowed to compete with each other, and with private companies (see Bakker and Halikias, 1999).

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[29] This replacement rate is defined as the average over three different family types (single, married with dependent spouse, and married with working spouse), and two different income levels (67 percent of average earnings, and 100 percent of average earnings). The pattern does not change much by aggregating further and taking three different time periods—the first year, the second and third years, and the fourth and fifth years.

46.     **The case study countries relied on ALMPs to differing degrees**. Active measures are prominent in Denmark and the Netherlands, although Ireland is also above average in terms of expenditure. They are not significant in the United Kingdom. And while ALMPs grew in prominence in both Denmark and the Netherlands over the reform period, their popularity actually declined in Ireland and the United Kingdom (Figure II.9). In Denmark, the unemployed were required to take part in ALMPs, and requirements on this front became progressively tougher throughout the 1990s. Countries also differed in their choice of ALMPs (Figure II.10), with Ireland and the Netherlands focusing on subsidized employment, which some argue is most effective (Estevao, 2003). ALMPs combined with activation (as introduced in Denmark and the United Kingdom) may also work well (Martin and Grubb, 2001). Indeed, youth unemployment fell by 40 percent in the United Kingdom after the onset of the "New Deal" (Swagel, 2000). Likewise, the youth unemployment rate in Denmark fell from a peak of 16 percent to 3 percent (Andersen, 2003).

47.     **A further common element is that the case study countries do not rely heavily on employment protection**. Indeed, in the early 2000s, the four countries clustered around the bottom of the group in terms of EPLs, with highly liberalized labor markets in Ireland and the United Kingdom in particular (Figure II.9). EPLs related to temporary employment were also lowered in Denmark and the Netherlands over the reform period. But while many countries followed this liberalization pattern, there was little movement in loosening regulations on permanent employment (OECD, 2004). In Denmark, a liberal approach to regulation is part of its much-touted "flexicurity" model, which insures workers against income loss, but not job loss. Indeed, job turnover among Danish workers is around 30 percent, matched only by the United Kingdom. The percent of laid off workers re-hired by the same company is also high; 40 percent in 1998 were re-hired within six months (Gaard and Kieler, 2004).

**Product market regulation**

48.     **Product market liberalization can be a boon to labor market reforms**. Empirically, product market liberalization has been shown to spur labor market liberalization (Debrun and Annett, 2004; OECD, 2006). Estevao (2005) finds that excessive regulation suppresses the beneficial effects of labor market reform on employment and output, by inhibiting competition or discouraging entry into the market. Likewise, Blanchard and Giavazzi (2003) argue that product market reforms lower prices and increase real wages, thus setting the groundwork for labor market reforms. Berger and Danninger (2005) also show that labor and product market reforms are complementary.

49.     **The case study countries tend to favor less stringent product market regulation**. Indicators of product market regulation are imperfect. The most broad-based indicators, encompassing the whole economy, are only available from the OECD for 1998 and 2003. These data suggest that the four case study countries are the least regulated in the sample in 1998, and in 2003, the Netherlands slips to fifth place behind Sweden. A recent European

Commission study showed that firms in the United Kingdom tended to have the lowest cost and waiting time in terms of starting a new business (Maher and Wise, 2005). The only available time series conveys information on seven non-manufacturing sectors—airlines, telecoms, electricity, gas, post, rail, and road freight—between 1975–2003 (see Conway and Nicoletti, 2006). Here, the picture is not as clearcut. While the United Kingdom, Netherlands, and Denmark are still at the bottom, Ireland is now above average, largely due to restrictions in railways, gas, and airlines.[30] In terms of the dynamic pattern, again, Denmark, the Netherlands, and the United Kingdom liberalized most over a twenty-year period, but the trend has been downward for all countries (Figure II.9).

50. **Deregulation and privatization were prominent features of reform**. Denmark and the Netherlands began liberalizing utilities in the early 1990s. Also in the Netherlands, competition regulation was loosened, and shop opening hours were extended in 1996 (Barrell and Genre, 1999). The United Kingdom engaged heavily in privatization: 2 percent of GDP was produced by public companies in 1997, down from 12 percent in 1979, and around 6 percent of the workforce shifted from the public to the private sector over twenty years (Card and Freeman, 2002).

### D. Fiscal Policy Developments

51. **Fiscal and structural reforms went in one direction, as the case study countries undertook extensive fiscal adjustment in unison with labor supply shifts** (see Figures II.6 and II.7). From the perspective of two decades, the fiscal turnaround in Denmark, Ireland, and the Netherlands in particular has been impressive.

- *All four case study countries undertook substantial adjustment during various phases over the past two decades*. Leading the pack, the cyclically-adjusted primary balance (CAPB) in Denmark improved by a full 13 percentage points from 1982–86. Following some slippage, Denmark did not see sustained consolidation again until the late 1990s. Ireland adjusted by about 6½ percentage points from 1986–89. Adjustment over the 1990s was more modest, but fiscal policy remained prudent. Consolidation in the Netherlands also proceeded in two distinct phases, by nearly 4 percentage points over the early 1980s and again by 5½ percentage points in the early 1990s. The United Kingdom followed a similar pattern, with an early CAPB improvement of almost 5 percentage points between 1979–82, and again between 1994–99 (7½ percentage points).

[30] Ireland's reforms concentrated on administrative simplification and openness to trade and foreign direct investment (Nicoletti and Scarpetta, 2005).

- ***The most successful episodes tended to be expenditure-based*** (see Alesina and Ardagna, 1998). In Ireland, the stabilization program included a freeze on the public sector wage bill, as well as cutbacks in capital spending. In two years alone, public employment fell by more than 10 percent. The Netherlands embarked on a similar path, as the government wage bill was held down both by containing salaries (including through a 3 percent nominal cut in 1983) and employment. Social benefits were also cut, with a nominal freeze in the minimum wage and minimum benefit and reduced replacement rates. The inauguration of the framework underpinned by expenditure rules in 1994 meant that fiscal discipline became entrenched. The mid-1990s adjustments in Denmark and the United Kingdom were also expenditure-based, with transfers falling in both, and also government wages declining in the latter.

- ***Countries relying on labor tax-based consolidation tended to run into difficulties***. Although Denmark cut expenditure substantially during its first adjustment (1982-86), the fact that it relied equally on labor tax increases eventually contributed to wage pressures in 1987 and an end to the accompanying growth boom. Similarly, in Ireland, an earlier consolidation episode (1981–84) based prominently on labor taxes was not successful. Although the United Kingdom's early adjustment was also based on tax increases, the aim of the government was to shift away from labor taxes toward VAT.

- ***Many of the most successful episodes twinned expenditure and labor tax cuts***. This was the case during both Dutch adjustment episodes, Ireland in the late 1980s, and Denmark in the late 1990s. But restoration of fiscal prudence preceded tax cuts in all cases.

52.     **Taking a longer-term perspective, three of the four countries (Ireland, the Netherlands, and the United Kingdom) reduced the size of government over two decades**. Some of the changes are stark. Ireland, the Netherlands, and the United Kingdom reduced their expenditure ratios by 19, 11, and 7 percentage points respectively. The same pattern emerges from the crucial social expenditure category. Aside from Denmark, all countries also cut government employment, which fell as a ratio of total employment. These diverging trends and the relative rankings carry over to the revenue ratio, which fell by nearly 7 percentage points in Ireland and the Netherlands, and by 4 percentage points in the United Kingdom. Most other countries actually increased revenue, including those that had started from a low base (Greece, Spain, and Portugal). But the size of government in Denmark barely budged and remains the second largest in the EU. In contrast, Ireland and the United Kingdom have the smallest and third smallest governments respectively, while the Netherlands has settled at close to average. Cyclically-adjusted aggregates tell the same story (Figure II.7).

53.     **Despite diverging opinions, there is good reason to think that fiscal adjustment and labor supply reforms are complementary, especially when the adjustment is expenditure-based**. Some have argued that, with a fixed amount of political capital, fiscal adjustment tends to retard structural adjustment. Both IMF (2004) and OECD (2006) argue that while a strong budget balance increases the chances of labor market reform, consolidation hinders it. But, as seen from the case study evidence, fiscal adjustment and reforms that address labor supply may go hand-in-hand. Expansionary fiscal contractions tend to be based on expenditure cuts (especially on government employment, government wages, and transfers) and are accompanied by wage moderation (Alesina and Ardagna, 1998). The labor market channel is clear, as reducing both government wages and transfers, as well as cutting labor taxes, prompts unions to accept lower wages, which in turn leads to higher profitability and—particularly if product markets are liberal—higher employment and growth (Ardagna, 2004; Alesina and others, 2002). Granting tax cuts also neuters potential opposition to labor supply reforms.

54.     **Others have also shown that tapping the synergies between expenditure adjustment and other reforms in a comprehensive package can be fruitful**. Hauptmeier, Heipertz, and Schuknecht (2006), also adopting a case study approach, find that countries typically enjoyed high growth and employment in the wake of substantial expenditure reform programs centered on cutting transfers and the government wage bill, even though they began the retrenchment in the context of recessions or crises.[31] Especially in the countries that started early, the fiscal adjustment was typically cast in the context of a broader package, focusing on such factors as macroeconomic stabilization, privatization, and labor market reforms (including liberalization, and reforming tax and benefits systems). To support the expenditure restraint, budgetary institutions were also reformed in numerous countries. Developments in this regard included the use of expenditure ceilings and other fiscal rules, fiscal contracts in the context of coalition governments, multi-year budgeting, legal and procedural reforms, strengthening the role of the minister of finance, and utilizing independent fiscal councils (see also Hallerberg, 2004; European Commission, 2006).

### E.   Political Economy of Reform

55.     **The case study experiences show that governments can overcome the well-known political economy obstacles to reform if they stay committed to a consistent set of policies in the labor supply and fiscal arenas**. It is well established that the opponents of reform, even if a minority, may be more visible and well organized than the disparate gainers. Even reforms that benefit nearly everybody may still be rejected by the majority if there is uncertainty about who gains and who loses (Fernandez and Rodrik, 1991).

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[31] In their analysis, ambitious reformers included Ireland, the Netherlands, and the United Kingdom in the 1980s, joined by Belgium, Finland, Spain, and Sweden in the 1990s.

Adjustment could also be delayed by a "war of attrition" between different groups, as each side holds out in the hope that the other side will cave and bear the full costs of adjustment (Alesina and Drazen, 1991). But the reform experiences in the case study countries show how these distortions can be surmounted. More particularly, the following lessons can be gleaned:

- ***Wile crisis leads to reforms, the continuation of the reform effort depends on favorable economic conditions***. Certainly crisis spurred reform in all four countries. In terms of average growth performance between 1980–82, three of the countries—Denmark, the Netherlands, and the United Kingdom—were among the worst four performers (Greece was the other). And Ireland chalked up the second worst average fiscal deficit, and the third worst average inflation performance, at this time. But successful reforms heralded strong growth, and provided space for the reforms to continue. It is therefore key that sound economic conditions be laid in place, including a consistent and coherent policy mix, without backtracking. This is consistent with the prevailing literature. IMF (2004), for example, finds that reforms are more likely to take place following a sequence of "bad" years. But OECD (2006) also shows that while reforms are usually triggered by crises, some labor market reforms—those related to tax wedges, EPLs, and benefits systems—are most likely to occur during upswings. Certainly, reform of labor market institutions may engender less opposition in good times (Blanchard, 2005).

- ***No single type of political system is more suited to reforms than others***. The countries in the sample have experienced the gamut of governments. Denmark has a history of minority coalition governments. Ireland has oscillated between single party and majority coalition governments. With a single national electoral district, the Netherlands has the most proportional electoral system in Europe, and multiparty majority coalitions are the norm. And with a majoritarian electoral system, single-party majority governments are standard in the United Kingdom. Many have noted that, while strong stable governments can push through a reform agenda with vigor, this does not preclude weaker governments from seizing the reform mantle, particularly if they allow different groups to "buy into" the process (Castanheira and others, 2006). Indeed, the case study countries went down this route to varying degrees as evidenced by the trade-offs between wage moderation and tax cuts in Ireland and the Netherlands, and the Danish policy of guaranteeing high benefits in return for a tougher system.

- ***In all cases, reforms were implemented by a new government, in a decisive break with the past***. In Denmark, the adjustment program was begun by a newly-elected government (the "four-leafed clover") in 1982 that for the first time excluded the Social Democrats. The return of the Social Democrats after a long absence in 1994 heralded the second phase of reforms. In Ireland, a newly-elected single-party

minority government laid the groundwork for successful adjustment starting in 1987. Likewise, in the Netherlands, a newly-elected coalition oversaw the *Wassenaar* agreement, and, for the first time, set budget targets for the life of the government. It was also a new government in 1994—excluding the Christian Democrats for the first time in the postwar period—that launched the expenditure rules. The United Kingdom also had a fresh start under the new Conservative government in 1979.

- ***Governments tended to win re-election following reforms***. Once the economic preconditions are in place, the electoral process rewards politicians for success. In Denmark, the government was forced to call elections following a budgetary defeat in 1984, as the opposition parties refused to back benefit cuts. Following an election victory, it continued the adjustment program. The Irish, Dutch, and British governments also secured reelection.

- ***Political instability is a bane to reforms***. The pre-reform period in Ireland was marked by instability, with short-lived governments and deadlocked coalitions. It was not until the major opposition party in 1987 pledged that it would not oppose the government's economic policy that the reform program began in earnest. In contrast, the single-party government in the United Kingdom maintained effective intra-party discipline throughout the 1980s, despite a deep recession, while facing a weak and divided opposition. Governments in the Netherlands found it useful to put together detailed coalition agreements in advance, typically centering on fiscal policy goals, to avoid any later conflicts. Ireland later adopted this practice with considerable success. Also in Denmark, institutional reforms reduced the ability of parliament to attack individual budgetary measures (Hallerberg, 2004).

- ***Once a reform program is successful, it tends to be emulated by future governments, even if of a different ideological hue***. In Ireland and the Netherlands, the basic principals of social partnership, centered on wage moderation and fiscal policy commitments, became a mainstay of politics. In the United Kingdom, the new Labour party government in 1997 did not mark a major economic policy break with the past.

- ***Independent non-partisan bodies can help shape the public debate on the need for reform***. In the Netherlands, the changing mindset was influenced by research from the Central Planning Bureau (CPB), pointing out problems with the Keynesian approach that was dominant in the 1970s.

Finally, given the noted overlap between fiscal adjustment and labor supply reforms, it is worth noting that many of the same political economy factors—including existence of crises, the election of a new government, and strong stable governments—are also seen as factors that influence the former (Alesina, Ardagna, and Trebbi, 2006).

## F. The Social Dimension

56.     **First and foremost, the twin goals of efficiency and equity are not incompatible**. (Figure II.11). As noted at the outset, a number of recent commentators have pointed out that high employment can go hand-in-hand with equity (Sapir, 2005; De Groot, Nahuis, and Tang, 2004). In this regard, countries like Denmark and the Netherlands have consistently outperformed other European countries when it comes to indicators like inequality and poverty. Gini coefficients—which measure the degree of inequality in terms of household disposable income—show Denmark as the most equal country in Europe, with the Netherlands not far behind. And although the United Kingdom and Ireland are located at the other end of the scale, they still score better than countries like Greece, Italy, Portugal, or Spain. However, the negative correlation between employment and inequality is less clear for non-government employment, as many of the Nordic countries in particular have preferences for large public sectors. In terms of poverty, Denmark again has the lowest poverty rate, with the Netherlands holding third place after Sweden; in this case however, Ireland sits at the bottom. Also, the degree of equity a country seems related to the size of social expenditure.

57.     **From a dynamic perspective, reform need not require social cohesion to be sacrificed**. Denmark and the Netherlands remained in favorable positions after their reforms. And while inequality nudged up in the United Kingdom following the onset of reforms, it was stable in Ireland throughout the adjustment period, and even declined a little (see Callan and Nolan, 1999). This is especially notable given that inequality seems to be related to social expenditure, which fell significantly in some of the reformers—Ireland and the Netherlands in particular. Also, the uptick in inequality over the 1990s was a widespread phenomenon, common to some reformers and non-reformers alike. Some have pointed out that unfavorable effects of expenditure reform on income distribution tend to be mitigated by faster growth and better targeting of public spending (Tanzi and Schuknecht, 2005). And although poverty rates increased in three of the case study countries (except for Denmark), the relative positions of the countries remained unchanged.

58.     **Social problems persist in all countries, however, including the most equitable ones**. Poverty rates remain elevated in Ireland and the United Kingdom. And despite the success of reforms in generating employment, labor inactivity remains rampant in some countries. Indeed, disability expenditure still hovers around 4 percent of GDP in Denmark and the Netherlands, even though it fell by 3 percentage points in the latter. But while Dutch reforms successfully tackled sick leave, disability leave still accounts for about 13 percent of employment (Detragiache, 2002). Likewise in Denmark, more than 20 percent of the working age population continued to receive benefits from all leave and unemployment schemes (Gaard and Kieler, 2004). Integration of immigrants also remains low in Denmark, with participation rates 20 percentage points lower (for men), and 40 percentage points lower (for women) than for native-born Danes (Andersen, 2003). The United Kingdom has a problem with the concentration of inactivity within jobless households, with 17 percent of

households with no adult working by the late 1990s (Swagel, 2000). And educational disparities remained a problem: an OECD study in 1997 showed that 22 percent of the working age population in the United Kingdom was at the lowest level of literacy, more than twice the rate in other northern European countries.

## G.  Beyond the Case Studies

59.     **To complement and broaden the scope of the case-study analysis, this final section introduces a quantitative dimension, with a simple event study and some basic econometric analysis**. Rather than focus on a group of predetermined countries, the event study methodology essentially allows the data to decide. Of course, it is centered on a particular episode in time, and cannot capture whether reforms are sustained over a longer horizon. The econometric analysis also seeks to explain the growth of wages and non-government employment in terms of fiscal and institutional variables. More specifically:

- *Event studies*: Two event studies will be presented. In the first instance, positive labor supply shifts are defined (somewhat arbitrarily) as periods during which real productivity- and unemployment-adjusted hourly compensation rate in the business sector declined by at least 3 percent a year, for at least two consecutive years. This yields 17 periods between 1980–2003 (see Table II.4).[32] The second experiment is concerned with instances of buoyant employment growth. This time, this event is defined as an increase in non-government employment by at least 2 percent a year for at least 3 consecutive years; this has the effect of isolating 11 episodes between 1980-2003 (see Table II.5).[33] In each case, the behavior of a number of relevant variables—macroeconomic, fiscal, institutional, political, and social—will be examined around each particular episode: during the period, and the average of three years before, and three years afterwards.

- *Econometrics*: Two simple equations are estimated, in differences. The first explores the determinants of positive labor supply shocks, defined as the change in the cyclically- and productivity-adjusted real hourly compensation, focusing on fiscal and institutional variables (Table II.6). The second equation relates the growth in non-government employment growth to wage moderation (Table II.7). In all cases, a panel model is estimated for 14 countries between 1980–2003, incorporating country fixed

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[32] Consideration was also given to other definitions, including a more liberal one (an average of 2 percent a year), which threw up 25 episodes. The results were unchanged.

[33] A less strict version of the analysis was also conducted (1 percent a year), which doubled the number of episodes, but altered none of the qualitative conclusions. Nor did the results change by looking at the nongovernment employment *rate*.

effects and year dummies capturing common excluded variables. Lagged dependent variables are included.[34]

60.     **The event studies show that reform periods typically come on the heels of bad times, and are sustained through periods of buoyant growth**. Following sluggish growth, both wage moderation and employment episodes generally coincide with good times, as measured by high growth rates and an improving output gap. This suggests that labor supply may indeed respond to crises, and either becomes easier to sustain during cyclical expansions, or that it itself spurs growth (which again lays the groundwork for the acceptability of further wage moderation). Moreover, there is no evidence that household savings increase during periods of wage moderation or employment growth, which could reflect the absence of adverse confidence effects; indeed, the evidence points to increasing savings beforehand, with decrease during the period itself. Finally, there is also some evidence that TFP growth is higher during the episodes in question, especially during periods of wage moderation.[35] But while labor productivity growth is also higher during positive labor supply shocks, it is slower in employment booms, which is expected.

61.     **Consistent with the case study evidence, the event study analysis shows again that fiscal policy and labor supply improvements are intimately entwined**. The overall balance clearly improves during wage moderation and employment episodes. More pertinently, falling real wages and rising employment are associated with discretionary fiscal adjustment, especially before but also during the episode in question, while this adjustment tends to peter out in the aftermath. In terms of composition, successful episodes are also associated with declining expenditure. While the earlier period tends to be one of revenue-based consolidation, expenditure declines during the labor supply event itself, including on a cyclically-adjusted basis, and including the crucial categories of transfers, social spending, and government wages. Moreover, the same key categories of expenditure all decline during the employment boom. At the same time, revenue actually falls modestly during the events, including on a cyclically-adjusted basis, and this seems solely due to taxes on labor. A number of general conclusions can be drawn. First, there is no evidence that labor market reforms are associated with fiscal policy loosening; indeed, a sound fiscal policy may be a

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[34] Judson and Owen (1999) argue that when the time series is long enough relative to the cross-section dimension, the bias inherent in dynamic panel estimation is not large enough to make alternative estimators more desirable. Others have also argued that when the time span covered by the data is reasonably large (around 22), then the application of IV-type estimators to a first differenced version of the dynamic panel model does not seem necessary, and can even lead to a large loss of efficiency (see Haque, Pesaran, and Sharma, 1999).

[35] This is partly mechanical for the wage moderation episodes, however, as real wages are adjusted for TFP growth.

prerequisite for successful reforms. Second, labor supply increases are more palatable alongside reduced government current expenditure and taxation.[36]

62.     **The econometric analysis also points to a clear association between labor market developments and fiscal policy** (see Table II.6). What appears to matter most for wage behavior is not the stance of fiscal policy in itself, but its composition, in terms of revenue and expenditure. Discretionary increases in both expenditure and revenue appear to be associated with higher wages.[37] In terms of composition, both government wages and social expenditure[38] seem to be the key culprits. Likewise on the revenue side, the tax wedge (and also labor taxation directly) influences wages, but indirect and business taxation do not.[39] These findings once again lend support to those (including Alesina and Ardagna, 1998, and Ardagna, 2004) who postulate a fiscal link to the labor market, insofar as cutting current expenditure (especially transfers and the government wage bill) reduces the reservation wage of union members and increases the costs of unemployment. A further conclusion to emerge is that fiscal adjustment is associated directly with employment growth, testament to the synergies that can be tapped between fiscal and labor market reforms (Table II.7).

63.     **Product and labor market liberalization were evident during the events in question**. Product market deregulation was ongoing across these wage moderation and employment episodes, before, during, and after the events. There is no doubt that this sample of countries is heavy with product market reformers. In both event studies, there is a slight uptick in liberalization after the episode in question, although this is largely driven by liberalization bouts in the late 1980s and early 1990s in a number of countries—including Denmark, the Netherlands and the United Kingdom—that came between different wage moderation and employment expansion periods. There is also some evidence that deregulation of labor markets is associated with shifts in labor supply, mainly on the temporary side. The wage moderation period and aftermath coincide with reductions in EPLs governing temporary employment. But this is driven largely by the experiences of a handful of countries in the mid-1990s—Denmark and Sweden (during) and Italy and the Netherlands (after). In the second experiment, both permanent and temporary EPLs fall prior to the

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[36] An event study undertaken by Hauptmeier, Heipertz, and Schuknecht (2006)— focusing instead on incidents of large fiscal adjustment—arrived at similar conclusions: cutting transfers and public consumption is typically part of a comprehensive package that includes labor market reforms and is associated with higher growth, employment, and consumer confidence.

[37] The same is true for unadjusted revenue and expenditure, in unreported results.

[38] Public social expenditure includes spending on pensions, unemployment benefits, sickness and disability programs, and healthcare.

[39] This result is also not reported in Table II.6.

employment expansion, though this can largely be explained by developments in Spain for the former, and Spain and Sweden for the latter.

64.    **Evidence pertaining to changes in other labor market institutions is less clearcut**. Curiously, the tax wedge appears to decline after the wage moderation period, but this is largely due to the inclusion of Greece, Italy, and Sweden in the sample, cases where wage moderation went hand-in-hand with tax wedge increases. Excluding these countries generates a decline in the tax wedge during the episodes. In the second event study, there is a clear decline in tax wedges during the employment expansion, which continues into the aftermath. The evidence pertaining to ALMPs is also unclear, with an increase before both events, and modest declines during the wage moderation and employment growth episodes themselves.[40] Also, there is little relationship between changes in the replacement rate and labor supply or employment in either study. But these data do not capture crucial aspects of the benefit system, including duration and eligibility.

65.    **The econometric evidence also shows that only some institutional variables are significant determinants of labor supply developments**. Tax wedges are important to the extent they reflect a key aspect of fiscal policy. But replacement rates, EPLs, and product market regulation do not appear to matter. The sole exception is ALMPs, which in some specifications (those that include the key expenditure and revenue variables) are associated with lower real wage growth (see Estevao, 2003, for a similar finding in a different context). Other labor market institutions that may be important, though, including benefits duration and eligibility, do not lend themselves to easy quantitative measurement.

66.    **Also, the feedback from labor supply shifts to employment growth depends on the degree of product and labor market regulation** (Table II.7). While there is indeed a positive relationship between positive wage curve shifts and non-government employment, the interactive terms suggest that this effect is weaker in countries with heavily regulated product and labor markets (see Estevao, 2005, for a discussion of this effect as it pertains to product markets). Thus the benefits of wage moderation are greater in countries with more liberal product and labor market regulation; in this context, it may be no accident that the four case study countries are among the most liberal in Europe in this regard.

67.    **The events studies show that while new governments seem more inclined to implement labor supply boosting reforms, there is little evidence of other political effects**. There is some evidence of a "honeymoon" effect as governments that implement policies that generate increases in labor supply tend to be newer than those before or after, defined both in terms of the tenure of the chief executive and the number of years since the last election. Breaking it down, the beginning of an episode coincided with a new chief

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[40] It should be noted that data on EPLs and ALMPs are only available from 1985, curtailing the sample.

executive (1–2 years old) in 11 of the 17 cases, and in the first year after an election in 7 cases. Newer governments are more inclined to preside over major employment expansions. There is also some evidence that wage moderation is more prevalent under right-wing parties, and that left-wing parties are more likely to be in power in the following period, although ideology does not seem to matter for employment booms. But most of the other political variables measuring government fragmentation, polarization, and instability do not appear to be relevant in either event study.[41] Nor do elections seem to be any less frequent during periods of large labor supply shifts.

68.     **Inequality and poverty tend to nudge up in concord with labor supply in the event studies, but this is driven by a couple of countries**. Extreme caution is needed in interpreting these results, given the paucity of social data. These data occur at only five year intervals, requiring interpolation for the intervening years. Clearly, then, the results are highly sensitive to both the absence of data and the choice of break point. With these caveats in mind, there is evidence of a marginal increase in inequality before and during the wage moderation period. But this is not robust, and disappears when the late 1990s Swedish episode is removed. And while the Gini coefficient also edges upwards during the employment booms, the pattern is pretty mixed across countries (with an almost equal number of increases and decreases). In the first event study, the observed uptick in poverty rates is common across all periods, with only four episodes being associated with declining poverty rates. Still, the effects are small, and driven largely by the United Kingdom experience. The same is true of the employment boom episodes, which are characterized by an increase in poverty that derives almost exclusively from the United Kingdom in the late 1980s.

## H.  Conclusion

69.     **Combining the evidence of the case studies, the event studies and the econometric analysis brings forth the following key conclusions**:

- *While not necessarily comprehensive, policies tended to be internally consistent.* Countries adopted a mixture of labor market, fiscal, and product market reforms that complemented and reinforced each other. But not all countries adopted the exact same strategy, especially in terms of labor market reforms; some focused on cutting

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[41] The irrelevant variables are: (i) effective number of parties in government and legislature, defined as the inverse of the sum of squared seat shares held by each party; (ii) government and legislative fractionalization, which is the probability that two representatives picked at random will be from different parties; (iii) the size of the government majority; (iv) polarization, defined as the maximum ideological difference between the executive party and the four principle parties in the legislature; (v) stability, which measures the percent of veto players who drop from a government in any given year. The source for all political variables is the World Bank's *Database of Political Institutions.*

benefits, others on improved targeting, on ALMPs, or lower employment protection. Cutting government expenditure and labor taxes fostered an outward shift in the labor supply curve. Low levels of product and labor market regulation also facilitated the increase in jobs rather than rents. In contrast, countries that raised labor taxes or maintained rigid product and labor markets enjoyed less success. In turn, higher employment generated further revenue which paved the way for further tax cuts and continued wage moderation—a virtuous cycle. Also, employment growth did not suppress labor productivity, which likely reflected the combination of labor and product market reforms.

- ***Policies were also consistent over time***. The reform process tended to be a long one in the successful countries*.* Once the reform engine started, there was little backtracking. Indeed, in some of the most successful cases, the same mix of fiscal and labor market policies continued unabated over two decades. In numerous countries, the size of government fell substantially over this period, and the principle of boosting labor supply through moderating wage demands became entrenched.

- ***Upfront fiscal adjustment also added to the credibility of labor supply reforms***. Aside from providing an environment of macroeconomic stability, fiscal adjustment created the space for further labor market reforms, by laying the groundwork for labor supply increases and facilitating the credible adoption of complementary tax cuts. Even when structural policy changed course, as in Denmark in the early 1990s, the fruits of the previous fiscal adjustment could be harvested.

