

France: Selected Issues Paper

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FRANCE

Selected Issues

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Approved by European Department

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I. FRANCE'S POTENTIAL OUTPUT DURING THE CRISIS AND RECOVERY¹

Using three distinct approaches—statistical filtering, production function, and multivariate model—this note estimates potential output for France during 1980–2010 and discusses long-term growth prospects. The main findings include: (i) prior to the crisis, France's potential output growth had already been on a declining trend, reflecting a slowing TFP growth and falling average working hours per worker; (ii) potential output losses due to the financial crisis are estimated to be between 1 percent and 3 percent, somewhere between the losses of Germany and the U.S.; (iii) demographic factors would likely shave 0.2 percent from potential growth over the next two decades; and (iv) boosting potential growth in the period ahead would require structural reforms to increase the participation rate, reduce structural unemployment, raise working hours, encourage capital accumulation and utilization, as well as spur TFP.

A. Introduction

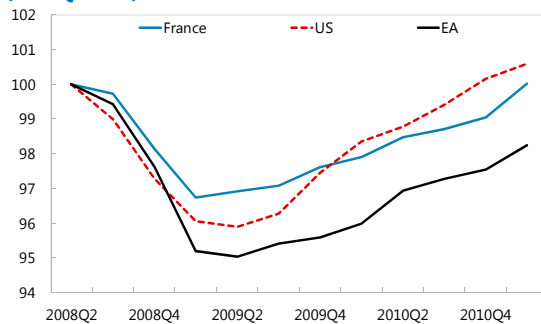
1. **An important economic issue facing France today is the rate of its future potential output growth.** Indeed, potential growth determines the extent to which a country can attain a higher living standard while providing social security and jobs for its citizens. Furthermore, given that potential output is an indicator of the level of economic activity consistent with price stability, an accurate measure of the corresponding output gap—the deviation of actual from potential output—provide a key barometer of an economy's cyclical position. This would in turn enable policy makers to evaluate inflationary and structural fiscal pressures, and adopt appropriate economic policies to achieve balanced growth.
2. **This note aims to shed light on France's potential output.** Given that potential output is unobservable and different measures could yield different results, this note uses three distinct approaches—the commonly used statistical filtering technique invented by Hodrick and Prescott (1999), an enhanced production function developed by Barrera *et al.* (2009), and a multivariate model developed by Benes *et al.* (2010)—to cross check each other and ensure robustness of the findings.
3. **The remainder of the note is organized as follows:** section B discusses important stylized facts; section C presents the models and discusses the results; finally, section D considers long-term growth prospects and concludes with some policy implications.

¹ Prepared by Kevin C. Cheng.

B. Stylized Facts

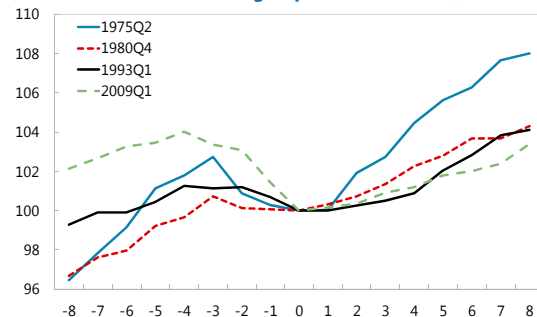
4. **While the recent financial crisis has done comparatively less damage to the French economy than to other countries, from a historical perspective, the impact on actual output has been more severe both in terms of magnitude and duration.** Compared to other countries, France had suffered less during the recent financial crisis—with a maximum output decline of less than 4 percent and a relatively shorter duration of the downturn. However, from a historical perspective, the recent crisis has done greater damage—in terms of output loss—to the French economy than the past three recessions during the last four decades.

Real GDP
(2008Q2=100)



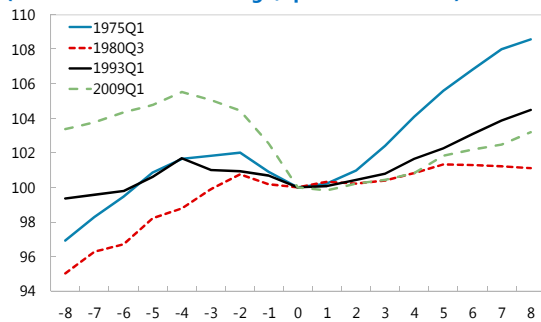
Sources: Haver Analytics; and staff calculations.

France
(Real GDP=100 at the trough, quarters on x-axis)



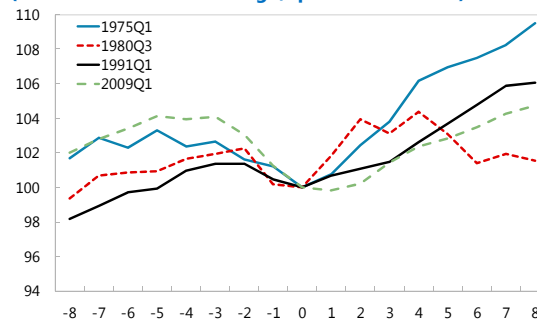
Sources: Haver Analytics; and staff calculations.

Euro Area
(Real GDP=100 at the trough, quarters on x-axis)



Sources: Haver Analytics; and staff calculations.

United States
(Real GDP=100 at the trough, quarters on x-axis)



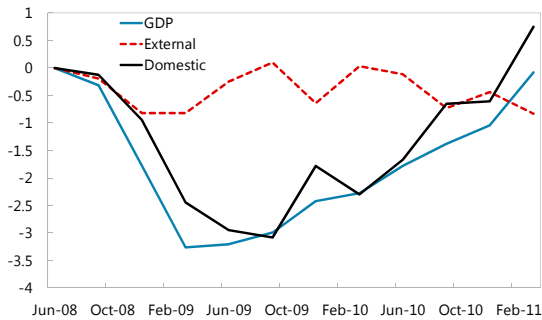
Sources: Haver Analytics; and staff calculations.

5. **France's domestic sectors had borne the bulk of output losses during the crisis and the recovery had been more sluggish.** Partly reflecting the fact that France, like the United States, is a less open economy, the decline in domestic demand accounted for most losses in output during the crisis. This is in sharp contrast to the case of Germany where the fall in net exports accounted for the bulk of output losses, suggesting that the crisis-related damage is likely to have been entirely demand-driven for Germany. Moreover, while France suffered a more moderate decline in output during the trough of the crisis, its recovery has also been more tepid. Indeed, while both output in Germany and the U.S. had surpassed their pre-crisis levels by 2011 Q1, France still had not by then fully recuperated its output losses

associated with the crisis and the recession. The fact that France experienced larger domestic output losses due to the crisis for a more prolonged period leaves open the possibility that the crisis has damaged the fabric of the economy.

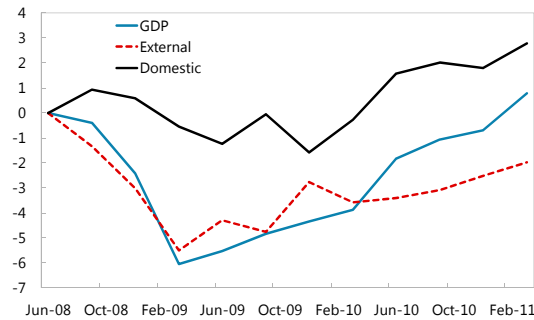
Output Losses 2008Q2 and Contributions from External and Domestic Sector (in percent)

France



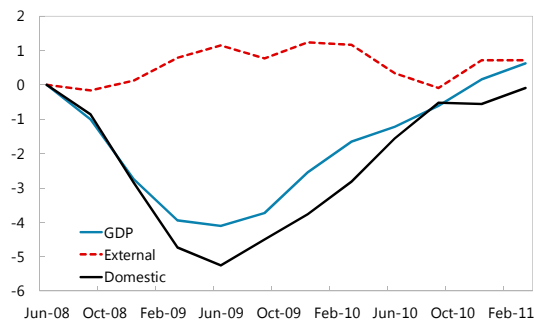
Sources: Haver Analytics; and staff estimates.

Germany



Sources: Haver Analytics; and staff estimates.

USA



Sources: Haver Analytics; and staff estimates.

6. There are a few channels in which a financial crisis can affect an economy's potential output and growth:

- *By directly destroying a certain segment of an economy*—Financial crises could often cause permanent damage to certain segments of the economy and the literature suggests that the finance, insurance, and real estate (FIRE) sectors tend to suffer most losses during a supply-driven shock. In some instances, the damage can be so large that a sector is entirely wiped out, particularly in case of a severe asset bubble burst. As a consequence, the potential output otherwise generated by these sectors is permanently lost.
- *By distorting the efficient allocation of capital*—During a financial crisis, banks and other financial institution might become more reluctant to lend and entrepreneurs may be more risk averse to embark on an investment. This would in turn slow capital accumulation and distort the efficient allocation of capital. Furthermore, lower

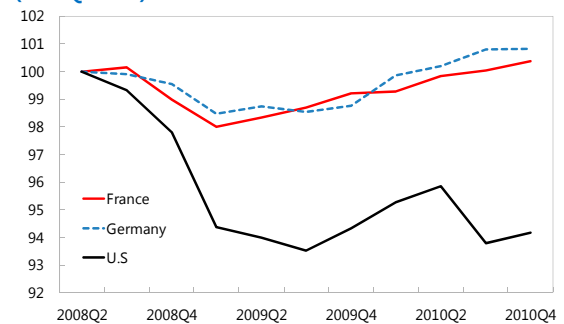
investment in finance research and development could also hamper technological progress and thus depress total factor productivity growth going forward.

- *By lifting structural unemployment*—A long and deep recession caused by a financial crisis could reduce the potential labor force by discouraging labor participation and perpetuating unemployment. In fact, if a worker is unemployed for a protracted period, he could lose his skills and become unemployable even after the recession is over.

7. Unlike some other countries with severe permanent losses in certain sectors, no sector in the French economy has suffered such a loss by the financial tsunami.

Like Germany, the real value-added of FIRE—the sector that was most directly impacted by the financial crisis in many countries—suffered relatively little destruction during the financial crisis and has already attained the pre-crisis output levels by end-2010. For comparison, the U.S. saw a maximum decline of the FIRE by almost 8 percent during the crisis and has thus far not recuperated the losses.

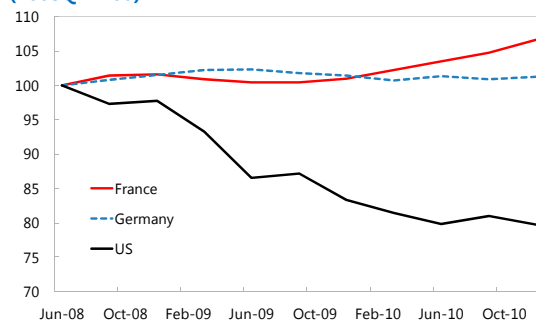
Real Value-Added of Finance, Insurance, and Real Estate (2008Q2=100)



Sources: Haver Analytics; and staff calculations.

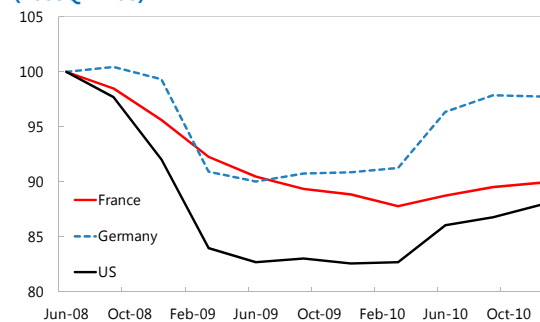
8. The crisis left some adverse impact on capital accumulation in France. On the one hand, the evolution of credit to household and companies in France was somewhat similar to that in Germany and was much less severe than the decline in U.S. credit. On the other hand, the crisis did depress investment in France, which has not yet recovered its decline since the crisis. Compared to Germany, the plummet in French investment was somewhat faster and larger during the crisis while the recovery was more sluggish. That said, compared to the U.S., the magnitude of decline is milder in France.

Loans to the Household and Firms (2008Q2=100)



Sources: Haver Analytics; and staff calculations.

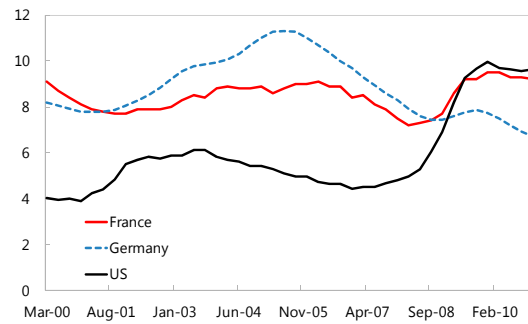
Fixed Capital Formation (2008Q2=100)



Sources: Haver Analytics; and staff calculations.

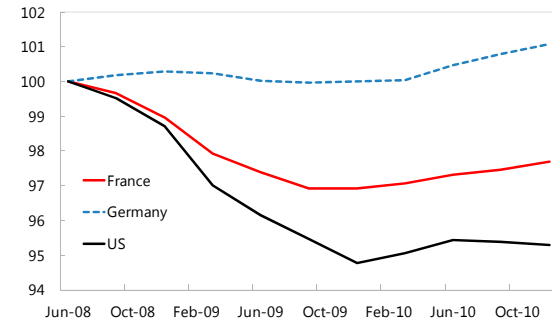
9. **In terms of employment, France’s experience during the crisis was somewhat in between those of the Germany and the U.S.** Unlike Germany, which saw a decline in its unemployment rate and an increase in total employment—partly reflecting labor hoarding supported by policy measures—France saw an increase of over 2 percent in its unemployment rate and has not yet recuperated the employment loss since the onset of the crisis. However, compared to the U.S. which saw an increase of over 4 percent in its unemployment rate during the course of the crisis, France’s experience seems rather mild.

Unemployment Rate



Sources: Haver Analytics; and staff calculations.

Employment (2008 Q2=100)



Sources: Haver Analytics; and staff calculations.

C. Estimating Potential Output

Methods to estimate potential growth

10. **One method widely used to estimate potential output is a univariate statistical filter technique developed by Hodrick and Prescott (1997).** An important advantage of this approach—as known as the HP filter—is that it is simple, transparent, and well known. On the other hand, as a purely statistical technique, the HP filter estimates potential output without a firm basis in economic theory and disregards important economic relationships—such as the Phillips curve and Okun’s law². Nevertheless, this simple approach is used as a benchmark to cross-check results from the other two approaches.

11. **The second approach is based on a production function** Following Barrera et al. (2009), this approach is estimated in two steps³: first, using a Cobb-Douglas production function, actual total factor productivity (TFP) is calculated as a residual after controlling for total hours worked, capital utilization, and capital stock. Second, potential output is then

² As discussed in Benes et al (2010), the HP filter approach could introduce biases. For example, by ignoring the fact that central banks made good progress in fighting inflation over the past few decades, the HP filter would understate potential GDP.

³ For a detailed discussion of these methodologies, see the Technical Appendix.

calculated as a sum of six components (i) capital stock; (ii) equilibrium capital utilization; (iii) trend working hours of workers; (iv) natural rate of unemployment (NAIRU); (v) trend of the labor force⁴ (*population active*); and (vi) trend of TFP. An advantage of this approach, apart from being very transparent, is that not only can it estimate potential growth, it also explains it by decomposing potential growth into different components.

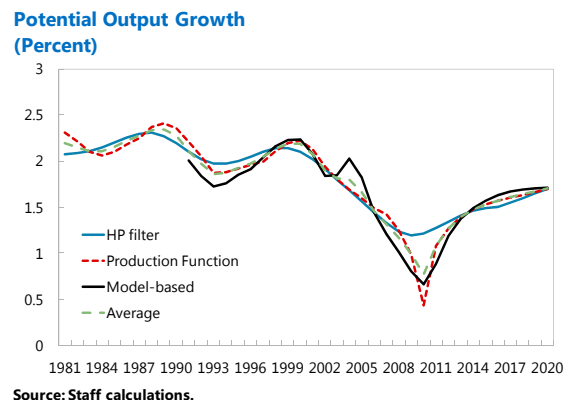
12. The third approach uses a macroeconomic model-based multi-filter method.

Developed by the Research Department in the Fund, this approach brings consistency between potential output and other key macroeconomic variables, including inflation, NAIRU, and the capital utilization rate. In addition, using the Bayesian estimation method, the approach allows the data to “speak for themselves.” A disadvantage of this approach is that it is not transparent and not straightforward enough for a user to immediately dissect the inter-relation among various factors and potential output. In addition, while incorporating complicated short-term time-series dynamics, this method is not suited for estimating long-term potential growth, which is an input, rather than output of the model.

Results

13. Results suggest that potential output in France had been on a declining trend even before the onset of the crisis. The three different approaches—in terms of period

averages over a decade—yield very similar estimates for potential growth during 1981–2016, although on an annual basis, results could differ more markedly. Broadly speaking, potential output grew at an average rate of over 2 percent during the 1980s and 1990s, but decelerated to around 1.7–1.8 percent in the 2000s before the crisis. During the crisis, potential output fell to below one percent.⁵



⁴ Alternatively, active population can be further decomposed into the participation rate and the working-age population.

⁵ The HP filter method is estimated with IMF forecast as the “actual” growth rates during 2011–16.

