



LUXEMBOURG

2012 ARTICLE IV CONSULTATION

July 2012

Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. In the context of the 2012 Article IV consultation with Luxembourg, the following documents have been released and are included in this package:

- **Staff Report** for the 2012 Article IV consultation, prepared by a staff team of the IMF, following discussions that ended on May 14, 2012, with the officials of Luxembourg on economic developments and policies. Based on information available at the time of these discussions, the staff report was completed on June 12, 2012. The views expressed in the staff report are those of the staff team and do not necessarily reflect the views of the Executive Board of the IMF.
- **Informational Annex** prepared by the IMF.
- **Public Information Notice (PIN)** summarizing the views of the Executive Board as expressed during its June 27, 2012 discussion of the staff report that concluded the Article IV consultation.
- **Statement by the Executive Director** for Luxembourg.

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LUXEMBOURG

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION

June 12, 2012

KEY ISSUES

Context: Luxembourg's hallmark stability has served well its economy and financial system. The latter endured the euro area crisis in 2011 and experienced limited spillover effects from the breakup of Dexia group, whose subsidiary had substantial retail operations in Luxembourg. Still, the economy is poised to slow further in 2012, with weak prospects in the euro area prospects tilting risks to the downside.

The financial sector: The banking sector's main risk is its exposure to foreign parent banks. In this regard, Luxembourg's supervision has been strengthened but further efforts are needed to clarify the roles of its supervisory authority and central bank, including regarding liquidity supervision. Luxembourg should also move ahead with non-legislative measures on bank resolution and deposit insurance as it awaits EU-level finalization of those legal frameworks.

Fiscal policy: Besides continued current expenditure restraint to forestall rising public debt, a high-quality consolidation should be supported by a medium-term fiscal framework. Still, aging-related expenditures challenge fiscal stability. Luxembourg's generous pension system is not sustainable and will require more comprehensive reform than the proposed long-run incentives to increase the effective retirement age.

Structural policies: Boosting long-run growth will largely depend on reforming labor markets to address skill mismatches and negative work incentives. Further efforts are also needed to limit harmful competitiveness effects of automatic backward-looking wage indexation with a view of eliminating it in the medium term. Product market reforms can support these efforts by fostering competition, spurring productivity growth and possibly increasing economic diversification.

Approved By
Mahmood Pradhan
and Jan Kees Martijn

Discussions took place in Luxembourg on May 3–14, 2012. The staff team comprised Mr. Hoffmaister (head), Ms. Kongsamut (all EUR), Ms. Che (STA), and Mr. Yanase (MCM), and was supported by Mmes. Becker and Noren, and Mr. Morán Arce (all EUR). The mission team met with Mr. Luc Frieden, Minister of Finance; Mr. Yves Mersch, Central Bank Governor; Mr. Mars di Bartolomeo, Minister of Social Security; Mr. Nicolas Schmit, Minister of Labor; Mr. Jean Guill, General Director, Financial Sector Supervisory Commission, and other senior officials, private sector and civil society representatives. Ms. Hubic (OED) accompanied the mission, and Mr. Kiekens (OED) attended the concluding meeting. Luxembourg is an Article VIII country (Informational Annex, Appendix I). Data provision is adequate for surveillance (Informational Annex, Appendix II).

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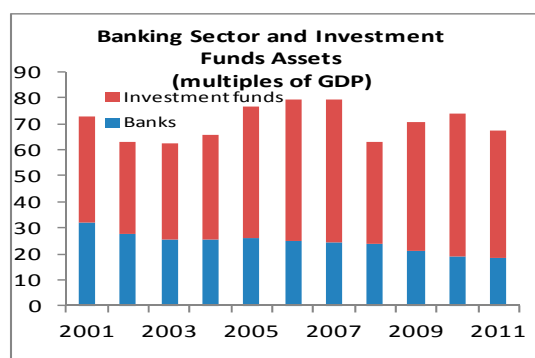
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CONTEXT

1. **Luxembourg's long record of stability has served the economy and its financial center well.** Prudent macroeconomic policies and stable political and regulatory environments have been integral elements of Luxembourg's continuing success, including its financial center. The latter comprises an outward-oriented banking sector—providing upstream liquidity to foreign parent banks with domestic intermediation limited to a handful of banks—and an investment fund industry.



Source: Central Bank of Luxembourg.