- ***Reform strategies that rely on coordination and competition can both be successful***. The experience of Ireland and the Netherlands shows that a consensus-based approach, trading off enhanced labor supply (including through outright wage moderation) for fiscal probity and tax cuts, can be highly successful, both politically and economically. But this approach may work better in smaller, more homogeneous countries. The United Kingdom adopted an approach based on competition, curbing the power of unions and rewarding workers with tax cuts. But, as noted, inequality rose in the United Kingdom but not in those countries that relied on coordination and social partnership.

- ***Successful reformers tended to neutralize opposition***. Principally, this entailed giving the different parties and vested interests a stake in the process, such as by rewarding responsible wage-setting behavior by unions with labor tax cuts or by guaranteeing high benefits in the face of a strict regime and little employment protection. This meant that all kinds of government types—single-party, coalition, majority, and minority—proved capable of igniting the reform engine. Also, governments that embarked on successful reforms tended to be reelected.

- ***All initial reforms started with a crisis, although they tended to continue in periods of good times***. This suggests a positive feedback between the intensity of internally-consistent reforms and growth after the initial crisis. Also, successful reforms tended to involve a "fresh start" by newer governments, during their "honeymoon" period. Although the kinds of dire conditions that fueled the initial reform programs—typically two consecutive years of falling output—do not exist in Europe today, the level of unemployment does not differ much from that seen in the crisis countries at the time. This, plus the imminent onset of population aging—with its adverse implications for labor utilization, potential growth, and fiscal policy—may well provide the needed urgency for a new round of reform programs.

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Table II.1: Unemployment in the EU-15

| Rate (early 2000s) | | Change (two decades) | |
|---|---|---|---|
| **Netherlands** | 3.1 | **Ireland** | -7.6 |
| **Ireland** | 4.3 | **Netherlands** | -4.6 |
| Sweden | 4.6 | **United Kingdom** | -4.2 |
| **Denmark** | 4.9 | Portugal | -3.0 |
| **United Kingdom** | 5.1 | **Denmark** | -2.5 |
| Austria | 5.2 | Belgium | -2.0 |
| Portugal | 5.2 | Spain | -1.3 |
| Belgium | 7.3 | France | 1.2 |
| Germany | 8.2 | Sweden | 1.8 |
| Finland | 9.2 | Germany | 2.3 |
| Italy | 9.3 | Italy | 2.3 |
| France | 9.4 | Austria | 2.6 |
| Greece | 11.0 | Finland | 4.0 |
| Spain | 11.1 | Greece | 5.3 |

Source: OECD

Table II.2. Breakdown of Total Employment Growth in European Union
Across Two Decades

Total employment

|  | Total | of which | | |
|---|---|---|---|---|
|  |  | Employment | Participation | Demographics |
| Austria | 1.8 | -1.3 | 1.6 | 1.6 |
| Belgium | 2.8 | 0.9 | 2.4 | -0.5 |
| **Denmark** | **3.1** | **1.3** | **1.2** | **0.6** |
| Finland | -3.8 | -2.1 | -0.9 | -0.8 |
| France | 1.3 | -0.5 | 1.6 | 0.2 |
| Germany | 3.2 | -1.1 | 4.9 | -0.6 |
| Greece | 0.2 | -2.0 | 1.7 | 0.5 |
| **Ireland** | **10.9** | **2.9** | **3.3** | **4.7** |
| Italy | 0.7 | -0.9 | 0.3 | 1.3 |
| **Netherlands** | **9.7** | **2.0** | **7.2** | **0.4** |
| Portugal | 8.4 | 1.3 | 4.4 | 2.7 |
| Spain | 7.7 | 0.5 | 4.6 | 2.6 |
| Sweden | -3.6 | -0.9 | -3.0 | 0.3 |
| **United Kingdom** | **3.4** | **2.0** | **1.0** | **0.4** |

Male employment

|  | Total | of which | | |
|---|---|---|---|---|
|  |  | Employment | Participation | Demographics |
| Austria | -0.5 | -0.7 | -1.7 | 1.9 |
| Belgium | . | . | . | -0.5 |
| **Denmark** | **1.3** | **2.7** | **-2.2** | **0.7** |
| Finland | -5.7 | -2.1 | -2.9 | -0.7 |
| France | -3.9 | -1.2 | -2.9 | 0.2 |
| Germany | -6.1 | -2.1 | -2.8 | -1.2 |
| Greece | -1.5 | -1.2 | -3.5 | 3.1 |
| **Ireland** | **6.8** | **4.2** | **-4.1** | **6.6** |
| Italy | -3.6 | -0.8 | -3.6 | 0.8 |
| **Netherlands** | **7.3** | **3.7** | **3.0** | **0.6** |
| Portugal | 3.3 | 0.1 | -0.7 | 3.9 |
| Spain | 5.2 | 3.0 | -2.0 | 4.2 |
| Sweden | -6.0 | -1.8 | -4.6 | 0.5 |
| **United Kingdom** | **-1.0** | **3.3** | **-4.4** | **0.1** |

Female employment

|  | Total | of which | | |
|---|---|---|---|---|
|  |  | Employment | Participation | Demographics |
| Austria | 9.2 | -0.1 | 8.3 | 0.9 |
| Belgium | 6.1 | 0.8 | 5.7 | -0.4 |
| **Denmark** | **4.7** | **2.4** | **1.8** | **0.5** |
| Finland | -2.6 | -2.1 | 0.5 | -0.9 |
| France | 5.2 | 0.1 | 4.9 | 0.3 |
| Germany | 6.5 | -0.6 | 7.5 | -0.4 |
| Greece | 6.3 | -1.8 | 7.3 | 0.8 |
| **Ireland** | **14.9** | **1.3** | **10.9** | **2.7** |
| Italy | 4.9 | 0.5 | 4.9 | -0.6 |
| **Netherlands** | **18.0** | **1.9** | **16.0** | **0.2** |
| Portugal | 11.3 | 2.2 | 7.7 | 1.5 |
| Spain | 12.2 | 0.2 | 10.9 | 1.1 |
| Sweden | -1.4 | -0.9 | -0.5 | 0.0 |
| **United Kingdom** | **7.5** | **1.1** | **5.8** | **0.6** |

Source: OECD

Table II.3. Periods of Wage Moderation in Case Study Countries, 1980–2003 1/

(cumulative percentage change over the period)

| Countr | Perio | Size of adjustment |
|---|---|---|
| Denmar | 1985 | - |
| | 1994- | - |
| | | |
| Ireland | 1984- | - |
| | 1987- | - |
| | 1994- | - |
| | | |
| Netherland | 1983- | -9 |
| | 1988- | - |
| | 1994- | - |
| | | |
| United | 1982- | - |
| | 1993- | - |

Source: Author's calculation from OECD data.

1/ Real productivity and unemployment-adjusted hourly compensation.

## Table II.4. Developments Before, During, and After Wage Moderation Periods
(Event: real wages decline by at least 3 percent a year on average for at least 2 years 1/)

(Number of episodes: 17 2/)

| | Before 3/ | During | After 3/ |
|---|---|---|---|
| Change in real wages | 3.0 | -5.0 | 1.1 |
| **Macroeconomic developments** | | | |
| Real GDP growth | 0.8 | 3.7 | 2.4 |
| Change in savings rate | 0.5 | -0.7 | -0.1 |
| Output gap | -2.4 | -1.5 | 0.0 |
| Change in output gap | -1.6 | 1.2 | -0.5 |
| TFP growth | 0.00 | 0.03 | 0.01 |
| Labor productivity growth | 2.2 | 3.2 | 2.2 |
| **Fiscal developments** | | | |
| Change in overall balance | -0.4 | 0.7 | 0.1 |
| Change in cylically-adjusted primary balance | 0.4 | 0.3 | 0.0 |
| Change in expendidure | 1.0 | -1.0 | 0.0 |
| Change in revenue | 0.9 | -0.3 | 0.1 |
| Change in cyclically-adjusted primary current expenditure | 0.2 | -0.3 | 0.2 |
| Change in cyclically-adjusted current revenue | 0.6 | -0.2 | 0.0 |
| Change in social expenditure | 0.7 | -0.3 | 0.1 |
| Change in wage government consumption | 0.2 | -0.4 | 0.1 |
| Change in non-wage government consumption | 0.2 | -0.1 | 0.1 |
| Change in transfers to households | 0.6 | -0.3 | 0.0 |
| Change in capital expenditure | -0.5 | -0.5 | -0.3 |
| Change in taxes on labor | 0.3 | -0.3 | 0.0 |
| Change in taxes on business | 0.1 | 0.1 | -0.1 |
| Change in tax on consumption | 0.2 | 0.0 | 0.1 |
| **Institutional developments** | | | |
| Change in product market regulation | -0.12 | -0.14 | -0.17 |
| Change in tax wedge | 0.36 | 0.10 | -0.56 |
| Change in replacement rate | 0.00 | 0.00 | 0.01 |
| Change in permanent EPL | -0.01 | -0.01 | -0.01 |
| Change in temporary EPL | 0.00 | -0.07 | -0.06 |
| Change in expenditure on ALMPs | 0.05 | -0.03 | 0.02 |
| **Political developments** | | | |
| Years chief executive in office 4/ | 3.7 | 3.1 | 3.7 |
| Years chief executive's party in office 4/ | 5.1 | 5.3 | 5.8 |
| Years since last election 4/ | 2.4 | 2.1 | 2.5 |
| Ideology 5/ | 0.4 | 0.2 | -0.2 |
| Effective number of parties in government | 1.7 | 1.6 | 1.5 |
| Effective number of parties in parliament | 3.4 | 3.5 | 3.5 |
| Government fractionalization | 0.3 | 0.3 | 0.3 |
| Legislative fractionalization | 0.7 | 0.7 | 0.7 |
| Size of government majority | 0.5 | 0.5 | 0.5 |
| Average number of elections | 0.3 | 0.3 | 0.2 |
| Polarization | 1.3 | 1.4 | 1.2 |
| Stability of government | 0.2 | 0.2 | 0.1 |
| **Social developments** | | | |
| Change in Gini coefficient | 0.15 | 0.10 | 0.08 |
| Change in poverty rate | 0.12 | 0.12 | 0.07 |

Source: Author's calculations based on OECD, World Bank.

1/ Defined as real productivity and unemployment-adjusted real hourly compensation rate.
2/ Denmark, 1994-97; Denmark, 1999-00; Finland, 1993-00; Greece, 1985-86; Ireland, 1984-85; Ireland, 1987-90;
Ireland, 1994-00; Italy, 1994-95; Netherlands, 1983-85; Netherlands, 1988-90; Netherlands, 1994-98; Portugal, 1985-89;
Sweden, 1982-88; Sweden, 1992-95; Sweden, 1997-99; United Kingdom, 1982-88; United Kingdom, 1993-97.
3/ Average of three years.
4/ First year of reform period.
5/ 1 right wing; 0 centrist; -1 left wing.

Table II.5. Developments Before, During, and After Strong Employment Growth Periods
(Event: nongovernment employment increases by at least 2 percent a year for at least 3 consecutive years)

(Number of episodes: 11 1/)

| | Before 2/ | During | After 2/ |
|---|---|---|---|
| Growth in non-government employment | 0.2 | 3.5 | -0.5 |
| **Macroeconomic developments** | | | |
| Growth in real wages 3/ | -0.3 | -1.7 | 2.8 |
| Real GDP growth | 2.3 | 4.3 | 1.1 |
| Change in savings rate | -0.7 | -0.3 | 0.3 |
| Output gap | -2.8 | 0.9 | -0.4 |
| Change in output gap | 0.0 | 1.2 | -1.4 |
| TFP growth | 0.01 | 0.01 | 0.00 |
| Labor productivity growth | 3.1 | 1.8 | 2.3 |
| **Fiscal developments** | | | |
| Change in overall balance | 0.3 | 0.9 | -0.8 |
| Change in cylically-adjusted primary balance | 0.6 | 0.2 | -0.2 |
| Change in expendidure | -0.3 | -1.0 | 0.7 |
| Change in revenue | 0.1 | -0.1 | 0.0 |
| Change in cyclically-adjusted primary current expenditure | -0.3 | 0.0 | 0.1 |
| Change in cyclically-adjusted current revenue | 0.1 | 0.0 | -0.2 |
| Change in social expenditure | -0.2 | -0.5 | 0.4 |
| Change in wage government consumption | -0.1 | -0.2 | 0.2 |
| Change in non-wage government consumption | 0.0 | 0.0 | 0.2 |
| Change in transfers to households | -0.2 | -0.5 | 0.6 |
| Change in capital expenditure | -0.3 | -0.1 | -0.1 |
| Change in taxes on labor | 0.0 | -0.2 | 0.1 |
| Change in taxes on business | -0.3 | -0.1 | -0.1 |
| Change in tax on consumption | 0.0 | 0.1 | 0.0 |
| **Institutional developments** | | | |
| Change in product market regulation | -0.13 | -0.14 | -0.19 |
| Change in tax wedge | 0.27 | -0.47 | -0.62 |
| Change in replacement rate | -0.01 | 0.00 | 0.00 |
| Change in permanent EPL | -0.04 | 0.00 | 0.00 |
| Change in temporary EPL | -0.04 | -0.01 | -0.01 |
| Change in expenditure on ALMPs | 0.02 | -0.02 | -0.01 |
| **Political developments** | | | |
| Years chief executive in office 4/ | 4.7 | 4.3 | 6.7 |
| Years chief executive's party in office 4/ | 6.2 | 5.8 | 9.6 |
| Years since last election 4/ | 2.5 | 2.0 | 2.3 |
| Ideology 5/ | 0.1 | 0.0 | 0.0 |
| Effective number of parties in government | 1.6 | 1.9 | 2.0 |
| Effective number of parties in parliament | 3.5 | 3.7 | 3.9 |
| Government fractionalization | 0.3 | 0.4 | 0.4 |
| Legislative fractionalization | 0.7 | 0.7 | 0.7 |
| Size of government majority | 0.6 | 0.6 | 0.6 |
| Average number of elections | 0.3 | 0.3 | 0.5 |
| Polarization | 1.4 | 1.5 | 1.5 |
| Stability of government | 0.2 | 0.1 | 0.1 |
| **Social developments** | | | |
| Change in Gini coefficient | 0.02 | 0.20 | 0.08 |
| Change in poverty rate | 0.10 | 0.27 | 0.14 |

Source: Author's calculations based on OECD, World Bank.

1/ Denmark, 1984-86; Finland, 1997-99; France 1998-00; Germany, 1989-91; Ireland, 1994-03; Netherlands, 1986-91;
   Netherlands, 1995-01; Spain, 1987-90; Spain, 1995-03; Sweden, 1998-01; United Kingdom, 1987-89.
2/ Average of three years.
3/ Adjusted for technology, hours, and unemployment.
4/ First year of reform period.
5/ 1 right wing; 0 centrist; -1 left wing.

Table II.6. Determinants of Wage Moderation

| Variable | Change in wages | | | | |
| --- | --- | --- | --- | --- | --- |
| | (1 | (2 | (3 | (4 | (5 |
| Lagged dependent variable | 0.38** | 0.36** | 0.28** | 0.34** | 0.29** |
| | (0.06 | (0.05 | (0.06 | (0.07 | (0.07 |
| Change in cyclically-adjusted primary balance | 0.1 | | | | |
| | (0.14 | | | | |
| Change in cyclically-adjusted primary current expenditure | | 0.42 | | | |
| | | (0.24 | | | |
| Change in cyclically-adjusted current revenue | | 0.59** | | | 0.39 |
| | | (0.21 | | | (0.23 |
| Change in social expenditure | | | 0.71* | | 1.73** |
| | | | (0.33 | | (0.37 |
| Change in government wage bill | | | 3.18** | | |
| | | | (0.67 | | |
| Change in tax wedge | | | 0.60** | 0.1 | |
| | | | (0.22 | (0.25 | |
| Change in replacement rate | | | | 6.5 | |
| | | | | (11.38 | |
| Change in active labor market policies | | | | - | - |
| | | | | (1.56 | (1.67 |
| Change in employment protection legislation | | | | - | |
| | | | | (1.98 | |
| Change in product market regulation | | | | 0.0 | |
| | | | | (1.56 | |
| N | 31 | 31 | 26 | 22 | 21 |
| $R^2$ | 0.2 | 0.2 | 0.5 | 0.2 | 0.4 |
| Country dummies? | Ye | Ye | Ye | Ye | Ye |
| Time dummies? | Ye | Ye | Ye | Ye | Ye |

Source: OECD

## Table II.7. Determinants of Employment Growth

| Variabl | Change in non-government employment/ population | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | (1 | (2 | (3 | (4 | (5 | (6 | (7 |
| Lagged dependent variable | 0.48*** | 0.47*** | 0.48*** | 0.46*** | 0.45*** | 0.46*** | 0.43*** |
| | (0.05 | (0.05 | (0.05 | (0.05 | (0.05 | (0.06 | (0.06 |
| Change in | -0.03*** | -0.03*** | -0.03*** | -0.03*** | -0.11*** | -0.07*** | -0.14*** |
| | (0.01 | (0.01 | (0.01 | (0.01 | (0.03 | (0.02 | (0.03 |
| Change in cyclically-adjusted primary balance | 0.04** | 0.04** | | | 0.04** | 0.04 | 0.05** |
| | (0.02 | (0.02 | | | (0.02 | (0.02 | (0.02 |
| Change in cyclically-adjusted primary balance (lagged | | 0.04** | | | | | |
| | | (0.02 | | | | | |
| Product market regulation | | | | | 0.14 | | 0.11 |
| | | | | | (0.08 | | (0.09 |
| Change in wages * product market regulation | | | | | 0.02*** | | 0.02** |
| | | | | | (0.01 | | (0.01 |
| Employment protection legislation | | | | | | -0.08 | -0.13 |
| | | | | | | (0.12 | (0.13 |
| Change in wages * employment protection legislation | | | | | | 0.02*** | 0.01 |
| | | | | | | (0.01 | (0.007 |
| Change in cyclically-adjusted primary current expenditure | | | - | -0.04 | | | |
| | | | (0.03 | (0.03 | | | |
| Change in cyclically-adjusted primary current expenditure (lagged | | | | -0.09*** | | | |
| | | | | (0.03 | | | |
| Change in cyclically-adjusted current revenue | | | 0.02 | -0.04 | | | |
| | | | (0.03 | (0.03 | | | |
| Change in cyclically-adjusted current revenue (lagged | | | | -0.01 | | | |
| | | | | (0.03 | | | |
| N | 299 | 299 | 299 | 299 | 299 | 260 | 260 |
| $R^2$ | 0.58 | 0.59 | 0.58 | 0.59 | 0.59 | 0.60 | 0.61 |
| Country dummies? | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Time dummies? | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Source:

Figure II.1. Employment Growth Since 1980
(1980=100)
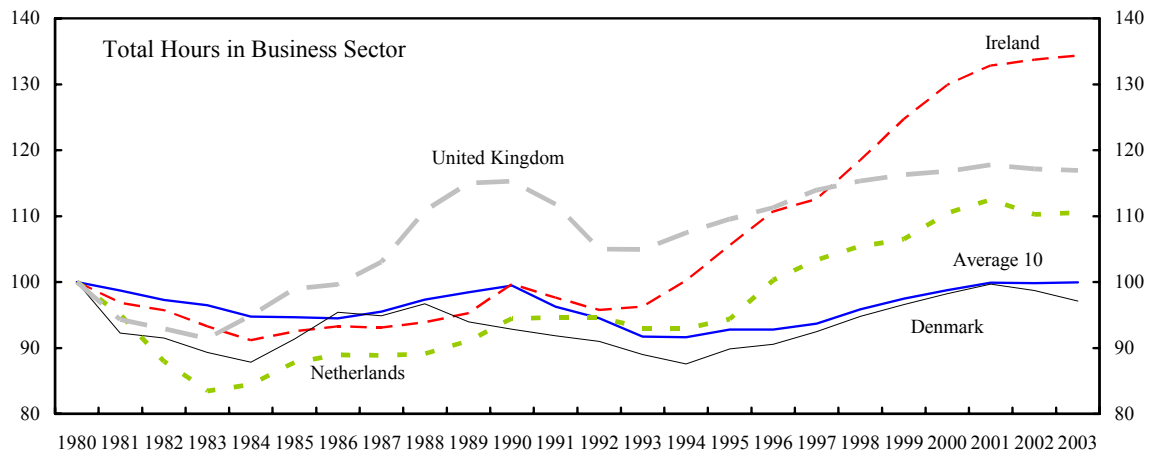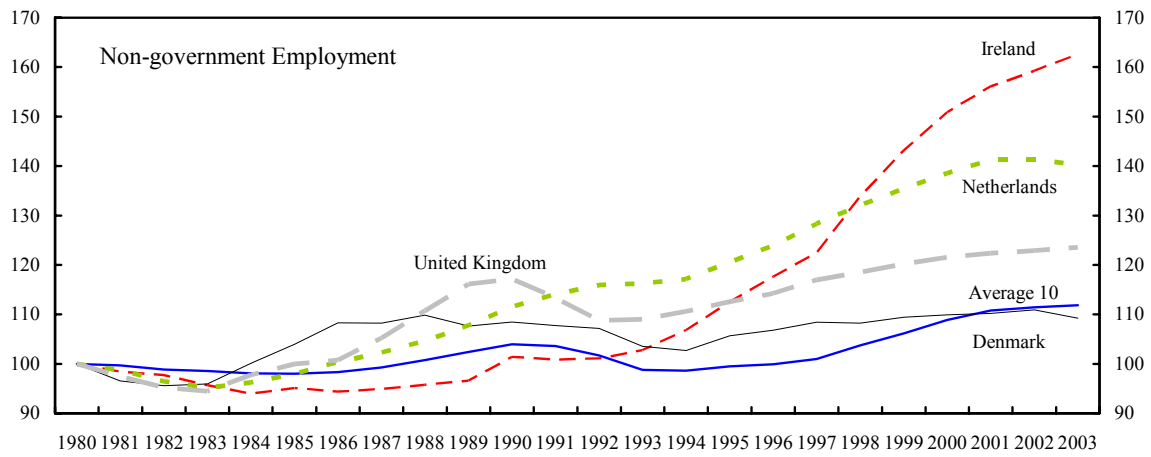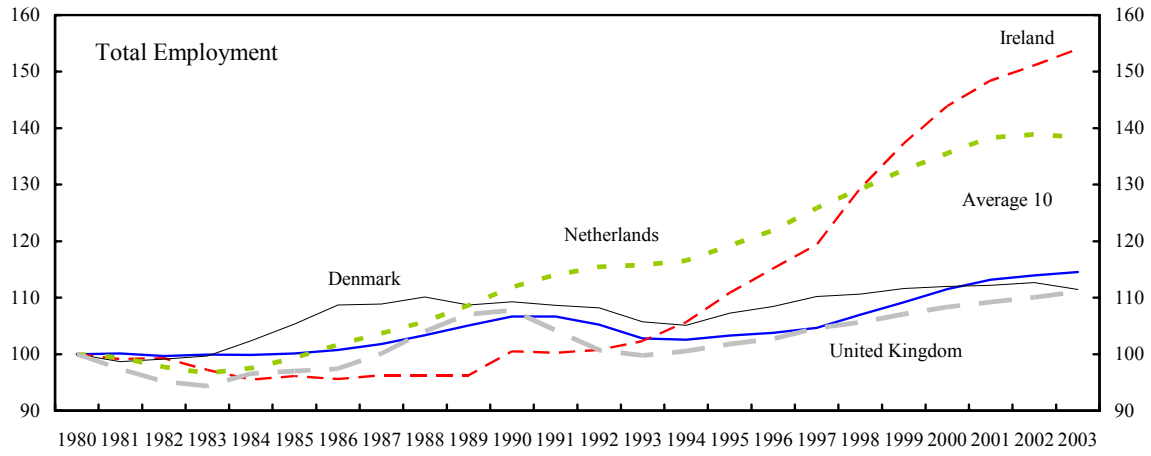


Source: OECD.

Figure II.2. Breakdown of Employment (Total)



**Employment/Population**

Denmark

United
Kingdom

Netherlands

Average 10

Ireland

**Employment/Labor Force**

Denmark

Netherlands

United
Kingdom

Average 10

Ireland

**Labor Force/Working Age Population**

Denmark

United
Kingdom

Netherlands

Average 10

Ireland

**Working Age Population/Population**

Netherlands

Denmark

Average 10

United
Kingdom

Ireland
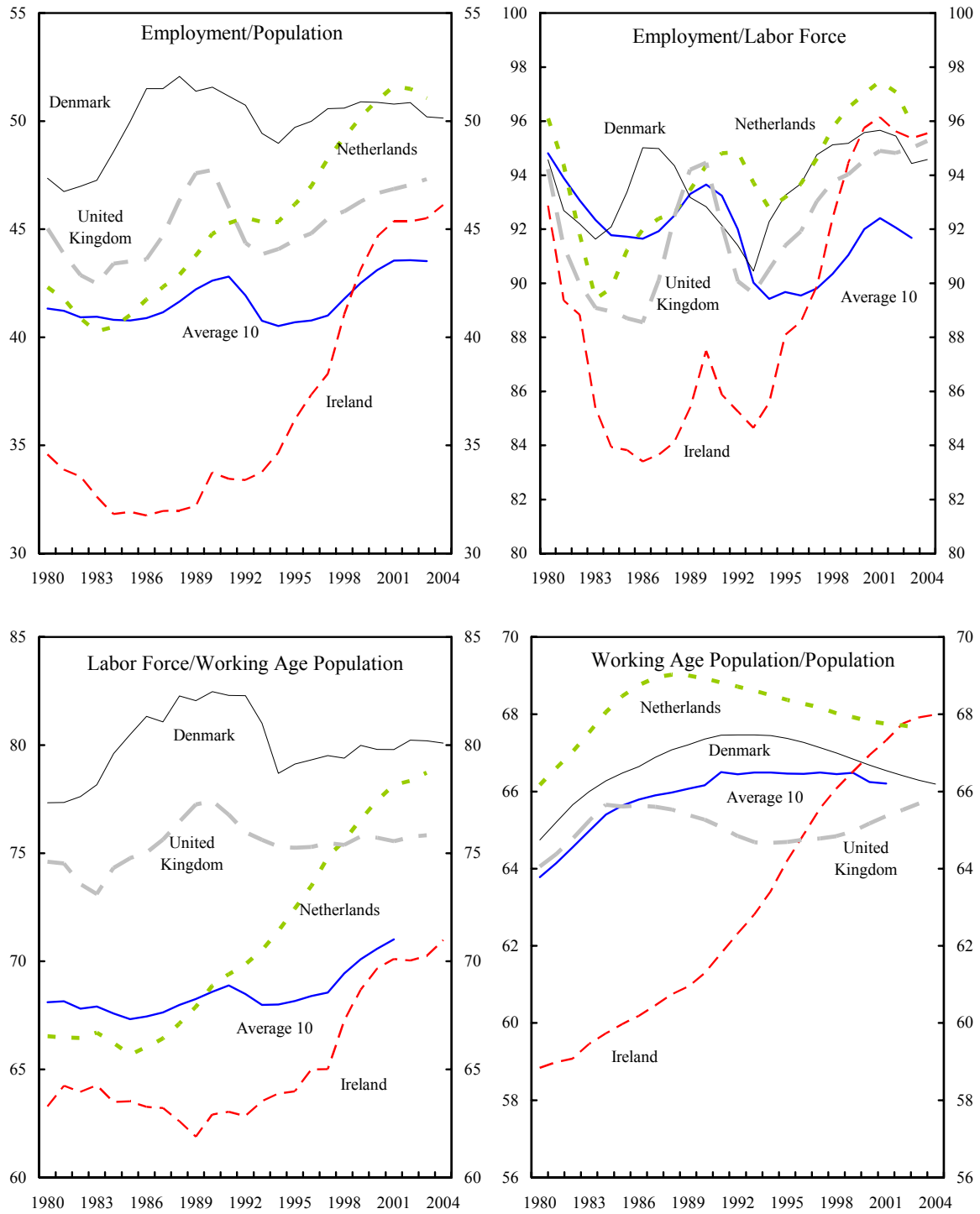
Source: OECD.