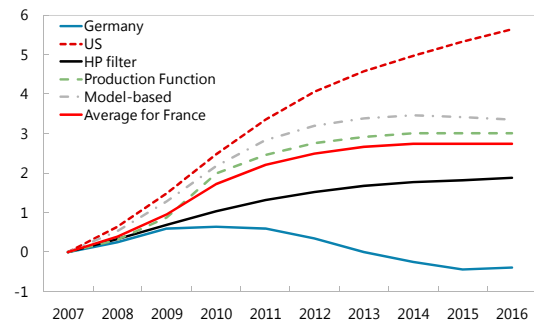
Potential Growth, 1981–2010

	HP Filter	Production Function	Model-Based	Average
1981–1990	2.2	2.2	...	2.2
1991–2000	2.1	2.0	2.0	2.0
2001–2007	1.7	1.7	1.8	1.7
2008–2010	1.2	0.9	0.8	1.0

Source: Staff calculations.

14. **The impact of the financial crisis on France’s potential output is somewhat moderate.** Compared with a counter-factual level—calculated by assuming potential output during 2007–14 would grow at the same rate average rate observed during 2004–07 while converging to the same rate as the average estimated potential growth rate under the baseline—the output loss due to the financial crisis is estimated to be between 1 percent and 3 percent by 2015, depending on the estimating methods used. By comparison, France’s output loss induced by the crisis is more than that of Germany (which is estimated to be almost nil), but less than that for the U.S. (which is estimated to be over 5 percent).

Output Losses

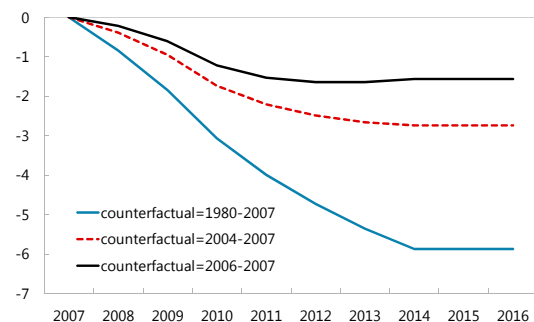


Source: Staff calculations.

15. **The size of potential output losses due to the crisis relative those of Germany and U.S. concurs with economic intuition.** The more significant loss relative to Germany reflects three factors: first, unlike Germany, where losses entirely reflected *temporary* lower foreign demand, losses in France occurred in domestic sectors for a more prolonged period. Second, capital accumulation endured greater losses for a more prolonged period in France than in Germany. Third, while Germany suffered no employment losses, France suffered significant employment losses. That said, France’s losses should be less significant than those of the U.S. on account of the fact that, being the epicenter of the crisis, the latter suffered far greater losses in FIRE, employment losses, and declines in capital formation.

16. **The choice of the counterfactual growth rate, however, is crucial to the estimated output losses.** Since potential output was on a declining trend, if the counterfactual growth rate were assumed to be the same as an moving average over a longer period (such as 1980–2007), the output

Alternative Counterfactuals

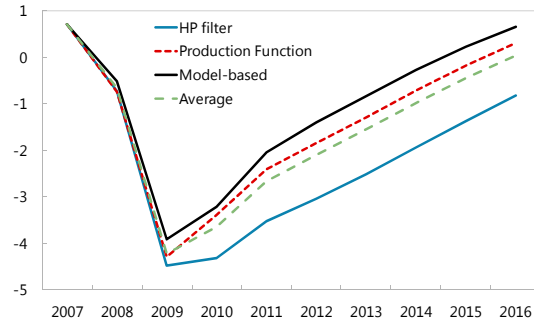


Source: Staff calculations.

loss would have been bigger. On the contrary, if the counterfactual was based on a more recent historical rate (such as 2006–07), the loss would have been smaller. However, given the fact that potential output had been on a declining trend prior to the crisis, it would be unreasonable to assume that it would have grown at a rate similar to the average of the last two decades if the crisis had not occurred.

17. **Over the medium term, potential growth should gradually recover.** Staff estimates that with a number of appropriate structural reforms already in place or in the pipeline, potential growth should increase from about 1 percent during 2010–11 to 1.7 percent by 2020. In this connection, the output gap should narrow gradually and close by 2016.

Output Gap



Source: Staff calculations.

Potential Growth During 2010–11

	HP Filter	Production Function	Model-Based	Average
2011	1.3	1.1	0.9	1.1
2012	1.3	1.3	1.2	1.3
2013	1.4	1.4	1.4	1.4
2014	1.5	1.5	1.5	1.5
2015	1.5	1.5	1.6	1.5
2016	1.5	1.6	1.6	1.6
2017	1.6	1.6	1.7	1.6
2018	1.6	1.6	1.7	1.6
2019	1.6	1.7	1.7	1.7
2020	1.7	1.7	1.7	1.7
Period Average	1.5	1.5	1.5	1.5

Source: Staff calculations.

D. Long-Term Growth Prospects and Policy Implications

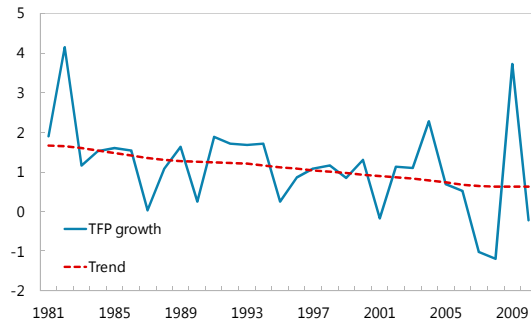
18. **A growth accounting exercise suggests that the declining trend of potential growth during the past three decades reflects a confluence of factors.** First and foremost, TFP growth has been on a declining trend since the 1980s. Second, declining average working hours per worker has also contributed to lower potential growth. Third, capital utilization has played an important role in lowering potential output growth during the crisis. Finally, the increase in NAIRU in the 1980s had reduced potential growth then, while the decline in the NAIRU in the 2000s has had the opposite effect.

Contribution to Potential Growth 1981–2010

	Growth	NAIRU	Population	Average Hour	K Utilization	K Stock	TFP
1981–2007	2.0	-0.1	0.4	-0.2	-0.1	0.9	1.1
1981–1990	2.2	-0.2	0.3	-0.3	0.0	1.0	1.5
1991–2000	2.0	0.0	0.4	-0.2	0.0	0.8	1.1
2001–2007	1.7	0.1	0.5	-0.2	-0.2	0.8	0.8
2008–2010	0.9	-0.1	0.5	-0.1	-0.6	0.5	0.6

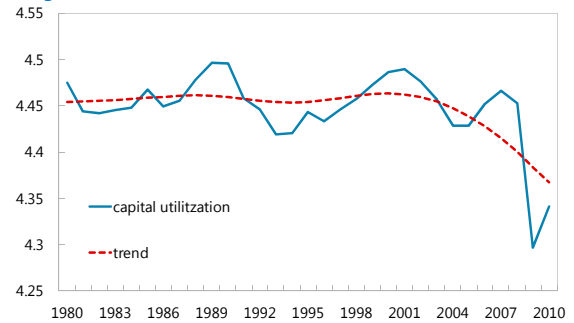
Source: Staff calculations.

TFP Growth, 1980-2010 (Percent)



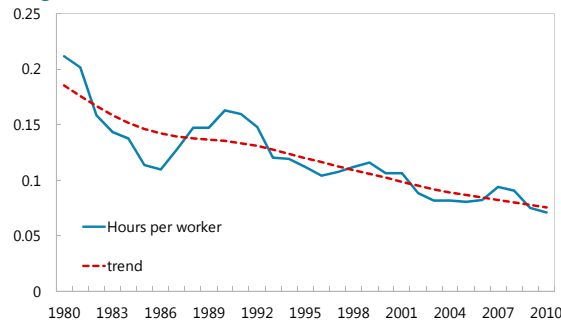
Sources: Staff calculations.

Capital Utilization (Log)



Sources: Staff calculations.

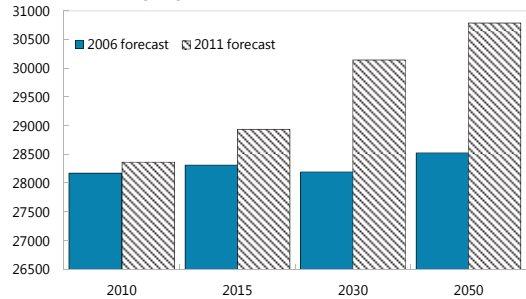
Hours per worker (Log)



Sources: Staff calculations.

19. While the recent pension reform is expected to raise labor force participation and thus potential growth over the long run, France’s potential growth will still be adversely affected by its demographic dynamics. Thanks to the recent pension reform, the labor force participation rate by the seniors is expected to increase. Indeed, INSEE has recently revised its projection of the labor force (*population active*) in the long run. Compared to its projection in 2006 that envisaged a flat labor force dynamics during 2010–50, under the new projection, the labor

Labor Force Projected by INSEE (Thousands of people)



Source: INSEE.

force will increase significantly over the next four decades. That said, in terms of the growth rate of its labor force, France will still face a less favorable demographic structure in the next 50 years relative to the past few decades. According to INSEE's 2011 projection, the labor force annual growth rate would decline from 0.8 percent during 2001–10 to below 0.2 percent during 2021–30 and hover around 0.1 percent during 2031–50. Assuming a labor income share of 0.65, this would imply a reduction in annual potential growth of about 0.2 percent per decade during 2001–30.

INSEE's 2011 Projection of Active Population

	Average Annual Growth Rate	Contribution to Potential Growth
1991–2000	0.5	0.4
2001–2010	0.8	0.5
2011–2020	0.5	0.3
2021–2030	0.2	0.1
2031–2040	0.1	0.1
2041–2050	0.1	0.1

Sources: INSEE; and IMF staff calculations.

20. **Staff estimates that potential output growth in the long run to be 1.7 percent per year.** This projection corresponds to a scenario where sound structural reforms would reverse some of the negative trends in key determinants of potential growth. More specifically, the following assumptions are made:

- Successful implementation of current macroeconomic and structural policies—such as the ongoing fiscal consolidation, labor and product market reforms, and the measures to increase investment in research and development—will stop the downward trend of TFP growth observed during the past three decades and annual TFP growth in the long run remains at 0.8 percent, the rate observed during 2000–07;
- The baseline demographic structure projected by INSEE in 2011 would prevail over the next few decades. While INSEE has already incorporated a higher participation rate (relative to its 2006 projection), partly reflecting the pension reform in 2010, slowing population growth would remain a drag on potential output growth. Indeed, had the demographic structure over 2021–40 been the same as that during the 2000s, potential growth would be 0.4 percentage point higher;
- Sensible labor market and tax policies amid a growth-conducive environment will halt the declining trend in average working hours per worker and this, together with the NAIRU, would remain constant in the period ahead;
- The capital stock would increase at the same rates observed during 2000–07.

Potential Output Growth Projection for 2011–40

	Potential Growth	NAIRU	Active Population	Average Hour	K Utilization	K Stock	TFP
2011–2020	1.5	0.0	0.3	0.0	0.0	0.6	0.7
2021–2030	1.7	0.0	0.1	0.0	0.0	0.8	0.8
2030–2040	1.7	0.0	0.1	0.0	0.0	0.8	0.8

Source: Staff calculations.

21. Looking forward, while appropriate structural reforms are expected to help France stop its declining TFP growth trend and mitigate the negative demographic impact on potential growth, further reforms can even raise potential growth back to the levels observed during earlier decades. Specifically, sensible policy measures in the following areas would further lift potential growth in the long run:

- *Increasing the labor force*—Given the aging population, the labor force can still be increased by raising the participation rate. In this connection, the recent pension reform is a welcome step, but further increase in the effective retirement age would help. In addition, the participation rate can be further increased by reducing the labor-tax wedge to increase incentives for work.
- *Lowering equilibrium unemployment rate*—Determined efforts to further strengthen activation policies would better support the unemployed in their job search and broaden training opportunities but should be accompanied by strict enforcement of job-search requirements. Consideration should be given to limit the duration of unemployment benefits, in order to increase job-search incentives and to reduce long-term unemployment. Furthermore, containment of the minimum wage would raise employment prospects for the low-skilled.
- *Raising working hours*—Reduction in the labor-tax wedge would enhance work incentives and increase the opportunity cost of leisure.
- *Spurring capital accumulation and capital utilization*—Improving the business environment, streamlining regulation, and a corporate tax reform would increase investment and thus potential growth.
- *Boosting TFP*—Measures should be taken to encourage innovation, research, and development. In particular, effective implementation of current policy initiatives—such as tax credit for R&D activities, university reform, the *Investissements pour l’avenir* and *Pôle Compétitivités*—should continue in an efficient manner. Further liberalizing the service sector would also increase efficiency and thus TFP.

22. **In conclusion, with reforms to enhance incentives in the economy towards work, investment in more productive activities, and innovation, France could enjoy higher potential growth.** Based on Everaert and Schule (2006), staff estimates suggest that further labor and product market reforms that would bring France in line with best practices could raise growth by about $\frac{3}{4}$ percent per year over the medium term. This would therefore translate into an increase in the potential growth rate from 1.7 percent to around $2\frac{1}{2}$ percent over the medium term.⁶

⁶ This estimate involves both increased factor usage (both labor and capital) and higher productivity. Boursès et al (2010) estimate that if France aligned its regulation to best practices in the OECD, the long-run employment rate would increase by 1.2 percentage point and multifactor productivity would increase by between 0.2 and 0.6 percent per year over the medium term.

REFERENCES

- Barrera, N., M. Estevão, and G. Keim (2009), “U.S. Potential Growth in the Aftermath of the Crisis,” *IMF Country Report* No. 09/229 (Washington).
- Benes, Jaromir, Kevin Clinton, Roberto Garcia-Saltos, Marianna Johnson, Douglas Laxton, Petar Manchev, and Troy Matheson, (2010), “Estimating Potential Output with a Multivariate Filter,” *IMF Working Paper* No. 10/285 (Washington).
- Bourlès, Renaud, Gilbert Cette, Jimmy Lopez, Jacques Mairesse, and Giuseppe Nicoletti, 2010, “The Impact of Growth of Easing Regulations in Upstream Sectors,” CESifo Dice Report, Journal for Institutional Comparisons, Vol. 8, No.3 (Autumn).
- , 2010, “Do Product Market Regulations in Upstream Sectors Curb Productivity Growth? Panel Data Evidence for OECD Countries”, National Bureau of Economic Research (November).
- Chetouane, Mabrouk, Matthieu Lemoine, and Marie-Elisabeth de la Serve, (2011), “Impact de la Crise sur la Croissance Potentielle,” Banque de France.
- Coeuré, Benoît and Vincent Chriqui, (2011), “France 2030: Cinq Scénarios de Croissance,” *Trésor Direction Générale*.
- Coudin, Élise, (2006), “Projections 2005–2050 Des actifs en nombre stable pour une population âgée toujours plus nombreuse,” *Département de l’Emploi et des Revenues d’Activité, INSEE*.
- Everaert, Luc, and Werner Schule, (2006), “Structural Reforms in the Euro Area: Economic Impact and Role of Synchronization Across Markets and Countries,” *IMF Working Paper* No.06/137 (Washington).
- Filatriau, Olivier, (2011), “Projections à l’horizon 2060 Des Actifs Plus Nombreux et Plus Âgés,” *Département de l’Emploi et des Revenues d’Activité, INSEE*.
- International Monetary Fund, 2011, *Germany: 2011 Article IV Consultation - Staff Report; Public Information Notice on the Executive Board Discussion; and Statement by the Executive Director for Germany*, Country Report No. 11/168 (Washington).

TECHNICAL APPENDIX

Production Function-based approach

Following Barrera et al. (2009), potential output is decomposed into changes in (i) capital stock; (ii) equilibrium capital utilization; (iii) trend hours of work per employee (iv) the equilibrium rate of unemployment (or NAIRU); (v) trend labor force (*population active*); (vi) trend TFP.

Estimation is done in two steps. In the first step, *actual* TFP level is calculated by using the following equation:

$$tfp = y - \alpha ks - \alpha ku - (1 - \alpha) hour,$$

where y is actual output; ks is capital stock; ku is capital utilization; $hour$ is total hours worked, which equals average hour of work per worker*(1-unemployment rate)*labor force; and tfp is total factor productivity. All variables are in logarithm

Once actual TFP level is obtained, potential output is calculated as:

$$y^* = \alpha ks^* + \alpha ku^* + (1 - \alpha) h^* + (1 - \alpha)(1 - u^*) + (1 - \alpha) labor^* + tfp^*$$

where h is average hours of work per worker, u is the unemployment rate, $labor$ is the labor force. Variables with a * are trend values obtained using an HP filter for all series a smoothness parameter of 100—the traditional value for annual-frequency data. The income share of capital used in the Cobb-Douglas production function, α , is assumed to be 0.35.