The financial system's diversification in businesses, customer bases and investment destinations has helped it to weather the global financial crisis and euro area turbulence. Besides its contribution to value added and employment, the financial center generates a large share of fiscal revenues and supports legal, accounting, and related service industries.

2. **The financial sector has endured the euro crisis and remained stable.** Having declined sharply from their pre-crisis peak,

Luxembourg-based banks' assets have increased modestly in the second half of 2011 and since stabilized. Banks have remained profitable despite losses in their securities portfolios, including from Greek sovereign exposures. While overall Luxembourg-based banks are highly capitalized and liquid, liquidity pressures arising from the euro area crisis ultimately led to the breakup (along national lines) of Dexia group in October 2011. But beyond the impact on Dexia's Luxembourg subsidiary (DBIL)—one of largest banks with retail business in Luxembourg—spillovers were limited.¹ For its part, assets managed by the Luxembourg investment fund industry continue to grow. Assets under management declined during the second half of 2011 reflecting unfavorable market developments, but have recently recovered beyond their pre-crisis levels. The number of funds has continued to increase (Box 1).

3. **Amid the euro area debt crisis, Luxembourg's growth slowed in 2011.**

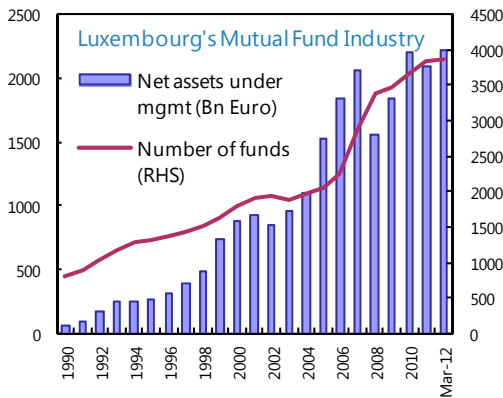
Private consumption held up in the first half of the year, but slowed thereafter. Large lumpy

¹ A share purchase agreement has been reached on April 5, 2012. Precision Capital S.A. (a Qatari owned holding company), will purchase 90 percent of DBIL shares; the Grand Duchy of Luxembourg will keep the rest. This agreement is subject to the EC's approval. Also, as part of the Dexia group resolution agreement, Belgium, France, and Luxembourg will jointly guarantee the debt issued by the group up to €90 billion. The EC has approved €55 billion on a temporary basis. Luxembourg's share of the guarantee amounts to 3 percent or roughly up to 8 percent of 2011 GDP. In 2008, the restructuring of Dexia and Fortis accounted for about 8 percent of GDP.

Box 1. Recent Developments in the Financial Sector

The investment fund industry’s brisk recovery following the global financial crisis has slowed.

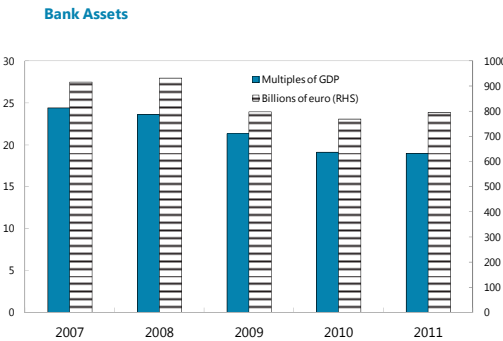
Assets under management started to recover shortly after the crisis and in mid-2010 surpassed their pre-crisis peak. This trend was partially reversed in the second half of 2011, due to market valuation losses and, to a lesser extent, redemptions. The industry, however, has recovered the losses as worldwide markets trended up in early 2012. Assets under management have remained above €2 trillion and the number of funds has increased by about 5 percent compared to their pre-crisis level.



Source: CSSF.

In contrast, Luxembourg-based banks have been slower to recover.

Banks’ assets hit bottom in February 2011. Most of the decline was associated with exposures to other credit institutions (mostly cross-border intra-bank group) that declined about 20 percent. Credit to customers nonetheless fell by less than 10 percent. While bank assets have begun recovering, they have remained far below their pre-crisis peak.



Source: WEO, Central Bank of Luxembourg.

Still, Luxembourg-based banks have generally remained well capitalized, profitable and liquid.

Their overall capital adequacy ratio has improved reflecting shrinking risk-weighted assets. Banks have continued to post profits although these are substantially lower than before the global financial crisis (Figure 4). In 2011, the decline largely reflected securities portfolio-related valuation losses, particularly in European sovereign bonds. The overall liquidity ratio has improved but Luxembourg-based banks have remained substantially exposed to risks arising from foreign parent banks.