Figure II.3. Breakdown of Employment (Men)
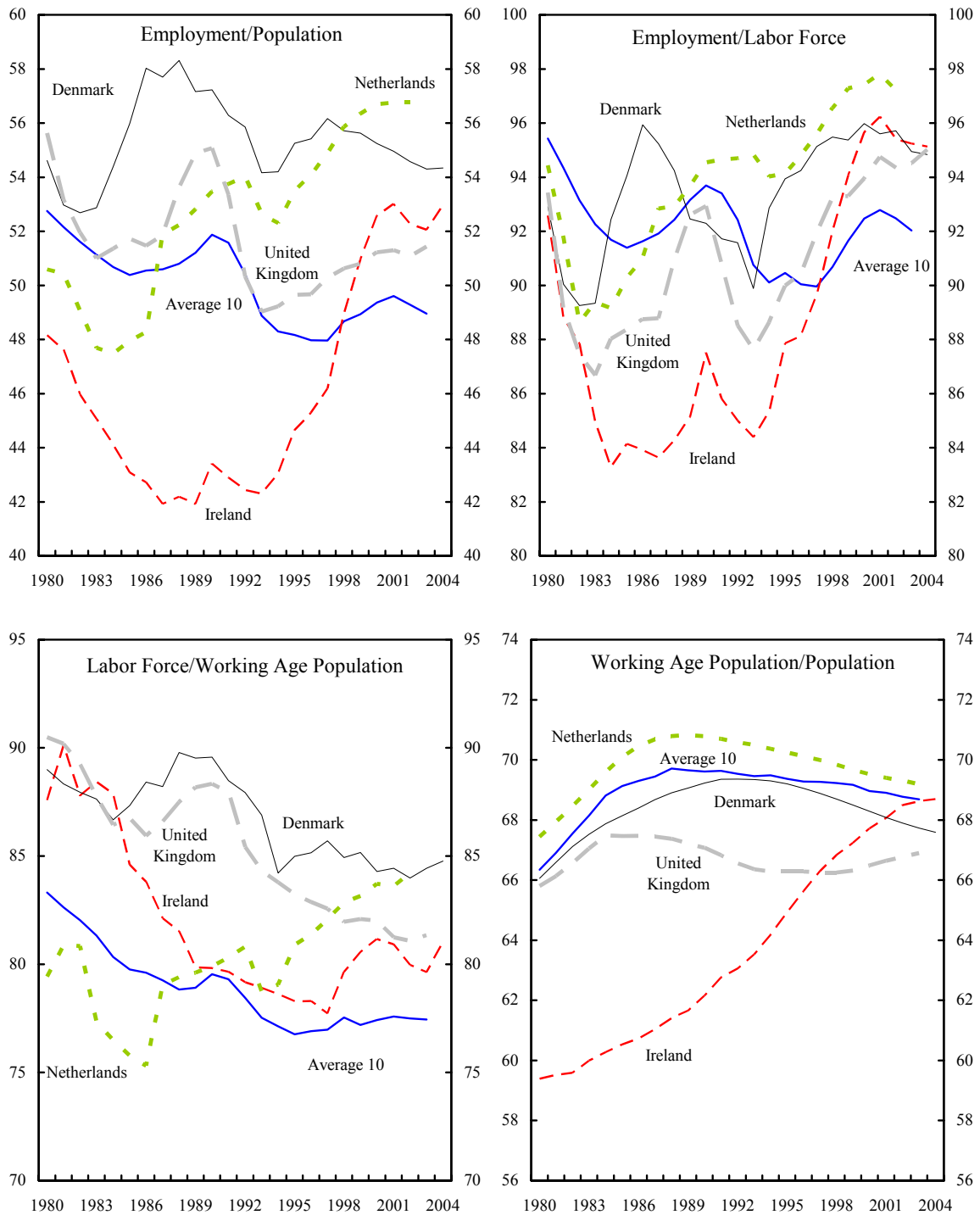


Source: OECD.

Figure II.4. Breakdown of Employment (Women)
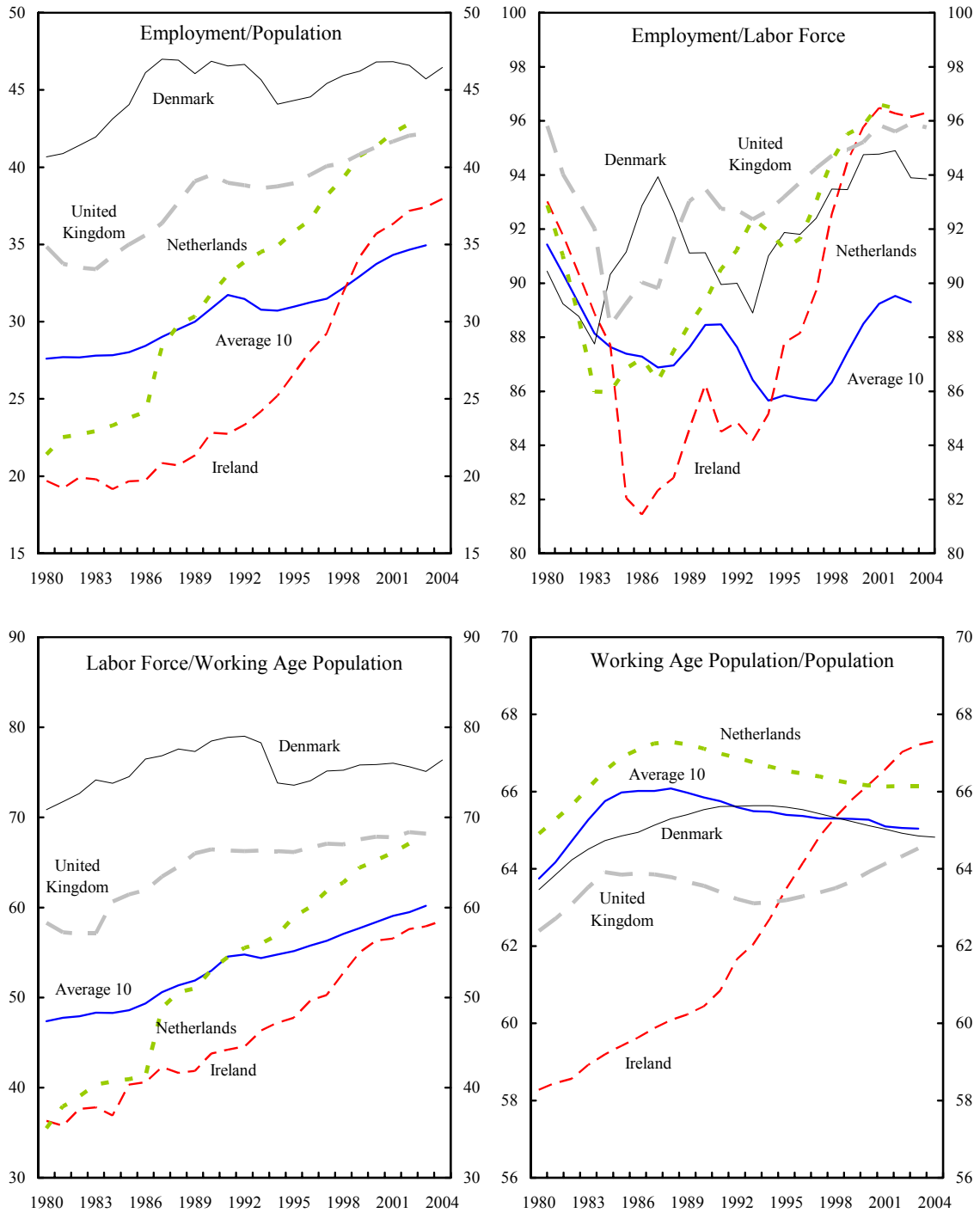


Source: OECD.

Figure II.5. Prevalence of Part-time Employment
(in percent of total employment)

Total Part-time Employment

Netherlands

United Kingdom

Denmark

Ireland

Average 10

1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

Men Part-time Employment

Netherlands

Denmark

United Kingdom

Ireland

Average 10

1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

Women Part-Time Employment

Netherlands

United Kingdom

Denmark

Ireland

Average 10

1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

Source: OECD.

Figure II.6. Fiscal Developments I
(in percent of GDP, unless otherwise noted)
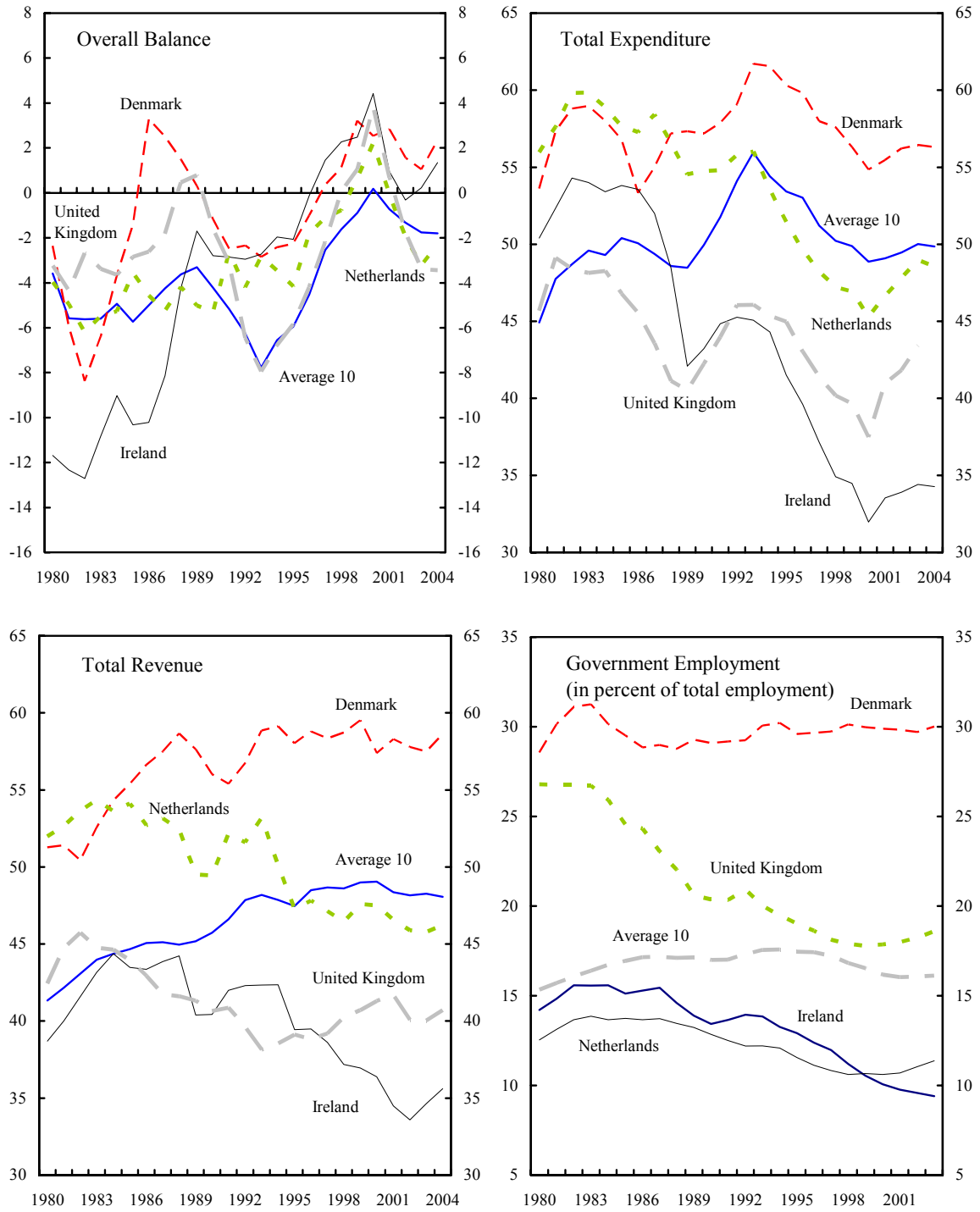


Source: OECD.

Figure II.7. Fiscal Developments II
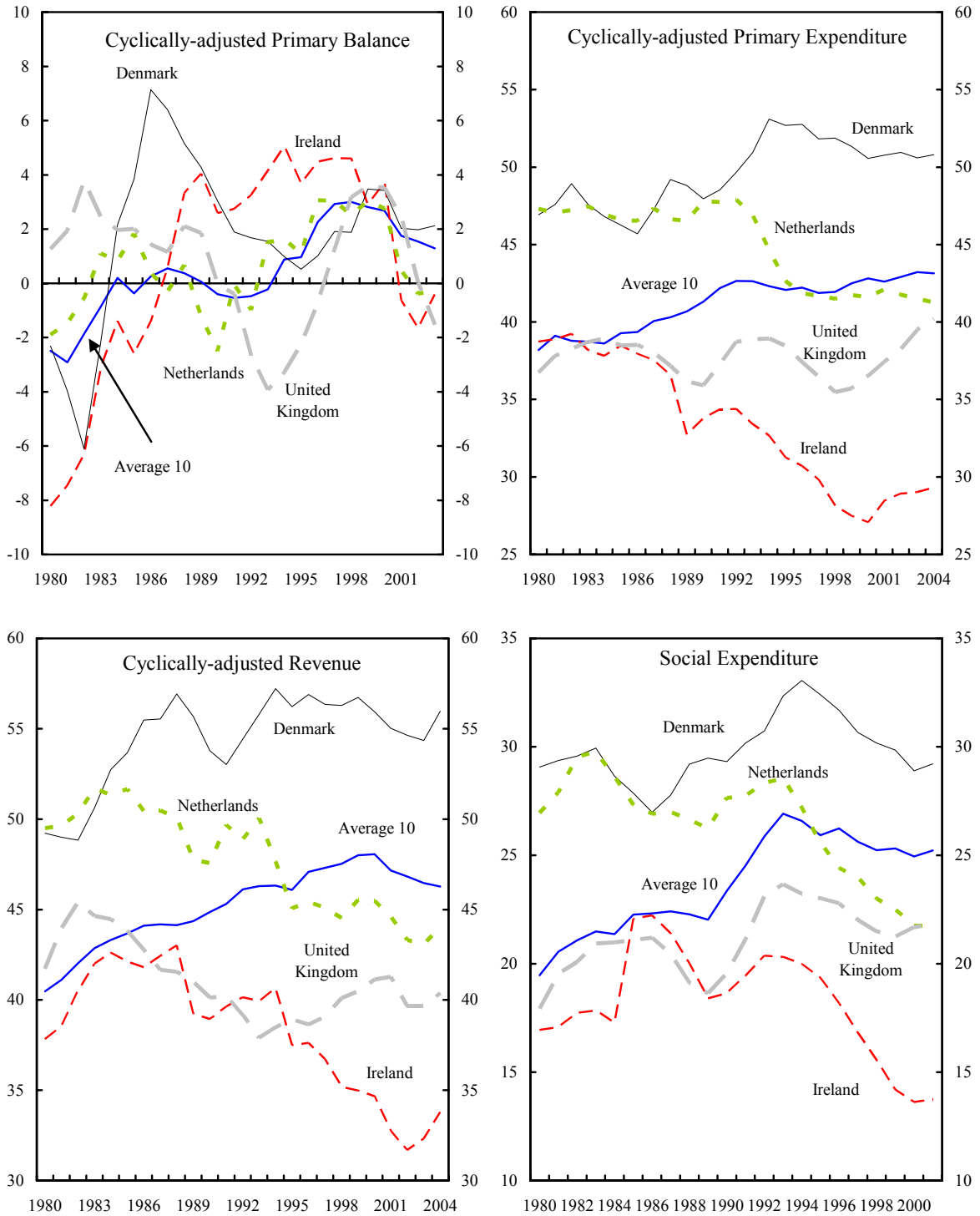


Source: OECD.

Figure II.8. Real Wages, Tax Wedge, and Replacement Rate
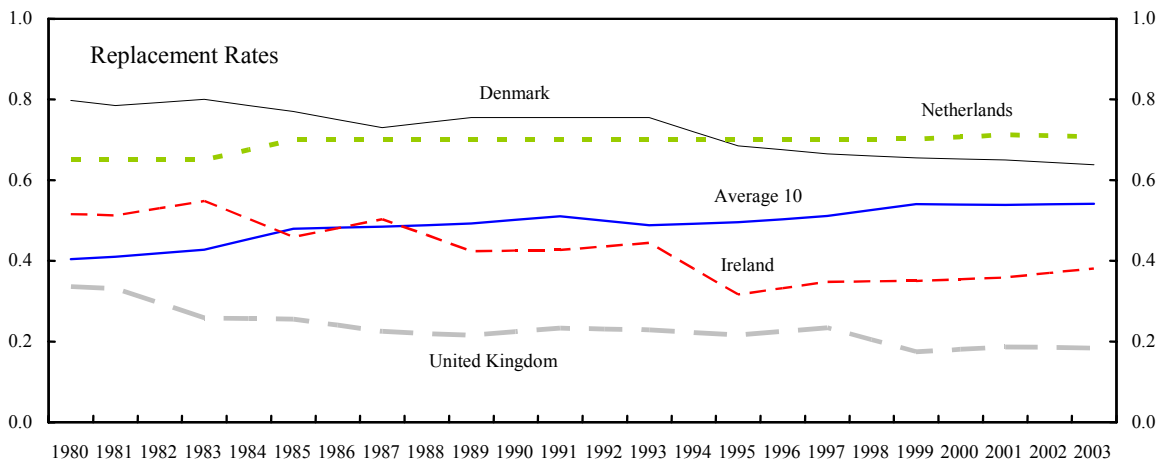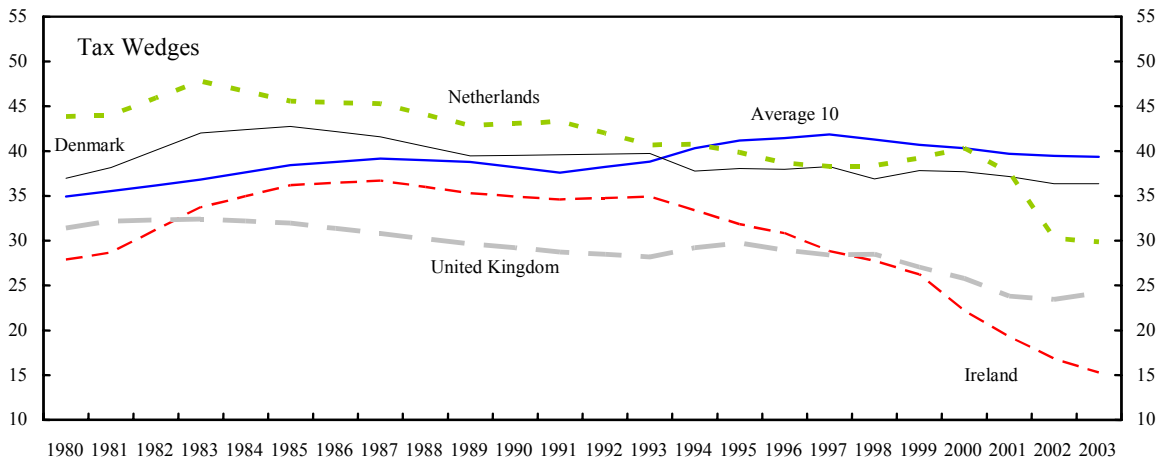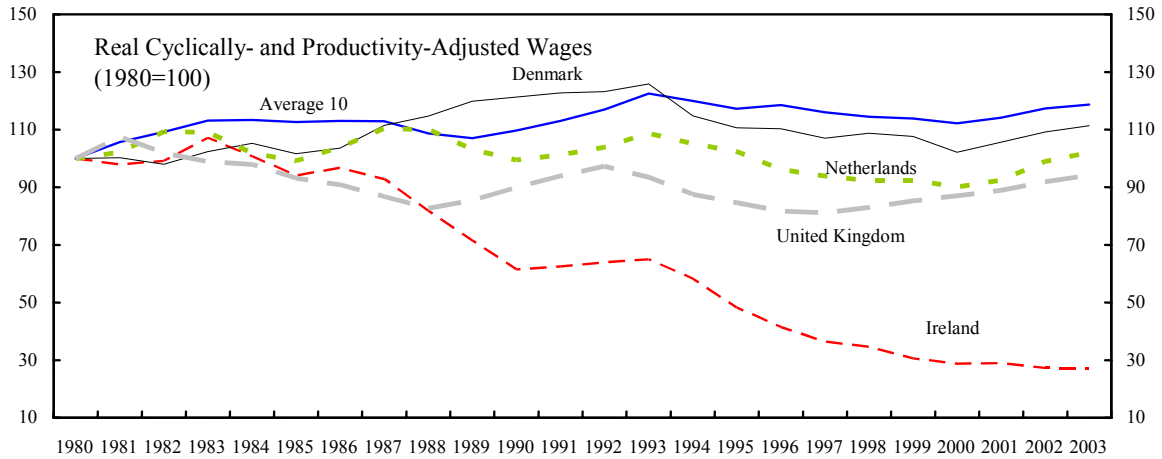


Source: OECD

Figure II.9. Labor Market Institutions
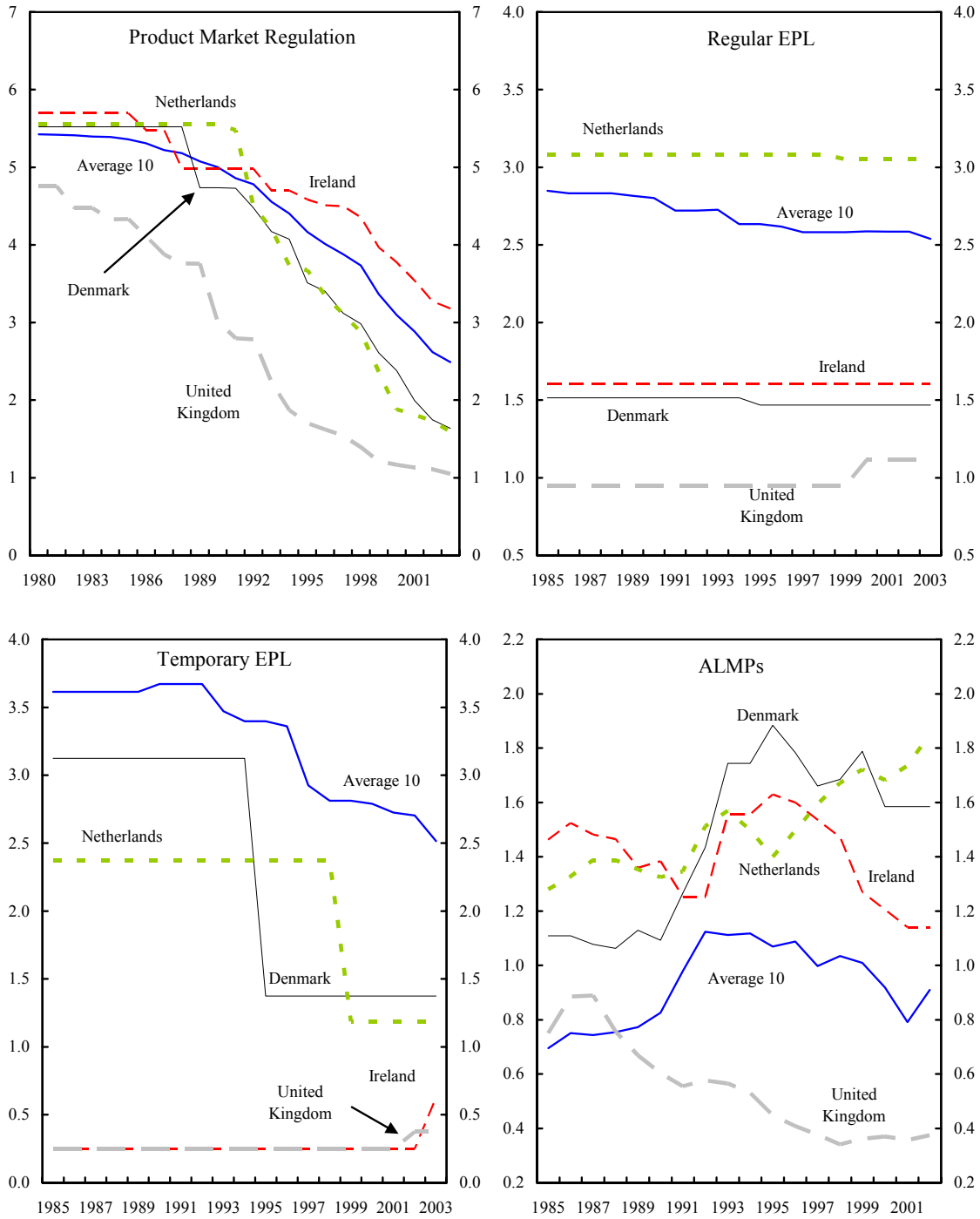


Source: OECD

Figure II.10. Composition of Active Labor Market Programs

Denmark



Ireland



Netherlands



United Kingdom
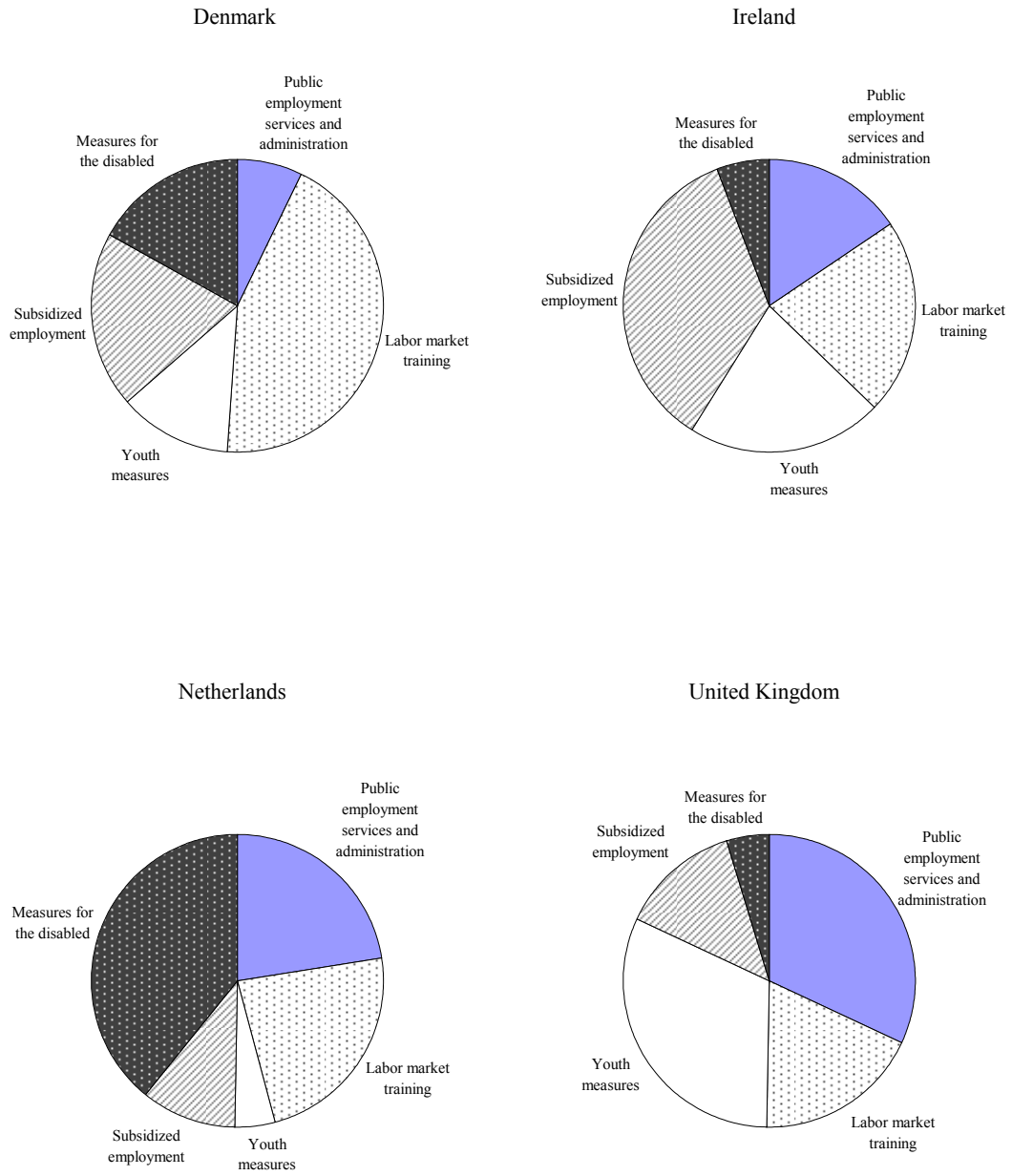


Source: OECD

## Figure II.11. Social Developments
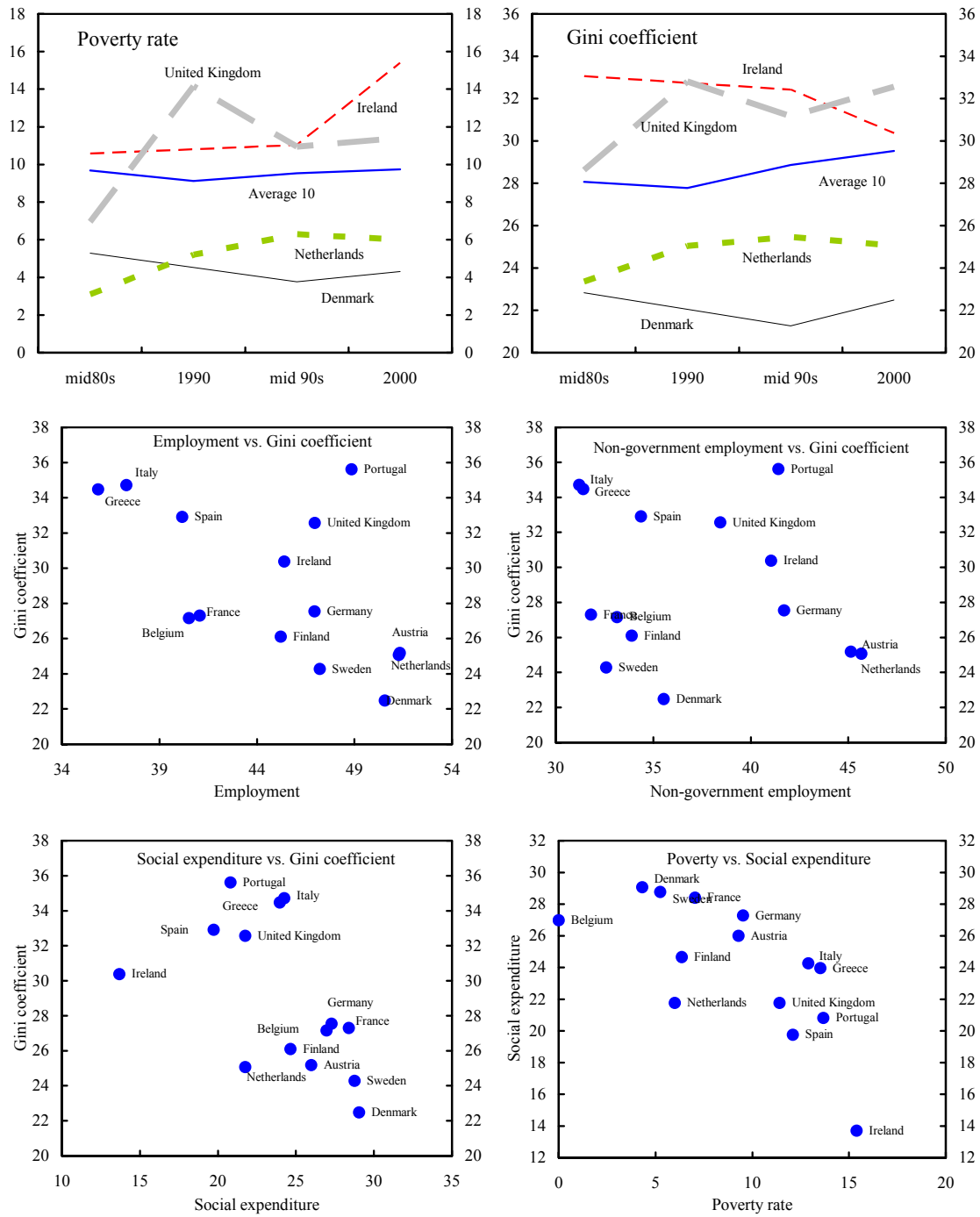


Source: OECD

**Appendix I. Reforming Labor Market Institutions in the Case Study Countries**

70.     **A large number of studies find that a bevy of labor market institutions may have been responsible for poor labor market outcomes in Europe**. The institutions under indictment typically include generous benefits with long duration, high tax wedges, restrictive employment protection legislation (EPL), and union power (see Arpaia and Mourre, 2005, for a comprehensive overview of the state of play in this area). The negative supply shocks of the late 1970s- early 1980s may have interacted with these prevailing institutions to lead to persistently high unemployment (Blanchard and Wolfers, 2000). Or governments may have responded to adverse shocks by using institutions to protect workers, a trend that was only partially reversed after the 1980s (Blanchard, 2005). In a fairly representative result, Nickell, Nunziata, and Ochel (2005) argue that institutions can explain slightly more half of the increase in European unemployment between the 1960s and 1990s, with a division between unemployment benefits (39 percent), labor taxes (26 percent), union power (19 percent), and EPLs (16 percent).