Multi-Filter Model-based Approach

Based on the model developed by Benes et al. (2010), this approach is underpinned by equations revolving three gaps—the output gap (y), the unemployment gap (u), and the capacity utilization gap (c):

The *inflation equation* relates the level and the change of the output gap to core inflation:

$$\pi_{4t} = \pi_{4t-1} + \beta y_t + \Omega(y_t - y_{t-1}) + \varepsilon_t^{\pi^4}.$$

The dynamic Okun's law defines the relationship between the current unemployment rate and the output gap. Based on Okun's law, an *unemployment equation* links the unemployment gap to the output gap:

$$u_t = \phi_1 u_{t-1} + \phi_2 y_t + \varepsilon_t^u.$$

Finally, the model also relies on a *capacity utilization equation*, on the assumption that capacity utilization contains important information that can help improve the potential output and output gap estimates. The equation takes the following form:

$$c_t = \kappa_1 c_{t-1} + \kappa_2 y_t + \varepsilon_t^c.$$

Given the three identifying equations, the equilibrium variables are assumed to evolve dynamically as follows. A stochastic process including transitory (level) shocks and more persistent shocks guides the evolution of equilibrium unemployment (\bar{U}_t) (the NAIRU equation):

$$\bar{U}_t = \bar{U}_{t-1} + G_t^{\bar{U}} - \frac{\omega}{100} y_{t-1} - \frac{\lambda}{100} (\bar{U}_{t-1} - U^{SS}) + \varepsilon_t^{\bar{U}}$$

Persistent shocks to the NAIRU ($G_t^{\bar{U}}$) follow an autoregressive process:

$$G_t^{\bar{U}} = (1 - \alpha) G_{t-1}^{\bar{U}} + \varepsilon_t^{G^{\bar{U}}}$$

And potential output (\bar{Y}_t) is modeled to be a function of the underlying trend growth rate of potential output ($G_t^{\bar{Y}}$) and changes in the NAIRU. Specifically:

$$\bar{Y}_t = \bar{Y}_{t-1} - \theta(\bar{U}_t - \bar{U}_{t-1}) - (1 - \theta)(\bar{U}_{t-1} - \bar{U}_{t-20})/19 + G_t^{\bar{Y}}/4 + \varepsilon_t^{\bar{Y}}$$

where θ is the labor share in a Cobb-Douglas production function. This specification allows for short- and medium-term growth of potential to differ from trend growth. Note that $G_t^{\bar{Y}}$ is not constant, but follows serially correlated deviations (long waves) from the steady-state growth rate $G_{SS}^{\bar{Y}}$. Similar dynamic equations are specified for equilibrium capacity utilization.

The full model is estimated by regularized maximum likelihood (Ljung, 1999), a Bayesian methodology. This method requires the user to define prior distributions of the parameters. This approach would improve the estimation procedure by ensuring economically sensible results.

II. TOWARD A GROWTH-ORIENTED TAX SYSTEM FOR FRANCE¹

A. Introduction

1. **France's tax system is subject to external pressure for change.** Closer EU integration and globalization have increased the mobility of capital, resulting in rising pressures to reform capital and business income taxation. Recognizing these pressures, the government has proposed on May 11, 2011 (as part of its 2011 supplementary budget) a reform of capital taxation, which seeks to level the playing field and boost France's attractiveness—particularly in relation to Germany.² The reform would eliminate the first tranche of France's annual wealth tax (*Impôt sur la fortune*, ISF), reduce the number of rates from six to only two (0.25 percent for taxable amounts between €1.3 and €3 million, and 0.5 percent for higher amounts) in 2011, and remove the ceiling on personal taxes (*bouclier fiscal*) in 2012.³ The proposals are expected to be approved by Parliament on July 7, 2011, and would potentially come into effect from January 1, 2012.

Taxable amount (Euros)		Rate (Percent)
up to	790,000	0
790,000 –	1,290,000	0.55
1,290,000 –	2,530,000	0.75
2,530,000 –	3,980,000	1
3,980,000 –	7,600,000	1.3
7,600,000 –	16,540,000	1.65
over	16,540,000	1.8

Source: IBFD.

2. **The focus on capital taxation highlights the need for a broader reform of the French tax system to address the features that hamper job growth, investment, and productivity growth.** While the average tax burden may need to remain relatively high in France, reflecting a high preference for public goods, recent studies suggest that it is the tax mix that matters for growth. Tax structures conducive to growth are less reliant on corporate and personal income taxes, and more reliant on consumption and recurrent residential property taxes (OECD, 2010). Lowering the direct-to-indirect tax ratio on average by 10 percentage points could increase per capita GDP growth by 0.39 percent based on results for a panel of 116 developed, developing and transition countries over the period 1972–2005; the impact of reducing the direct-indirect tax ratio by 10 points on per capita growth is even

¹ Prepared by H el ene Poirson.

² A report of the Court of Accounts (*Cour des Comptes*) in March 2011 highlights that the burden of wealth taxation in France is much higher than the EU or OECD average, which in turn is higher than in Germany (Cour des Comptes, 2011). The report finds that the difference relates mostly to the taxation of real assets (land and property), rather than of financial assets. The report more broadly identifies potential opportunities for convergence with Germany, including harmonization of the corporate tax base.

³ Payments of personal taxes, the ISF, and certain real estate taxes on the primary residence are capped at 50 percent of income since 2007. The net revenue loss of the reform (estimated at €1.1 billion) is expected to be offset by higher inheritance taxes, a 19 percent "exit tax" on sale of assets within 8 years of relocation, and higher taxes on whole life insurance savings plans.

stronger for developed countries, at 0.56 percent (Martinez-Vazquez et al., 2009).⁴ Other growth-oriented reforms include lowering the tax wedge on labor; tax base broadening and a reduction in marginal tax rates; and improving the extent to which taxes correct for “externalities.”

3. **This paper documents key features of the present French tax system that affect employment and investment decisions and highlights possible measures to make the tax system more competitive and growth-oriented in a globalizing world economy.** The main concerns include: a high labor tax wedge, due to a heavy reliance on social security contributions; a relatively high corporate tax rate; and the bias of the present system toward certain sources of finance and certain sectors, which encourages excessive financial leverage, and contributes to a dearth of equity financing for innovative projects and an inefficient allocation of resources. The analysis suggests the following directions for reform:

- Social security contributions could be further lowered to reduce the labor tax wedge and increase employment. While past measures have been targeted at the low-wage earners, the tax wedge at the average wage level remains one of the highest in the OECD, both for singles and families.⁵ An analysis of participation trends and reported estimates of employment elasticities suggest that measures targeted to the high participation margins of older workers and women with school-age children in France are the most likely to yield the largest employment and investment impact. France’s corporate tax system is characterized by a high statutory rate compared to other advanced countries and a relatively narrow base. A reform that lowers the tax rate accompanied by base-broadening could improve neutrality, lower compliance costs, and reduce the current bias of the system against small firms to grow. Base-broadening achieved through limits on interest deductibility or shifting to a comprehensive business income taxes could limit incentives for excessive corporate leverage.
- The revenue cost of such measures could be offset by a further reduction in tax expenditures and other base-broadening measures, increased reliance on recurrent taxes on immovable property, “green” taxes, and consumption taxes which have the least damaging effect on growth. On the tax administration side, introducing

⁴ For the developing countries sub-sample, the coefficient on the tax mix variable remains negative, but not statistically significant.

⁵ France has successfully implemented since the late 1990’s measures targeted at low-wage earners to circumvent distortions in the labor market created by the relatively high level of the minimum wage and the 35-hours work week (see Box 1). However, the remaining scope for such measures is now limited. Better targeted policies would need to remove or modify the underlying labor market distortions themselves (Keen and Luzio, 2008).

mandatory withholding for the personal income tax (PIT) would improve efficiency and compliance.

- The proposed reforms need not conflict with redistributive objectives: international experience shows that this objective is better achieved with expenditures rather than tax measures.⁶ Moreover, micro-level evidence suggests the VAT can be a progressive tax, if its impact is assessed on lifetime rather than annual income (Caspersen and Metcalf, 1995). Reforms will need to assess distributional issues and possible mitigating measures carefully.

B. International Comparisons and Recent Trends in French Tax Revenues

Stylized Facts

4. **The tax ratio in France, at 42.8 percent of GDP (in 2008), is well above the EU-27 and EA-16 averages (of 39.3 percent and 39.7 percent, respectively).** A relatively high level of taxation is required to fund France's preference for extensive welfare arrangements. Recent empirical evidence suggests that the tax structure, more than the overall tax level, is what matters for growth (Martinez-Vazquez et al, 2010). Even without changing the overall tax burden, there is scope to improve the tax mix. France relies heavily on social security contributions (39.2 percent of tax revenue in 2009, compared to an OECD average of 26 percent) and indirect taxation (including taxes on goods and services and other taxes) yields about 28 percent of tax revenue compared to 31 percent on average in OECD countries. The corresponding ratio of direct-to-indirect taxes (at 2.5 in 2008) is higher than the OECD and EU-15 averages of 2.2.⁷



Source: OECD Tax Statistics.

⁶ See, for example, Newhouse and Zarhakova (2007).

⁷ However, if property taxes are included as indirect taxes, France's direct-to-indirect tax ratio (of 1.6) would be broadly in line with the average in advanced countries (of 1.7). Property taxes which may be adjusted for the characteristics of individual owners, such as taxes on owner-occupied housing, would be classified as direct taxes, while other property taxes which are levied irrespective of circumstances (e.g., on commercial buildings, motor vehicles, etc.) would be classified as indirect taxes. Martinez-Vazquez et al. (2000) find that the trends and the empirical results on the impact of tax mix on growth are not affected by the choice of classification.

5. The revenue productivity of the main taxes (personal and corporate income taxes and VAT) is low.

- Personal income tax revenue—which includes not only the PIT but also “social taxes” including the flat rate social security contribution (*contribution sociale généralisée*, CSG) and the social security debt contribution (*contribution au remboursement de la dette sociale*, CRDS)⁸—totaled 7.5 percent of GDP in 2008, compared to 9 percent in the OECD and 9.6 percent in Germany. The low yield of the PIT reflects its limited scope (it is paid by only about half of all taxpayers) and the impact of various tax credits and provisions. The highest statutory marginal PIT tax rate, at 40 percent, is lower than in Germany (45 percent), but higher than in other Euro area countries such as Spain (27.13 percent) or Finland (31.50 percent). Notwithstanding a higher tax rate, revenue raised by the PIT is only slightly above Spain’s level (of 7.1 percent of GDP) and much below Finland’s level (of 13.3 percent of GDP).

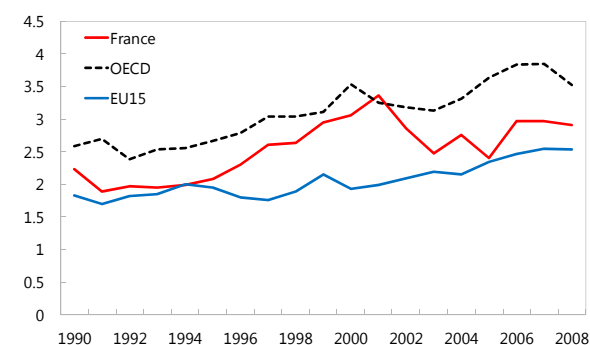
Taxable amount (Euros)	Rate (Percent)
CSG	
Employment income	7.5
Income from immovable property	8.2
Investment Income	6.6
CRDS	0.5
Social levy 1/	3.4

Source: IBFD.

1/ On income from immovable property and investment income.

- Revenue from the corporate income tax (CIT) at 2.9 percent of GDP in 2008 is also lower than the OECD average (of 3.5 percent of GDP) despite a statutory rate that, at 33.33 percent, is not low by international standards (Appendix, Table 1). While corporate tax revenue has remained above the EU-15 average level in the past 20 years, France recorded a decrease in receipts since 2001, in contrast to the OECD and EU-15 countries, where corporate tax revenue increased by 0.3 and 0.5 percent of GDP, respectively, in large part reflecting the base-broadening measures taken.⁹ The overall revenue productivity, as indicated by the implicit tax base (CIT revenue

Corporate Tax Revenue, 1990-2008
(Percent of GDP)



Source: OECD.

⁸ Unlike the PIT, for which a range of exemptions and allowances are available, the CSG applies to all types of income unless expressly exempt. The CRDS is levied, in general, on the same base as the CSG. It also applies to certain types of income that are exempt from the CSG, e.g. gains on precious metals. While the CSG is partially deductible, the CRDS and the social levy are not deductible for income tax purposes.

⁹ See Norregaard and Khan (2007) for an overview of tax policy trends over the last twenty years.

divided by the top statutory rate), is 8.7 percent of GDP, well below the OECD mean (of 15 percent of GDP) due to generous deductions and exemptions including a 15 percent rate for SMEs (see Appendix, Table 3).¹⁰

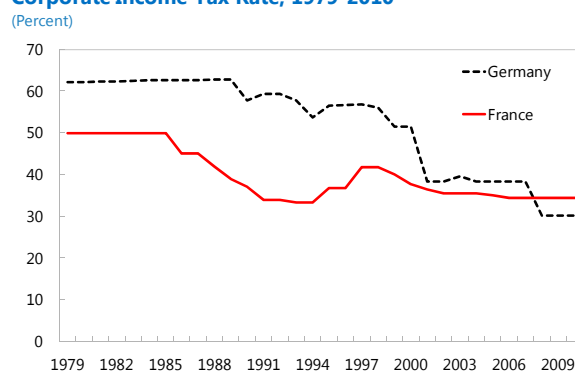
- The share of taxes on goods and services in GDP (10.6 percent) is somewhat below the OECD average (10.8 percent)—despite a higher standard VAT rate (19.6 percent in 2010 vs. 18 percent in the OECD).
- In contrast, property taxes account for a relatively high fraction of GDP in 2008 (3.4 percent), higher than the OECD average (1.8 percent) although below the U.K. level (4.2 percent).¹¹

6. While past reforms have succeeded in lowering the tax wedge for low wage earners, corporate tax reforms in France have lagged those in other advanced countries.

For example, Germany completed a second major CIT reform in 2008. In line with previous reforms and those in other advanced countries over the past decades, the reform broadened the tax base (particularly through limits on the deduction of interest costs in specific cases where there is evidence of borrowing from foreign subsidiaries to shift profits abroad) while lowering profit tax rates significantly from 38.9 percent to 30.2 percent.¹² This leaves France with the highest rate in the EU and the third highest rate in the OECD after Japan and the U.S. (see Appendix, Table 1).

Appendix, Table 1, shows that forward-looking average and marginal effective tax rates (METRs) are much lower than the headline statutory rate, reflecting generous depreciation allowances for plant and machinery (Keen and Luzio, 2008). The METRs are thus not out of line with those of other advanced countries. The average effective tax rate (AETR), however, is high by advanced country standards (as further discussed in Section C).

Corporate Income Tax Rate, 1979-2010



¹⁰ The implicit base has the merit of reflecting all base-reducing measures, whereas the forward-looking effective tax rates reflect only common features such as depreciation allowances.

¹¹ The bulk of property taxes relates to recurrent immovable property taxes (two-thirds of total property taxes in France), with property/capital transfer taxes accounting for about 17 percent.

¹² See Klemm and Danninger (2006) for a comprehensive assessment of the preliminary reform proposal, published on July 12, 2006 by the German Ministry of Finance.

Box 1. Previous Reforms

Cuts in social contributions targeted on low wage earners have been a cornerstone of France's policies to mitigate the impact of a high tax wedge on employment and investment. Past reforms were focused on reducing social contributions at and up to 1.6 times the minimum wage and are estimated to have increased employment by around 3 percentage points (Keen and Luzio, 2008). Other measures included the introduction of the earned income tax credit (*Prime pour l'Emploi*, PPE) in 2002 and the introduction in July 2009 of a new earned-income supplement (*Revenu de Solidarité Active*, RSA) aimed at smoothing the effect of benefits thresholds to increase incentives for the low-skilled to seek employment.

Recent reforms have focused on the local business tax (*taxe professionnelle*, TP). The TP was suppressed in 2010 and replaced by an “economic territorial contribution.” This is no longer based on the annual value of commercial and industrial equipment, but consists of a levy on the annual rental value of immovable property and a new tax of 0.4 percent (from a turnover exceeding €500,000) to 1.5 percent (from a turnover above €50 million) on the added value of the business (*cotisation sur la valeur ajoutée des entreprises*). The overall tax cannot exceed 3 percent of the value of the business.

Tax measures included in the 2009–10 fiscal stimulus package have further eroded the tax base. France has reduced PIT rates for low-income households and introduced reduced VAT rates as part of its stimulus measures in 2009 and 2010. The PIT was cut by two-thirds for low-income households in 2009 and a reduced VAT rate of 5.5 percent was introduced on restaurant services. Similar measures were taken in Germany over the same period.¹

¹Germany reduced the bottom PIT rate from 15 percent to 14 percent in 2009 and 2010, increased PIT thresholds, the basic allowance, and the tax allowance for children, and introduced a one-off payment of EUR 100 euros per child in 2009 (*Kinderbonus*). In 2010, Germany also introduced a reduced 7 percent VAT rate on short-term accommodation as supplied by hotels, pensions, and guesthouses.