**Tax wedges**

71.     **High tax wedges have been frequently singled out as a leading cause of poor labor market outcomes in Europe**. Nickell, Nunziata, and Ochel (2005) claim that they rank second in importance behind high unemployment benefits. Garibaldi and Mauro (2002) argue that employment growth is associated primarily with low taxes and low dismissal costs. And Daveri and Tabellini (2002) go even further, assigning the brunt of the blame for high unemployment squarely on labor taxes, especially in intermediate cases of wage bargaining.[42]

72.     **All countries embarked on labor tax reforms that had the effect of reducing tax wedges**.

- In **Ireland**, taxes on labor declined steadily over the 1990s, as part of the centralized social partnership agreements; the top income tax fell from 68½ percent in the mid-1980s to 42 percent by the end of the century. As well as declining marginal rates, income tax thresholds were raised in real terms, removing many of the low paid from the tax net altogether.

- The **Netherlands** took a similar route. Social security contributions were cut dramatically (by 58 percent) for low-income workers, and if these workers came from

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[42] Neither decentralized, where labor taxes are borne by workers, nor centralized where unions take employment effects into account when bargaining over wages.

long-term unemployment, they were exempted from contributions during the first four years of employment.

- In the **United Kingdom**, the top marginal rate fell from 83 percent in 1975 to 60 percent in 1985 and 40 percent by 1990. The tax system shifted from a household to an individual basis, and tax brackets were lowered as the government moved toward indirect taxation.

- Although it was not key to its strategy, **Denmark** undertook some tax reform in the 1990s to broaden the base and reduce rates, even though its taxation ratio remains among the highest in Europe. While lower than in the early 1990s, marginal tax rates remain high, exceeding 60 percent for high earners and 50 percent on average (Gaard and Kieler, 2004).

**Benefit reform**

73.     **Benefits reform had a tripartite character, focusing on reducing generosity, shortening duration and tightening eligibility requirements**. Reforms were especially prominent in Denmark, the Netherlands, and the United Kingdom. Benefit reform was not a major aspect of the Irish story.

74.     **Benefits generosity was lowered in the Netherland and the United Kingdom**. In the Netherlands, the replacement rate for unemployment, sickness, and disability benefits was reduced from 80 percent to 70 percent of the last earned wage in 1986, and the disabled unemployed no longer received full benefits. The generosity of unemployment benefits in the United Kingdom was also reduced, owing to the abolition of the earnings related supplement (the only component tied explicitly to past earnings), the suspension of statutory indexation, the elimination of child dependent allowances, the taxing of unemployment benefits, and the removal of any entitlement for under-18s.[43] Denmark stands out as the country with a continuing attachment to a generous benefits regime. Benefits levels were kept at 90 percent of previous earnings subject to a maximum benefit level (meaning that replacement rates are highest for low earners and decline with income) and not reduced over time. This gives rise to clear disincentive effects.[44]

75.     **The maximum duration of benefits was lowered in Denmark and the Netherlands**. This was a key aspect of the Danish reforms. Whereas the maximum benefit period had been virtually open ended, it was set to seven years in 1994, reduced to five years

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[43] For details, See Blanchflower and Freeman (1993) and Nickell and Quintini (2002).

[44] Estimates suggest that 23 percent of employed women and 12 percent of employed men earn little extra from working as opposed to receiving benefits (Westergaard-Nielson, 2001).

in 1998, and again to four years in 2000. Duration was also cut in the Netherlands, from 2½ years to six months for workers under 23, and less severely for other age groups (except for those over 58 who received six years of eligibility). Neither Ireland nor the United Kingdom engaged in this aspect of reform.

76. **Reforms geared toward tightening eligibility conditions were widespread**.

- In *Denmark*, the work requirement to qualify for unemployment benefits was raised from six months to one year in the preceding three years, and the loophole whereby participation in ALMPs could be used to extend the benefit period was eliminated. Eligibility could now only be restored with a regular unsubsidized job.

- In the *Netherlands*, eligibility also became progressively tighter. By 1995, the unemployed needed to stand ready to accept a broader range of jobs or enter training, and were required to accept any job offer after 18 months of unemployment. By 1998, the sanction rate—defined as sanctions during benefit periods as a percentage of the average stock of benefit claims—was 36 percent, the highest in the OECD (Nickell and van Ours, 1999). Also, applicants for disability were gauged on whether they could perform any job, regardless of training or employment history, and those under 50 were reexamined.

- In the *United Kingdom*, a Restart program was introduced in 1986, which called for compulsory counseling and referral for those in unemployment for more than six months. From 1988, an interview was required every six months. In 1989, the unemployed needed to show good cause before refusing work. In 1991, participation in a labor market program was made compulsory for those in unemployment for more than two years. Under the "Stricter Benefit Regime" the number of sanctions doubled in 1994 from a few years earlier (Grubb, 2000).

- *Irish* efforts in this area came limited and late. From 1998, criteria were toughened, as all those unemployed for longer than six months were required to attend interviews in an attempt to improve matching or identify training needs.

77. **The conditioning of unemployment benefits on activation measures was a key component of reforms in Denmark in particular**. In a nutshell, the unemployed were required take part in ALMPs. This requirement kicked in after three years in unemployment in 1996, and was reduced gradually until it became one year in 2002, so that the activation period constituted 75 percent of the benefit duration period. Youth unemployment was particularly targeted in that beneficiaries aged 25 or less without qualifying education could no longer receive passive benefits longer than 26 weeks. Beyond that period, they were obliged to either work or further their education at a benefit level around half of the unemployment benefit. Non-compliance in the youth schemes brought benefits to an end.

The United Kingdom adopted a similar experiment in 1998, as participation in ALMPs was required for youth in unemployment status after 6 months.

**Active labor market policies**

78.     **Numerous studies have found a positive effect of Active Labor Market Programs (ALMPs) on labor market outcomes**. Various theoretical reasons suggest that expenditure on ALMPs could affect employment and wages by: (i) shifting out the labor demand curve, by boosting labor productivity, and by achieving better matching between vacancies and the unemployed; (ii) shifting down the wage or labor supply curve by better matching and keeping unemployed workers attached to the labor force; (iii) shifting up the wage or labor supply curve by lowering the disutility of unemployment and raising the reservation wage (see Estevao, 2003). In a comprehensive analysis, Estevao (2003) found that ALMPs raised employment, especially in the case of subsidized employment, while job search assistance and youth measures were actually counterproductive. Also, ALMPs fostered wage moderation. Evidence from the United States also supports the view that work experience trumps training (Blank, 2002). Martin and Grubb (2001) believe that job search assistance and wage subsidies can be effective, but the impacts tend to be small. Going even further, De Groot, Nahuis, and Tang (2004) argue that the use of ALMPs permits countries to enjoy both high employment and high equity.

79.     **Countries differ widely in size and composition of ALMPs**. While the average EU country spends roughly 1 percent of GDP on active measure, the Netherlands and Denmark lead the pack with around 1¾ percent and 1½ percent respectively, followed by Ireland at 1¼ percent, with the United Kingdom near the bottom (½ percent). With its long history of apprenticeship, job training has been the chief activation measure in Denmark, although the education subsidy gained prominence in the 1990s, prompted by the more rigorous youth activation requirements. The focus on the Netherlands is mostly on measures for the disabled, but job training initiatives have grown over time. Ireland's main interest has been on subsidized employment. The United Kingdom concentrates far more limited resources on administrative services and youth measures. In 1997, it introduced its "New Deal for Young People", which established mandatory activation for receipt of unemployment benefits. After a 4-month gateway, the young unemployed needed to choose between education or training, subsidized employment, working for a non-profit entity, or participating in an environmental task force.

**Employment protection legislation**

80.     **The evidence pertaining to the effect of employment protection on labor market performance is decidedly mixed**. By decreasing both hiring and layoffs, the effect of EPLs on the unemployment rate could be ambiguous. But while Nickell, Nunziata, and Ochel (2005) assign only a minor role to EPLs in explaining the rise in European unemployment over time, others adopt a different perspective (Garibaldi and Mauro, 2002, for example).

Elmeskov, Martin, and Scarpetta (1998) believe that EPLs are most detrimental in the intermediate bargaining case. In a comprehensive evaluation, OECD (2004) finds that EPLs reduce the employment rate among youth and women, but not prime-age men—a classic insider-outsider scenario.

81.     **The case study countries stand out in terms of low EPLs, and both Denmark and the Netherlands undertook reforms**. Since the late 1980s (when data became available), EPLs were lowered in both Denmark in the Netherlands, pushing them toward the bottom, while Ireland and the United Kingdom changed little, yet maintaining their relative positions. The Danish liberalization in the 1990s reflects the expanding role of temporary work agencies (OECD, 2004). Dutch reform began in the late 1980s, and focused on streamlining laying off rules and relaxing hiring procedures (see Barrell and Genre, 1999). Working-time rules became more flexible, which had the effect of encouraging part-time work. Overtime legislation was also relaxed. Further reforms of fixed-terms contracts, probation periods, and dismissal procedures took place in the late 1990s. In particular, temporary work agencies gained more prominence as regulations relating to them were relaxed; this contributed to the explosion of part-time work and flexible contracts, especially among women.

## III.   HOW GOOD IS FINANCIAL SECTOR REGULATION AND SUPERVISION IN EUROPE?[45]

### A.   Introduction

82.     **This chapter analyzes regulatory and supervisory frameworks in the European Union (EU), building on assessments carried out under the IMF-World Bank Financial Sector Assessment Program (FSAP)**.[46] The FSAP has so far covered about two thirds of the IMF membership, including virtually the whole EU (Table III.1). It is therefore an important source of comparable information on the quality of supervisory frameworks in the EU and around the globe. This chapter is an attempt to synthesize the information from the FSAP assessments in a comprehensive way, focusing on the EU countries. It is the first time this type of analysis is carried out for the EU.

83.     **The findings of the chapter should be treated as partial because some issues— notably those related to cross-border activities—are difficult to cover comprehensively with country-specific FSAPs**. Also, the analysis presented in this chapter, while illustrative, is limited by the fact that it builds on country FSAPs carried out at different points in time during 2000–06. Some of the areas for improvement identified in the assessments have been

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[45] Prepared by Martin Čihák and Alexander Tieman (both MFD).

[46] The chapter focuses on prudential and conduct-of-business regulation and supervision; it does not cover other parts of the regulatory framework, such as those dealing with competition issues. To save words, the term "supervision" is used to mean "regulation and supervision."

addressed by the authorities, while new issues have emerged (e.g., the rapid credit growth in the new member states and its cross-border dimension) as the financial system became more integrated. Even though each of the assessments covered principles on cross-border supervisory cooperation, and many attempted to go even beyond these basic principles, individual country FSAPs may not be an efficient way to analyze multilateral issues. Additional analyses would have to be done to cover in greater depth EU-wide issues, such as cross-border crisis management, systemic liquidity support, cross-border payments and settlements systems, deposit insurance systems, the Lamfalussy process, and *de facto* day-to-day implementation of cross-border supervisory coordination (especially in the face of new challenges and financial market trends). Cross-country exercises of the kind that has recently been initiated for the Nordic and Baltic countries are better suited for this than country FSAPs.

84.     **With these caveats in mind, a combination of quantitative and qualitative approaches is used in this chapter to analyze the information from the FSAP**. The quantitative approach is based on the gradings in the assessments of observance of standards. The analysis focuses on cross-country differences in gradings in the EU and a sample of comparable non-EU countries. While this approach has some limitations (in particular, it assumes that international standards measure the correct characteristics of the supervisory system and that the assessments are precise and consistent across countries), there is no data set measuring the quality of supervision that would be more appropriate for these purposes. The quantitative analysis of gradings is complemented by an analysis of qualitative information in the FSAPs, in particular of the overall FSAP assessments, which cover also some issues that are not captured well by the standards assessments (e.g., the cross-border crisis management framework).

85.     **The findings from this analysis lead to suggestions relating to the EU's Financial Services Action Plan** (EU-FSAP).[47] The action plan was initiated in 1999, around the time the FSAP was launched in Washington. Roughly six years later, the program (FSAP) has covered virtually the whole EU, and it seems logical to ask, what it has to say about the action plan (EU-FSAP). The action plan contained three strategic objectives: (i) a single EU wholesale market; (ii) open and secure retail networks; and (iii) state-of-the art prudential rules and supervision. The analysis in this chapter leads to suggestions on where the reform effort should focus to achieve the third objective.

86.     **To answer the titular question, the findings in this chapter suggest that the supervisory systems in the EU are of a higher quality than in comparable countries, even though they were still found in some respects below the international standards and are not uniform across EU member countries**. Based on the FSAP assessments, the supervisory systems in the EU were of a higher and more even quality than in the non-EU countries. However, this should not be a reason for complacency, since there were still gaps

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[47] A more common abbreviation is FSAP; EU-FSAP is used here to distinguish it from the Fund-Bank FSAP.

between the EU practices and the international standards. Of all the principles in the international standards being reviewed, not a single one was fully observed by all the EU member countries.

87. **The chapter also highlights an issue raised by most FSAPs in the EU: the need to adjust the supervisory frameworks to meet new challenges, such as, in particular, increasing international financial integration**. For example, the recently completed FSAP for Belgium identified as a key challenge the need to "ensure that the authorities' capacity to identify and address risks in the financial system keeps pace with the rapidly evolving markets and increased complexity of financial groups against the backdrop of European and global integration," and to "maintain vigilance over the financial sector's expansion abroad to prevent such a beneficial move from threatening the stability of the financial system" (see IMF Country Report No. 06/75).

88. **The structure of the chapter is as follows**. Section B discusses the methodology of the analysis. Section C presents results of the analysis of individual gradings and discusses the main areas for improvement in compliance with the various standards. Section D surveys the qualitative findings in the FSAPs to highlight those issues that were not captured in the standards assessments, but were found important in the overall FSAP assessments. Section E concludes.

## B. Methodology

89. **To analyze supervision in the EU, Section C uses data on countries' observance of internationally accepted standards in banking, insurance, and securities regulation ("standards")**. The standards covered in this analysis are the Basel Core Principles for Effective Banking Supervision (BCP), the International Association of Insurance Supervisors (IAIS) Insurance Core Principles (ICP), and the International Association of Securities Commissions (IOSCO) Objectives and Principles of Securities Regulation. The IMF and World Bank have endorsed internationally recognized standards and codes in 9 other areas, some of which are also relevant for the financial sector (namely, payments and securities settlements systems, transparency, and anti-money laundering). For simplicity, this chapter focuses on the three basic standards for banking, insurance, and securities regulation. The analysis was also carried out for the financial policy transparency and payments and securities settlements systems standards, but the results are omitted here for brevity.[48]

90. **The degree of observance is measured by gradings, which are an integral part of each standard**. Each standard contains a list of requirements against which observance is measured. For example, the BCP contains 25 "Core Principles" (CPs) that cover a wide

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[48] See http://www.imf.org/external/standards/index.htm for a full listing of the standards and other relevant materials. The focus of this chapter is on the internationally accepted standards, not on EU standards. The two sets of standards are closely, but not perfectly, aligned.

range of issues, from the aims of supervision, autonomy, powers, and resources (CP1), through capital adequacy (CP6), regulation of risks (CPs 11–13), to supervision of foreign banks (CP25). Similarly, the ICP and IOSCO standards also consist of a number of principles (see Tables III.4–III.6 for a basic "dictionary" of the three standards). The observance of each principle is assessed on a 4-point scale, from "fully observed" to "non-observed," even though the exact names of the grades differ slightly across the three sectors. Most of the assessments have been prepared as part of the FSAP.[49] Most countries have chosen to publish the summaries of the financial sector assessments (Reports on Standards and Codes, or ROSCs), which however do not contain the gradings of the individual principles. The detailed assessments with the underlying gradings have been published only for a minority of countries (in the EU, only for 3 countries—see Table III.1). Given that most of the detailed assessments have not been published, this chapter uses the data in a way that protects the confidentiality of the unpublished information.[50]

91.     **To arrive at a concise summary of the assessments of compliance with standards, the individual gradings are analyzed quantitatively**. Grading is not an exact science and emphasis should always be placed on the commentaries that accompany each principle grading, rather than on the grading itself. The primary goal of the assessment is not to apply a "grade" but rather to highlight areas needing attention in order to set the stage for improvements and develop an action plan that prioritizes the improvements needed to achieve full compliance with the principles. Nonetheless, to summarize the results in a number of countries, such as the 25 EU countries, it is practical to start with the gradings. The approach is similar to that adopted by IMF (2004) to study issues and gaps in supervisory and regulatory frameworks and by Čihák and Podpiera (2006) to analyze integrated supervisory agencies. This is the first time the available cross-country data on quality of supervision are used in this manner specifically for the EU member countries. The following calculations are used:

- *Principle-by-principle gradings*. For each standard and each principle, the 4-point scale assessment was transformed into a numeric value from 0 (non-observed) to 100 (fully observed).

- *Summary grading*. An average of the principle-by-principle gradings was calculated to arrive at a summary grading for each standard. This summary grading is also a number from 0 (non-observed) to 100 (fully observed). In principle, when more data

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[49] Standards assessments are carried out by independent experts from the IMF, World Bank, and cooperating institutions. For the BCP, two independent experts are required ("four eyes principle"). The assessments go through several stages of internal review to ensure quality and consistency across countries. For further information on the assessment methodologies, see http://www.imf.org/external/standards/index.htm. In several cases, assessments were carried out separately from the FSAP program. In addition, for off-shore financial centers (OFC), assessments were prepared as part of the Fund's OFC assessment program.

[50] The published ROSCs and detailed assessments are available at the IMF and World Bank websites.

become available, it may be possible to test empirically for the significance of the individual principles in explaining supervisory performance and use that as a basis for constructing a summary grading. In the absence of such data, an unweighted average was used for simplicity.

- ***Component gradings.*** Given that the individual principles cover different subjects, and given that the composition of the principles is different across the three sectors (banking, insurance, securities regulation), it is easier to carry out cross-sectoral comparisons if the principles are aggregated into components that are the same across the sectors. The aggregation by IMF (2004) is followed, which identified the following four components of good supervisory framework: (i) regulatory governance, which includes aims, independence, and accountability of regulators; (ii) prudential framework, i.e., risk management, capital adequacy, internal control, and corporate governance; (iii) regulatory practices, i.e., monitoring and supervision, enforcement, conglomerates, and licensing; and (iv) financial integrity/safety net, including consumer protection, and addressing financial crimes. Table III.7 provides a mapping of the individual principles into the four components.[51] For each of the four components, an observance index was calculated as an unweighted average of the individual principles included in the component. The advantage of the component gradings is that they provide more details than the general level of observance, while allowing for comparisons across the three sectors (which is not the case with the individual principles).

92.     **The gradings were obtained and analyzed for all EU countries and a sample of comparable non-EU countries**. The EU sample consists of all 25 EU member countries. BCP assessments are available for all 25 countries; ICP and IOSCO assessments are available for a majority of countries.[52] The non-EU sample consists of 11 advanced economies and 9 emerging markets that had a completed FSAP assessment (Table III.2). To make the EU and non-EU samples comparable, developing countries were excluded from the sample of non-EU countries. The classification of advanced countries, emerging markets,

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[51] The mapping is relatively straightforward for most principles, except for a few in the areas of prudential framework and regulatory practices. In particular, some of the principles under regulatory practices (e.g., group-wide supervision and licensing) could also be placed under prudential framework. In all cases, the approach of IMF (2004) is followed, but the interpretation of the results for the components needs to take into account that the mapping of the principles into components is a useful exercise, but not an exact science.

[52] Not all assessments are carried out in all FSAPs. The ICP and IOSCO assessments are therefore available for only 13 and 17 EU member countries, respectively. In order to have as many observations as possible, some assessments available in a draft form (in particular, Australia, Denmark, and Portugal) were included.

and developing countries used for this purposes followed the IMF's World Economic Outlook (see, e.g., IMF, 2006, for an explanation of the classification methodology).[53]

93.     **When interpreting the results, one needs to bear in mind that the gradings are a series of country-by-country snapshots, some of which may have become outdated**. The individual assessments were undertaken at different points in time during 2000–06 (Table III.1). Some of the earlier gradings may have become outdated due to steps by country authorities subsequent to the FSAP, or due to other new developments. For those countries where the gradings were updated through a formal FSAP update (Table III.1), the updated gradings were taken into account; for others, the FSAP gradings are still the most recent available cross-country information. The existence of lags between regulatory developments and reassessments of gradings means that older assessments are likely to underestimate the true quality of supervision in the country. Interestingly, however, statistical tests do not suggest a strong link between the "vintage" of the FSAP assessment and the overall grading.[54]

94.     **The quantitative analysis of the gradings was complemented by an overview of the qualitative findings in the FSAPs**. The gradings provide only very compressed information about the quality of the regulatory framework. Supervisory frameworks include elements that are not easy to quantify, and information may be lost if one focuses only on quantitative analysis. Each assessment therefore contains a rich set of underlying, qualitative information, which was also analyzed. Moreover, not all principles are equally relevant in all countries, and there are issues that may not be captured by the standard assessments. The FSAP reports put the standards assessments and other analytical tools together into an integrated assessment of the financial sector. The key messages from these overall assessments are surveyed in Section D.

## C.  Analysis of Compliance with Principles

95.     **The EU member countries showed, on average, a higher level of observance of standards than non-EU member countries**. The degree of observance of the three standards and their subcomponents was on average about 8 percentage points higher in the EU countries than in the non-EU countries (Figure III.1). This difference was not statistically significant in banking and insurance regulation, but it was statistically significant for

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[53] Given that the World Economic Outlook puts emerging markets and developing countries in one group, the two sub-groups were separated using GDP per capita as the deciding criterion.

[54] The average gradings were regressed on the "vintage" of the assessment (the year in which it was carried out), controlling for differences in the level of development (approximated by GDP per capita). The sign of GDP per capita was positive and highly significant, but the sign for the vintage—even though positive, as expected—was insignificant (e.g., for the BCP, the p-value was 0.14). The insignificance can be caused by two effects: on one hand, countries with better regulatory frameworks were perhaps more likely to request an FSAP earlier; on the other hand, those with a later FSAP had extra time to put their framework in order.

securities market regulation and for the regulatory governance component of insurance regulation, and it was robustly positive across the various components of the regulatory framework. Similar results were obtained when EU-15 countries were compared with non-EU advanced economies, and when new member states (NMS) were compared with a sample of non-EU emerging markets (Table III.3 and Figure III.4).[55]

96.     **Despite the relatively favorable performance vis-à-vis non-EU countries, compliance in the EU was still below the standards**. The overall level of compliance, ranging from 79 percent in insurance to 85 percent in securities regulation, was still significantly below full compliance (i.e., 100 percent).[56] The distance from full compliance (15–21 percentage points) was bigger than the difference with respect to the non-EU countries (5–13 percentage points).

97.     **No principle was observed fully by all EU member countries**. For example, in banking, two EU countries observed all core principles, but no principle was observed fully across the EU. On average, there were about 9 less-than-fully compliant EU countries for each principle. For some principles, more than a half of the EU countries were less-than-fully compliant (Figure III.3). This is an interesting observation, particularly given that the standards in question were designed as an "aspirational minimum" for sound supervisory practices, i.e., as benchmarks that all countries should aspire to fulfill. Supervisory frameworks in advanced economies should be expected to exceed the minimum standards by a margin. It is possible that the level of observance has improved subsequently to the FSAPs (some of the follow-up work in Article IV missions suggests so); however, new reassessments of compliance would be needed to confirm the improvement.

98.     **Observance tended to be the weakest in insurance supervision**. The average level of observance in insurance supervision was lower than in banking and securities regulation. This was true both for EU and for non-EU countries (Figure III.1). For example, the difference between average levels of observance in banking and insurance was about 6 percentage points in the EU countries and about 8 percentage points in non-EU countries (Table III.3).

99.     **EU member countries also showed a slightly more even level of observance than non-EU member countries** (Figures III.2, III.5, and III.6). Various measures of cross-country variability (e.g., standard deviation, minimum minus maximum, variation coefficient) suggest that EU member countries have a lower variability in quality of supervision. Standard statistical tests allow to reject the hypothesis of equal cross-country

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[55] The standards were designed as universally applicable. In principle, therefore, one would not have to take the level of economic development into account. However, in practice, the level of compliance is positively correlated with economic development, as illustrated in Table 3 and in IMF (2004). It is therefore useful to analyze the gradings not only for all countries, but also by peer groups of countries, as done in Table III.3.

[56] For illustration, the value of 67 percent corresponds to the "largely compliant" grading, so it could be said that on average, the EU regulatory systems were more than "largely compliant." However, they were significantly less than "fully compliant," and some were even less than "largely compliant" (Table III.2).

variance inside and outside of EU only for some components of the regulatory framework, but as with the average levels, the sign of the difference is relatively robust across the various regulatory components (Table III.3).

100.    **Within the EU, there was a notable difference in observance for the EU-15 countries and the 10 NMS** (Table III.3 and Figure III.4). The level of observance in the EU-15 countries is higher (by 13–18 percentage points on average), and less uneven than in the NMS (the standard deviation being 4–10 percentage points lower on average).

101.    **Cross-country variability in the EU tended to be higher in regulatory governance than in other aspects of the supervisory framework**. Both in banking and in insurance, regulatory governance shows higher cross-country variability than the prudential framework, regulatory practices, or financial integrity and safety nets. In securities regulation, the prudential framework is the component with the highest cross-country variability (Table III.3).

102.    **The principle-by-principle analysis of standard assessments suggested several specific areas for attention**. Of the 72 principles contained in the three standards, 19 principles were fully observed by less than a half of the assessed EU countries (Table III.8). These comprise 6 principles in banking, 9 in insurance, and 4 in securities. In the following three paragraphs, these 19 principles are listed, sector by sector, in an order of priority (approximated by the number of less-than-fully compliant countries). The fact that a principle is not listed here does not mean that there is no scope for improvement; as mentioned earlier, for each principle, at least one country was less than fully compliant.

103.    **In banking, areas most in need of improvement include supervision of other risks, connected lending, issues relating to money laundering; supervisory objectives, autonomy, powers, and resources; remedial measures; and consolidated supervision**. More specifically:

- *Supervision of other risks.* The relevant principle (CP13) requires that banking supervisors be satisfied that banks have in place a comprehensive risk management process to identify, measure, monitor, and control all other material risks and, where appropriate, to hold capital against these risks. Sixteen EU countries did not fully satisfy this criterion. The reasons for less-then-full compliance varied from country to country, in some cases the reason was lack of specific guidelines on interest rate risk and operational risk, in other cases weak guidelines on liquidity risk.

- *Connected lending.* The relevant principle (CP10) requires that—to prevent abuses arising from connected lending—banking supervisors have in place requirements that banks lend to related companies and individuals on an arm's-length basis, that such extensions of credit are effectively monitored, and that other appropriate steps are taken to control or mitigate the risks. Fifteen EU countries did not fully satisfy this criterion. The most frequent issues include absence of legal prohibition to lend to connected parties on more favorable terms than to non-related counterparts, absence

of a limit above which exposures to connected parties are subject to board approval, absence of supervisory power to deem that a connection exists in cases others than those specified in the law, and absence of a power to deduct connected lending from capital or to require it to be collateralized.