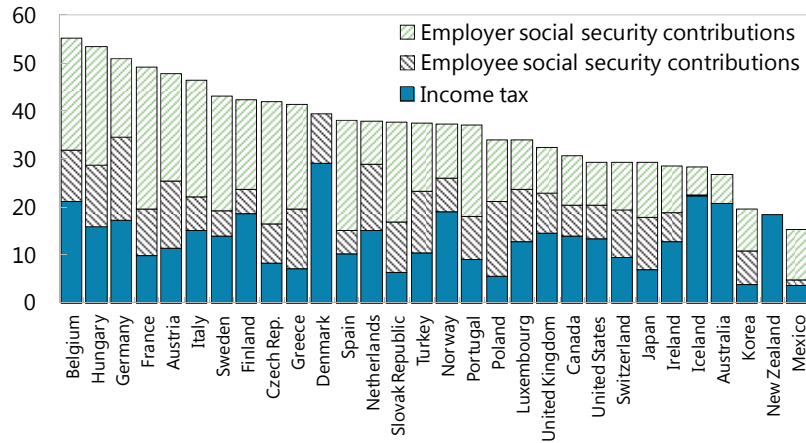
C. The Burden of the French Tax System and a Roadmap for Reform

Labor Taxes

7. **France's welfare arrangements require a relatively high level of social security contributions and social welfare taxes, resulting in the third-highest tax wedge in the OECD.** Despite the low revenue yield of the PIT, relatively high social contribution rates imply sizeable marginal tax wedges (income tax plus employer and employee social security contributions minus cash transfers) that are well above the OECD average. The labor tax wedge at the average wage level for singles is the fourth highest in the OECD. Germany's tax wedge is also relatively high for singles, but much lower for families (although still higher than the OECD average, see Appendix, Table 2).

OECD Countries: Total Tax Wedge, 2009 /1

(Percent)



Source: OECD.

1/ For a single individual without children, at the income level of the average worker.

8. **Such tax wedges provide disincentives to employment and labor force participation by pushing up labor costs.** Substitution away from labor puts downward pressure on the marginal product of capital, reducing investment and growth over time. Thus, lowering labor taxation could have a direct impact on competitiveness and employment. Past reforms in France, as noted earlier, have been targeted to low-wage earners, at or close to the minimum wage. The tax wedge at the average wage level remains high.

9. **The empirical evidence suggests that reducing high tax wedges, along with lowering unemployment benefits, could decrease aggregate unemployment and boost employment prospects.**¹³ Based on a panel of 14 OECD countries during 1965–95, Daveri and Tabellini (2000) find a high positive correlation between labor tax rates and unemployment in continental Europe, but not in the Anglo-Saxon or Nordic countries (where strong and centralized unions may internalize the implications of higher wage demands and moderate their wage claims, resulting in little or no effect of taxes on labor costs). Their results suggest that each 1 percent rise in the average effective labor tax rate in continental Europe leads to a rise in unemployment of about 0.3 percent, a reduction in the investment rate of about 0.2 percent, and an annual per capita growth slowdown of about 0.03 percent. Using a panel of 21 OECD countries over 1982–2003, Bassanini and Duval (2006) similarly

¹³ While both the initial replacement rate and the duration of benefits are relatively high in France compared to the average for the OECD countries, the experience of Nordic countries—where the first-year replacement rate is also high—suggests that reducing the duration of benefits while keeping initial replacement rates unchanged is preferable from the perspective of labor market efficiency to reducing the initial replacement rate.

find that a 1 point reduction in the tax wedge leads on average to a drop in the unemployment rate by about 0.3 percent.¹⁴

10. High marginal effective tax rates (due to the combination of tax and benefit systems) can also affect labor supply decisions by affecting the choice between additional work and leisure or non-market activities. In particular, labor taxes affect the labor supply response of women, possibly because the activities that women perform (child care and other household-related activities) provide a close substitute for market work. For example, Klevmarken (2000) found that the reduction in tax rates led to a higher increase in work hours for women than for men in Sweden during the 1990–91 reform. Bassanini and Duval (2006) find that each percentage point decrease in the tax wedge raises the employment rate of prime-age women by 0.5 percent, compared to an impact of 0.3 percent on the employment rate of other groups. Simulations of a tax benefit model for the U.K find that while the overall hours elasticity for the age 30–54 group (i.e., the decrease in hours worked in response to a 1 percent increase in implicit tax rates) ranges from 0.3 to 0.44, women with children of school age have higher elasticities of around 0.5 on average (Blundell, 2010). Evers et al. (2008) similarly find a higher elasticity of women’s labor supply of 0.5, compared to 0.1 for men. Empirical studies also offer support for larger elasticities regarding the decision to participate (the extensive margin) than the decision to work longer hours (the intensive margin). This latter result may also explain the relatively large elasticities at old age found by some studies.¹⁵

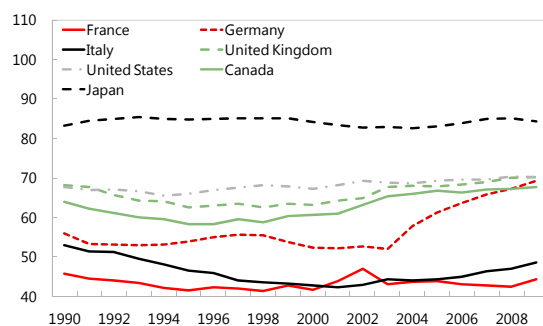
11. Significant labor supply dividends can thus be expected from a reform of the tax-benefit system that increases work incentives for the high supply margins, i.e. elderly workers and women with school-age children. The participation rate of male workers aged 55–64 in France is the lowest among advanced countries; and while the employment rate of prime-aged women (30–54) has increased in line with that of other OECD countries, French women’s mean hours worked have declined markedly since the late 1970s.¹⁶ The U.S. experience illustrates the scope for a supply response, with almost a quarter of the increase in hours worked between 1977 and 2007 explained by higher participation of older workers (55–74) and about 10 percent by higher hours worked of employed prime-aged women (Blundell et al., 2011).

¹⁴ The empirical findings suggest that the impact of a lower tax wedge on unemployment is higher when accompanied by a concurrent reduction in benefits: each 1 percentage point reduction in unemployment benefits further decreases unemployment by about 0.1 percent on average, with an especially high elasticity of the unemployment impact to benefit duration.

¹⁵ See for a comprehensive review Euwals et al. (2009).

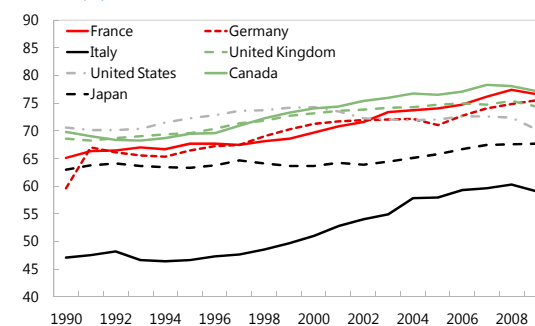
¹⁶ According to INSEE’s 2009 labor force survey, employed French women work on average 34 hours a week, compared to 41 hours for men. The under-employment rate for women aged 30-49 is almost 8 percent, compared to 2½ percent for men.

Labor Force Participation Rate, Men, Ages 55-64
(Percent)



Source: OECD.

Employment, Women, Ages 25-54
(Percent of population)



Source: OECD.

12. **Work incentives targeted at these high labor supply margins are likely to be more effective and cost-efficient than across the board tax cuts.** They can be implemented by making earned income tax credits (EITC) more generous for older workers and for women with school-aged children. For example, the Netherlands introduced in January 2009 an age-specific EITC that increases the reward to working for individuals aged between 62 and 67. This bonus is estimated to raise the participation of the 60–64 group by 0.6 percentage points, equivalent to 0.1 percent of the labor force (Euwals et al., 2009). Alternative forms of tax relief may yield similar effects on participation and employment, depending on their design. For example, employers could receive special credits for social security contributions paid for workers in these two groups. This age-specific subsidy would reduce wage costs for older workers and women with children over 5, making it more attractive for firms to employ them.¹⁷

13. **While the employment impact of lower tax wedges would likely partially offset their cost in revenue terms, uncertainty over the size of the employment effect calls for concurrent revenue measures to ensure that fiscal consolidation goals are achieved.** To have the least damaging effect on growth, revenue-raising measures would ideally shift the tax burden to indirect taxes. However, given the low revenue productivity of the PIT in France and in light of distributional considerations, there is also considerable scope to raise PIT revenue.¹⁸ Specifically, the following options could be considered:

¹⁷ Employers who hire a worker aged over 45 under an apprenticeship program (*contrat de professionalisation*) already benefit since May 16, 2011, from a targeted subsidy of €2,000.

¹⁸ See Landais et al. (2008) for a comprehensive assessment of the tax system's progressivity in France. On the expenditure side, a reform of social transfers (e.g., for housing) and/or a reduction in the relatively high duration of unemployment benefits could be considered. The latter could have the added benefit of helping to increase employment. See Schindler (2011) for evidence that the 2005 Hartz IV reforms contributed to the recent downward trend in actual and structural unemployment in Germany by reducing the value of not being employed and contributing to better matching efficiency.

- A broadening of the VAT base through the removal of exemptions and reduced rates (see Appendix, Table 3). For example, IMF (2010) estimates that France would gain 0.36 percent of GDP by raising C-efficiency—defined as VAT revenue divided by the product of the standard rate and aggregate private consumption—from its current level of 0.48 to the average level of advanced countries examined (0.52). Raising C-efficiency to Japan’s level of 0.7 (the highest in the sample) would yield 3.5 percent of GDP.

- Improving the efficiency of tax collection, including for fuel, alcohol, and tobacco excises. Revenue from alcohol excises in 2007 was only 0.05 percent of GDP in France, compared to 0.14 percent of GDP in Germany and an average of 0.18 percent of GDP in other advanced countries

	Sparkling		Alcohol	Cigarettes 2/	Gasoline	Diesel
	Still wine	wine				
France	3.400	8.400	1450.000	58.000	0.602	0.426
Germany	0.000	136.000	1303.000	24.660	0.655	0.470

Source: OECD Tax Database.

1/ EUR per hectolitre, unless otherwise specified.

2/ in percent of retail selling price.

- (IMF, 2010). This is despite an alcohol excise tax somewhat above Germany’s. Similarly, revenue from tobacco excises in France, at 0.52 percent of GDP, is lower than in Germany (at 0.58 percent of GDP), despite a more than double excise rate. Motor fuel tax revenues are also lower in France by about ½ percentage point of GDP relative to Germany, despite broadly similar levels of fuel taxation.

- Raising recurrent immovable property taxes, on which France relies to a lesser extent than the U.S., Canada, Japan, or the U.K. Increasing the revenue from recurrent immovable property taxes—the least damaging for growth—to yield the average ratio to GDP in the U.S., Canada, and the U.K., would yield 1 percent of GDP (IMF, 2010).¹⁹
- Increasing environmental taxes, which are relatively less important in France than in other advanced countries (OECD, 2011). For example, the introduction of a carbon tax along the lines of the EU’s April 2011 proposal would provide annual revenue of about 0.2 percent of GDP.
- Finally, raising PIT revenue through the removal of exemptions and improved tax administration and compliance. A range of exemptions and deductions is available under the PIT, which do not apply under the CSG. These include not only a relatively high threshold, but special treatments such as the tax credits for salaries of domestic

¹⁹ Johansson et al. (2008) find that corporate taxes are the most harmful for growth, followed by personal income taxes, while consumption taxes and recurrent taxes on immovable property appear to have the least damaging effect on growth.

staff, investments in improved energy efficiency, investments in residential properties for letting, and the mortgage interest credit (Keen and Luzio, 2008). On the administration and compliance side, elimination of tax breaks could enable significant simplification and, together with the introduction of mandatory withholding, improve compliance and reduce both taxpayers' compliance costs and the authorities' costs of administration.²⁰

14. **To further encourage increased labor supply by prime-age women, complementary reforms could include a shift to an independent system of family taxation.** The current joint taxation system implies high marginal tax rates on secondary earners entering work. While these effects may currently be muted in France by the relatively narrow scope of the IR, they could become more significant following a reform that broadens the base and increases the revenue yield of personal income taxation.

15. **In the case of senior participation, complementary reforms could focus on increasing further the statutory retirement age at which full benefits can be collected to increase incentives for senior workers to remain in the labor market.** Bassanini and Duval (2006) estimate that, for the average OECD country, a one-year increase in the standard retirement age would raise the employment rate of older workers by 0.6 percent. Estimates for the Netherlands suggest broadly similar effects of delaying the standard retirement: increasing the retirement age from 65 to 68 years could raise the total employment rate (including 65 and over) by 1.6 percent and the labor supply among workers below 65 (20–64 years) by 0.8 percent in a central scenario, where a one-year increase in the official retirement age at which benefits can be collected causes an increase in the actual retirement age by 0.5 years (Euwals et al., 2009).

Corporate Taxes

16. **Key features of France's corporate tax system from a growth perspective are:** (1) a relatively high statutory and average effective tax rate (AETR), which could adversely affect firms' location decisions; and (2) non-neutrality, resulting in distorted incentives to invest with potential negative consequences for the efficiency of investment decisions and total factor productivity (TFP) growth.

17. **A relatively high AETR can impact firms' investment and location decisions (i.e., domicile competitiveness) and encourage profit-shifting.** High average taxes, for example, could discourage multinational companies from incorporating in France and/or encourage operation through subsidiaries located in low-tax foreign countries, or inversions

²⁰ France is the only other OECD country (with Switzerland) not to have introduced mandatory withholding for the PIT (Keen and Luzio, 2008). Experience from the introduction of withholding in the U.S. suggests a long-run gain of around 22 percent of revenue (Dusek, 2006).

(reincorporations in low-tax countries).²¹ Empirical studies of international investment responses yield substantial effects, both via marginal investments and especially via discrete location decisions. Specifically, reported estimates of semi-elasticities in de Mooij and Everdeen (2009) suggest that each 1 percentage point increase in the AETR (METR) has an aggregate effect on the tax base of -0.65 (-0.4).

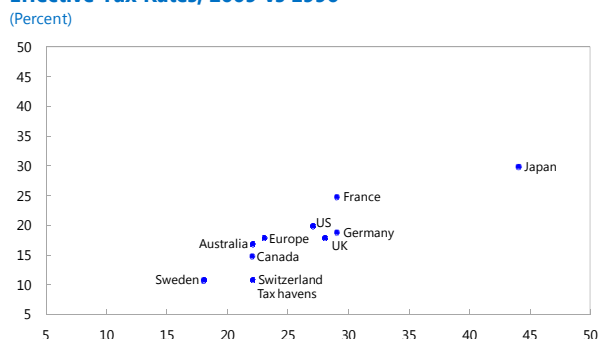
18. While the impact of tax on the cost of capital and thus *marginal* investment does not seem out of line in France compared to other advanced countries, the *average* effective tax rate is relatively high, suggesting that it could affect discrete investment decisions.

France's marginal effective tax rate (METR) on new investment is broadly in line with the OECD average for equity-financed investments in the manufacturing sector, and below average for debt-financed investments (Appendix, Table 2). However, METRs affect the quantity of investment, whereas AETRs affect discrete investment choices (i.e, the decision whether to invest). The decline in the AETR in France over the last 15 years has been less pronounced than in other

advanced countries (amounting to 4 percentage points, compared to 8.3 percentage points for the comparator sample).²² Thus, for 2009 (the most recent year available), France had the second highest current effective tax rate in a sample of 11 countries and regions for which estimates were available in both years. Moreover, METRs and AETRs vary by industry. The services sector—in particular, financial firms—face higher effective tax rates in France (as discussed below).

19. Effective tax rates in France vary considerably across industries and firms, reflecting widespread use of tax incentives for special sectors and regions, and the bias toward debt financing. Industry results in Markle and Shakelford (2011) suggest that France has relatively more industry-specific provisions than other industrial countries: the spread of estimated effective tax rates by industry (for pooled multinational and domestic firms), measured by the coefficient of variation, is 0.25 in France, higher than in Germany (0.14) or the U.K. (0.17), albeit lower than in the U.S. (0.33). Calculations of effective tax rates in Partouche and Olivier (2011) confirm these results, showing that (nonfinancial) services firms face an effective CIT rate of 30½ percent compared to 25 percent for

Effective Tax Rates, 2009 vs 1996



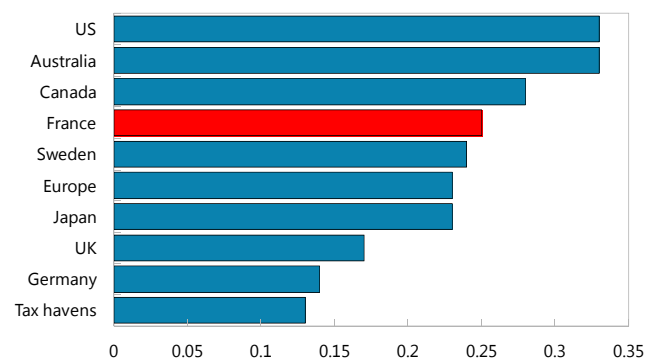
Source: Markle and Shakelford (2011).
Notes: Current tax expense. Multinationals and domestic companies, pooled. Estimates controlling for industry and firm size differences across countries.

²¹ See, for example, Devereux and Griffith (2003) and Markle and Shakelford (2011).

²² Based on a sample that does not include R&D firms (which benefit from a preferential tax treatment in France).

manufacturing firms. Firm-level results in Partouche and Olivier (2011) also show that the tax subsidy for debt-financed investments in France disproportionately benefits large firms (5,000 or more employees), contributing to a 14 percentage points reduction in their CIT rate against 3–4 points for small firms (249 employees or less). The reduced statutory rate of 15 percent for SMEs in France is not sufficient to offset the bias related to interest deductibility provisions, as the same study finds that its contribution to lowering the effective CIT rate is 11.5 points for the smallest firms (9 or less employees) and 2 points for larger SMEs.

Dispersion of Effective Tax Rates by Industry, 2005-09 1/
(Percent)



Sources: Markle and Shackelford (2011); and IMF staff estimates.

1/ Coefficient of variation of estimated industry-specific effective tax rates.

20. **A corporate tax reform that reduces the statutory rate along with broadening the base would mitigate the revenue cost, make the system fairer and simpler and thus less biased toward small firms, and deter profit- and investment-shifting.** As noted earlier, OECD corporate tax revenues have increased over the past 20 years, notwithstanding a move toward lower statutory rates. This suggests that base-broadening—along with other factors, such as a rising GDP-share of profits—has largely offset the revenue costs of statutory tax cuts.²³ Beyond less generous depreciation allowances, base-broadening achieved through the removal of reduced rates and tax incentives would reduce the complexities of the current system and distortions resulting from the heterogeneity of tax burdens across firms and sectors.²⁴ Such measures are not well-targeted to what are presumably the underlying objectives—investment or employment—and tend to benefit larger companies which can achieve a lower tax burden through tax planning and fiscal engineering, and which may also have easier access to debt-financing. Reducing the bias toward small firms in the current system would also raise TFP growth by increasing the potential for economies of scale through firm growth.

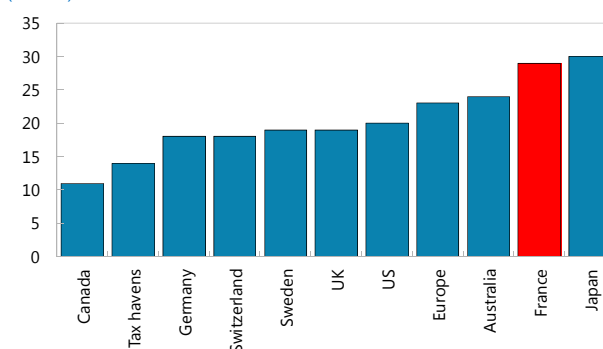
²³On March 16, 2011, the European Commission (EC) proposed a Common Consolidated Corporate Tax Base (CCCTB) for businesses operating in the EU. If approved, the CCCTB would create a uniform base, ensuring that competition takes place on the effective tax rate, rather than on potentially hidden elements in different bases. The EC estimates that the CCCTB could lead to a further broadening of EU tax bases by 7.9 percent on average.

²⁴ In particular, the rationale and the effectiveness of the holidays for investments in competitiveness centers and urban-free zones, the R&D treatment, and the reduced rate for SMEs—both relatively generous by international standards—are questionable (Keen and Luzio, 2008). While these provisions may serve to attract especially mobile international investments and to reduce discrimination against smaller firms built-in the current system, a reduction in the statutory rate would reduce the need for such measures.

21. **Finally, the bias toward debt over equity financing or retained earnings may encourage excessive leverage, particularly by financial firms which face a high effective tax rate in France compared to other advanced countries.**²⁵ Debt-financed investments received a 36 percent subsidy at the margin in 2005, higher than in other advanced countries (Appendix, Table 1). A number of countries have implemented policy measures to mitigate the debt bias, including limits on interest deductibility. These measures, however, can complicate corporate tax regimes. More comprehensive reforms involve a comprehensive business income tax, which disallows the exemption of interest, or an allowance for corporate equity—as adopted in Belgium since 2006, and to some degree in Brazil, Croatia, and Latvia—which grants firms a deduction for a notional return on equity or notional cost of equity finance (de Mooij, 2011).

Effective CIT Rate, Finance Industry, 2005-09

(Percent)



Source: Markle and Shackelford (2011).

Note: Current tax expense. Multinationals and domestics pooled.

22. **Quantitatively, empirical studies suggest that the effect of removing the debt-equity discrimination on firms' financial policy (i.e., the reported semi-elasticity for financial leverage) is significant, but relatively less important than the impact of tax rates on profit shifting, incentives to incorporate, and the decision to invest (de Mooij and Ederveen, 2009).** An extensive analysis of elasticity estimates based on a meta analysis in de Mooij (2011) suggest that a 10 percentage points increase in the corporate tax rate raises the debt-to-asset ratio at the margin by 2.8 percent. Thus, lowering France's 34.4 percent combined CIT rate by 6 points to the OECD average of 28.3 percent (ignoring personal taxes) would reduce the debt-to-equity ratio by almost 4 percentage points to about 49 percent.²⁶ Tax effects on the debt-to-equity ratio of French financial firms could be even larger, in light of the higher effective CIT rate faced by the finance industry. In the case of banks, implementing an ACE would be equivalent to granting a deduction for a notional return on Tier 1 capital, and would have the advantage of eliminating the current tax penalty on the accumulation of capital reserves (Keen et al., 2010).

23. **Preferential tax treatment of debt can also in principle provide an implicit subsidy to household borrowing that, in turn, may contribute to froth in the housing market.** In particular, mortgage interest deductibility and other tax features can substantially

²⁵ Major French banks remain less capitalized than their European peers, with a core Tier 1 ratio of 8.8 percent in 2010 compared to an average of 10 percent for peer European banks (Sy, 2011).

²⁶ The median debt-to-equity ratio of listed French non financial firms was 53 percent in 2007 (see Xiao, 2008).

reduce the user cost of housing—by about a fifth according to estimates for the U.S. (Keen et al., 2010). For France, however, there is little evidence of tax-induced distortions. Keen et al. (2010) find that France (along with Spain and Denmark) has one of the highest effective average tax rates on owner-occupied housing, despite experiencing the second strongest price increase since 1998, suggesting that taxation was not the main driver of house price developments over the last decade.²⁷ While mortgage interest relief and other tax advantages (e.g., the Scellier law applied to rental investments made between January 1, 2009 and December 31, 2012) may have encouraged the strong build-up of residential mortgage debt since 1990, mortgage debt outstanding in France remains one of the lowest among the OECD countries (Cardarelli et al., 2008; Centre d'Analyse Stratégique, 2011).²⁸

Impact of Tax Reform on Employment and Growth: An Illustrative Scenario

24. **The empirical results can be used to illustrate the potential macro-economic impact of various policy reforms.** While the estimates of the effects of labor and profit tax cuts discussed below do not take into account the possible negative impact of offsetting measures—and thus could over-estimate the net impact of the reforms—they still provide a useful benchmark for comparison of different measures.²⁹ Four main scenarios were examined. These were (1) a broad restructuring of the tax mix that lessens the burden of direct taxation and increases the burden of indirect taxes to bring the tax mix in line with EU and OECD average levels; (2) a lowering of the average labor tax wedge, both without and with a concurrent reduction in benefit duration, that brings it in line with the EU mean; (3) targeted cuts in the labor tax wedge for the high labor supply margins, calibrated to

²⁷ Based on market indicators (i.e., price-to-rent and price-to-income), the extent of overvaluation of French housing prices is nearly 20 percent, the highest among other European countries (Standard and Poors, 2010).

²⁸ Mortgage interest deductibility was eliminated from January 1, 2011 and replaced by an updated version of the 2010 zero interest rate loan (*pret à taux zéro*) for purchase of a primary residence. Unlike the 2010 version, the 2011 *pret à taux zéro* has no income restrictions and the amounts borrowed can be higher in higher-priced regions and when the dwelling purchased meets certain energy standards.

²⁹ Raising consumption taxes for example could negatively affect growth and employment in the short- to medium-run, if it leads to higher inflation and wages. The empirical evidence for OECD countries on the impact of consumption taxes on unemployment is inconclusive. While Daveri and Tabellini (2000) find that the consumption tax rate has no independent impact on unemployment once the labor-related tax wedge is accounted for, the results in Bassanini and Duval (2006) suggest that a 1 point rise in the consumption tax rate raises unemployment by 0.2 percent—similar to a 1 point rise in the labor tax rate. The net impact of a shift in tax bases on unemployment is likely to be negative overall, so long as the consumption tax base is larger than the wage bill. Simulation results for France suggest that the employment impact of higher consumption taxes would indeed be limited (Gauthier, 2008). The impact on inflation depends on country-specific factors, such as the existence of indexation mechanisms and the strength of competition in the retail sector. Price increases in 2007 from Germany's 3 percentage points increase in the VAT rate for example were more modest than feared due to competitive pressures in the retail sector (Carare and Danninger, 2008).

replicate roughly the estimated impact of similar reforms in the U.K. and the Netherlands³⁰; and (4) a decrease in the effective CIT rate by 5 points to 20 percent (one percentage point above the AETR level in Germany of 19 percent).

25. **The estimates derived from empirical elasticities for advanced countries suggest sizeable growth, employment, and participation effects.** Under the first scenario, bringing the tax structure more in line with the average among EU and OECD countries could raise per capita growth by about ½ percent annually. A reduction of the labor tax wedge across the board by eight points (scenario 2) could reduce unemployment by almost 1 million—lowering the unemployment rate by about 2½ percentage points—and increase the investment rate and per capita growth by 1½ percent and ¼ percent, respectively.³¹ Simulations for the third scenario—reducing the tax wedge for prime-age women (aged 30–54) and older workers (aged 60–64) by 1 point and 2 points, respectively—point to an addition to employment and participation of over 50,000 for women (equivalent to a 0.1 percent increase in employment) and 25,000 for older workers (equivalent to a 0.1 percent increase in participation), respectively. Finally, under the fourth scenario, simulation results based on consensus empirical estimates of the elasticity of investment at the extensive margin (0.65) to the effective tax rate suggest that a reduction of 5 points in the AETR could raise total investment by ¾ percent.

France: Estimated Impact of Tax and Benefit Reforms 1/

	Unemployment		Employment		Participation		Investment	Per Capita Growth
	Percent	Thousands	Percent	Thousands	Percent	Thousands	Percent	Percent
Reduction of direct-to-indirect tax ratio by 11 percentage points (ppts) to average OECD and EU levels (of 2.2) 2/								0.6
Reduction of overall labor tax wedge by 8 ppts to EU level	-2.4	-956.2					1.6	0.24
Reduction of overall labor tax wedge by 8 ppts to EU level, combined with reduction of unemployment benefit duration by one-third (to 25 months) 3/	-3.1	-1219.9						
Reduced labor tax wedge by 1 ppt for prime-age women (aged 30-54)			0.1	52.9				
Reduced labor tax wedge by 2 ppts for older workers (aged 60-64)					0.1	25.4		
Reduced average effective CIT rate by 5 ppts							3.25	

Sources: Bassanini and Duval (2006); Daveri and Tabellini (2000); de Mooij and Ederveen (2008); Evers et al. (2008); OECD (2005); Martinez-Vazquez et al. (2009); and IMF staff calculations. Based on OECD population, employment, and labor force data as of end-2009.

1/ Estimates do not account for the potential negative employment and growth effects of offsetting revenue measures, which could lower the net impact.

2/ Property taxes classified as direct taxes for the purpose of calculating the ratio.

3/ Assuming an unchanged first-year replacement rate.

³⁰ See Euwals et al. (2009) for the Netherlands and Blundell (2010) for the U.K.

³¹ An overall reduction of the tax wedge of eight points, combined with reduced maximum benefit duration by one-third (to 25 months), could further lower the unemployment rate by 0.7 percent, bringing the total impact of the reform to above 3 percent. Lowering the maximum duration of unemployment benefits to 25 months would bring benefit duration closer to the level of many other OECD countries, including Germany, Finland, and Sweden where maximum benefit duration is below 20 months (Euwals et al., 2009).

26. **Model simulations for France suggest that an exclusive reliance on a VAT hike to finance cuts in social contributions would partly erase the employment gains of the reform, due to the expected inflationary effects of the VAT hike.**³² Such a proposal was put forward in 2007 by the newly elected President Sarkozy and subsequently abandoned due to concerns about the short-run inflationary impact—even though simulation results confirmed that the employment impact of a higher VAT would be limited, and would not fully offset the positive effects of reduced labor taxes. For example, Gauthier (2008) finds that a shift in tax bases of around 1 percent of GDP would lead to 50,000–250,000 extra jobs depending on whether the decrease in payroll taxes is uniform or targeted to low wages. Besson (2007) similarly finds that the employment impact of financing cuts in social contributions through a VAT hike is higher for cuts targeted to minimum wage earners, with each 2 points of cuts yielding 35,000–350,000 extra jobs. Gadenne (2008) finds that a cut of 2.1 points in social security contributions would create more than 60,000 jobs, and about 30,000–40,000 jobs if social transfers are preserved in real terms through a larger VAT hike. Simulation results from the Conseil d’Orientation pour l’Emploi (2006) suggest a net impact on employment of a 2 points cut of social security contributions of 28,000 jobs after two years, in line with the lower range of Gadenne’s and Besson’s estimates.

27. **In light of the possible inflationary and distributional effects of a VAT hike, consideration could be given to implementing the proposed shift in tax bases not just by raising VAT but also other consumption taxes, environmental taxes, and/or recurrent immovable property taxes (as discussed earlier in this section).** There is also scope in France to limit the need for offsetting hikes in the standard VAT rate through improvements in efficiency. Given the size of the labor tax base in France, the 8 points reduction in labor tax rates needed to bring France’s average tax wedge in line with the EU implies a revenue loss of about 3 percent of GDP. To offset this revenue loss, estimates of the scope for policy and administrative improvements to the VAT suggest that raising the VAT efficiency would be far more effective than even quite large increases in the standard VAT rate (IMF, 2010). In France, a one point increase in the standard rate would raise 0.4 percent of GDP; but increasing VAT efficiency (of about 0.5) to the same level as Japan (of about 0.7) would raise 3½ percent of GDP.³³ In France’s context of fiscal consolidation, measures to close the VAT compliance and policy gap, as well as other “growth-friendly” measures such as higher reliance on environmental and recurrent immovable property taxes, could be implemented over time and the revenue gains used to reduce labor taxes as they materialize, rather than implementing the cuts in social security contributions upfront.

³² Direct inflationary effects for example result from prevailing indexation mechanisms in France for the minimum wage and social transfers (e.g., pensions and family allowances).

³³ VAT efficiency (or C-efficiency) is defined as the ratio of VAT revenue to the product of the standard rate and consumption.

D. Conclusions

28. **The analysis of labor taxation indicates the scope for expanding employment and participation at the extensive margin (for older workers) and at the intensive margin (for women with school-age children), through reduction of the tax wedge.** This can be achieved in a revenue-neutral manner through targeted measures, such as age-specific tax credits, combined with a further reduction of personal income allowances and other tax expenditures to offset the revenue cost of the reforms. A more ambitious reform of labor taxation could be combined with VAT reform and increases in recurrent immovable property taxes, environmental taxes, and/or excises on alcohol and tobacco to shift the tax mix to a more growth-friendly one, reduce labor costs more broadly, and encourage both higher employment and investment.

29. **The corporate tax analysis demonstrates the need to improve the attractiveness of France as an investment destination by reducing the average corporate tax burden.** Empirical results suggest sizeable effects of a lower AETR on investment at the extensive margin (discrete investment choices). Achieving this in a revenue-neutral manner will require base-broadening measures, including less generous depreciation allowances and the removal of special rates and incentives. Such reforms would simplify the tax system, lower compliance costs, and improve tax neutrality across industries, thus contributing to more efficient investment decisions and higher TFP growth. Reduced compliance costs and lesser potential for international tax planning would remove the bias of the current system toward SMEs, thus increasing the scope for realizing economies of scale through firm growth. Finally, eliminating or reducing the “debt bias” by moving to a comprehensive business income tax would both contribute to broadening the tax base and encourage increased reliance on equity financing for more innovation-oriented investments.

REFERENCES

- Bassanini A., and R. Duval, 2006, "Employment Patterns in OECD Countries: Re-Assessing the Role of Policies and Institutions," OECD Social Employment and Migration Paper No. 35.
- Besson, E., 2007, *TVA Sociale*, Secrétariat d'Etat Chargé de la Prospective et de l'Evaluation des Politiques Publiques.
- Blundell, R., 2010, Tax By Design: The Mirrlees Review, Earnings Taxation and Work Incentives, available at www.ifs.org.uk.
- Blundell, R., A. Bozio, and G. Laroque, 2011, "Labour Supply Responses and the Extensive Margin: The U.S., U.K., and France," mimeo, University College London and Institute for Fiscal Studies.
- Carare A. and S. Danninger, 2008, "The Modest Effect of the German VAT Hike: the Role of Inflation Smoothing," in *Germany: Selected Issues*, IMF Country Report No. 08/81 (Washington).
- Cardarelli, R., D. Igan, and A. Rebucci, 2008, "The Changing Housing Cycle and the Implications for Monetary Policy," in *World Economic Outlook*, April, (Washington: International Monetary Fund).
- Caspersen E. and G. Metcalf, 1995, "Is a Value Added Tax Progressive? Annual vs. Lifetime Incidence Measures," NBER Working Paper No. 4387.
- Conseil d'Analyse Stratégique, 2011, "L'Evolution du Prix des Logements en France sur 25 Ans," *La Note d'Analyse* No. 221, available at www.strategie.gouv.fr.
- Conseil d'Orientation pour l'Emploi, 2006, *Rapport du groupe de travail sur l'élargissement de l'assiette des cotisations employeurs de sécurité sociale*.
- Cour des Comptes, 2011, *Les prélèvements fiscaux et sociaux en France et en Allemagne, Rapports publics thématiques - Cour des comptes*.
- Daveri F. and G. Tabellini, 2000, "Unemployment, Growth, and Taxation in Industrial Countries," *Economic Policy*, Vol. 15, No. 30, pp. 47–104.
- de Mooij, R. A., 2011, "Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions," IMF Staff Discussion Note SDN/11/XX (Washington).
- , 2011, "The Tax Elasticity of Corporate Debt: a Synthesis of Size and Variations," IMF Working Paper WP/11/95 (Washington).