- *Money laundering.* The relevant principle (CP15) requires that banking supervisors determine that banks have adequate policies, practices, and procedures in place, including strict know-your-customer rules, that promote high ethical and professional standards in the financial sector and prevent the bank being used, intentionally or unintentionally, by criminal elements. Fifteen EU countries did not fully satisfy this criterion. One of the common issues was low frequency of the relevant on-site inspections.

- *Supervisory objectives, autonomy, powers, and resources.* The relevant principle (CP1) requires clear responsibilities and objectives for each agency involved in the supervision of banks. Fifteen EU countries did not fully satisfy this criterion. The most frequent weaknesses related to the potential for political interference in day-to-day supervision, the lack of budgetary independence, and the need to strengthen the legal protection of supervisors.

- *Remedial measures.* The relevant principle (CP22) requires that banking supervisors have at their disposal adequate supervisory measures to bring about timely corrective action when banks fail to meet prudential requirements, when there are regulatory violations, or where depositors are threatened in any other way. Fifteen EU countries did not fully satisfy this criterion. The most frequent problems included limited powers to remove individuals, lack of statutory "prompt corrective action" procedures, and lack of powers to restrict dividend payments.

- *Consolidated supervision.* The relevant principle (CP20) notes that an essential element of banking supervision is the ability of the supervisors to supervise a banking group on a consolidated basis. Thirteen EU countries did not fully satisfy this criterion. The assessments often noted that supervisors need to rise to the challenge posed by conglomerization of systems, which can provide systems with more stability, but can also pose additional challenges resulting from possible drain of capital from one type of institutions to another. It can also create opportunities for arbitrage when prudential requirements are not well-aligned across the different business lines. The most common issues related to insufficient resources in insurance supervision or the absence of a fully articulated structure for sharing of information and assessments.

104. **In insurance regulation, the number of areas with low observance was much higher**. They ranged from market conduct issues to internal controls, derivatives and off-balance sheet items, organization of the supervisor, corporate governance, assets, on-site inspection, licensing, and cross-border business operations. More specifically:

- *Market conduct issues.* The relevant principle (CP11)[57] requires insurance supervisors to ensure that insurers and intermediaries exercise the necessary knowledge, skills and integrity in dealings with their customers. Nine of the thirteen assessed EU countries did not fully satisfy this criterion. The most frequent recommendations relate to ensuring that market conduct issues are better handled at the point of sale when the agent is actually selling the product. Some assessments noted that this is especially relevant for unit linked products, which may not be suitable for all customers (from a risk tolerance perspective) and may be sold on the basis of unrealistic expectations.

- *Internal controls.* The relevant principle (CP5) requires the insurance supervisor to be able to: review the internal controls that the board of directors and management approve and apply; request strengthening of the controls where necessary; and require the board of directors to provide suitable prudential oversight, such as setting standards for underwriting risks and setting qualitative and quantitative standards for investment and liquidity management. Nine of the thirteen assessed EU countries did not fully satisfy this criterion, in most cases because of a lack of legislative support for internal control in the operations of insurance companies.

- *Derivatives and off-balance sheet items.* The relevant principle (CP9) requires the insurance supervisor to be able to set requirements with respect to the use of derivatives and off-balance sheet items. Nine of the thirteen assessed EU countries did not fully satisfy this criterion, most frequently suggesting that insurers be required to have in place risk management policies and systems as regards to any derivatives positions, and that the onsite inspection program be amended to state more precisely the work that has to be done by supervisors with regard to derivatives.

- *Organization of the supervisor.* The relevant principle (CP1) requires that the insurance supervisor be organized so as to be able to accomplish its primary task, i.e., to maintain efficient, fair, safe and stable insurance markets for the benefit and protection of policyholders. Eight of the thirteen assessed EU countries did not fully satisfy this criterion, the most common reason being potential political interference in supervision and lack of adequate resources.

- *Corporate governance.* The relevant principle (CP4) requires establishing standards to deal with corporate governance. Seven of the thirteen assessed EU countries did not fully satisfy this criterion, the most frequent problems relating to the supervisory agency's powers being insufficient with respect to corporate governance.

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[57] For simplicity, the references to individual ICP principles are based on the 2000 IAIS standard, which has so far been used for a majority of EU countries that had the ICP assessment. ICP assessments based on the 2003 IAIS standards were also included in the analysis and are reflected in this summary.

- *Assets.* The relevant principle (CP6) requires that standards be established with respect to the assets of companies licensed to operate in the jurisdiction. Seven of the thirteen assessed EU countries did not fully satisfy this criterion, mostly recommending that supervisors ensure that insurance companies and groups have proper internal controls to ensure that assets are managed in accordance with the overall investment policy, and suggesting to spell out inspection procedures for the review of investment practices and policies, and asset valuation.

- *On-site inspection.* The relevant principle (CP13) requires that the insurance supervisor be able to carry out on-site inspections to review the business and affairs of the company, including the inspection of books, records, accounts, and other documents. Seven of the thirteen assessed EU countries did not fully satisfy this criterion, the main concerns relating to extended periods between inspections for most companies and less than fully-developed implementation of a risk-based approach.

- *Licensing.* The relevant principle (CP2) requires that companies wishing to underwrite insurance in the domestic insurance market be licensed. Seven of the thirteen assessed EU countries did not fully satisfy this criterion.

- *Cross-border business operations.* The relevant principle (CP15) notes that the insurance supervisor should ensure that: no foreign insurance establishment escapes supervision; all insurance establishments of international insurance groups and international insurers are subject to effective supervision; the creation of a cross-border insurance establishment is subject to consultation between host and home supervisors; and foreign insurers providing insurance cover on a cross-border services basis are subject to effective supervision. Seven of the thirteen assessed EU countries did not fully satisfy this criterion. The reasons varied from country to country, one of the concerns being insufficient resources for the supervisor to actively supervise branches of financial institutions abroad.

105.    **In securities regulation, the number of low-compliance areas was relatively smaller**. The main areas for improvement relate to enforcement powers, compliance program, capital and other prudential requirements, powers, resources, capacity, and operational independence and accountability. More specifically:

- *Enforcement powers and compliance program.* The relevant principle (Q10) requires an effective and credible use of inspection, investigation, surveillance and enforcement powers and implementation of an effective compliance program. Nine of the seventeen assessed EU countries did not fully satisfy this criterion, most frequently because of limits on the ability of the supervisor to carry out full inspections, investigations, surveillance and enforcement.

- *Capital and other prudential requirements.* The relevant principle (Q22) requires that there be initial and ongoing capital and other prudential requirements for market

intermediaries that reflect the risks that the intermediaries undertake. Nine of the seventeen assessed EU countries did not fully satisfy this criterion, most frequently noting an absence of legal immunity for actions in good faith by the regulatory authority.

- *Powers, resources, capacity.* The relevant principle (Q03) requires that the regulator have adequate powers, proper resources and the capacity to perform its functions and exercise its powers. Nine of the seventeen assessed EU countries did not fully satisfy this criterion, mostly calling for more supervisory resources, and recommending some clarifications in the supervisory powers and institutional arrangements.

- *Operational independence and accountability.* The relevant principle (Q02) requires that the regulator be operationally independent and accountable in the exercise of its functions and powers. Nine of the seventeen assessed EU countries did not fully satisfy this criterion, the most frequent reasons being lack of budgetary independence and potential for political interference.

106.    **Many of the above gaps were recognized by the authorities and are being addressed as part of the EU-FSAP**. Since the beginning of the initiative, new directives were adopted on winding-up and liquidation of banks and insurance undertakings, directives governing the capital adequacy framework for banks and investment firms were amended, a Commission recommendation was issued on disclosure of financial instruments, and substantial improvements in the Anti-Money Laundering framework were achieved by an amendment to the EU's money laundering directive, among other things. The Lamfalussy process is getting up to speed, and some of the remaining gaps identified by FSAPs will be addressed by the Capital Requirements Directive (CRD), to be implemented in the coming years; the Financial Conglomerates Directive, addressing the role of international financial conglomerates; and Solvency II, which is still being prepared. Also, prudential authorities have undertaken substantial improvements in their cross-border cooperation through formal Memoranda of Understanding and other efforts. Progress in regulatory frameworks was confirmed by the recent FSAP updates and other IMF surveillance work.[58]

107.    **At the same time, the financial environment changed substantially since the FSAP process started**. In particular, the role of international financial conglomerates has increased. Also, the rapid credit growth in Central and Eastern Europe—and the cross-border issues related to the role of foreign banks—was a much less prominent issue several years ago.

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[58] However, of the 25 EU countries, formal FSAP updates have so far been completed only for Hungary and Slovenia. FSAP updates for Ireland and Poland are ongoing.

### D. Survey of the Main FSAP Recommendations

108.    **In addition to the quantitative findings derived from gradings, several recurrent themes emerge from a qualitative survey of the main messages in overall FSAP assessments on EU countries**. This section reviews the available Financial System Stability Assessment (FSSA) reports for the EU member countries,[59] and it also presents results of a survey of IMF mission chiefs of FSAPs in EU countries. The main reason for going beyond the quantitative analysis of the previous section is that not all the principles have the same macro-relevance, and some issues are not at all covered by the standards. It is therefore important to combine the quantitative analysis of the gradings with a survey of the qualitative assessments in the FSAPs, which take a broader picture than standards alone and take into account the relevance of the various principles in the macroeconomic context of a country.

109.    **Overall, supervisory systems in most EU countries were described as being of high quality in the FSSAs**. Sixteen FSSAs (73 percent) explicitly declared that the financial system is well supervised, even though issues and gaps were identified in most cases, and substantial gaps were found in some NMS. This is consistent with the gradings summarized in Section C and Table III.3.

110.    **Most FSSAs in the EU countries highlighted the need to adjust the supervisory frameworks to meet new challenges, in particular those relating to cross-sector and cross-border financial integration**. A majority of FSSAs for EU member countries stressed that the consolidation of the financial markets has increased the importance of effective cooperation within and across national jurisdictions. In several countries, this issue was raised in the context of strengthening consolidated supervision.[60] Additionally, a number of EU FSSAs urged continued work, both domestically and internationally, in the areas of crisis management, deposit insurance, cross-border payment and settlements systems, and day-to-day cross-border supervisory cooperation. As a recent example, the 2006 FSAP on Belgium recommended that the supervisory agency positions itself to meet new challenges stemming from the following cross-sector and cross-border issues: (i) the dominant role of conglomerates in the domestic market and their increasingly international character; (ii) the demands of Basel II and Solvency II; (iii) the implementation of the Financial Services Action Plan and the ongoing integration within the European market; and (iv) the changes in, and special requirements of, new cross-border financial market infrastructures, such as Euronext and Euroclear. As another example, the 2004 FSAP for the Netherlands included key recommendations on cross-border securities settlements and cross-border crisis management, both of which required close cooperation with foreign counterparts, and a

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[59] This survey was based on FSSAs available for 22 EU countries (for Hungary and Slovenia, FSSAs from FSAP updates are available and were used instead of FSSAs from initial assessments). FSSAs from initial assessments for Denmark, Portugal, and Spain are not yet available.

[60] This is consistent with the finding of Section C that the principles on consolidated supervision have been among those with the lowest level of observance.

recommendation on the deposit guarantee system, suggesting to take account of the broader European context of depositor/investor protection arrangements.

111.     **Although cross-border issues were often noted as important in countries with extensive operation of international financial conglomerates, FSAPs usually devoted limited resources to analyzing these issues**. In particular, the perspective of the foreign parties (both official and private sector) involved was often not analyzed in depth. A survey of the IMF FSAP mission chiefs for the EU countries (Box III.1) suggests that this has primarily to do with resource constraints, and to some extent with constraint on access to data and the right people at foreign supervisors, which are less committed to FSAP in a foreign country. There are some examples of limited interactions with foreign parties (e.g., a discussion with the German BaFin during the U.K. FSAP, and discussions with Euroclear in London, Paris, and Amsterdam, and some Euroclear private sector customers during the Belgium FSAP), but most missions did not meet foreign supervisors, for resource reasons.

112.     **Addressing the cross-border issues will require much more than just satisfying the international standards**. Indeed, the average level of observance in the area of cross-border supervisory cooperation in terms of the gradings was relatively good in banking and securities regulation (which is why this issue did not appear among the least observed principles in Table III.8 and Section C).[61] The prominence of cross-border issues in the FSSAs reflected FSAP teams' assessment of risks and vulnerabilities related to cross-border exposures, rather than necessarily a sub-par observance of the (minimum) standards in the area of cross-border cooperation. Reflecting the importance of cross-border issues, teams in several recent FSAPs have met the relevant foreign supervisors. This approach is feasible in countries where the cross-border exposures are concentrated (e.g., some of the Central and Eastern European countries). However, where supervisors from a number of countries would have to be involved, this approach may not be feasible, for resource efficiency reasons, in a single-country FSAP.

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[61] The relatively good performance of course does not mean that all countries were fully compliant with these principles. For example, in banking, each of the two relevant BCP principles (CP24 and 25) was observed less than fully in 8 EU countries. Some of these cases were in the NMS countries and related to the need to engage more actively in cross-border information exchange; others were in the EU-15 countries and stemmed from relatively minor issues relating to licensing of foreign institutions and foreign branches of domestic institutions.

# Box III.1. Cross-Border Issues in FSAPs for EU Countries: A Survey

A survey of FSAP mission chiefs for EU countries suggests that cross-border issues have received attention in FSAPs, but FSAPs generally had limited resources that prevented covering these issues in depth. In most cases, the attention was driven by the presence of systemically important foreign banks, substantial foreign exposure of domestic banks, and in some new member states by foreign ownership of the banking system. In most FSAPs, coverage of cross-border issues was limited by resource constraints and access to data.

The United Kingdom FSAP (2003) focused on the role of London as an international financial center. Cross-border supervisory coordination was an important issue for the mission. The mission met with U.S. and German supervisors to get their perspectives on coordination with the U.K. supervisors. There was no substantial emphasis on cross-border crisis management.

The Lithuania FSAP mission (2002) saw cross-border issues as central to the financial system of this small, open economy, with considerable foreign ownership of financial sector assets. The prominence of these issues was emphasized by the (then) run-up to EU accession. However, the mission did not meet foreign supervisors or private sector representatives.

In the Netherlands (2004) and Belgium (2006) FSAPs, cross-border supervisory issues were important topics for the standards assessments. In addition, in the Netherlands, the general discussions and the vulnerability analysis focused on the substantial foreign operations of Dutch banks. Some FSAP recommendations related to the area of international coordination. In Belgium, both the issue of foreign operations of large Belgian banks and foreign ownership of some large Belgian banks were discussed. As the foreign operations of Belgian banks are mainly in Central and Eastern Europe, the systemic importance for the Belgian system was judged to be limited and no in-depth analysis was performed. The mission looked into the issue of cooperation with the Dutch supervisor, but did not meet foreign supervisors or private sector representatives.

The FSAPs for Norway (2005), Sweden (2002), and Finland (2001) highlighted cross-border issues as key aspects in the standards assessments. More generally, the scope for spillovers among the Nordic countries was seen as an important issue. Given the prominence of Swedish banks throughout the region, the stress tests and scenario analyses for the Swedish FSAP were based on the Nordic area. However, the mission was somewhat constrained by its limited capacity to analyze the exposures in the Nordic region in detail. In Finland and Norway, the issue was the foreign ownership of a systemically important bank. In Norway, an additional issue was the relatively generous Norwegian deposit insurance system, and its implications for cross-border banking. No meetings with foreign supervisors took place, but at the time of the Norway FSAP the regional Nordic-Baltic surveillance exercise was already being planned.

The Greece FSAP (2006) mentioned the lack of a cross-border crisis management framework, weak cooperation between Greek supervisors and the supervisors of other southeastern European countries and the associated lack of clarity on lender of last resort issues for Greek branches operating in southeastern European countries. In addition, differences in regulatory frameworks across the region raised concerns about regulatory arbitrage. After considering the costs and benefits, the mission decided not to meet with foreign supervisors or private sector representatives.

The ongoing Poland FSAP update (2006) mentions cross-border issues as important given that about three quarters of the banking system is foreign-owned. Cross-border issues were addressed as part of the stress tests, as part of a follow-up on standards assessments, and as part of more general discussions on the role of foreign-owned banks. However, in-depth analyses of the cross-border issues were to some extent overshadowed by domestic issues, and limited by time and resource constraints. For example, the mission did not meet with foreign supervisors and representatives of the foreign owners of the local banks.

113.     **The cross-border financial sector issues in Europe are not just those relating to home-host supervision; these other issues can be covered only superficially in the FSAP, given its country focus and resource constraints**. There are important cross-border issues relating to crisis management, safety nets, lender of last resort functions, and risk management in conglomerates. The cross-border dimension of these issues has been covered in FSAPs only to a limited extent (Box III.2). Outside the FSAP, two assessment with a heavy cross-border component were performed for the euro area, focusing on transparency in monetary and financial policies and payments systems regulations (IMF 2001). As the very nature of these issues was cross-border, the mission visited several major European countries.

114.     **Turning to other than cross-border issues, virtually all FSSAs highlighted the need to improve monitoring of new system-wide risks**. This was typically worded in terms of improvements in macroprudential surveillance processes and outputs, related to monitoring and analyzing new risks, implementing stress tests, and collecting and disseminating additional or more timely indicators.

115.     **Strengthening of regulations was proposed in specific segments**. Substantial improvements in insurance regulation were recommended most frequently (in about a half of the surveyed FSSAs), which is consistent with the relatively lower level of compliance in this area. In some FSSAs, regulators were urged to focus on certain types of activities (e.g., in several countries, risks related to large and growing portfolios of residential mortgage loans).

116.     **The need to strengthen regulatory governance was raised in a majority of FSSAs**. This is consistent with the quantitative findings of the previous section. The exact recommendations ranged from the need to reduce the potential for political interference in day-to-day supervision, to issues such as the need to strengthen the legal protection of supervisors, or the lack of budgetary independence.

117.     **Corporate governance and disclosures in the financial sector were also a recurrent theme**. About a third of the FSSAs highlighted the need for improvements in corporate governance of financial institutions and their public disclosures.

118.     **Other issues not explicitly covered by the standards have been prominent in some EU country FSAPs**. This includes the role of public ownership in the financial sector (e.g., in Germany) and the relationship between concentration, competition, and stability (e.g., in France and Italy). Prudential regulation can play a role, but only a secondary one, in addressing these issues.

**Box III.2. FSAP Coverage of Cross-Border Issues Other Than Home-Host Supervisory Cooperation**

**Crisis Management**. Crisis management of cross-border and cross-sector conglomerates necessarily involves authorities from different countries and sectors. Recognizing this point, national authorities increasingly focus on international cooperation and information exchange. At the European level, there is the 2003 Memorandum of Understanding (MoU) between supervisors and central banks and the 2005 MoU between ministries of finance, supervisors, and central banks. These MoUs center on information exchange in normal times as well as in times of crisis. The functioning of the MoUs in times of crisis remains untested (even though the authorities have recently started performing crisis exercises to improve coordination and test communications), and the issue of who will be responsible for the costs of a cross-border crisis has not been tackled. Although every crisis is different and hence it would be difficult to spell out who would be responsible for the costs in all different eventualities, this issue requires further thought. Possible issues for discussion could include whether it would be sensible to set up a primary responsible institution analogous to the model of the lead supervisor and whether it might be worthwhile to consider setting up a contact group dealing with these issues, which could take decisions quickly and efficiently in times of crises. Another issue is the lack of a mandate to take externalities in other countries into account when making decisions on crisis management. As no supervisor with a supranational mandate exists in Europe, responsibilities and objectives of the current supervisors are not aligned to take full account of possible impacts abroad when taking steps in crisis management at home. *The scope of the FSAP, as a program for individual countries, has generally limited analysis of these issues.*

**Safety nets**. The EU Directive on deposit-guarantee schemes has provided a basis for some harmonization in deposit insurance arrangements. All EU countries have adopted an explicit deposit insurance scheme with compulsory participation, but the minimum coverage limit currently falls short of the minimum in some jurisdictions which are under transitional arrangements after their recent accession. However, practical arrangements with respect to coverage limits, funding, and co-insurance differ substantially across EU members. These substantial differences have led the European Commission (EC) to undertake a wide-ranging review of deposit insurance arrangements. The EC's review provided three main reasons for further harmonization of deposit guarantee schemes: (i) to avoid possible competitive distortions; (ii) to avoid possible (dis)incentives for banks to elect to change the location of their corporate seat; and (iii) to ease crisis management procedures. In addition to issues raised by the Commission, some other challenges with respect to the existing deposit insurance regime exist, in particular the issue of whether the minimum coverage limits prescribed by the directive are appropriate for the new member states, given their level of development. The main challenge remains how to adapt or harmonize the current arrangements in order to diminish distortions. *The FSAPs have reviewed safety nets in individual countries, but have not analyzed the related EU-wide issues.*

**Lender of Last Resort Issues**. There exists potential for tension between the roles of the National Central Banks and the ECB as providers of emergency liquidity. National Central Banks remain responsible for the decision to provide emergency liquidity assistance in case of idiosyncratic shocks and bear the associated costs. Meanwhile, the ESCB is responsible for systemic liquidity issues. In practice, however, in a situation of considerable stress and under time pressure, the distinction between the two may not be clear-cut. *The scope of the FSAP, as a program for individual countries, has prohibited analysis of this issue.*

**Risk Management in Conglomerates**. International financial conglomerates have organized their sophisticated risk management capabilities in different ways. Most conglomerates feature some form of centralized (group) risk management, but most conglomerates have not centralized all their risk management functions. *In cases where an important part of risk management takes place abroad, the FSAP analysis is limited in its potential to assess the regulatory and supervisory regimes involved. In addition, bottom-up stress tests of such conglomerates might not reflect the full nature of risks presented by a particular scenario when the foreign risk management team has not been involved in the exercise.*

## E.  Conclusions

119.    **The main finding of this chapter is that supervisory systems in the EU are generally of a high quality, but notable gaps and issues remain**. Based on the assessments of compliance with international standards, supervisory systems in the EU were judged to be of a higher and more even quality than those in comparable non-EU countries. However, there were still gaps to be addressed to achieve full compliance with the international standards: the overall level of compliance in the EU was 79–85 percent (compared with 100 percent for full compliance) and not a single principle was observed fully by all EU countries. Moreover, many FSAP have noted that the authorities need to prepare for new challenges, including those from the increased role of conglomerates in their domestic markets and their increasingly international character.

120.    **The analysis in this chapter allows to identify what is needed to achieve one of the key strategic objectives of the EU's Financial Services Action Plan (EU-FSAP), namely "state-of-the-art prudential rules and supervision."**[62] Given that the EU countries have a higher overall degree of compliance and lower cross-country variability than comparable non-EU countries, it might be argued that the regulatory frameworks in the EU are already "state-of-the-art." However, an analysis of the FSAP recommendations suggests that there is still a need to (i) close gaps in the existing framework; and (ii) adjust the framework to emerging challenges.

121.    **To close the gaps in the existing framework, it is important to bring the quality of supervision in the EU to full compliance with the international standards**. Table III.9 and Section C provide a concise summary of areas where improvements were recommended most often; for each principle, at least one and in some cases as many as 16 EU countries were found in need of improved observance. Some of these gaps are relatively small and may have been closed already, as the country authorities have addressed some of the FSAP recommendations since the respective missions; however, new issues have emerged as the financial systems have become more integrated. Moreover, it is important to bear in mind that the gradings analyzed here are based only on the minimum requirements for each principle. Regulatory frameworks in advanced financial systems, such as those in the EU, should be expected to exceed these standards by wide margins. The BCP, for example, incorporates for this purpose also several additional criteria, going above the minimum

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[62] Given that the FSAP assessments were carried out country-by-country over a period of 7 years, and that for most countries there was only one assessment, it would be a stretch to use this approach to analyze progress with respect to the stated criteria in the EU-FSAP. Nonetheless, the presented approach allows to confirm—looking backward—that there was a need for the EU-FSAP, and indicate—looking forward—areas on which the reform program should focus.

("essential") criteria.[63] In addition, the standards themselves are becoming more challenging. For example, a set of consultative documents has been circulated for public comments by June 2006 to strengthen the BCP. The draft revisions suggest that the standard will be adapted to changes that have occurred since the BCP's creation in 1997 (in particular, the development of cross-border banking and the increased importance of improved supervisory cooperation). Several new "best practices" have been included among "additional criteria," which countries with advanced banking systems should aim for. Also, even though implementation of Basel II is not a prerequisite for compliance with the minimum criteria in the BCP, the proposed BCP revision incorporates a number of sound supervisory practices (e.g., in the areas of risk management and disclosure), which are also a part of Basel II.

122. **Perhaps even more importantly, the supervisory and regulatory authorities should position themselves to address emerging challenges**. The survey of main FSAP findings suggests that these are, in particular, challenges stemming from: (i) the dominant role of conglomerates in their domestic markets and their increasingly international character; (ii) the ongoing integration within the European market; and (iii) the changes in, and special requirements of, new cross-border financial market infrastructures, such as Euronext and Euroclear. A number of EU FSSAs urged continued work, both domestically and internationally, in the areas of crisis management, deposit insurance, and day-to-day cross-border supervisory cooperation. Many of the EU FSSAs also highlighted the need to improve system-wide monitoring of risks. Addressing all these recommendations would be quite difficult on a single-country basis and may require more intensive EU-wide cooperation.

123. **A fuller assessment of EU-wide regulatory and supervisory framework issues is difficult on the basis of country-level FSAPs**. The analysis presented in this chapter is based on assessments conducted at different points in time. This means that its findings are only a broad approximation of the current state of affairs. Moreover, the individual country FSAPs were focused on country-specific issues rather than EU-wide issues. Even though the assessments covered cross-border supervisory arrangements, they could not satisfactorily tackle the main EU-wide issues, such as cross-border crisis management, systemic liquidity support, cross-border payments and settlements systems, deposit insurance systems, the Lamfalussy process, and the de facto day-to-day implementation of cross-border supervisory coordination.

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[63] The notion that financial sector regulation must exceed the minimum standards is consistent in the EU-FSAP. The action plan noted that urgent headway must be made to (i) eliminate any lacunae in the EU prudential framework, arising from new forms of financial business or globalization; (ii) set rigorous and appropriate standards so that the EU banking sector can successfully manage intensification of competitive pressures; (iii) contribute to the development of EU supervisory structures so that they can sustain stability and confidence in an era of changing market structures and globalization; (iv) develop a regulatory and supervisory approach

(continued…)

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that will serve as the basis for successful enlargement; and (v) enable the EU to assume a key role in setting high global standards for regulation and supervision, including financial conglomerates.

Table III.1. EU Countries: Overview of FSAP Participation
(As of June 26, 2006)

| | Country | FSAP Year 1/ | Public Availability | |
|---|---|---|---|---|
| | | | FSSA | Detailed Assessment 2/ |
| 1 | Austria | 2004 | Yes | No |
| 2 | Belgium | 2006 | Yes | No |
| 3 | Cyprus | 2001 (OFC) | Yes | No |
| 4 | Czech Republic | 2001 | Yes | No |
| 5 | Denmark 3/ | 2006 | No | No |
| 6 | Estonia 4/ | 2000 | No | No |
| 7 | Finland | 2001 | Yes | No |
| 8 | France | 2004 | Yes | Yes |
| 9 | Germany | 2003 | Yes | No 1/ |
| 10 | Greece | 2006 | Yes | No |
| 11 | Hungary 4/ | 2000 (initial) | No | No |
| | | 2005 (update) | Yes | No 1/ |
| 12 | Ireland 4/ | 2000 | Yes | No |
| 13 | Italy | 2006 | Yes | Yes |
| 14 | Latvia | 2002 | Yes | No |
| 15 | Lithuania | 2002 | Yes | No |
| 16 | Luxembourg | 2002 | Yes | No |
| 17 | Malta | 2003 | Yes | No |
| 18 | Netherlands | 2004 | Yes | Yes |
| 19 | Poland | 2001 | Yes | No |
| 20 | Portugal 3/ | 2006 | No | No |
| 21 | Slovak Republic | 2002 | Yes | No |
| 22 | Slovenia | 2001 (initial) | Yes | No |
| | | 2004 (update) | Yes | No |
| 23 | Spain 3/ | 2006 | Yes | Yes |
| 24 | Sweden | 2002 | Yes | No |
| 25 | United Kingdom | 2003 | Yes | Yes |

Source: IMF's FSAP tracking database.

Notes:

1/ Calendar year of the Board discussion of the Financial System Stability Assessment (FSSA).

2/ Detailed Assessment is the assessment of compliance with financial sector standards. Summaries of the assessments (without the underlying gradings) are contained in the FSSA.

3/ Ongoing; analysis based on draft assessments.

4/ Part of the pilot program, when publication was not an option.

Table III.2. Overview of Economies Included in the Survey 1/

| EU | Non-EU |
|---|---|

Advanced Economies (EU-15)　　　　　Advanced Economies

| EU | | Non-EU | |
|---|---|---|---|
| 1 | Austria | 1 | Australia |
| 2 | Belgium | 2 | Canada |
| 3 | Denmark | 3 | Hong Kong SAR |
| 4 | Finland | 4 | Iceland |
| 5 | France | 5 | Israel |
| 6 | Germany | 6 | Korea |
| 7 | Greece | 7 | Japan |
| 8 | Ireland | 8 | New Zealand |
| 9 | Italy | 9 | Norway |
| 10 | Luxembourg | 10 | Singapore |
| 11 | Netherlands | 11 | Switzerland |
| 12 | Portugal | | |
| 13 | Spain | | |
| 14 | Sweden | | |
| 15 | United Kingdom | | |

Emerging Markets (New Member States)　　　Emerging Markets

| EU | | Non-EU | |
|---|---|---|---|
| 1 | Czech Republic | 1 | Brazil |
| 2 | Cyprus | 2 | Bulgaria |
| 3 | Estonia | 3 | Chile |
| 4 | Hungary | 4 | Croatia |
| 5 | Latvia | 5 | Mexico |
| 6 | Lithuania | 6 | Philippines |
| 7 | Malta | 7 | Romania |
| 8 | Poland | 8 | Russia |
| 9 | Slovak Republic | 9 | South Africa |
| 10 | Slovenia | | |

Note:

1/ The classification of advanced economies used in this paper follows the country classification in the IMF's World Economic Outlook (IMF, 2006). The only exception is Cyprus, classified as an advanced economy in the WEO, but compared here with emerging markets because it is one of the New Member States. The results do not change qualitatively if Cyprus is instead classified as advanced economy.

Table III.3. Banking, Insurance, and Securities Regulation: Overall Observance 1/

| | Average 2/ | | | Standard deviation 2/ | | | Maximum 2/ | | Minimum 2/ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | EU | Non-EU | Diff. 3/ | EU | Non-EU | Diff. 3/ | EU | Non-EU | EU | Non-EU |
| **All Economies** | | | | | | | | | | |
| Banking (summary) | 84.2 | 79.7 | 4.5 | 14.1 | 25.2 | -11.1 | 100.0 | 100.0 | 50.9 | 25.8 |
| Reg. governance | 85.0 | 83.1 | 1.9 | 18.4 | 20.1 | -1.7 | 100.0 | 100.0 | 36.1 | 33.3 |
| Prud. framework | 85.7 | 81.3 | 4.4 | 14.5 | 24.2 | -9.8 | 100.0 | 100.0 | 50.0 | 27.8 |
| Reg. practices | 82.5 | 76.4 | 6.1 | 15.3 | 27.0 | -11.7 | 100.0 | 100.0 | 46.7 | 20.0 |
| Fin. integrity, safety nets | 83.3 | 76.7 | 6.7 | 15.2 | 27.1 | -11.9 * | 100.0 | 100.0 | 50.0 | 16.7 |
| Insurance (summary) | 78.5 | 71.4 | 7.2 | 25.1 | 27.6 | -2.5 | 100.0 | 100.0 | 33.3 | 25.5 |
| Reg. governance | 78.8 | 59.0 | 19.8 * | 22.5 | 20.0 | 2.5 | 100.0 | 100.0 | 33.3 | 33.3 |
| Prud. framework | 78.3 | 70.9 | 7.5 | 15.2 | 16.8 | -1.7 | 100.0 | 100.0 | 51.9 | 51.9 |
| Reg. practices | 78.3 | 70.9 | 7.5 | 15.2 | 16.8 | -1.7 | 100.0 | 100.0 | 51.9 | 51.9 |
| Fin. integrity, safety nets | 74.4 | 61.9 | 12.5 | 18.8 | 28.8 | -10.0 | 100.0 | 100.0 | 50.0 | 16.7 |
| Securities (summary) | 84.6 | 71.9 | 12.6 * | 14.5 | 19.2 | -4.7 | 100.0 | 94.4 | 52.2 | 34.4 |
| Reg. governance | 86.0 | 75.3 | 10.7 * | 16.2 | 18.4 | -2.1 | 100.0 | 100.0 | 9.5 | 33.3 |
| Prud. framework | 84.6 | 65.1 | 19.5 * | 19.0 | 21.9 | -2.9 | 100.0 | 95.2 | 19.0 | 28.6 |
| Reg. practices | 87.7 | 72.8 | 15.0 * | 14.1 | 25.0 | -10.9 * | 100.0 | 100.0 | 22.2 | 29.2 |
| Fin. integrity, safety nets | 80.4 | 74.1 | 6.3 | 18.8 | 20.1 | -1.3 | 100.0 | 100.0 | 11.1 | 42.9 |
| **Advanced Economies** | | | | | | | | | | |
| Banking (summary) | 91.6 | 86.0 | 5.6 | 6.7 | 22.8 | -16.0 * | 100.0 | 100.0 | 75.6 | 37.6 |
| Reg. governance | 91.9 | 89.4 | 2.5 | 12.5 | 17.2 | -4.7 | 100.0 | 100.0 | 66.7 | 50.0 |
| Prud. framework | 93.3 | 89.3 | 4.0 | 6.9 | 18.8 | -11.9 | 100.0 | 100.0 | 77.8 | 47.2 |
| Reg. practices | 90.2 | 82.7 | 7.5 | 9.4 | 27.9 | -18.6 * | 100.0 | 100.0 | 66.7 | 20.0 |
| Fin. integrity, safety nets | 90.0 | 78.8 | 11.2 * | 8.5 | 27.3 | -18.9 * | 100.0 | 100.0 | 83.3 | 33.3 |
| Insurance (summary) | 86.0 | 77.5 | 8.5 | 18.9 | 24.0 | -5.1 | 100.0 | 98.0 | 58.8 | 43.1 |
| Reg. governance | 85.7 | 61.1 | 24.6 * | 17.8 | 13.6 | 4.2 | 100.0 | 66.7 | 66.7 | 33.3 |
| Prud. framework | 87.3 | 74.7 | 12.6 * | 18.6 | 26.0 | -7.4 | 100.0 | 100.0 | 59.3 | 40.7 |
| Reg. practices | 87.3 | 74.7 | 12.6 * | 18.6 | 26.0 | -7.4 | 100.0 | 100.0 | 59.3 | 40.7 |
| Fin. integrity, safety nets | 85.7 | 75.0 | 10.7 | 18.9 | 27.6 | -8.7 | 100.0 | 100.0 | 50.0 | 33.3 |
| Securities (summary) | 89.9 | 81.6 | 8.3 | 11.6 | 14.4 | -2.7 | 100.0 | 94.4 | 62.2 | 58.6 |
| Reg. governance | 91.3 | 84.9 | 6.4 | 8.8 | 10.6 | -1.8 | 100.0 | 100.0 | 71.4 | 71.4 |
| Prud. framework | 89.5 | 75.4 | 14.1 * | 12.9 | 17.4 | -4.6 | 100.0 | 95.2 | 71.4 | 52.4 |
| Reg. practices | 91.7 | 79.2 | 12.5 | 14.0 | 23.4 | -9.4 | 100.0 | 100.0 | 58.3 | 33.3 |
| Fin. integrity, safety nets | 87.5 | 86.5 | 1.0 | 16.4 | 19.3 | -3.0 | 100.0 | 100.0 | 50.0 | 52.4 |
| **Emerging Markets** | | | | | | | | | | |
| Banking (summary) | 73.1 | 72.0 | 1.1 | 15.2 | 25.0 | -9.8 | 93.3 | 98.9 | 50.9 | 33.7 |
| Reg. governance | 74.7 | 75.5 | -0.8 | 21.4 | 21.0 | 0.4 | 100.0 | 100.0 | 36.1 | 38.9 |
| Prud. framework | 74.3 | 71.6 | 2.7 | 15.6 | 25.0 | -9.4 * | 94.4 | 97.2 | 50.0 | 30.6 |
| Reg. practices | 71.0 | 68.6 | 2.4 | 15.6 | 23.4 | -7.8 * | 93.3 | 96.7 | 46.7 | 36.7 |
| Fin. integrity, safety nets | 73.3 | 74.1 | -0.7 | 17.9 | 27.3 | -9.3 | 100.0 | 100.0 | 50.0 | 33.3 |
| Insurance (summary) | 68.3 | 64.8 | 3.5 | 29.0 | 29.9 | -0.9 | 100.0 | 98.0 | 25.5 | 33.3 |
| Reg. governance | 66.7 | 57.1 | 9.5 | 27.2 | 25.2 | 2.0 | 100.0 | 100.0 | 33.3 | 33.3 |
| Prud. framework | 67.9 | 66.7 | 1.2 | 29.7 | 29.3 | 0.4 | 100.0 | 96.3 | 25.9 | 29.6 |
| Reg. practices | 67.9 | 66.7 | 1.2 | 29.7 | 29.3 | 0.4 | 100.0 | 96.3 | 25.9 | 29.6 |
| Fin. integrity, safety nets | 56.9 | 50.0 | 6.9 | 40.5 | 36.4 | 4.1 * | 100.0 | 100.0 | 16.7 | 0.0 |
| Securities (summary) | 77.0 | 65.5 | 11.5 | 15.7 | 20.0 | -4.3 | 90.0 | 88.9 | 52.2 | 34.4 |
| Reg. governance | 78.4 | 68.9 | 9.5 | 21.7 | 20.1 | 1.6 | 100.0 | 90.5 | 33.3 | 33.3 |
| Prud. framework | 77.6 | 58.2 | 19.3 | 24.9 | 22.7 | 2.2 | 100.0 | 90.5 | 28.6 | 28.6 |
| Reg. practices | 82.1 | 68.5 | 13.6 | 13.1 | 26.4 | -13.3 * | 100.0 | 100.0 | 58.3 | 29.2 |
| Fin. integrity, safety nets | 70.2 | 65.9 | 4.4 | 18.4 | 16.8 | 1.6 | 91.7 | 91.7 | 37.5 | 42.9 |

Source: Financial sector standards and codes assessments under the FSAP.

Notes:

1/ For each country, the summary grading of a standard (BCP, ICP, and IOSCO) is calculated as the average grading of the principles in the standard. For each principle, 100 is the maximum grading (observance), and 0 is the minimum grading (no observance). For the definitions of the four components of each summary grading, see Table 6.

2/ Calculated across the countries in the sample.

3/ The value for the EU countries minus the value for the non-EU countries.

* Indicates that the difference is significant at a 10 percent level in tests of equality of means and variance, respectively.

Table III.4. Basel Core Principles for Effective Banking Supervision (BCP): "Dictionary" 1/

| Principle No. | Topic | Component 2/ |
|:---:|:---|:---:|
| 1 | Objectives, Autonomy, Powers, And Resources | REG |
| 2 | Permissible Activities | PRF |
| 3 | Licensing Criteria | PRF |
| 4 | Ownership | PRF |
| 5 | Investment Criteria | REP |
| 6 | Capital Adequacy | REP |
| 7 | Credit Policies | REP |
| 8 | Loan Evaluation and Loan-Loss Provisioning | REP |
| 9 | Large Exposure Limits | REP |
| 10 | Connected Lending | REP |
| 11 | Country Risk | REP |
| 12 | Market Risks | REP |
| 13 | Other Risks | REP |
| 14 | Internal Control and Audit | REP |
| 15 | Money Laundering | FIN |
| 16 | On-Site and Off-Site Supervision | PRF |
| 17 | Bank Management Contact | PRF |
| 18 | Off-Site Supervision | PRF |
| 19 | Validation of Supervisory Information | REG |
| 20 | Consolidated Supervision | PRF |
| 21 | Accounting Standards | FIN |
| 22 | Remedial Measures | PRF |
| 23 | Globally Consolidated Supervision | PRF |
| 24 | Host Country Supervision | PRF |
| 25 | Supervision Over Foreign Banks' Establishment | PRF |

Notes:

1/ See http://www.imf.org/external/standards/index.htm for further details on the assessment methodology.

2/ See IMF (2004) for more details. REG is regulatory governance, PRF is prudential framework, REP are regulatory practices, and FIN is financial integrity and safety nets.

Table III.5. International Association of Insurance Supervisors Insurance Core Principles
(ICP): "Dictionary" 1/

| Principle | Topic | Component |
|---|---|---|
| | **2000 IAIS standard** | |
| 1 | Organisation of the supervisor | REG |
| 2 | Licensing | PRF |
| 3 | Changes in control | PRF |
| 4 | Corporate governance | PRF |
| 5 | Internal controls | PRF |
| 6 | Assets | REP |
| 7 | Liabilities | REP |
| 8 | Capital adequacy and solvency | PRF |
| 9 | Derivatives and off-balance sheet items | REP |
| 10 | Reinsurance | REP |
| 11 | Market conduct | FIN |
| 12 | Financial reporting | PRF |
| 13 | On-site inspection | PRF |
| 14 | Sanctions | REP |
| 15 | Cross-border business operations | PRF |
| 16 | Coordination and cooperation | REP |
| 17 | Confidentiality | PRF |
| | **2003 IAIS standard** | |
| 1 | Conditions for effective insurance supervision | REG |
| 2 | Supervisory objectives | REG |
| 3 | Supervisory authority | REG |
| 4 | Supervisory process | REG |
| 5 | Supervisory cooperation and information sharing | REP |
| 6 | Licensing | REP |
| 7 | Suitability of persons | REP |
| 8 | Changes in control and portfolio transfers | REP |
| 9 | Corporate governance | PRF |
| 10 | Internal control | PRF |
| 11 | Market analysis | REP |
| 12 | Reporting to supervisors and off-site monitoring | REP |
| 13 | On-site inspection | REP |
| 14 | Preventive and Corrective Measures | REP |
| 15 | Enforcement or sanctions | REP |
| 16 | Winding-up and exit from the market | REP |
| 17 | Group-wide supervision | REP |
| 18 | Risk assessment and management | PRF |
| 19 | Insurance activity | PRF |
| 20 | Liabilities | REP |
| 21 | Investments | REP |
| 22 | Derivatives and similar commitments | REP |
| 23 | Capital adequacy and solvency | PRF |
| 24 | Intermediaries | FIN |
| 25 | Consumer protection | FIN |
| 26 | Information, disclosure & transparency towards the market | FIN |
| 27 | Fraud | FIN |
| 28 | Anti-money laundering, combating the financing of terrorism (AML/CFT) | FIN |

1/ See http://www.imf.org/external/standards/index.htm for further details on the assessment methodology.

Table III.6. Securities Regulation (IOSCO) Principles: "Dictionary"

| Principle | Topic | Component |
|---|---|---|
| 1 | Responsibilities of the regulator | REG |
| 2 | Operational independence and accountability | REG |
| 3 | Powers, resources, and capacity to perform the functions and exercise the powers. | REG |
| 4 | Clear and consistent regulatory processes. | REG |
| 5 | Professional standards including standards of confidentiality | REG |
| 6 | Appropriate use of Self-Regulatory Organizations (SROs) | REG |
| 7 | Standards for SROs | REG |
| 8 | Comprehensive inspection, investigation and surveillance powers | PRF |
| 9 | Comprehensive enforcement powers | PRF |
| 10 | Effective and credible use of inspection, investigation, surveillance and enforcement powers and implementation of an efective compliance program. | PRF |
| 11 | Authority to share both public and non-public information with domestic and foreign counterparts | PRF |
| 12 | Setting up information sharing mechanisms | PRF |
| 13 | Assistance foreign regulators who need to make inquiries in the discharge of their functions and exercise of their powers. | PRF |
| 14 | Full, accurate and timely disclosure of financial results and other information that is material to investors' | FIN |
| 15 | Fair and equitable treatment of holders of securities in a company | FIN |
| 16 | High and internationally acceptable quality of accounting and auditing standards | FIN |
| 17 | Standards for the eligibility and the regulation of those who wish to market or operate a collective investment scheme | REP |
| 18 | Rules governing the legal form and structure of collective investment schemes and the segregation and protection of client assets | REP |
| 19 | Disclosure necessary to evaluate the suitability of a collective investment scheme for a particular investor and the value of the investor's interest in the scheme | FIN |
| 20 | Proper and disclosed basis for asset valuation and the pricing and the redemption of units in a collective investment scheme | REP |
| 21 | Minimum entry standards for market intermediaries | REP |
| 22 | There should be initial and ongoing capital and other prudential requirements for market intermediaries that | REP |
| 23 | Standards for internal organization and operational conduct | REP |
| 24 | Procedure for dealing with the failure of a market intermediary | FIN |
| 25 | Regulatory authorization and oversight of the establishment of trading systems | REP |
| 26 | Ongoing regulatory supervision of exchanges and trading systems | FIN |
| 27 | Transparency of trading. | REP |
| 28 | Detecting and detering manipulation and other unfair trading practices. | FIN |
| 29 | Proper management of large exposures, default risk and market disruption. | PRF |
| 30 | Systems for clearing and settlement of securities transactions | FIN |

Notes:

1/ See http://www.imf.org/external/standards/index.htm for further details on the assessment methodology.

2/ See IMF (2004) for more details. REG is regulatory governance, PRF is prudential framework, REP are regulatory practices, and FIN is financial integrity and safety nets.

Table III.7. Financial Standards and Their Four Main Components

| Four Main Components (Abbreviation) | Sub-components | Sector (Principles) | | |
|---|---|---|---|---|
| | | Banking (BCP) | Insurance (ICP) 1/ | Securities (IOSCO) |
| **Regulatory Governance (REG)** | Objectives of regulation<br>Independence and adequate resources<br>Enforcement powers and capabilities<br>Clarity and transparency of regulatory process<br>External participation | 1, 19 | 2000 IAIS: 1<br><br>2003 IAIS: 1,2,3,4 | 1,2,3,4,5,6, 7 |
| **Prudential Framework (PRF)** | Risk management<br>Risk concentration<br>Capital requirements<br>Corporate governance<br>Internal controls | 2,3,4,6,16, 17,18,20,22, 23,24, 25 | 2000 IAIS: 2,3,4,5,12, 13,15,16, 17<br>2003 IAIS: 9,10,18,19, 23 | 8,9,10,11,12, 13, 29. |
| **Regulatory Practices (REP)** | Group-wide supervision<br>Monitoring and on-site inspection<br>Reporting to supervisors<br>Enforcement<br>Cooperation and information sharing<br>Confidentiality<br>Licensing, ownership transfer, corporate control<br>Qualifications | 5,6,7,8,9,10, 11,12,13, 14 | 2000 IAIS: 6,7,9, 10, 14, 16<br>2003 IAIS: 5,6,7,8,11, 12,13,14, 15,16,17,18, 20.21.22 | 17,18,20,21, 22, 23,25, 27 |
| **Financial Integrity and Safety Nets (FIN)** | Markets (integrity, financial crime)<br>Customer protection<br>Information, disclosure, transparency | 15, 21 | 2000 IAIS: 11<br>2003 IAIS: 24,25,26,27, 28 | 14,15,16,19, 24, 26, 28, 30 |

Source: Adapted from IMF (2004).
Note:
1/ For each component, the upper row corresponds to the original (2000) IAIS standard, and the lower row corresponds to the revised (2003) IAIS standard.

Table III.8. Supervisory Principles That Are Observed the Least in the EU 1/

| | Lagging Countries 2/ | | Summary |
| | Percent of all assessed | Number | Compliance 3/ |
| --- | --- | --- | --- |
| Banking | | | |
| CP13 Other Risks | 64 | 16 of 25 | 75 |
| CP10 Connected Lending | 60 | 15 of 25 | 72 |
| CP15 Money Laundering | 60 | 15 of 25 | 79 |
| CP1 Objectives, Autonomy, Powers, And Resources | 60 | 15 of 25 | 85 |
| CP22 Remedial Measures | 52 | 13 of 25 | 75 |
| CP20 Consolidated Supervision | 52 | 13 of 25 | 75 |
| Insurance | | | |
| CP11 Market Conduct | 69 | 9 of 13 | 64 |
| CP5 Internal Controls | 69 | 9 of 13 | 64 |
| CP9 Derivatives and off-balance sheet items | 69 | 9 of 13 | 67 |
| CP1 Organization of Supervisor | 62 | 8 of 13 | 79 |
| CP4 Corporate Governance | 54 | 7 of 13 | 67 |
| CP6 Assets | 54 | 7 of 13 | 74 |
| CP13 On-site Inspection | 54 | 7 of 13 | 77 |
| CP2 Licensing | 54 | 7 of 13 | 82 |
| CP15 Cross-border Business Operations | 54 | 7 of 13 | 85 |
| Securities | | | |
| Q10 Enforcement powers, compliance program | 53 | 9 of 17 | 67 |
| Q22 Capital and other prudential requirements | 53 | 9 of 17 | 69 |
| Q03 Powers, resources, capacity | 53 | 9 of 17 | 69 |
| Q02 Operational independence and accountability | 53 | 9 of 17 | 71 |

1/ The table lists principles that were not fully observed by more than a half of the assessed EU countries. For each sector, the principles are ordered starting from the worst, defined by the percentage of less-than-fully observant countries (descending), and then by the grading (ascending).
2/ Percent of EU countries with less than full compliance with the principle.
3/ Average over the EU countries (100=full compliance, 0=no compliance).

Figure III.1. Banking, Insurance, and Securities Regulation: Overall Observance
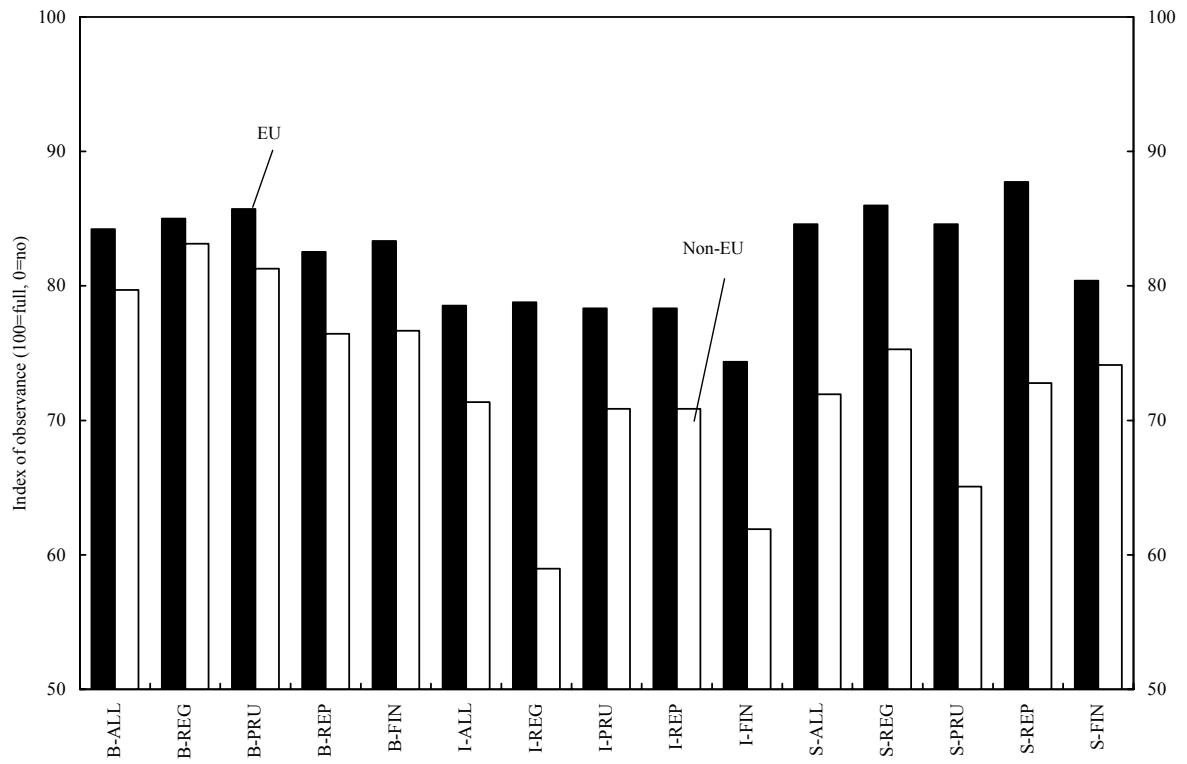


Note: Summary and component gradings shown on the horizontal axis. B, I, and S stand for banking, insurance, and securities, respectively; the remaining part of the abbreviations is explained in Table III.7.

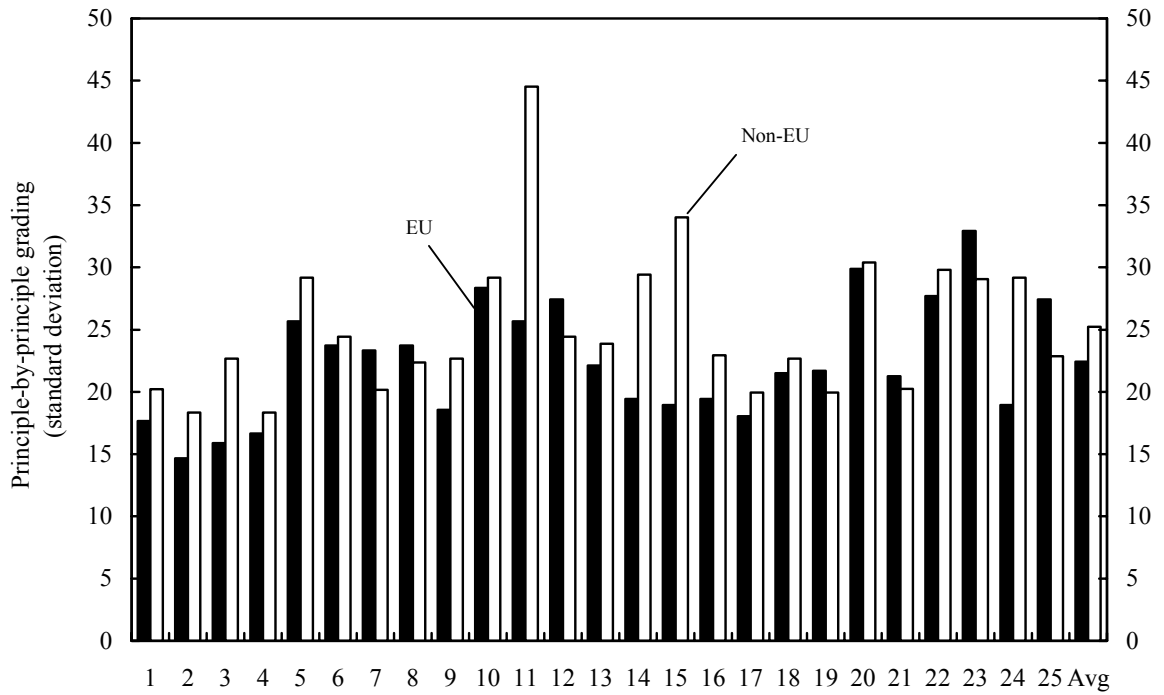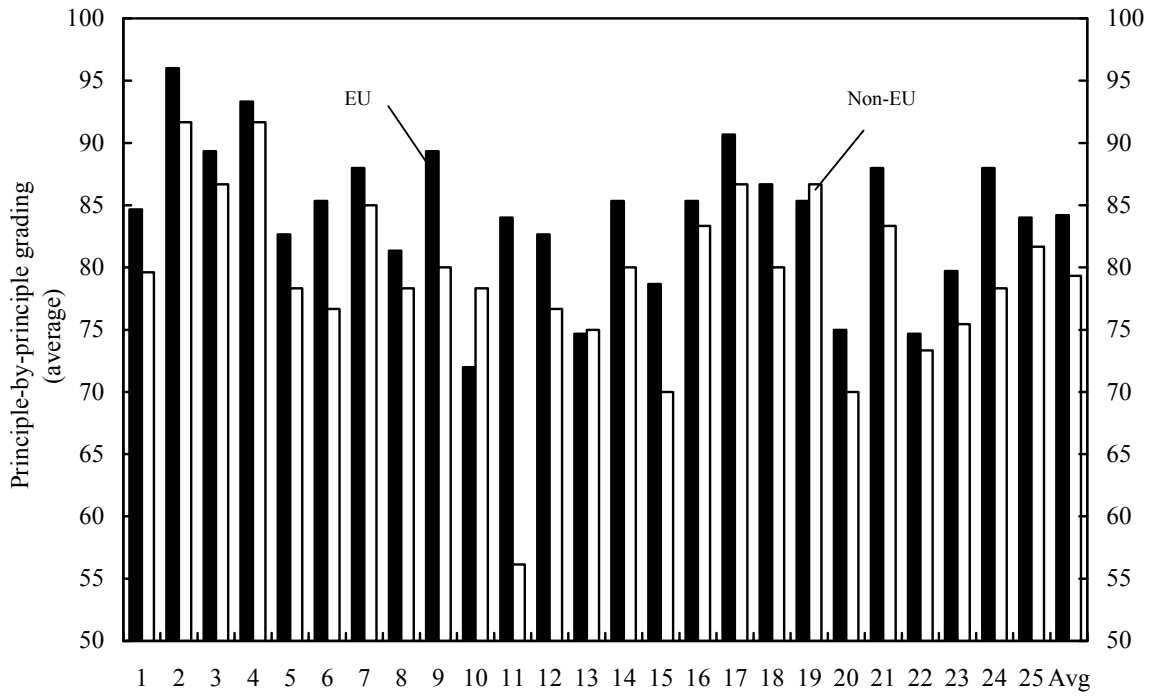Figure III.2. EU vs. Non-EU Countries: Basel Core Principles
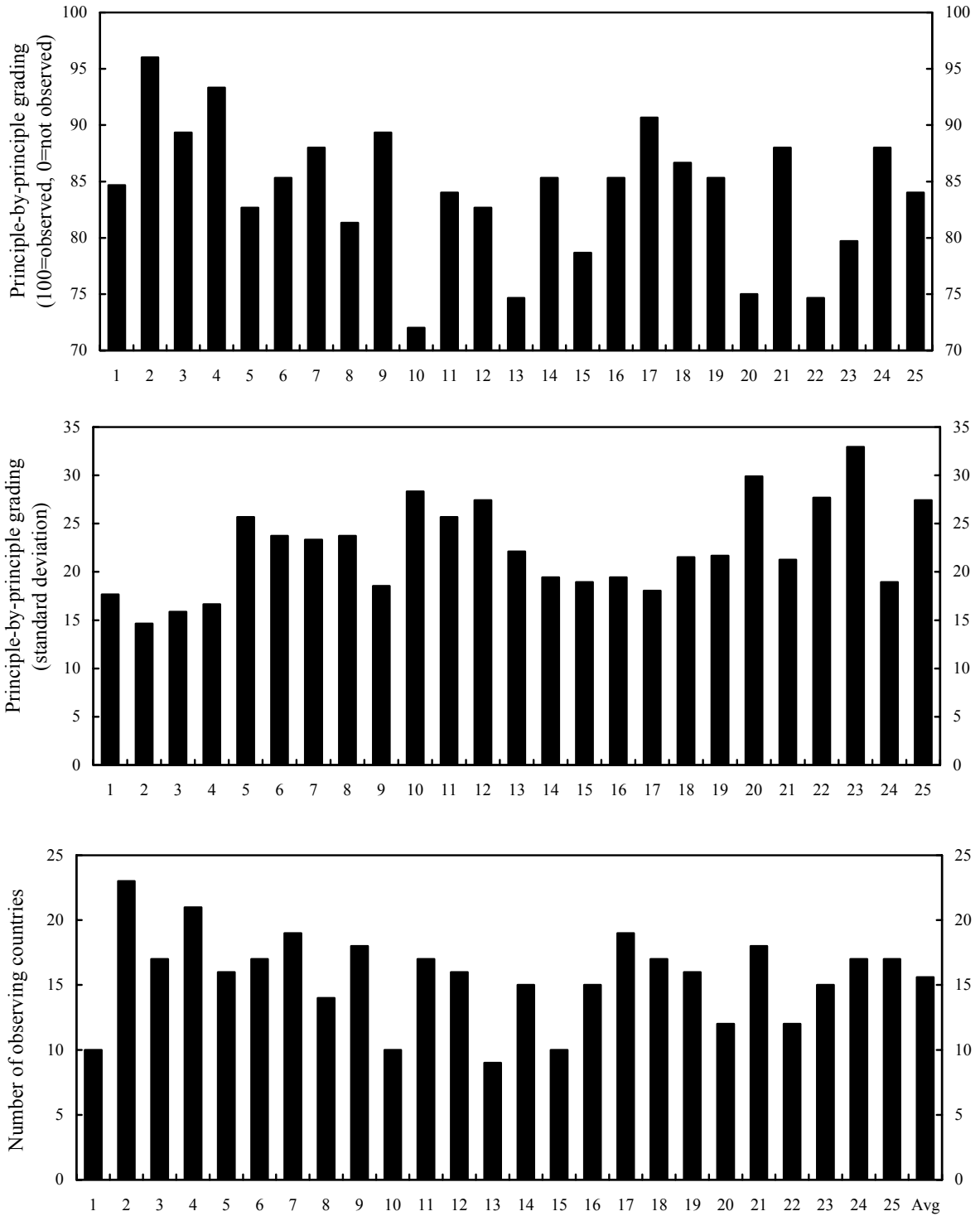
Figure III.3. EU: Basel Core Principles—Closer Look