- de Mooij, R. A. and S. Ederveen, 2009, "Corporate Tax Elasticities: a Reader's Guide to Empirical Findings," *Oxford Review of Economic Policy*, Vol. 24, No. 4, pp. 680–97.
- Devereux, M. P. and R. Griffith, 2003, "Evaluating Tax Policy for Location Decisions," *International Tax and Public Finance*, Vol. 10, pp. 107–26.
- Dusek L., 2006, "Do Governments Grow When They Become More Efficient? Evidence from Tax Withholding," mimeo, University of Chicago.
- Euwals, R., R. de Mooij, and Daniel van Vuuren, 2009, "Rethinking Retirement: from Participation towards Allocation," No. 80, CPB Netherlands Bureau for Economic Policy Analysis.
- Gauthier, S., 2008, "Un Exercice de TVA Sociale," *Document de Travail du CREST*, 2008-01.
- IMF, 2010, *From Stimulus to Consolidation: Revenue and Expenditure Policies in Advanced and Emerging Economies*.
- Johansson, A., C. Heady, J. Arnold, B. Brys, L. Vartia, 2008, "Taxation and Economic Growth," OECD Economic Paper No. 620.
- Keen M. and R. Luzio, 2008, "France: Reviewing the Tax System," in *France: Selected Issues*, IMF Country Report No. 08/74 (Washington).
- Keen, M., A. Klemm, and V. Perry, 2010, "Tax and the Crisis," *Fiscal Studies*, Vol. 31, No. 1, pp. 43–79.
- Klemm A. and S. Danninger, 2006, "Business Tax Reform in Germany," in *Germany: Selected Issues*, IMF Country Report No. 06/436 (Washington).
- Klevmarken N. A., 2000, "Did the Tax Cut Increase Hours of Work? A Statistical Analysis of a Natural Experiment," *KYKLOS*, Vol. 53, Fasc. 3, pp. 337–62.
- Landais, C., T. Piketty, and E. Saez, 2011, *Pour une Révolution Fiscale, Un Impôt sur le Revenu pour le XXIème Siècle*, France, Le Seuil/République des Idées; available at www.revolution-fiscale.fr.
- Martinez-Vazquez J., V. Vulovic, and Y. Liu, 2009, "Direct versus Indirect Taxation: Trends, Theory, and Economic Significance," Working Paper 09-11, the Andrew Young School of Policy Studies, Georgia State University.
- Newhouse, D. and D. Zarhakova, 2007, "Distributional Implications of the VAT Reform in the Philippines," IMF Working Paper WP/07153 (Washington).

Norregaard, J. and T. S. Khan, 2007, “Tax Policy: Recent Trends and Coming Challenges,” IMF Working Paper WP/07/274 (Washington).

OECD, 2010, *Tax Policy Reform and Economic Growth*, OECD Publishing.

OECD, 2011, *Economic Survey of France 2011*, OECD Publishing.

Partouche, H. and M. Olivier, 2011 “Le Taux de Taxation Implicite des Bénéfices en France,” *Trésor-Eco*, 88. Schindler, M., 2011, “German Labor Market Dynamics: the Crisis and Beyond,” mimeo (Washington: International Monetary Fund).

Sy, A., 2011, “France: Micro- and Macroeconomic Impact of Basel III Requirements,” in *France: Selected Issues*, forthcoming IMF Country Report (Washington).

Xiao, Y., 2008, “Financing and Risks of French Firms,” in *France: Selected Issues*, (Washington: International Monetary Fund).

APPENDIX

Table 1. Selected Countries: Corporate Income Tax Rates, 2010
(Percent)

	Combined CIT Rate (2010)	Average Effective Tax Rate (2005)	Marginal Effective Tax Rate (2005) 1/		Implicit Tax Base (2008) 2/
			Equity- Financed	Debt-Financed	
Australia	30.0	26.2	24.3	-23.1	19.6
Austria	25.0	21.9	20.0	-18.3	9.8
Belgium	34.0	26.4	22.2	-34.6	9.8
Canada	29.5	28.4	24.8	-37.0	8.8
Finland	26.0	20.7	17.3	-23.1	13.5
France 3/	34.4	25.4	20.4	-36.3	8.7
Germany	30.2	31.5	28.6	-36.7	7.6
Greece	24.0	20.6	11.9	-40.4	9.8
Ireland	12.5	10.9	9.7	-8.1	22.3
Italy	27.5	26.0	19.1	-48.5	13.5
Japan	39.5	31.7	28.2	-40.3	12.9
Netherlands	25.5	25.1	21.5	-29.3	12.4
Norway	28.0	24.2	22.1	-20.8	44.7
Portugal	26.5	20.2	15.1	-28.6	14.5
Spain	30.0	26.1	20.9	-38.0	9.3
Sweden	26.3	20.9	16.1	-28.5	10.6
Switzerland	21.2	25.1	20.0	-36.1	39.0
United Kingdom	28.0	23.9	20.3	-27.6	12.7
United States	39.2	29.0	23.6	-45.9	5.3
OECD mean	28.3	24.4	20.3	-31.6	15.0

Sources: OECD Revenue Statistics, Institute for Fiscal Studies, and IMF staff estimates.

1/ Based on manufacturing tax rate, for an investment in plant and machinery. Taxation at shareholder level not included.

2/ CIT revenue to GDP divided by the combined CIT rate.

3/ The standard statutory tax rate of 33.33 percent is increased by a 3.3 percent surcharge (Contribution Sociale sur les Benefices) for companies with a turnover above EUR 7.63 billion on the part of their liable tax payments in excess of EUR 763,000 - resulting in an effective tax rate of 34.43 percent on companies with profits above EUR 2.289 billion.

Table 2. Comparison of Total Tax Wedge by Family Type
(Percent of labour costs) 1/

	Family Total Tax Wedge 2009	Single Total Tax Wedge 2009	Family Tax Wedge	Single Tax wedge	Difference Between Single and Family	Annual Change 2009/08 (percentage points)	
Hungary	43.7	23.4	-0.3	-0.7	-0.4		
Greece	41.7	41.5	-0.1	-0.1	0.0		
France	41.7	49.2	-0.3	0.0	0.3		
Belgium	38.8	55.2	-1.1	-0.5	0.6		
Sweden	37.5	43.2	-1.6	-1.6	0.0		
Finland	37.0	42.4	-1.3	-1.4	-0.1		
Austria	36.6	47.9	-1.9	-0.9	1.0		
Turkey	36.2	37.5	-2.4	-2.3	0.1		
Italy	35.7	46.5	-0.4	0.0	0.4		
Germany	33.7	50.9	-1.6	-0.6	1.0		
Spain	32.3	38.2	0.3	0.2	-0.1		
Norway	30.6	37.4	0.0	-0.1	-0.2		
Netherlands	29.7	38.0	-0.4	-1.0	-0.5		
Denmark	28.8	39.4	-0.2	-1.3	-1.0		
Poland	28.4	34.0	0.0	-0.5	-0.5		
United Kingdom	26.4	32.5	-0.6	-0.3	0.2		
Portugal	26.3	37.2	-0.4	-0.1	0.4		
OECD total	26.0	36.4		
Japan	23.7	29.2	-0.3	-0.3	0.1		
Slovak Republic	22.7	37.6	-2.6	-1.2	1.4		
Czech Republic	20.5	41.9	-0.5	-1.6	-1.1		
Canada	18.3	30.8	-0.7	-0.5	0.2		
Korea	17.2	19.7	-0.5	-0.3	0.3		
Switzerland	17.2	29.3	1.0	0.1	-0.9		
Mexico	15.3	15.3	0.2	0.2	0.0		
Australia	14.1	26.7	-0.8	-0.2	0.6		
United States	13.7	29.4	-1.4	0.2	1.7		
Ireland	11.7	28.6	2.0	1.5	-0.4		
Luxembourg	11.2	34.0	-0.7	-1.2	-0.5		
Iceland	8.6	28.3	-1.3	0.0	1.3		
New Zealand	0.6	18.4	-2.5	-2.7	-0.1		

Source: OECD.

Note: Countries ranked by decreasing tax wedge.

1/ Figures shown for the average worker single without children and one earned married couple with two children.

Table 3. France and Germany: Main Features of the Tax System (January 2011) 1/

Tax	France	Germany
1. Companies		
1.1. Resident companies		
1.1.1. Corporate tax rates:	33.33 percent (34.43 percent including 3.3 percent surcharge for large companies) (15 percent for SME up to 38,120 EUR of income)	15 percent (15.83 percent including the 5.5 percent surcharge)
1.1.2. Tax base:	Territorial (active income) Worldwide (passive income)	Worldwide income
1.1.3. Capital gains:	Short-term gains part of business income; Long-term gains per specific regimes; Participation exemption available	part of business income; 95 percent exemption of capital gains from the sale of shares
1.1.4. Unilateral double taxation relief:	No, except for business income derived from PEs abroad	Yes, ordinary tax credit
1.2. Non-resident companies		
1.2.1. Corporate tax rates:	33.33 percent (34.43 percent including 3.3 percent surcharge for large companies) (15 percent for SME up to 38,120 EUR of income)	15 percent (15.83 percent including the 5.5 percent surcharge)
1.2.3. Capital gains on sales of shares in resident companies:	Yes, if substantial participation (above 25 percent of capital)	95 percent exemption of capital gains from the sale of shares
<u>Final withholding tax rates</u>		
Branch profits:	25 percent; 0 percent for branches of EU/EEA companies	No
Dividends:	25 percent; 0 percent for qualifying EU/EEA/Swiss companies	25 percent (26.38 percent including the 5.5 percent surcharge) refund procedure for 2/5 of the withholding tax subject to certain requirements.

Table 3. France and Germany: Main Features of the Tax System (January 2011) 1/

Tax	France	Germany
Interest:	18 percent 0 percent for qualifying EU/Swiss companies; several other exemptions, e.g. bonds, negotiable loan instruments	25 percent (26.38 percent including the 5.5 percent surcharge) on interest from convertible bonds, profit-sharing bonds, participation loans, and income from the participation of silent partners in a trade or business
Royalties	33.33 percent 0 percent for qualifying EU/Swiss companies	15 percent (15.83 percent including the 5.5 percent surcharge) if registered in Germany or utilized in a PE
Fees (technical)	33.33 percent	No
Fees (management)	33.33 percent	No
1.3. Specific Issues		
1.3.1. Participation relief:	Inbound dividends: yes Outbound dividends: yes	Inbound dividends: no (95 percent exemption) Outbound dividends: yes
1.3.2. Group treatment:	Yes	Yes
1.3.3. Incentives:	R&D; innovative new enterprises; investment in certain regions, e.g. competitiveness centers and urban free zones	Accelerated depreciation additional depreciation tonnage tax
1.3.4. Anti-avoidance:	General rule; transfer pricing; thin capitalization; CFC	General rule; transfer pricing; general limitation on interest deduction; CFC
2. Individuals		
2.1. Resident individuals		
2.1.1. Income tax rates:	Progressive Top rate 40 percent (over EUR 69,505)	Progressive Top rate 45 percent (over EUR 250,400)

Table 3. France and Germany: Main Features of the Tax System (January 2011) 1/

Tax	France	Germany
2.1.2. Capital gains:	Short-term gains part of business income; long-term gains 18 percent exemption for gains on sales of shares after 8-year holding period	25 percent on the sale of shares and bonds (26.38 percent including the 5.5 percent surcharge); 40 percent exempt if derived from business transactions
2.1.3. Unilateral double taxation relief:	No	Yes
2.2. Non-resident individuals		
2.2.1. Income tax rates:	French-source income: same rates as residents; special rules if one or more dwellings in France and no French-source income	Progressive Top rate 45 percent (over EUR 250,400)
2.2.2. Capital gains on sale of shares in resident companies:	Yes, if substantial participation (above 25 percent in capital)	40 percent exempt if derived from business transactions and the seller has owned a substantial interest of at least 1 percent
<u>Final withholding tax rates</u>		
Employment income:	Top rate 20 percent (over EUR 40,553)	Same as residents, 15 percent of the gross income, for artists and sportsmen
Dividends:	25 percent 18 percent (if received by residents of EU countries, Norway, Iceland)	25 percent (26.38 percent including the 5.5 percent surcharge)
Interest:	18 percent	25 percent (26.38 percent including the 5.5 percent surcharge) on interest from convertible bonds, profit-sharing bonds, participation loans, and income from the participation of silent partners in a trade or business
Royalties:	33.33 percent	15 percent (15.38 percent including the 5.5 percent surcharge) if registered in Germany or utilized in a PE
Fees (technical):	33.33 percent	No
Fees (directors):	No	No

Table 3. France and Germany: Main Features of the Tax System (January 2011) 1/ (concluded)

Tax	France	Germany
3. Other direct taxes:		
3.1. Net wealth tax	Yes	No
3.2. Inheritance and gift taxes	Yes	Yes
4. Turnover taxes:		
4.1. VAT/GST (standard)	19.6 percent	19 percent
4.2. VAT/GST (reduced)	2.1 percent, 5.5 percent	0 percent, 7 percent
4.3 VAT/GSP (increased)	No	No
Other	No	No

Source: IBFD, as of 15 January 2011.

1/ Taxes are administered and levied by the Central government, unless otherwise specified.

III. THE MACROFINANCIAL IMPACT OF BASEL III CAPITAL REQUIREMENTS¹

This paper analyzes the impact of Basel III capital requirements on French banks and the French economy and proposes policy recommendations. The main results are that, under conservative assumptions, French banks should be able to meet the new requirements by early 2013/14 through earnings retention. The economic costs of meeting the new requirements appear to be manageable. Given the additional potential risks to the economy from systemically important banks, the authorities should encourage banks to improve their capital adequacy promptly to accommodate additional requirements that go beyond Basel III, including the capital surcharge for global systemically important banks (G-SIBs).

A. Introduction

1. **The global financial crisis has put to the fore a number of shortcomings in financial system frameworks.** In particular, a key lesson of the financial crisis is that banks' capital adequacy was overestimated as regulation and supervision did not pay enough attention to the quality of capital. Similarly, the risk weights of various instruments held on the trading books of banks and risk weighted assets were underestimated. In addition, the global financial crisis has also highlighted the interconnectedness of balance sheets across sectors and countries. Liquidity risks, both the funding risks incurred by institutions and the associated market liquidity risks of assets, were also much higher than recognized during the crisis.
2. **To reduce the likelihood and severity of financial crises, a consensus has been reached at the multilateral level to increase banks' minimum capital and liquidity standards.** The Basel III capital rules, published in December 2010, increase both the quantity and quality of capital. Basel III also introduces two new global standards for liquidity—the liquidity coverage ratio (LCR) and the net stable funding ratios (NSFR)—which are currently under an observation period so as to address unintended consequences. The Financial Stability Board (FSB) is considering a number of measures to address the risks from global systemically important financial institutions, including banks (G-SIFIs and G-SIBs).
3. **The ultimate goal of the reform process is to have a safer global financial system that remains sufficiently dynamic and innovative to finance strong and sustained economic growth.** The design and implementation of financial regulation should avoid unintended consequences on the *real* economy. Indeed, regulation involves trade-offs between societal benefits and the private interests of shareholders. As a result, adequate regulation should restore the soundness of the financial sector and reduce the cost to

¹ Prepared by Amadou Sy. The author wishes to thank staff from Banque de France and ACP as well as Matthew Osborne (U.K. FSA).

taxpayers as financial crises become less frequent and severe. At the same time, there is a risk that excessive regulation reduces financial intermediation and the flow of credit to the economy with negative *real* effects. Worse, excessive capital requirements could lead to perverse incentives in the form of higher risk-taking by banks resulting for instance from capital and balance sheet optimization.

4. **Ongoing international regulatory reforms will have an effect on French banks and the French economy.** French banks will have to comply with the new capital requirements directive (CRD) which will translate Basel III for EU member countries and the largest French banks are likely to be defined as G-SIBs. Within the EU, amendments to the CRD will aim at reflecting the new Basel III capital standards. The CRD, which came into force on 1 January 2007, introduced a supervisory framework within the EU, in part to reflect the Basel II capital rules. The CRD IV modifications, if adopted, would require banks in France and the rest of the EU to secure additional capital to meet the Basel III requirements. Furthermore, given their size and scope, the largest French banks are likely to be defined as G-SIBs and as a consequence will have to meet a capital threshold higher than for Basel III.

5. **Against this background, the question at stake in this paper is the likely impact of the proposed regulatory reforms on French banks and the French economy.** The paper narrows down its analysis on the Basel III capital requirements as it is the area where the most progress has been achieved in terms of calibration. First, the paper discusses the likely path for French banks to meet the new capital requirements. Second, the paper assesses the cost of higher capital rules to the French economy which can result from higher lending spreads or lower lending volumes. Finally, the paper discusses a number of policy options in light of additional capital requirements beyond Basel III such as the G-SIB surcharge which the largest French banks may need to achieve.