Figure III.4. EU: Basel Core Principles (EU-15 and NMS)
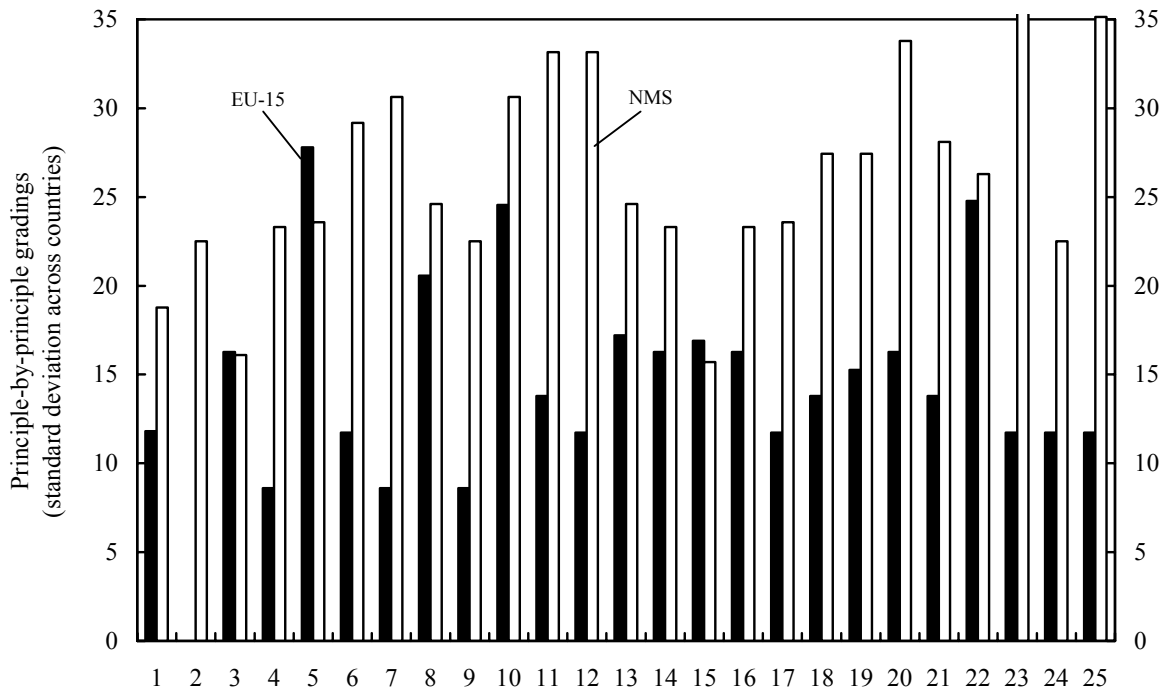
Figure III.5. EU vs. Non-EU Countries: Insurance Core Principles
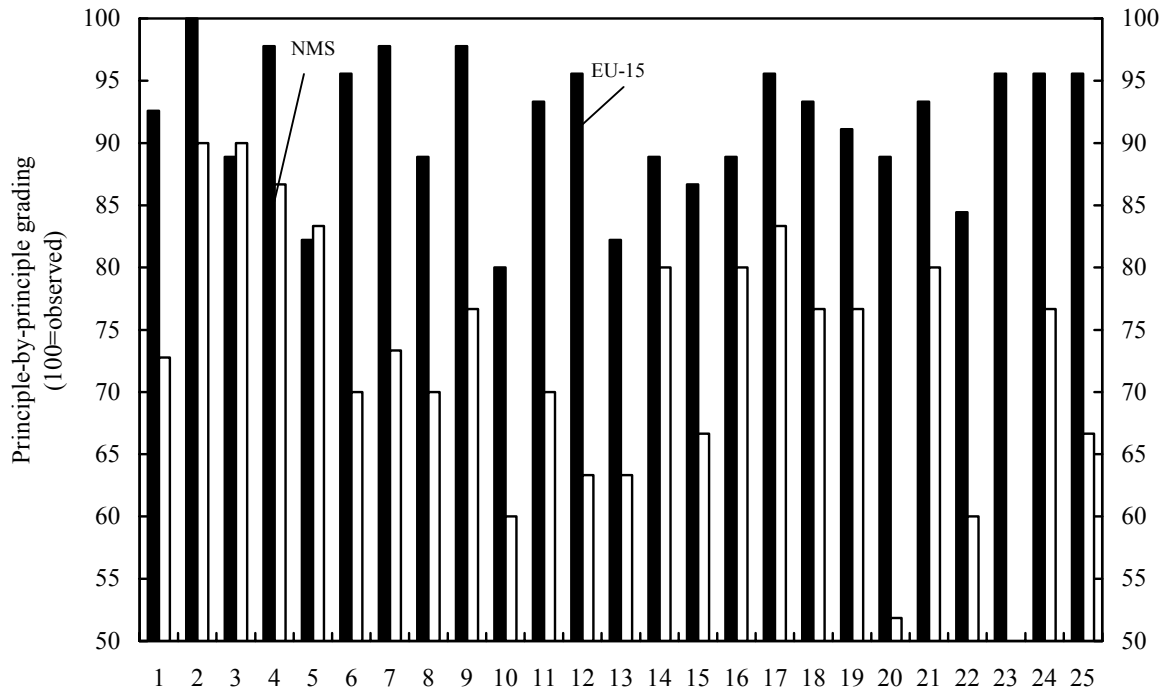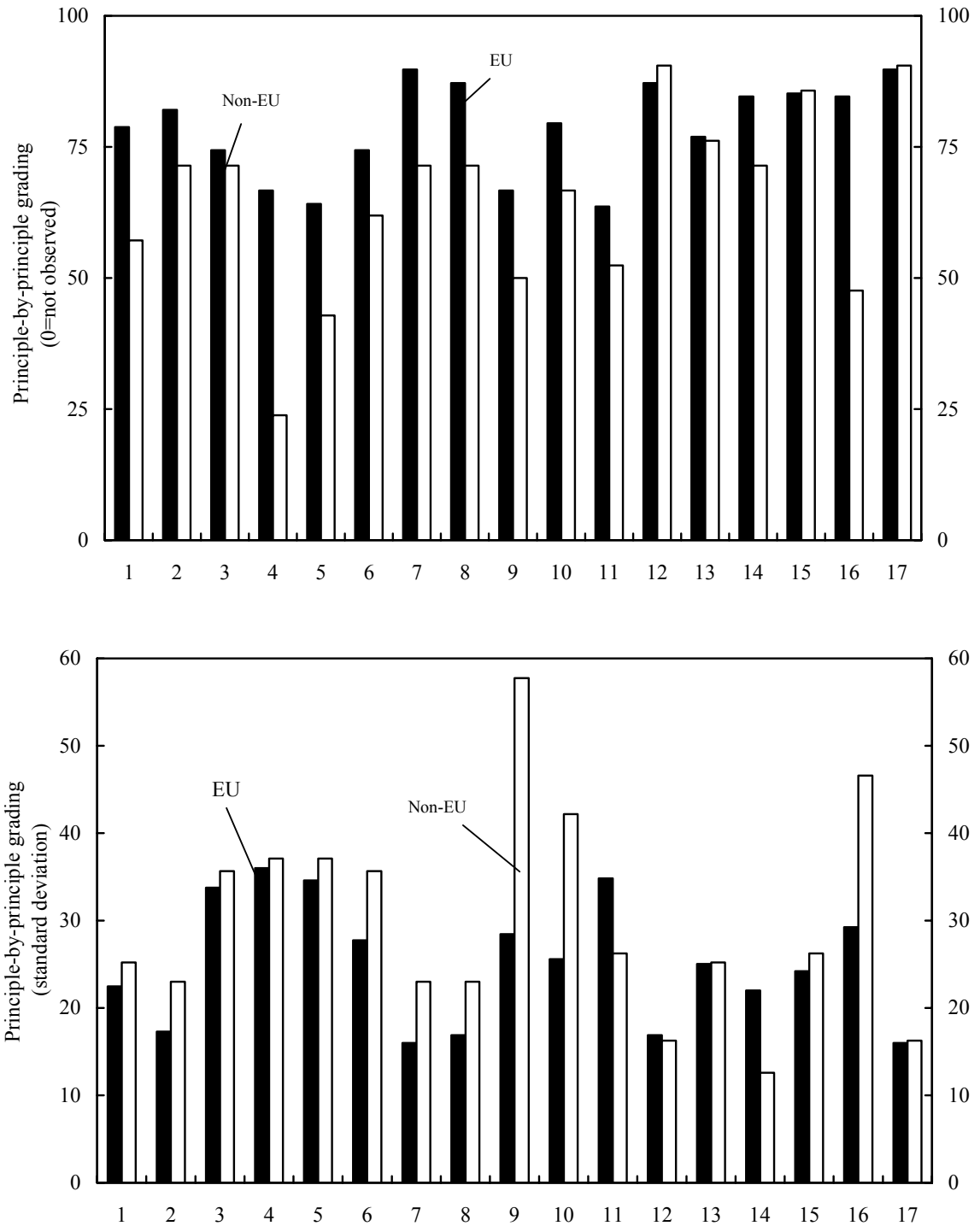


Note: For ease of presentation, the results are presented in terms of the 2000 IAIS standard, which was used for a majority of EU countries that had the ICP assessment. For those countries that had an ICP assessment according to the 2003 IAIS, gradings have been mapped into the 2000 IAIS standard (Tables III.5 and III.7).

Figure III.6. EU vs. Non-EU Countries: IOSCO Principles
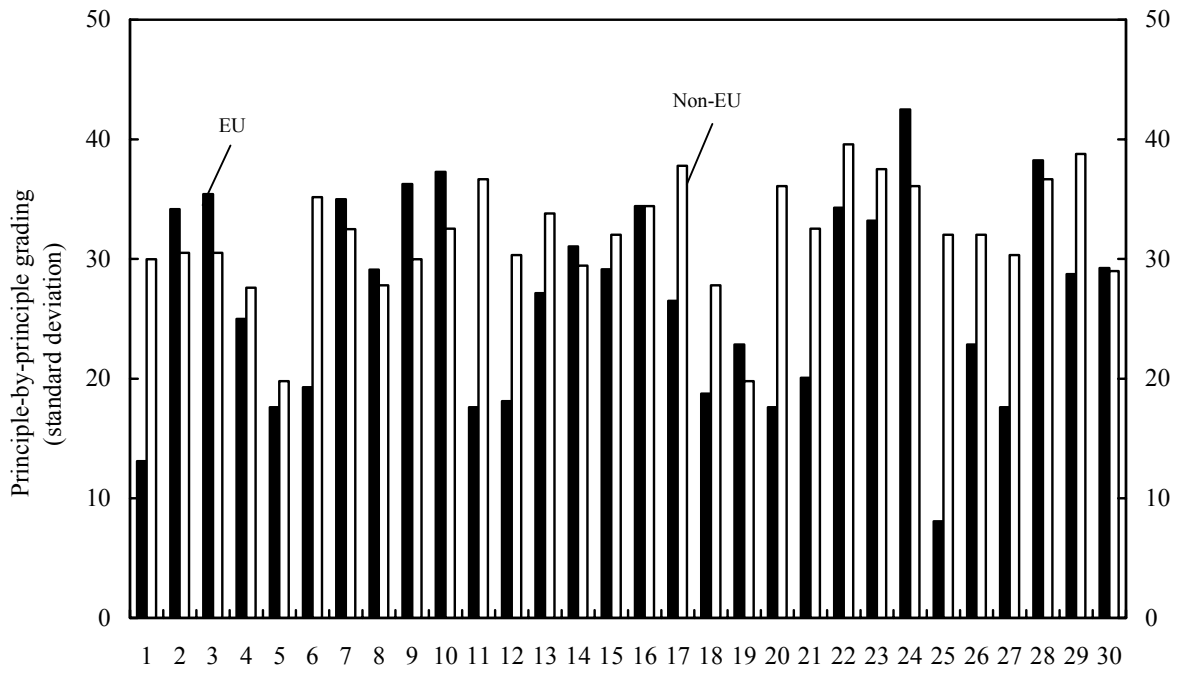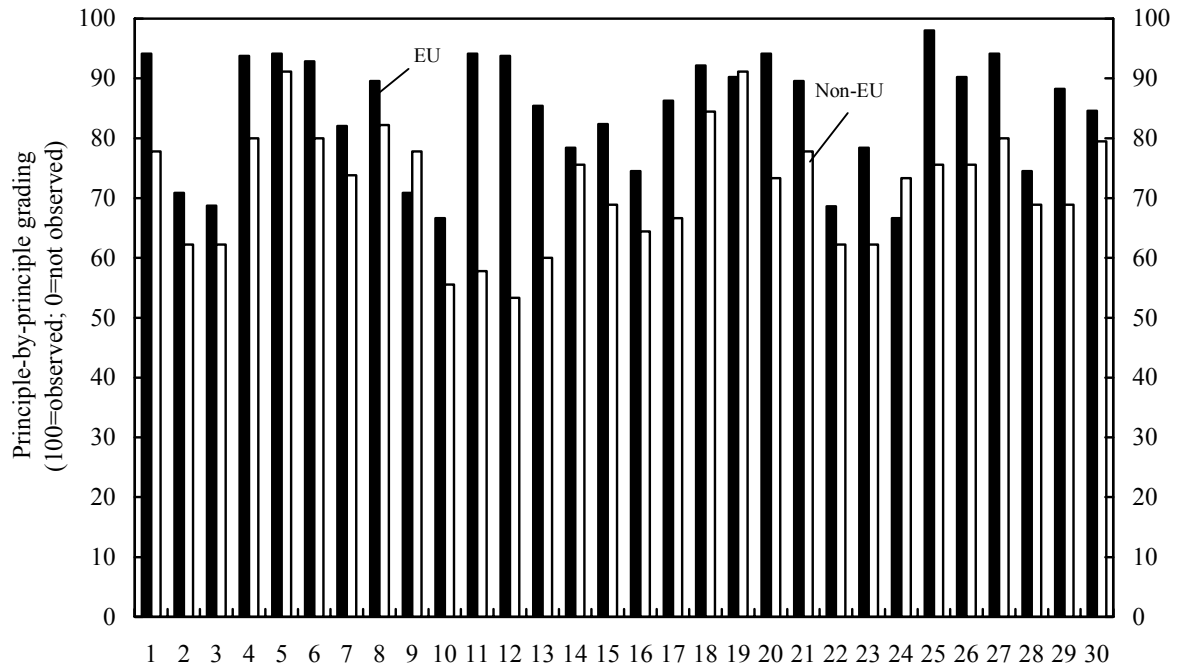
## IV.  A Bank Business Correlation Perspective on Pan-European Supervision[64]

### A.  Introduction

124.    **Europe has committed to building a single market for financial services**. The Treaty of Rome, European Monetary Union (EMU), and a large number of EU directives testify to this. However, considering the scope of these initiatives and the strong, world-wide trend toward financial integration, the progress on the ground has been mixed. Many wholesale financial markets are now closely integrated, particularly the unsecured money and the bond markets. Others, such as those for securitized instruments, as well as retail markets remain segmented. Furthermore, efforts to better link the national "plumbings" of financial markets—notably payments and clearing and settlement systems—have some way to go.[65]

125.    **There is no similar commitment to integrate the supervision of financial markets, which remains nationally based**. The Maastricht treaty opted for the separation of the monetary authority from supervision of the financial system. Accordingly, the ECB is subordinate to national governments and other European institutions in the area of financial supervision and stability. However, the European Council "may, acting unanimously on a proposal from the Commission and after consulting the ECB and after receiving the assent of the European Parliament, confer upon the ECB specific tasks concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings" (Article 105(6)). Thus, at least a procedure for moving to some pan-European supervision is in place.

126.    **Financial supervision is nationally based for many good reasons**. Financial activity revolves around contracts and the authority over contract law lies with national judiciary and legislative bodies. Also contract law differs widely across countries and locally-based institutions are most familiar with it. Another argument is that national governments may want to interfere with supervisory action that they consider not in the public interest, particularly when such action imposes a burden on the public purse.[66] Moreover, financial business used to be conducted overwhelmingly within rather than across

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[64] Prepared by Jörg Decressin.

[65] For a fuller review, see, for example, Haas (2005) and ECB (2005a, b).

[66] This case has been made by Goodhart (2003), who argued that "[h]e who pays the piper calls the tune." A different argument is that the supervisory authority should be located at the national level because national treasuries bear the costs of supervisory failure. However, this "incentive compatibility" argument has not been made with respect to the staff of existing multilateral financial institutions and is unlikely to carry much weight empirically.

borders. Hence, for much of the history of supervision, the need for the authorities to follow national developments was far greater than that to look beyond borders.

127.   **However, the goal of a single market in financial services and the integration that is underway make a case for supranational regulation and supervision**.[67] This has been recognized and various European bodies are driving the effort to integrate markets and strengthen supervisory cooperation. These committees regroup policy- and decision-makers (e.g., ECOFIN, the European Parliament), regulators and supervisors (e.g., the European Banking Committee, European Insurance and Pension Committee, European Securities Committee, Financial Conglomerates Committee), and central bankers.[68] Their work essentially proceeds along three axes:

- *Legislative/regulatory harmonization*: the Financial Sector Action Plan (FSAP) and the regulatory functions of the Lamfalussy process, whose main objectives are to create a level-playing field with respect to laws and regulations in the EU.

- *Supervisory harmonization*: the Lamfalussy process, specifically the efforts to harmonize supervisory practices, including through work in the so-called level 3 "subcommittees." One example is the introduction of a single coordinator for group-wide supervision of international financial conglomerates under the Financial Conglomerates Directive.

- *Bilateral/multilateral cooperation*: memoranda of understandings (MoU) that aim to improve the cross-country cooperation of national authorities, including supervisors; and increased coordination and cooperation in general, e.g., through the Committee of European Banking Supervisors and similar "subcommittees" for the other sectors.

128.   **The position in official quarters is that the integration-related challenges for supervisors can still be addressed within the contours of existing institutional boundaries**.[69] Clearly, any evolution of prudential supervisory structures in the EU away from the current arrangements raises difficult accountability issues. Accordingly, official circles see consolidated supervision as a legitimate demand from the industry but at most a long-term objective, considering also that markets are still far from fully integrated. In the

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[67] See, for example, Schoenmaker and Osterloo (2006) for information on the evolution of crossborder financial institutions.

[68] For a succinct review of the current supervisory and regulatory set up see Lamfalussy (2004) as well as Schinasi and Teixeira (2005).

[69] See European Commission (2005).

meantime, all agree that efforts need to focus on allowing the EU-wide supervisory committees to deliver their full potential.

129.    **This paper investigates whether the cross-country correlation of bank business in Europe makes a good case for pan-European supervision**. If banks' business no longer has an overwhelming national dimension, this is one among several arguments for a greater European approach to supervision. A growing literature measures co-movements between EU banks, typically finding that EU-wide macroeconomic and banking-specific shocks are significant and that some risks have increased since EMU.[70] These results are generally derived from market-based indicators, notably distance-to-default measures.[71] The contribution here is: (i) an analysis of bank balance sheet and profitability indicators, rather than market-based indicators. The former are also relevant for supervisors and less distorted by day-to-day market volatility. However, their data (but not necessarily time) dimension is much smaller because they are available only at an annual frequency for most institutions; (ii) new methods to gauge comovements, notably cluster analysis, that require few assumptions;[72] and (iii) a quantification of the importance of EU-wide shocks relative to the national shocks that make a case for nationally-based supervision—this part of the analysis is also done for distance-to-default measures of 11 of the largest, most complex financial institutions operating across borders in Europe.

130.    **The key finding is that developments in balance sheet and profitability indicators of Europe's 100 largest banks do not cluster naturally around countries**. From various perspectives, the EU-wide dynamics in these indicators appear as important as the country-specific dynamics. Hence, detecting potential risks and vulnerabilities in national financial systems and resolving instabilities if and when they arise are likely to require a strong crossborder perspective. However, the current approach to supervision—which unquestionably features a steadily expanding crossborder dimension—still rests overwhelmingly (and basically exclusively so for its ultimate authority) on a national footing.

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[70] For example, see De Nicoló and others (2005) and Brasili and Vulpes (2005). Gropp and Moerman (2003) focus on contagion to identify one dozen systemically important banks in Europe. They show that significant contagious influence emanates from some smaller EU countries.

[71] Gropp and others (2002) pioneered this type analysis for euro-area banks, demonstrating its usefulness as a complement to traditional balance sheet-based analysis of risks.

[72] For a cluster analysis of large, complex financial institutions of both the United States and Europe see Hawkesby and others (2005).

131.	The paper is structured as follows: Section B introduces the data; Section C performs a cluster analysis on bank balance sheet and profitability indicators; Section D quantifies European, country, and idiosyncratic dynamics in these indicators; and Section E concludes.

## B.  Data and Summary Statistics

132.	**The sample comprises indicators for Europe's 100 largest banks with a continuous time series spanning 1997–2004 in the Fitch Bankscope database**. Because of changes in accounting standards and other reasons, a few of Europe's largest banks are not included (Data Appendix).[73] Nonetheless, the distribution of banks across countries is broadly in line with countries' significance in world financial markets, with a very few exceptions (Table IV.1). Together these banks account for over half of EU15 banking system assets. The specific indicators y comprise the (after tax) return on assets (ROA) and equity (ROE); the equity-to-asset ratio (CAP); the gross operating revenue-to-asset ratio (OPREVA); and the natural logarithms of gross operating revenue (OPREV), assets (ASSETS), and equity (EQUITY). The availability of further data, notably on capital adequacy, asset quality, and liquidity was much more limited.

133.	In some ways the data set is representative for the banking industry as a whole, although Europe's largest banks engage in much more crossborder business than the many smaller banks. The key summary statistics are very similar to those for the industry as a whole during 1997–2004: (after tax) returns on assets/equity of about 0.5 percent and 11.5 percent, respectively, and a capital-asset-ratio of about 4.5 percent.[74] For 2004 specifically, almost all the figures lie nicely in between ECB (2005) data for the euro area and the EU25 (Table IV.2). But the share of foreign earnings at the largest (top 20) banks—typically in the 30–60 percent range (Data Appendix)—is likely to be much larger than that of the more than 7,000 smaller banks.

## C.  Clustering Europe's Banks

134.	**Cluster analysis offers a starting point to determine "natural" groupings—clusters—among the banks of the EU15**. Concretely, let $y_{Ti}$ denote a specific balance sheet or profitability indicator with time dimension T, such as the equity-to-asset ratio CAP, for bank i. Different clusters contain banks with "dissimilar" vectors $y_{Ti}$. Conversely, a single cluster regroups banks with "similar" vectors $y_{Ti}$. If banks appear clustered according to the

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[73] Specifically, banks that usually feature among Europe's 100 largest and that are not included here are the largest bank of Germany and the largest of the Netherlands, which have foreign earnings shares of about 75 percent and 64 percent, respectively, based on 2004 data (Source: Deutsche Bank Research, EU Monitor 31); and the two largest banks of Austria. As a result, Austria is not represented in the sample.

[74] For data on the whole industry, see Decressin and Kudela (2005), for example.

location of their headquarters, this might *prima facie* be one argument for maintaining "nationally-based" supervision. If not, "clustering" supervision differently might well be superior.

135.    **Clustering depends on the specification of the variable y, the measure of dissimilarity/similarity, and the clustering procedure**. One drawback of cluster analysis is that output does not come with measures of confidence/significance, unlike a regression, and thus it is difficult to discriminate between the many different ways to perform clustering. In that sense, the method is merely an exploratory data analysis technique for "unsupervised" learning—the problem of finding groups in data without the help of any structural model.

136.    **Sensible priors and different specifications should deliver fairly robust hypotheses that, in any event, are tested further with more structured techniques**. Specifically, the objective is to cluster the 100 banks into K clusters. Let $d(y_{Ti}, y_{Tj})$ denote the dissimilarity between the indicator y of two banks i and j as measured by specific distance functions: (i) for $y_{Ti}$ the function is $1-r(y_{Ti}, y_{Tj})$, where r denotes the correlation coefficient; (ii) for the first difference $\Delta y_{Ti}$, the function is the squared Euclidian distance $(\Delta y_{Ti} - \Delta y_{Tj})^2$. The clustering procedure—Partitioning Around Medoids (PAM)— then works as follows:

- Step 1: randomly select K banks to be medoids M—the most centrally located objects within the K clusters $C_k$–and form the K clusters by assigning each of the i=1,2,...(100-K) remaining banks to their "nearest" medoid, i.e., minimize $d(y_{Ti}, y_{TM})$ and compute the sum of dissimilarities, e.g., the squared-error criterion

$$E_1 = \sum_{k=1}^{K} \sum_{i \in C_k} d(y_{Ti}, y_{TM})^2 .$$

- Step 2: randomly swap a non-medoid bank with a medoid bank, form the new clusters, and recompute the squared error criterion, $E_2$. Accept the new medoid if $E_2 < E_1$. Continue swapping until no further improvement is found.

137.    **According to the balance sheet and profitability indicators bank business does not appear to have a compelling country component**. Assuming that country-specific dynamics are important, a natural starting point is to postulate that the 100 banks fall into 5 country clusters. The reasons are that the five largest EU countries—France, Germany, Italy, Spain, and the United Kingdom—account for 73 out of the 100 banks; that each of these countries has between 12-17 banks in the dataset; and that the other countries have at most five banks in the sample. With 2*7=14 variables, the output is 70 clusters (Figures IV.1

and IV.2). For ease of analysis, these clusters only show the distribution of the 73 banks that belong to the 5 largest EU countries. Several features of the output are noteworthy:[75]

- Dynamics that are unique to single countries, which make an argument for supervision at the country level, are not compelling. Banks of a single country are generally spread across various clusters. Only 19 out of 70 clusters include one half or more of the banks of a single country, with 7 such clusters containing one half or more of the banks of at least one other country.

- Dynamics that are shared by more than one country, which argue for supervision that stretches beyond national borders, feature prominently. For 9 of the 14 variables, one cluster holds at least 26 of the 73 banks, well more than the highest number of banks of a single country in the sample, which is 17; the maximum number of banks in a single cluster is 39 banks. Alternatively, 55 out of 70 clusters contain banks from at least four of the five countries reviewed, suggesting that from a business correlation perspective a pan-European approach to supervision might be more efficient than a web of bilateral MoU.