B. Potential Impact of Basel III on French Banks

The Basel III Capital Framework

6. **The Basel Committee published new rules on capital in December 2010 which presents a substantial improvement in the quality and quantity of capital in comparison with the pre-crisis situation².** The new global standards (Basel III) raise the level of the minimum capital requirements; introduce a simple capital/asset ratio (leverage ratio); increase risk coverage (in particular for trading activities—already in place since January 2011—and counterparty credit exposures arising from derivatives); and introduce measures to promote the build-up of capital buffers in good times that can be drawn down in periods of stress (a capital conservation buffer). The definition of capital has also been significantly strengthened. The new regulatory definition limits the inclusion of the equity

² See <http://www.bis.org/list/basel3/index.htm>.

benefit from deferred tax assets, mortgage servicing rights, and minority interests in subsidiaries.

Pre- and Post- Basel III Minimal Global Capital Requirements
(in percent of risk-weighted assets)

Basel III Capital Standards	Common Equity (after deductions)		Tier 1 Capital		Total Capital	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
Minimum	2.0	4.5	4.0	6.0	8.0	8.0
Conservation Buffer	0.0	2.5	0.0	2.5	0.0	2.5
Minimum + Conservation Buffer	2.0	7.0	4.0	8.5	8.0	10.5

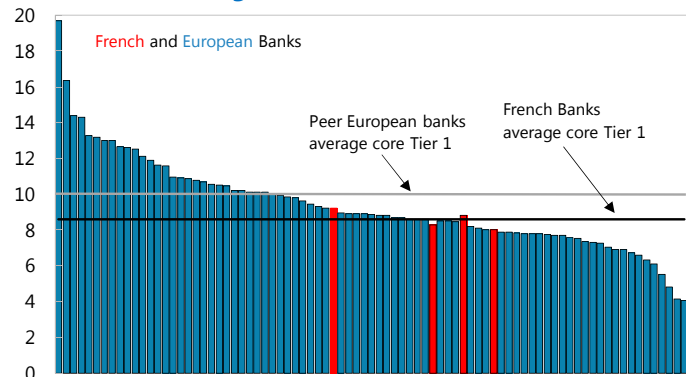
Source: BCBS Press Release, September 2010.

7. **The new measures have different implementation schedules.** Some have been introduced for observation and monitoring as early as 2011 (such as the leverage ratio), others will have a very gradual implementation until 2023 (phasing out of ineligible capital instruments). In the transition period, supervisors will need to have operational independence, sufficient resources and mandate for more intensive and intrusive supervision.

How Do French Banks Compare to EU Peers?

8. **French banks have increased their capital since the financial crisis but are somewhat lagging behind their peers.** Comparable banks in a number of EU countries have been recently issuing capital in part due to strong market and supervisory pressures in crisis hit countries as well as uncertain economic prospects. Although, French banks have issued capital in the aftermath of the crisis, they have chosen a more gradual approach and rely more on expected retained earnings to meet the new capital requirements. As a result, French banks at present have a lower capital ratio than many of their peers.

EU Bank Core Tier 1 Ratios, 2010 /1 (Percent of risk-weighted assets)



Sources: SNL Financial; and IMF staff estimates.
1/ Core Tier 1 definition may differ across banks.

9. **French banks' relatively lower capital position is in part due to their higher resilience during the financial crisis.** French banks did not receive as much direct public support, in the form of capital injection or preferred shares, than in other countries during the financial crisis as their universal banking model proved to be resilient. As a result, their capital does not benefit from the transitional arrangements which allow public sector capital injections to be grandfathered in the calculation of Basel III capital ratios until January 1, 2018, and preferred shares to be eligible for Tier 1 capital until 2022.

C. How Much Additional Capital Will French Banks Need?

Methodology

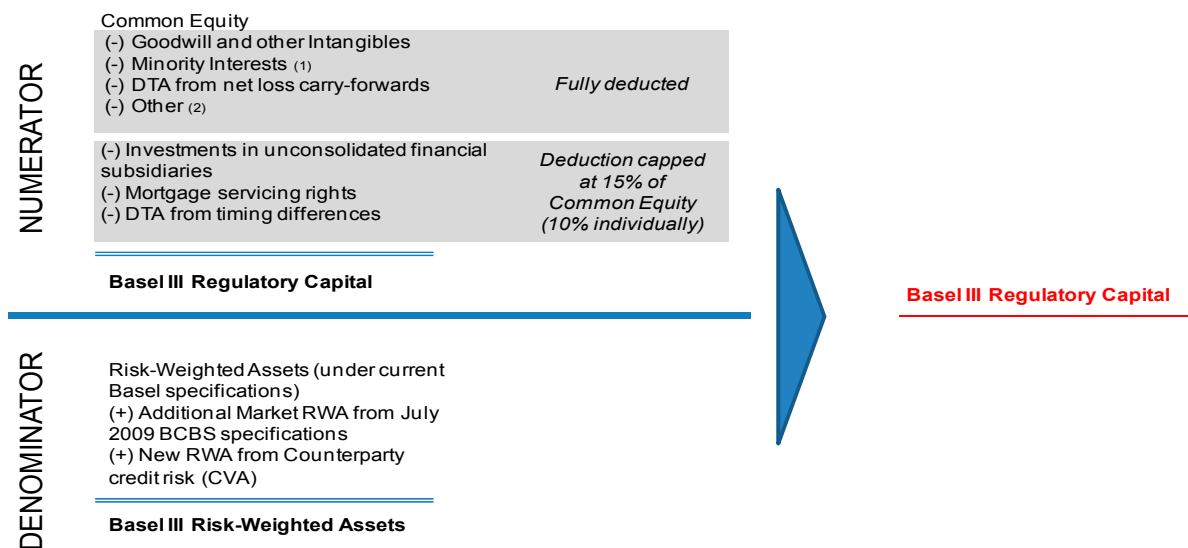
10. **French banks' Basel III capital ratio can be estimated by applying the new capital proposals to their current capital and risk-weighted assets (RWAs) under the current regulatory framework.** This approach has been used in quantitative impact studies (QIS) coordinated by the BCBS. In particular, the QIS consider (i) changes to the definition of capital that result in the Basel III common equity core Tier 1 (CET1); (ii) a reallocation of deductions on CET1; (iii) changes to the eligibility criteria for Tier 1 and total capital; and (iv) increases in risk-weighted assets (RWAs) resulting from changes to the definition of capital, securitization, trading book, and counterparty credit risk requirements; and (v) a capital conservation buffer above the CET1 minimum.³

11. **This approach considers the full impact of Basel III rules and the resulting capital position of French banks can be seen as an upper bound.** The exercise does not take into account most phase-in arrangements and assumes full implementation of the Basel

³ For more details, see BCBS (2010a), CEBS (2010), and Okter-Robe, Inci, and C. Pazarbasioglu, (2010). One should note, however, that RWAs across different countries are not yet harmonized.

III requirements. The assessment does not make assumptions about banks' profitability or behavioral responses such as changes in bank capital or balance sheet composition.

Moving to Basel III Capital Ratio



- (1) The excess capital above the minimum of a subsidiary will be deducted in proportion to the minority interest share.
(2) Mainly, investments in own shares, other investments in financial institutions, shortfall of provisions to expected losses, cash flow hedge reserves, cumulative changes in own credit risk, and pension fund assets.

Results

12. **The sample of the QIS conducted by the French Prudential Supervision Authority (ACP) comprises 11 French banks and includes the four largest institutions.** Banks were divided into two groups. Group 1 banks comprised of four banks that are well diversified, internationally active, with Tier 1 capital in excess of €3 billion while the remaining banks were included in Group 2 banks. End-2009 data were made available, on a confidential basis, by banks and reviewed by the supervisory authorities.

13. **Results indicate that the CET1 ratio of large French banks would fall below the 7 percent Basel III target.** Following the full implementation of Basel III capital requirements, the average CET1 ratio of French Group 1 banks would fall by 45 percent to reach 4.7 percent. This is in contrast to the 7 percent threshold of a 4.5 percent CET1 capital ratio plus a capital conversation buffer of 2.5 percent. In contrast, the CET1 ratio of French Group 2 banks would be higher than the target at 9.4 percent.

14. **French banks would therefore need to increase their CET1 ratio in order to meet the Basel III targets.** The capital shortfall necessary to meet the 7 percent target reaches €50 billion for Group 1 banks while Group 2 banks do not need to improve their capital to meet the minimum standard. Although this shortfall is about five times (4.6) larger

than the net income attributable to shareholders in 2009, it is about twice French banks' average net income in 2007–09 and 2.6 times 2010 profits.

15. **The results are mainly driven by new Basel III rules on capital deductions of holdings in other financial institutions and deferred tax assets (DTAs).** CET1 capital would decrease by about 28.9 percent due to the impact of deductions of holdings in other financial institutions. The French universal banking business model leads to such deductions as banks have large shareholdings in insurance companies. Deductions of deferred tax assets affect banks which made heavy losses in the past, or acquired loss making banks. Also, banks with high credit losses tend to have high DTAs. New measures regarding counterparty risk and securitization are the main drivers of the reduction in capital. Indeed, the new rules will require more capital for banks with sizeable market activities and with higher counterparty risk. The impact on RWAs is also important as they would increase by 30 percent as a consequence of higher weights, including for counterparty risk and securitization.

How Do French Banks Compare to EU and Global Banks?

16. **The impact of Basel III capital standards on French banks is relatively lower than for EU and global banks.** The above results are directly comparable to those from CEBS (2010) (48 EU Group 1 banks from 21 jurisdictions) and BCBS (2010a) (91 global Group 1 banks from 23 jurisdictions), which indicate that the average CET1 of Group 1 banks would fall to 4.9 percent and 5.7 percent, for EU and global banks, respectively. While the French CET1 capital ratio falls by about 45.3 percent following the full application of Basel III, it decreases by 54.2 percent and 48.6 percent of EU and global banks, respectively. As a result, EU Group 1 banks would need to raise €263 or 3.1 times their income attributable to shareholders in 2009. Similarly, global Group 1 banks would have a capital shortfall of €577 billion to meet the new requirements or 2.8 times the level of income to shareholders. For both regions, Group 2 banks would not need to raise much additional capital.

17. **Unlike for other jurisdictions, deductions for intangibles are already required under French regulation which mitigates the impact of capital deductions.** Although the main drivers of the fall in capital adequacy for all regions are mostly attributable to new capital deductions and filters, French regulation already incorporates the deduction of goodwill which reduces the impact of comparable Basel III standards. On the asset side, French and EU banks will experience an increase in risk-weighted assets from broadly the same sources (charges against counterparty credit risk and securitization exposures in their banking books). At the global level, trading book exposures also increase banks' RWAs.

Impact of Basel III Capital Standards: France, EU, and Global Banks

	Pre-Base III Gross CET1 Capital ratio (in% of RWAs)	Base III Net CET1 Capital Ratio (in% of RWAs)	Capital Shortfall (in% of RWAs)	Capital Shortfall (Euro bn.)	2009 Net Income (Euro bn.)	Base III Decrease in CET1 Capital (in percent)	Base III Increase in RWAs (in percent)	Main Drivers of Capital Shortfall
France	8.6	4.7	2.3	50	10.7	-28.9	30.0	Capital deductions: holdings in other financial institutions and DTAs.
EU	10.7	4.9	2.1	263	84	-42.1	24.5	Capital deductions: goodwill (-19.8%), DTAs (-6.3%), and holdings in other financial institutions (-5.0%).
Global	11.1	5.7	1.3	577	209	-41.3	23.0	Capital deductions: goodwill (-19%), DTAs (-7%), and holdings in other financial institutions (-4.3%).

Sources: BCBS; CEBS; Banque de France; Banks financial statements; and staff estimates.

18. **The structure of cooperative and mutual banking groups—which are relatively important in France—complicates the transition to Basel III capital rules.** French cooperative and mutual banks have complex group structures typically including one joint-stock listed entity and numerous non-listed regional banks, with intra-group equity investments. Capital requirements under this business model are sensitive to changes in the definition of capital and deductions from equity capital envisaged under Basel III. For instance, some instruments such as shareholders' advances and deeply subordinated notes, are no longer included in the calculation of CET1 under Basel III. Among the solutions considered, the French Prudential Supervision Authority (ACP), which supervises cooperative and mutual banks on a group basis, approved the principle of an intra-group transaction called “switch guarantees” which allowed the listed entity to improve its capital position by repaying deeply subordinated loans and securities to its regional banks in exchange of a security deposit. A similar mechanism will be set up for the insurance subsidiary. This solution enables the listed entity to meet Basel III requirements without requiring a capital increase. In addition, cooperative and mutual banks have added the value of their equity stakes in their parent companies to their RWAs instead of deducting capital which leads to a lower capital increase.

19. **French banks that are part of bancassurance groups could benefit from changes in the treatment of insurance deductions in EU regulation.** Under the bancassurance model, French banks are large shareholders of insurance companies which account for 10 to 20 percent of total group assets. As discussed earlier, the deduction of holdings in other financial institutions under Basel III is one of the main drivers of French banks' capital shortfall. However, the impact of insurance deductions could be mitigated by the amendment of the European Financial Conglomerates Directive (EFCO, European Directive 2002/87/EC, scheduled for the second half of 2011) which would require supervisors and groups to measure the prudential soundness of groups with significant business in both the banking/investment and the insurance sectors

D. Can French Banks Meet the Basel III Capital Requirements in time?

20. **The profitability of French banks bodes well for their ability to meet the Basel III targets ahead of time.** Large French banks have remained profitable during the financial crisis and have been able to almost double their net income attributable to shareholders in 2010. Thanks to this strengthened profitability, the capital shortfall to meet the 7 percent CET1 plus capital conservation buffer now corresponds to about 2.6 times net income (or twice the 2007–09 average net income). As a result, French banks should be able to accumulate enough retained earnings to meet the new capital standards well ahead for the January 2019 Basel III deadline.

21. **Assuming a modest earnings growth, French banks should be able to meet the CET1 target by 2013/14 through earnings retention.** Starting with actual 2010 profits and dividend payout ratios and assuming an earnings growth rate similar to the consensus estimate for 2010–13, it is possible to estimate French banks' expected earnings. The resulting average compound annual growth rate (CAGR) of 18 percent would enable French banks to accumulate enough capital to meet the €50 billion capital shortfall (€36.5 billion when 2010 results are taken into account) by early 2013/14, assuming a constant dividend policy. This result is consistent with a study by Otker-Robe and Pazarbasioglu (2010) which finds that most European banks would be able to meet the Basel III capital requirements through earnings retention, provided a modest earnings outlook.

French Banks' Retained Earnings Forecasts and Basel III Capital Shortfall

	Net Profit	Dividends	Retained Earnings	Cumulative Retained Earnings	Gap
2007–2009 average	26.3				
2009 actual	10.7				
2010 actual	19.5	6.0	13.5	13.5	-36.5
2011	23.0	7.1	15.9	29.4	-20.6
2012	27.1	8.3	18.8	48.1	-1.9
2013	32.0	9.8	22.1	70.3	20.3
2014	37.7	11.6	26.1	96.4	46.4
2015	44.5	13.7	30.8	127.2	77.2
2016	52.5	16.1	36.4	163.5	113.5
2017	62.0	19.1	42.9	206.5	156.5
2018	73.1	22.5	50.6	257.1	207.1
2019	86.3	26.5	59.7	316.8	266.8

Sources: Banque de France; banks' financial statements; market consensus; and staff estimates.

22. **All major French banks have indicated that they will be able to fully meet the new capital requirements in 2013/14.** Such forecasts are also consistent with bank analysts' simulations, although they are at times difficult to compare given differences in methodology, definition, and forecast horizons.

French Banks: CT1 Targets

Bank	2010 Net Income 1/	Payout Ratio	CET1 Target 2/	Target Date
BNP Paribas	7,843	33%	>7.0%	2013
Credit Agricole	4,091	35%	>9.5%	2013
Societe Generale	3,917	35%	>9.0%	2013
BPCE	3,600	20%	>8.0%	2013
Total income/Average payout	19,451	31%		

Sources: Banks' financial statements and presentations.

1/ Net income attributable to equity holders (Eur millions).

2/ Basel III Core Equity Tier 1 capital target, except for BPCE (Basel II definition).

E. The Macroeconomic Impact of Basel III Capital Standards

23. **The above analysis suggests that French banks should be able to meet the new capital requirements through retained earnings.** It is, however, useful to consider alternative scenarios should earnings forecasts not materialize. The following section estimates the increase in lending spreads and volumes needed to meet the Basel III capital requirements and the associated impact on GDP.

What Will Be the Impact of Basel III Capital Requirements on Lending Spreads and Volumes?

24. **A simple accounting-based approach can be used to estimate the impact of capital requirements on lending spreads.**⁴ Consider a stylized French bank with total assets equal to risk-weighted assets consisting in non-remunerated liquid assets and loans. The ratio of liquid assets to total assets is assumed to stand at 22.7 percent using Banque de France data on the French aggregate banking sector. The bank's liabilities consist in non-remunerated deposits and debt for which the bank must pay 3.5 percent interest rate, which is comparable to French banks' debt yield from Bloomberg LP. The return on equity is assumed to be 13.4 percent which is the pre-crisis average for 2003–07.

Stylized French Bank Balance Sheet	
Liquid Assets (22.7% of total)	Deposit and Debt (at 3.5%)
Loans (77.3% of total)	Capital (ROE 13.4%)

⁴ An econometric approach, as in Barrell et al. (2009) can also be used to estimate the impact of capital requirements on lending spreads. BCBS (2010b) notes, however, that the accounting-based approach forecasts spread increases that are broadly similar to those from the regression approach.

25. **Under these assumptions, French banks would need to raise their lending spreads by about 30 basis points to meet their Basel III capital shortfall.** The stylized bank's weighted average cost of capital (WACC) is the weighted average cost of debt and capital, which can be rewritten as:

$$\text{WACC} = [1 - \text{CAR}] \cdot R_D + \text{CAR} \cdot R_E \quad (1)$$

where CAR is the capital ratio and $R_D = 3.5\%$ and $R_E = 13.4\%$ are the cost of debt and return on equity (ROE), respectively. A one percentage point increase in the capital ratio would raise the cost of funds (WACC) by about 9.9 basis points. Given this increase in its cost of funds, the bank may increase its return on assets in order to maintain its return on equity. Since liquid assets are non-remunerated, it will need to raise lending spreads. Should the bank choose to do so, the resulting increase in lending spreads to accommodate a one percentage point increase in the capital ratio will be equivalent to 12.8 basis points (as the loan-to-asset ratio is 77.3 percent). Assuming a linear relationship, the spread increase needed to reach the 2.3 percent shortfall in capital ratio would be 29.4 basis points.

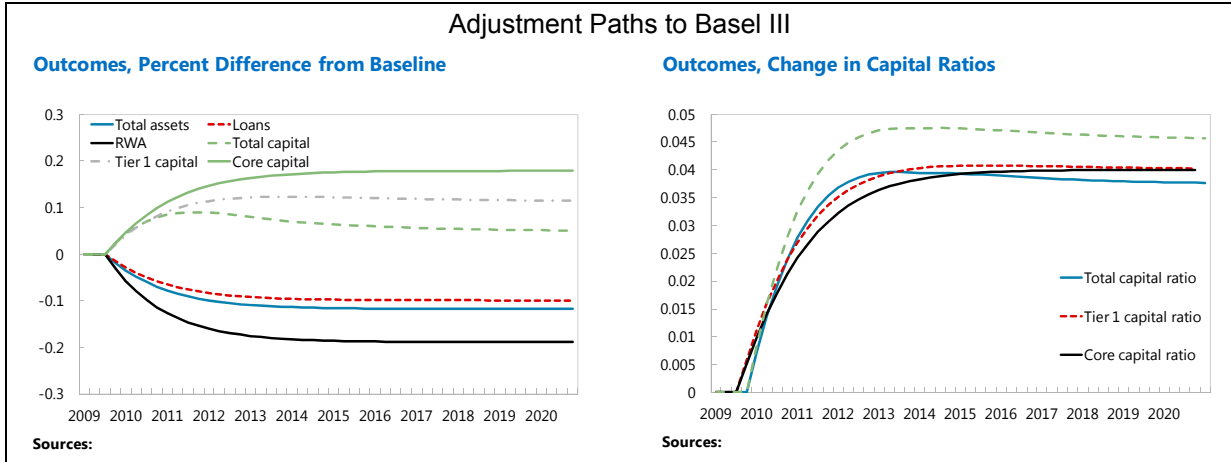
26. **This result is comparable to those obtained using a broader range of model for a large sample of countries.** Using a number of econometrics- and accounting-based models for different countries, BCBS (2010b) finds that the median estimated decline in lending spreads in response to a 1 percentage point increase in the target capital ratio implemented over four years is about 15 basis points percent after 18 quarters relative to the baseline scenario and 16 basis points after 32 quarters.

27. **The reduction in the lending volumes of French banks resulting from the new capital requirements can also be estimated.** Using balance sheet data from French banks (and excluding a recently created bank for which capital ratio data under all definitions of capital were not available), we estimate the adjustments to their capital and assets in response to differences between their actual and target capital ratios as in the simulation methodology proposed by Francis and Osborne (2009) and BCBS (2010b).⁵

28. **Simulation results indicate a gradual decrease in loan volumes of about 10 percent.** Figure below shows the adjustment paths of loan volumes and other variables should banks adjust their capital ratios to comply with the new Basel III capital targets. These results are comparable to BCBS (2010b) which finds, for a broad sample of models and countries, that the worst decline in loan volumes for a 1 percentage point increase in capital

⁵ The model is calibrated using adjustments factors for U.K. banks from Francis and Osborne (2009). The model simulates the impact of a change in capital requirements on banks' balance sheet and capital elements. It assumes that banks manage their capital to meet a desired, or long run, target that depends significantly on capital requirements. In order to meet higher targets, banks are assumed to reduce assets by increasing lending rates or selling assets and increase capital by raising new capital or retaining earnings. The growth rate in asset and capital is regressed on bank-specific and macroeconomic variables.

requirements would be about 3.6 percent over both two and four years. This would correspond for France to a reduction of 8.3 percent in lending volumes for France as the adjustment in capital for French banks is estimated to be 2.3 percentage points.



29. **French banks can mitigate the impact on lending volumes and spreads through a combination of measures.** Should earnings forecasts not materialize fully, French banks could increase operational efficiency by reducing costs and increasing non-interest fee income. On the assets side, French banks can reduce non-loan assets and shift balance composition towards less risky assets. French banks have also the option to issue new equity as many peer European banks have already done. Such choices will depend on banks' management decisions regarding changes in their business models and the likely impact on profitability and shareholders' return on equity. French banks are reluctant to raise capital (for those that are publicly listed) because of the expected negative impact on shareholders through dilution in a context of lower post crisis return on equity (ROE). Indeed, many bank analysts expect ROEs not to exceed 10 percent in the post crisis environment.

What Will Be the Impact of Basel III Capital Requirements on GDP?

30. **The impact on GDP resulting from the new regulatory changes can be assessed by using the above changes on lending spreads and volumes as inputs in macroeconomic models.** BCBS (2010b), for instance, uses standard semi-structural and DSGE models, including bank-augmented DSGE models from central banks to estimate the likely fall in GDP from higher lending spreads or lower lending volumes. The main transmission channels are a possible reduction in spending by households and businesses with negative effects on consumption and investment expenditure; a shift in the credit supply towards capital markets and non-bank financing; and possible spillover effects from other countries if regulatory changes are applied by all countries at the same time.

31. **The resulting fall in the level of GDP would be around 30 basis points if French banks increase their lending spreads to meet the new 7 percent Basel III target.** Using different macroeconomic models for a broad sample of countries, BCBS (2010b) finds that the size of a fall in the level of GDP following an increase in the capital adequacy ratio is comparable to the increase in lending spreads, which for the case of France would then be about 30 basis points as estimated in the previous section⁶. This figure is comparable to estimates from Banque de France which indicates that higher lending spreads as a result of Basel III implementation would lead to a fall in the level of GDP of about 30 basis points by 2018.

32. **The impact of regulatory changes on the French economy can, however, be mitigated by a number of factors.** Large corporate which have access to capital markets funding may rely less on bank funding or increase their retained earnings to accommodate an increase in the cost of funds borrowed from banks (the average corporate debt-to-equity ratio stood at about 31.6 percent in 2010). However, SMEs would not be able to substitute bank loans with other types of financing unless they increase their retained earnings. Monetary policy can also be expected to react to weaker growth and reduced inflation.

F. What Are the Capital Requirements Beyond Basel III?

33. **Basel III also proposes an additional capital increase in the form of a countercyclical buffer.** In addition to the Basel III CET1 ratio plus conservation buffer discussed above, current regulatory reforms propose that banks build a countercyclical buffer which could be as high as 2.5 percent of RWAs. However, implementation of this countercyclical buffer will be according to national circumstances. The countercyclical capital buffer aims at protecting the banking sector from periods of excess aggregate credit growth, which has often been a key determinant of increased systemic risk. Furthermore, it is important to note that the Pillar II approach which pre-dates Basel III gives supervisory authorities a discretionary prerogative to require additional capital from banks or higher risk weights.

34. **Regulatory reform is also progressing to go beyond the Basel III standards to address the risks stemming from global systemically important financial institutions (G-SIFIs).** A workable set of criteria to identify G-SIFIs, including banks (G-SIBs) and how much systemic risk they embody is currently being developed. A number of tools have been considered to address the systemic risks that they collectively generate both in terms of solvency and liquidity. “Price-based” tools seek to give these institutions incentives, for instance through a combination of capital or liquidity surcharges, contingent capital

⁶ BCBS (2010b) finds that a one percentage point increase in the target CET1 ratio lead to a decline in the level of GDP no higher than 19 basis points after four and half years. This is equivalent to a reduction in annual GDP growth of 0.04 percentage points.

instruments or levies, to avoid contributing to these risks. Alternatively, “quantity-based” tools attempt to limit or remove positions or business activities deemed to contribute to systemic risk, such as those under the so-called “Volcker rule,” which bans proprietary trading, private equity, and hedge funds within a U.S. commercial bank. Although these potential tools are still under construction, a guiding principle is to apply them in such a way that those institutions that contribute most to systemic risks also carry the largest burden.

35. **The regulatory agenda goes beyond capital rules to encompass supervision and other tools that should strengthen financial stability.** For instance, the financial stability board (FSB) agenda regarding G-SIFIs is relatively comprehensive and includes not only requirements for additional loss absorption capacity for SIFIs but also other measures. Higher loss absorption capacity could include a combination of a capital surcharge, a quantitative requirement for contingent capital instruments and a share of debt instruments or other liabilities represented by claims which would bail-in the private sector. Other measures include improvements to resolution regimes; more intensive supervisory oversight; more robust standards for core financial infrastructure to reduce contagion risks from the failure of individual institutions; and review by an FSB Peer Review Council of the effectiveness and consistency of national policy measures for G-SIFIs. Avoiding regulatory arbitrage should also be a key objective of regulatory reform.

36. **A global systemically important banks (G-SIB) capital surcharge would probably affect all the four largest French banks.** The FSB is discussing modalities to identify G-SIBs and the size of an additional capital buffer is not yet finalized. Nonetheless, an impact on the French bank system should be expected as it includes some of the largest banks in the world. Measures would include (i) a methodology for assessing systemic importance based on size, interconnectedness, lack of substitutability, global (cross-jurisdictional) activity and complexity, (ii) additional Common Equity Tier 1 (CET1) capital requirement ranging from 1 percent to 2.5 percent, depending on a bank's systemic importance and an additional 1 percent surcharge to provide a disincentive for banks facing the highest charge to increase materially their global systemic importance in the future; and (iii) phase-in arrangements in parallel with the Basel III capital conservation and countercyclical buffers between 1 January 2016 and year end 2018.

Basel III and Current Capital Proposals
(in percent of risk-weighted assets)

Basel III Capital Standards	Common Equity (after deductions)		Tier 1 Capital		Total Capital	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
	Minimum	2.0	4.5	4.0	6.0	8.0
Conservation Buffer	0.0	2.5	0.0	2.5	0.0	2.5
Minimum + Conservation Buffer	2.0	7.0	4.0	8.5	8.0	10.5
Countercyclical Buffer Range 1/	0.0	0-2.5	0.0	0-2.5	0.0	0-2.5
Min. + Conservation Buffer + Countercyc.	2.0	7-9.5	4.0	8.5-11	8.0	10.5-13
Capital Increase for Other risks (Pillar II)						
G-SIB Surcharge 2/						

Source: BCBS, Press Release, September 2010.

1/ Not mandatory; to be implemented according to national circumstances.

2/ Capital surcharge for Global Systemically Important Banks (G-SIBs) under consideration.

37. **Assuming a hypothetical additional G-SIB surcharge of 2.3 percent, French banks appear likely to meet their capital shortfall by early 2015 through retained earnings.** In order to have an idea of the likely impact of a G-SIB surcharge on the French banking system, we assume that banks are required to make an effort similar to the one needed to meet the Basel III CET1 ratio and the supervisor does not require a countercyclical buffer given the current economic recovery. Under the same retained earnings forecasts and payout policy as before, French banks could meet the capital shortfall by 2015. Assuming a linear relationship, the impact of a hypothetical 2.3 percent capital surcharge on the level of GDP would be twice the size of the previous results or 60 basis points. This result can be seen as an upper bound as the G-SIB surcharge for some French banks will likely be lower.

French Banks: Retained Earnings Forecasts and Hypothetical G-SIB Capital Shortfall

	Net profit	Dividends	Retained Earnings	Cumulative Retained Earnings	Gap
2007–2009 average	26.3				
2009 actual	10.7				
2010 actual	19.5	6.0	13.5	13.5	-86.5
2011	23.0	7.1	15.9	29.4	-70.6
2012	27.1	8.3	18.8	48.1	-51.9
2013	32.0	9.8	22.1	70.3	-29.7
2014	37.7	11.6	26.1	96.4	-3.6
2015	44.5	13.7	30.8	127.2	27.2
2016	52.5	16.1	36.4	163.5	63.5
2017	62.0	19.1	42.9	206.5	106.5
2018	73.1	22.5	50.6	257.1	157.1
2019	86.3	26.5	59.7	316.8	216.8

Sources: Banque de France, Banks' Financial Statements, Market consensus and Staff estimates.

38. **The above conclusions are, however, sensitive to French banks earnings forecasts and ignore downside risks.** Notwithstanding the materialization of a tail event, a number of risks to the French banking system can be identified. Indeed, French banks remain dependent on wholesale funding, including from U.S. money market funds even though they have been able to refinance and fund themselves at relatively low cost. Unsettled EU sovereign debt markets, rising housing prices in France coupled with a faster growth in

mortgage lending and the tightening of monetary policy all combine to make banks' operating environment challenging.

G. Policy Conclusions

39. Increasing capital would strengthen the resilience of the French financial sector.

Although France has weathered the financial crisis better than many other countries, future tail global events cannot be discounted and a number of risks make the operating environment fragile. In addition, the associated welfare benefits of reducing the frequency and severity of a future financial crisis, especially in light of the limited fiscal space, should be weighed against the economic costs of higher capital requirements. Finally, a stronger capital position will help meet the Basel III liquidity requirements (NSFR), by increasing the numerator of the target ratio (available stable funding).

40. The associated costs to the French economy of increasing banks' capital appear to be manageable.

A challenging policy question is how best to strengthen the French financial system and at the same time ensure that it continues to adequately finance the economy. The results above as well as from BCBS (2010b and 2010c) suggest that macroeconomic costs should be manageable for French banks.

41. The authorities should encourage French banks to rapidly meet the Basel III capital requirements ahead of the January 2019 deadline.

Although the Basel III implementation period gives French banks time for implementing the new measures, French banks should be encouraged to meet the CET1 target capital ratio expeditiously. Under conservative earnings forecasts, French banks should be able to meet the capital targets by 2013/14 through earnings retention. Although this timeframe is well before the end of the phase-in period, it is nevertheless sufficiently long to avoid excessively negative impact on lending. The supervisor should continue to ensure that banks implement their announced capital augmentation programs including through restrictions on dividend distribution and stock repurchase. To signal commitment, consideration could be given to making such programs a formal requirement. Although possible under the Pillar 2 approach, a mandatory but reachable path for capital increase would be an affordable way to gain credibility and publicly showcase the solidity of banks and the determination of the French supervisor.

42. Meeting Basel III capital rules expeditiously will put French banks in a strong footing to implement forthcoming additional capital requirements for G-SIBs.

Given their global and systemic nature, the largest French banks are likely to be defined as G-SIBs whose capital requirements will exceed Basel III rules. Without prejudging the conclusions of the ongoing FSB discussions on G-SIBs, the largest French banks are likely to be required to increase their capital further to improve their loss absorption capacity. The economic impact of capital requirements beyond Basel III will need to be further studied and the BCBS is considering a cross-country study with a focus on G-SIBs.

REFERENCES

- Barrell, R., E. Davis, T. Fic, D. Holland, S. Kirby, and I. Liadze, 2009, “Optimal Regulation of Bank Capital and Liquidity: How to Calibrate New International Standards,” U.K. Financial Services Authority, Occasional Paper Series, No. 38.
- Basel Committee on Banking Supervision (BCBS), 2010a, “Results of the Comprehensive Quantitative Impact Study” (December).
- Basel Committee on Banking Supervision (BCBS), 2010b, “Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements” (December and August).
- Basel Committee on Banking Supervision (BCBS), 2010c, “An Assessment of the Long-Term Impact of Stronger Capital and Liquidity Requirements” (August).
- Committee of European Banking Supervisors, 2010, “Results of the Comprehensive Quantitative Impact Study” (December).
- Francis, W., and M. Osborne, 2009, “Bank Regulation, Capital and Credit Supply: Measuring the Impact of Prudential Standards,” U.K. Financial Services Authority (September) Occasional Paper Series, No. 36.
- Okter-Robe, Inci, and C. Pazarbasioglu, 2010, “Impact of Regulatory Reforms on Large and Complex Financial Institutions,” IMF Staff Position Note, SPN/10/16 (November).