## D. European, Country, and Idiosyncratic Bank Dynamics

138. **The roles of European, country, and idiosyncratic developments in changing banks' balance sheet structure and profitability can be gauged further**. Focusing on the first difference of the various indicators, this section does so with the help of: (i) cross correlations between pairs of banks; (ii) a principal component approach to finding the area-wide components in the various indicators; and (iii) an analysis of variance decomposition based on regressions of bank-specific indicators on their European or country-specific counterparts—this is also done for distance-to-default (DD) measures for 11 large, complex financial institutions (LCFI) that operate across Europe's borders.

**Pair wise cross-correlations**

139. **A natural starting point to deepen the cluster analysis is to plot histograms of the bivariate cross-correlations of the various bank indicators**. This is done both for banks that come from different countries as well as for banks that come from the same country. For each indicator, between 4,042 and 4,411 observations underlie the histograms for the cross-country bivariate correlations (for the top 20 banks, the number is 126-161); for the within country sample, the number is 518-539 (for the top 20, 27-29). The correlation coefficients are given by:

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[75] An alterative approach allows for different, hierarchical "levels" of clusters but reveals qualitatively similar results.

$$r_{ij} = \frac{\sum_i \sum_j (y_{it} - \bar{y}_i)(y_{jt} - \bar{y}_j)}{\sqrt{\sum_i (y_{it} - \bar{y}_i)^2 \sum_j (y_{jt} - \bar{y}_j)^2}} \, .$$

140.    **The indicators appear highly correlated for pairs of banks from different countries—generally as high as those for pairs from the same country**. For the cross-country sample and the changes in the ratio variables (dROA, dROE, dCAP, dOPREVA), between one quarter and one third appear positively or negatively correlated with a coefficient that exceeds 0.5 in absolute value (Table IV.3). For the changes in the level variables (dOPREV, dEQUITY, dASSETS) the share is much higher, reaching between one third and one half. Positive correlations account for at least two thirds of these "large" correlations. For the sample of the top 20 banks the fraction of "large" cross-country correlations is more similar to that of "large" within-country correlations. Also, a greater fraction of the "large" correlations appear positive.

**Principal component analysis**

141.    **Principal component analysis (PCA) starts from the premise that a few, common factors may explain much of the variation in the indicators of the 100 banks**. In a K factor model,

$$\Delta y_{it} = \sum_{k=1}^K \lambda_{ik} f_{kt} + u_{it} \text{ , or, in matrix notation, } \Delta y_t = \Lambda f_t + u_t.$$

Here $f_t$ denotes a vector of the K common factors and $u_t$ a vector of mutually uncorrelated errors with mean zero and finite variance.[76] The calculation of principal components is essentially a regression problem: it asks what linear function of the columns $y_{it}$ gives the best fit (highest $R^2$) when it is regressed an all the 100 columns $y_{it}$. The loading matrix $\Lambda$ can be estimated by minimizing the residual sum of squares:

$$\sum_{t=1}^T (\Delta y_t - Bf_t)'(\Delta y_t - Bf_t),$$

subject to B'B=$I_K$. The estimated matrix B is the principal component estimator of $\Lambda$ and its columns result as the eigenvectors of the K largest eigenvalues of the matrix $T^{-1} \sum_t \Delta y_t \Delta y_t'$ .

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[76] These assumptions for the error term can be relaxed as T, N become sufficiently large (Breitung and Eickmeier, 2005).

142.     **The PCA results suggest that area-wide developments potentially explain most of the proportion of changes in bank balance sheets and profitability** (Table IV.4). Given the short time span, no more than two factors are considered here: one factor might capture area-wide macroeconomic shocks and the other, say, regulatory and technological changes affecting the banking sector. The results suggest that the most important principal component explains between 25–50 percent of all the variance in $\Delta y_{it}$; adding another component raises the variance ratio to 40–60 percent.[77]

**Analysis of variance**

*Bank balance sheet and profitability indictors*

143.     **The variation of balance sheet and profitability indicators can be attributed to bank-specific, country-specific, and European developments**. Presumably, the structure of supervision in Europe should take into account the relative importance of these developments. The following equations are fitted to the data:

$$\Delta y_{it} = \sum_c \sum_t \beta_{ct} Year_t + \varepsilon_{it} \ (1),$$

$$\Delta y_{it} = \sum_t \beta_t Year_t + \varepsilon_{it} \ (2).$$

Here $y_{it}$ stands for the particular indicator of bank i, β are slope parameters, which are country- and year-specific when denoted c, t and $Year_t$ are time dummies. The $R^2$ of equation (1) indicates the share of variations in y that that might be related contemporaneously to both EU-wide and country-specific developments—the unexplained variation in this equation reflects bank-specific shocks; for equation (2) it does the same for the share of variations that can be related only to EU-wide developments—it is a restricted version of equation (1) with $\beta_c=\beta$ for all countries c.

144.     **EU-wide factors appear as important as country-specific factors for the variations in many indicators, according to the findings**. As outliers distort the results considerably, the focus here is on the evidence from subsamples comprising "reliable" data.[78] These subsamples exclude those 10 percent of all data points that give rise to the largest

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[77] Since T=7, only six components are needed to explain 100 percent of the variance of a bank indicator.

[78] One source of potential distortions that this technique addresses are the many mergers and acquisitions, which can cause very large changes to banks' balance sheets and profit and loss accounts.

errors in the full sample regressions (5 percent on each end). Several features stand out (Table IV.5):

- Area-wide movements dominate changes in the level variables, accounting for close to 40–50 percent of all variations, more than the country-specific developments. This is a higher share than for the ratio variables. The level variables likely pick up some broader trends that are increasingly shared across countries, e.g., economic growth, financial deepening, technology, and inflation.

- Area-wide developments can account for some 30–40 percent of all variations in changes of the OPREVA, the same as country-specific developments. The much smaller role of such common dynamics in net income indicators (ROA and ROE) is entirely due to the removal of interest expenditure. Supplementary regressions show that over 40 percent of the variations in this expenditure ratio (INTEXA) can be attributed to area-wide factors and less than 20 percent to country-specific developments.

- Area-wide evolutions appear more important in indicators for the top 20 banks.

- Area-wide factors appear to play a minor role for capitalization. The results for capitalization stand out and could point to the "residual" nature of retained earnings as well as cross-country differences in regulatory and supervisory practices.

*Distance-to-default indicators*

145.     **Similarly to the balance sheet and profitability indicators, the variance in DD measures can be attributed to bank-specific, country-specific, and European components**. The DD data cover 11 LCFI from 7 countries over 1991–2005 and are used at a daily as well as at a monthly (average of days within month) frequency.[79] Given the large number of observations, rather than setting time dummies the following regressions are run to identify the various components:

$$\Delta y_{it} = \sum_c \alpha_c + \sum_c \beta_c \Delta y_{et} + \varepsilon_{it} \ (3),$$

$$\Delta y_{it} = \alpha + \beta \ \Delta y_{et} + \varepsilon_{it} \ (4),$$

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[79] These banks conduct a very large part of their business abroad (see Schoenmaker and Osterloo, 2005, for details): ABN Amro, ING, Santander, BBVA, HVB, Deutsche Bank, Paribas, Fortis, KBC, HSBC, Nordea.

where y=DD and the subscript e denotes the average DD across all banks i.[80]

146. **Among the LCFI, EU-wide changes in DD measures account for the bulk of all DD changes**. The $R^2$ values of equation (4) are 60.5 and 61.1 percent respectively, for daily and monthly DD data, suggesting that the majority of DD changes are common to all the 11 banks.[81] Allowing for country-specific intercepts and slopes, by fitting equation (3) to the data, raises these values to, respectively, 68.4 and 69.3 percent, suggesting that country-specific dynamics account for some 8 percent of the variations only, much less than the EU-wide and bank-specific components.[82]

## E. Conclusion

147. **The issue is not about centralized versus decentralized supervision in the euro area but about finding the right balance between the two**. The case for nationally-based supervision is clear and rests on inherent variations in national markets and the consequent need for local knowledge and intelligence gathering as well as on the fact that fiscal policy remains national. But the case for EU-based supervision is similar: national economic and banking systems are growing together, as evidenced here by the large European component of bank balance sheet, profitability, and DD indicators that, from various perspectives, is as strong as the national component.; and monetary policy is set at the euro-area level.

148. **The strength of the European component of bank business and DD can, of course, be only one among many arguments in the debate about the structure of supervision in Europe**. The case for further integration of supervision is based on considerations of:

- Efficiency: the duplication of supervisory work and the different approaches used by the national agencies are cost inefficient for both government and business. More fundamentally, the centralization of risk, liquidity, and asset-liability management functions of large financial groups and their increasing presence in many countries creates tensions between home and host country supervisors that are amplified by legal and regulatory differences. From a broader perspective, they revolve around externalities and the public good nature of financial stability which, from a purely

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[80] The DD data, kindly provided by Alex Tieman, were estimated using the procedure described in Vassalou and Xing (2004) on daily market and annual accounting data (see also De Nicoló and others, 2005).

[81] On omitting the 10 percent observations that are responsible for the largest errors, the $R^2$ values are, respectively, 75.6 and 75.9 percent.

[82] On omitting the 10 percent observations that are responsible for the largest errors, the $R^2$ values are, respectively, 80.2 and 80.7 percent.

theoretical standpoint, imply that nationally based supervision can only be a second best approach.[83]

- Effectiveness: without a full and continuous overview of all the risks that an individual financial institution is exposed to, supervisors may be unable to make a correct and timely assessment of the soundness of that financial institution and of threats to this soundness. Important risks nowadays relate to developments in foreign economies or corporations, notably LCFI, and banks can use cross-border operations to conceal risk. Furthermore, policymakers, notably the ECB, also need to have clear insights into the financial stability implications of their policies.

149.    **The strength of the European component in bank business and in DD developments lends direct support to both arguments**. The evidence presented here suggests that shocks are shared by many countries, which makes bilateral cooperation less efficient than multilateral cooperation. At the very least, it points to parallelism in financial sector trends and therefore suggests that supervisors can learn from each other's experiences. However, it also indicates that a multilateral perspective that looks at all institutions combined may make it easier to identify emerging threats to financial stability, factors that drive financial stability trends, and the potential repercussions for macroeconomic policies, as well as allow more effective policy responses The current situation of parallel developments in the housing markets of many euro area countries comes to mind.

150.    **But given the high degree of commonality of shocks for the 11 LCFI, the European component is probably also associated with various other factors that argue for more centralized supervision**. For example, the business models and exposures to risk across major LFCI in the EU may well be more similar than those across all banks (including LCFI) within single countries. Moreover, for the LCFI it brings up issues related to crossborder effects of shocks to their equity as well as of transfers of their assets between subsidiaries of different countries; the relation between crossborder business and deposit insurance; and the management (including costs) of failure of LCFI.[84] Both the macro- and microeconomic factors have led many to advocate a stronger degree of centralization of supervision and are bound to become even more pressing over time.[85]

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[83] For a development of this argument see Kane (2005).

[84] See, for example, Dermine (2005).

[85] Lamfalussy (2004) suggests giving the ECB operational responsibility in the supervision of a limited number of internationally-operating banks. Prati and Schinasi (1999), Vives (2003), and Dermine (2005) also advocate more integrated supervision. Goodhart and Shoenmaker (2006), following up on Prati and Schinasi (1999), stress the need for establishing ex ante mechanisms for crossborder rescues.

151.　**The evidence here calls for deepening the current efforts to analyze financial stability at the EU level and for providing a framework for coordinated action**. This could be done by an existing institution, which need not have significant additional supervisory powers to make a stronger contribution to maintaining financial stability in Europe. However, it would need to be given unrestricted access to information gathered by national supervisory authorities. Such a structure would monitor developments in Europe's major financial institutions and markets and offer a platform for crisis management if and when the need arises. Furthermore, aside from contributing to financial stability, such an entity could complement or take over the work of existing committees in fostering the convergence of supervisory practices.

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Table IV.1. EU15: Country Distribution of Banks, 1997–2004

|  | Number | Top20 |
|---|---|---|
| UK | 17 | 4 |
| FRANCE | 16 | 5 |
| NETHERLANDS | 3 | 2 |
| SPAIN | 12 | 2 |
| BELGIUM | 3 | 2 |
| GERMANY | 16 | 5 |
| DENMARK | 4 | 0 |
| ITALY | 12 | 0 |
| SWEDEN | 5 | 0 |
| FINLAND | 2 | 0 |
| IRELAND | 2 | 0 |
| PORTUGAL | 3 | 0 |
| GREECE | 2 | 0 |
| LUXEMBOURG | 3 | 0 |
| AUSTRIA | 0 | 0 |
| Total | 100 | 20 |

Source: Fitch Bankscope database.

Table IV.2. EU15: Sample Characteristics, 2004

|  | Sample | ECB (2005a) | |
|---|---|---|---|
|  |  | Euro area | EU25 |
| ROA | 0.52 | 0.42 | 0.50 |
| ROE | 11.78 | 10.54 | 12.21 |
| CAP | 4.44 | 4.09 | 4.59 |
| dROA | 0.10 | 0.11 | 0.09 |
| dROE | 2.20 | 2.78 | 2.25 |
| dCAP | 0.00 | 0.03 | -0.03 |

Source: ECB (2005a), IMF staff estimates, and Fitch Bankscope

Table IV.3. EU15: Pairwise Cross-Correlations
(Percent that exceed 0.5 in absolute value)

|  | Across | Within |
|---|---|---|
|  | countries | |
| **Full sample:** | | |
| dROA | 26.4 | 24.9 |
| dROE | 27.5 | 26.2 |
| dCAP | 25.6 | 23.6 |
| dOPREVA | 35.4 | 50.2 |
| dOPREV | 35.3 | 79.5 |
| dASSETS | 38.2 | 39.7 |
| dEQUITY | 48.0 | 83.3 |
| | | |
| **Top 20:** | | |
| dROA | 29.8 | 24.1 |
| dROE | 31.1 | 34.5 |
| dCAP | 28.6 | 24.1 |
| dOPREVA | 45.2 | 3.7 |
| dOPREV | 31.0 | 48.1 |
| dASSETS | 31.1 | 41.4 |
| dEQUITY | 38.5 | 51.7 |

Sources: Fitch Bankscope and staff calculations.


Table IV.4. EU15: Principal Component Analysis

|  | Full sample | | Top 20 | |
|---|---|---|---|---|
|  | Comp. 1 | Comp. 2 | Comp. 1 | Comp. 2 |
| *(Correlations of percent changes)* | | | | |
| dOPREV | 43.1 | 60.0 | 41.8 | 66.7 |
| dEQUITY | 41.4 | 58.0 | 38.7 | 62.1 |
| dASSETS | 50.7 | 62.7 | 44.7 | 66.7 |
| *(Correlations of changes in ratios to assets or equity)* | | | | |
| dROA | 25.8 | 44.9 | 30.6 | 56.7 |
| dROE | 24.2 | 46.0 | 28.8 | 55.6 |
| dOPREVA | 39.7 | 58.5 | 47.7 | 70.4 |
| dCAP | 22.1 | 40.9 | 30.8 | 59.1 |

Sources: Fitch Bankscope and staff calculations.

Table IV.5. EU15. Variance Decomposition of Bank Variables 1/

| | Subsample | | Full | | Top 20 subsample | | Top 20 full | |
|---|---|---|---|---|---|---|---|---|
| | EU | EU&CY | EU | EU&CY | EU | EU&CY | EU | EU&CY |
| (Correlations of percent changes) | | | | | | | | |
| dOPREV | 45.0 | 64.2 | 14.2 | 30.3 | 49.2 | 76.2 | 25.1 | 49.4 |
| dEQUITY | 40.6 | 61.0 | 14.1 | 26.8 | 33.5 | 72.4 | 17.9 | 44.4 |
| dASSETS | 56.0 | 72.6 | 14.7 | 51.9 | 50.1 | 72.6 | 24.5 | 51.6 |
| (Correlations of changes in ratios to assets or equity) | | | | | | | | |
| dROA | 11.6 | 39.7 | 4.2 | 21.0 | 25.2 | 51.4 | 16.3 | 46.2 |
| dROE | 9.4 | 32.6 | 1.7 | 10.0 | 17.6 | 48.5 | 11.9 | 44.6 |
| dOPREVA | 34.8 | 61.2 | 14.6 | 35.0 | 43.8 | 74.5 | 29.4 | 59.0 |
| dCAP | 2.7 | 35.3 | 0.9 | 19.2 | 17.2 | 67.2 | 4.9 | 43.0 |
| Memorandum items: | | | | | | | | |
| dOPINCA | 4.6 | 38.6 | 0.7 | 21.4 | 6.6 | 62.7 | 10.9 | 44.4 |
| dINTEXA | 45.7 | 60.3 | 21.5 | 44.3 | 54.0 | 79.2 | 37.9 | 62.9 |
| d(ROA+INTEXA) | 40.2 | 65.8 | 19.1 | 37.2 | 57.0 | 77.2 | 37.4 | 61.9 |

Sources: Fitch Bankscope and staff calculations.

1/ This table shows R2 values from regressions of bank-specific variables on European time dummies (EU) or on country time dummies (EU&CY). The first set of R2 show the the fraction of movements in bank-specific variables that is driven by European shocks; the second set shows the fraction explained by both European and country-specific shocks.
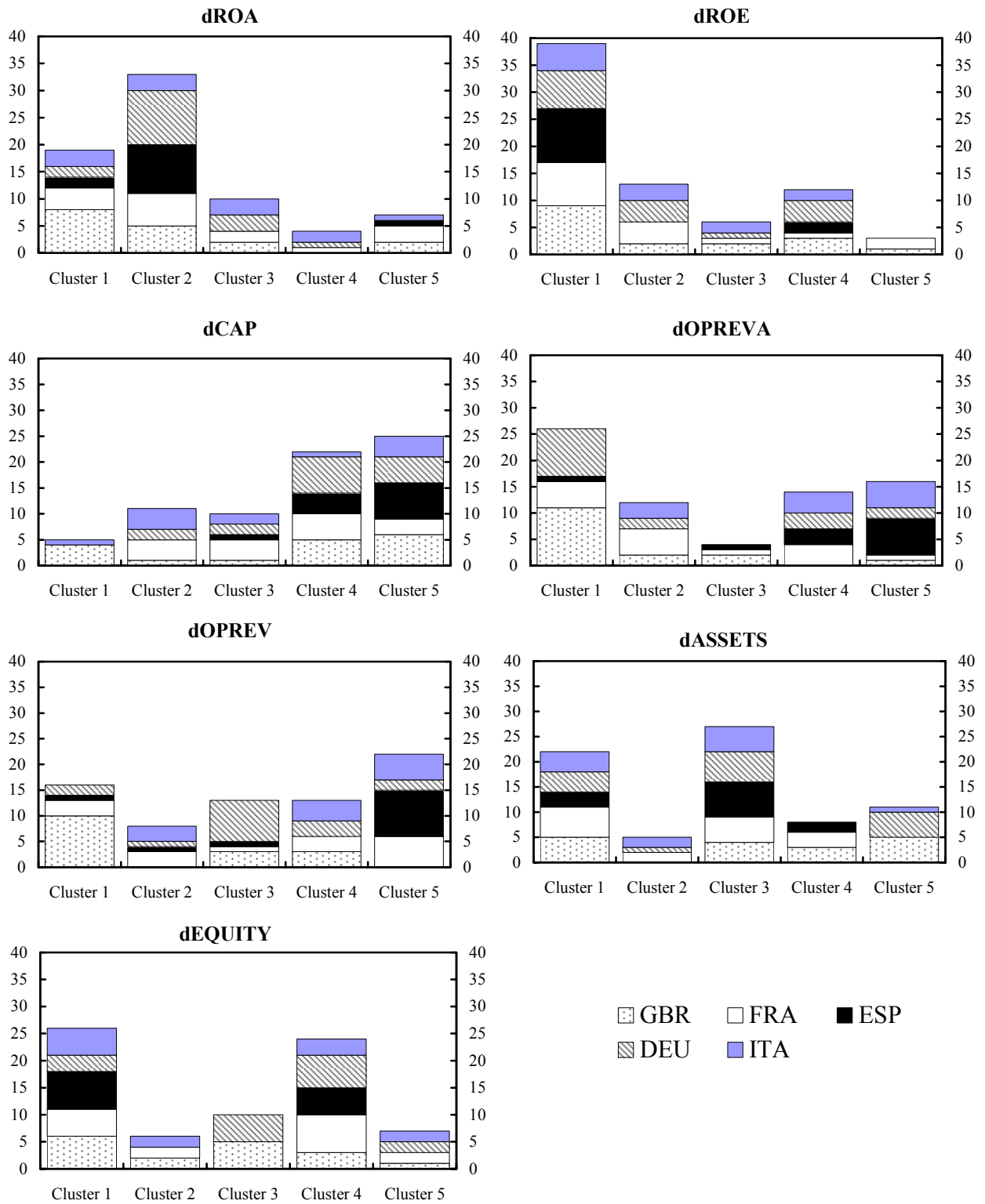
Figure IV.1. EU15: Cluster Analysis of Bank Variables
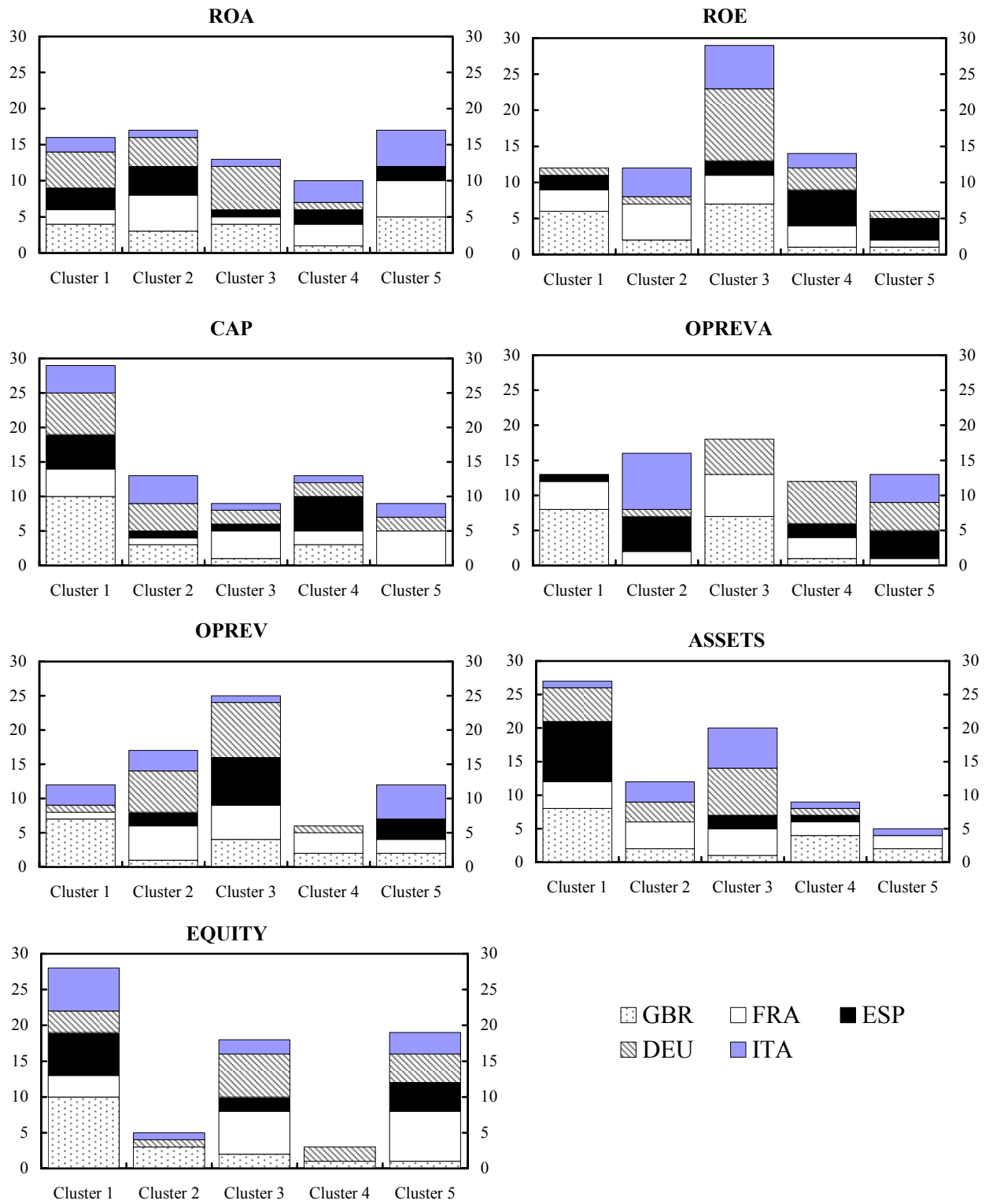


Sources: Fitch Bankscope and staff calculations.

Figure IV.2. EU15: Cluster Analysis of Bank Variables



Sources: Fitch Bankscope and staff calculations.

# Data Appendix

## Appendix Table. EU15: Listing of Banks, 1997–2004

| | Foreign earnings share 1/ | | Foreign earnings share |
|---|---|---|---|
| AB Spintab (publ) | | Credit Mutuel Centre Est Europe (Bancassurance) | |
| Abbey National Plc | | Danske Bank A/S | 23.2% |
| Alliance & Leicester Plc | | DekaBank Deutsche Girozentrale | |
| Allied Irish Banks plc | | Dexia | |
| Alpha Bank AE | | Dresdner Bank AG | 37.9% |
| Anglo Irish Bank Corporation Plc | | Espirito Santo Financial Group S.A. | |
| Baden-Wuerttembergische Bank AG | | FivereningsSparbanken AB | |
| Banca Antonveneta-Banca Antoniana Popolare Veneta SpA | | Fortis | 66.3% |
| Banca Intesa SpA | 17.2% | Groupe Caisse d'Epargne | |
| Banca Lombarda e Piemontese SpA | | Halifax Plc | |
| Banca Monte dei Paschi di Siena SpA-Gruppo Monte dei Paschi di Siena | | HSBC Holdings Plc | 73.0% |
| Banca Nazionale del Lavoro SpA - BNL | | IKB Deutsche Industriebank AG | |
| Banca Popolare dell'Emilia Romagna | | ING Groep NV | 75.3% |
| Banca Popolare di Milano SCaRL | | IXIS Corporate & Investment Bank | |
| Banca Popolare Italiana-Banca Popolare Italiana - Banca Popolare di Lodi | | KBC Group-KBC Groep NV/ KBC Groupe SA | |
| Banco Bilbao Vizcaya Argentaria SA | 46.5% | Kredietbank S.A. Luxembourgeoise KBL | |
| Banco de Sabadell SA | | Landesbank Baden-Wuerttemberg | |
| Banco Español de Crédito SA, BANESTO | | Landesbank Hessen-Thueringen Girozentrale - HELABA | |
| Banco Espirito Santo SA | | Landwirtschaftliche Rentenbank | |
| Banco Popular Espanol SA | | Lehman Brothers International (Europe) | |
| Bankgesellschaft Berlin AG | | Lloyds TSB Group Plc | 3.6% |
| Bankinter SA | | LRP Landesbank Rheinland-Pfalz | |
| Banque Générale du Luxembourg SA | | Mediobanca SpA | |
| Barclays Bank Plc | 17.9% | Millennium bcp-Banco Comercial Português, SA | |
| Bayerische Hypo-und Vereinsbank AG | 50.2% | Natexis Banques Populaires | |
| Bayerische Landesbank | | National Bank of Greece SA | |
| BHW Holding AG | | National Westminster Bank Plc - NatWest | |
| BNP Paribas | 44.9% | Nationwide Building Society | |
| BRF Kredit A/S | | Nomura International Plc | |
| Britannia Building Society | | Norddeutsche Landesbank Girozentrale NORD/LB | |
| Caisse Centrale du Crédit Immobilier de France - 3CIF | | Nordea Bank Danmark Group A/S | |
| Caisse des Dépôts et Consignations-Groupe Caisse des Dépôts | | Nordea Bank Finland Plc | |
| Caixa d'Estalvis de Catalunya-Caja de Ahorros de Cataluña | | Northern Rock Plc | |
| Caixa Geral de Depositos | | OP Bank Group Central Cooperative | |
| Caja de Ahorros de Galicia - Caixa Galicia | | Rabobank Group-Rabobank Nederland | |
| Caja de Ahorros de Valencia Castellon y Alicante BANCAJA | | Realkredit Danmark A/S | |
| Caja de Ahorros del Mediterraneo CAM | | Royal Bank of Scotland Plc (The) | 21.8% |
| Caja de Ahorros y Pensiones de Barcelona, LA CAIXA | | San Paolo IMI | 11.5% |
| Caja Madrid-Caja de Ahorros y Monte de Piedad de Madrid | | Santander Central Hispano Group-Banco Santander Central Hispano | 55.8% |
| Calyon | | Skandinaviska Enskilda Banken AB | 54.6% |
| Capitalia SpA | | SNS Reaal Groep NV | |
| CCF | | Société Générale | 45.5% |
| Cheltenham & Gloucester Plc | | Stadshypotek AB | |
| Commerzbank AG | 23.9% | Standard Chartered Plc | |
| Crédit Agricole S.A. | 32.3% | Svenska Handelsbanken | |
| Crédit du Nord | | UFJ International plc | |
| Crédit Foncier de France | | Ulster Bank Limited | |
| Crédit Industriel d'Alsace et de Lorraine - Banque CIAL | | UniCredito Italiano SpA | 28.8% |
| Crédit Industriel et Commercial - CIC | | WestLB AG | |
| Crédit Lyonnais | | WGZ-Bank AG Westdeutsche Genossenschafts-Zentralbank | |

Source: Fitch Bankscope database.
1/ Data are for 2004. Source: Deutsche Bank Research, EU Monitor 31.