Bank exposures to distressed sovereigns in the European periphery are generally contained, but cross-border exposures remain high.

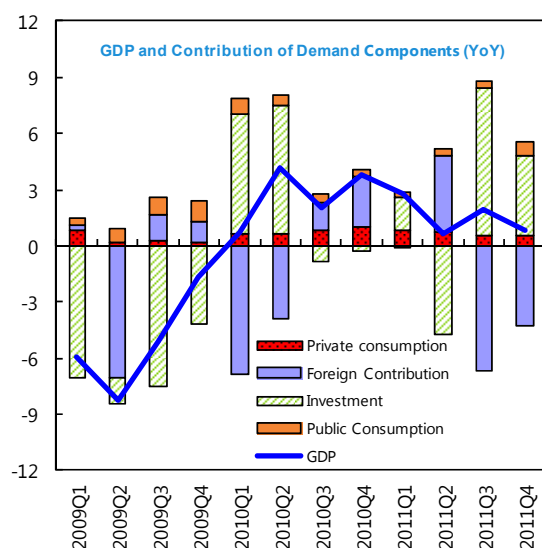
Exposures to distressed sovereigns have declined and account for less than 2 percent of total assets. These are concentrated in a small number of banks with limited retail deposits. More generally though, cross-border (mainly intragroup) exposures still account for about 3/4 of Luxembourg-based banks’ loans.

Cross-Border Exposures of Luxembourg Banks
(Percent of Total, End of Year)

	Assets		Liabilities	
	2010	2011	2010	2011
Germany	23.5	22.9	Luxembourg	35.4
Luxembourg	17.8	20.2	Germany	22.2
France	10.3	10.7	Switzerland	8.2
UK	6.5	6.8	France	4.9
Italy	5.1	5.4	UK	3.4
USA	3.7	3.8	Greece	1.8
Netherlands	3.9	3.4	Belgium	1.9
Switzerland	3.3	3.4	Italy	1.5
Spain	3.4	2.4	Singapore	1.2
Belgium	2.7	2.0	Netherlands	1.1
Others	19.8	19.0	Others	18.4

Source: CSSF

investments—mostly satellite-related projects—skewed the investment and trade data in the second half of 2011. Confidence indicators fell during this period, particularly in the last quarter, and have remained in negative territory (Figure 1). Private domestic demand has weakened, with households and firms postponing consumption and investment decisions as the crisis festered and the confidence effects from continuing uncertainties persisted.



Sources: WEO, STATEC, and IMF staff calculations.

4. Inflation has fallen reflecting developments in global prices and wages.

Mirroring international food and fuel prices, headline inflation rose to about 4 percent in the second half of 2011 before subsiding (Figure 2). Inflation has nonetheless consistently remained above the euro area average, in part due to wage increases. For a number of years, the latter had exceeded those in the euro area. But in 2011 wage increases have been broadly comparable to

neighboring countries, as automatic backward-looking wage indexation was postponed.

Wage increases also moderated due to labor market developments. In recent months, while employment growth has remained stable the unemployment rate has increased amid growing signs of skill mismatches and rising structural unemployment. Long-term unemployment now accounts for about 45 percent of overall unemployment compared to about 30 percent before the global financial crisis.

5. **The fiscal deficit fell in 2011.** The general government deficit was about $\frac{1}{2}$ of 1 percent of GDP lower than in the budget (Figure 3), despite a small overrun in public investment.² The over-performance reflected continued current expenditure control as well as strong revenue growth. Tax revenues were boosted by crisis-related, temporary tax rate hikes in personal income taxes and corporation solidarity taxes. In addition, economic activity, particularly in the first half of 2011, also contributed to higher-than-expected direct tax collection. Accordingly, staff estimates suggest that the structural deficit was about $\frac{1}{2}$ of 1 percent of GDP, roughly unchanged from 2010. Public debt has almost tripled to about 20 percent of GDP since the outset of the global financial crisis.

² This reflected the reclassification of a school project from public-private partnership to public investment and the unexpected purchase of real estate.

6. **The current account surplus has narrowed.** Balance of payments flows are dominated by the financial sector. Reflecting developments in the euro area, service sector exports—primarily financial and related business services—lost momentum during the course of 2011. Likewise, the trade balance worsened in the second half of 2011, with imports boosted by lumpy investment goods and exports declining compared to earlier in

the year. Mirroring developments in the investment fund industry, portfolio investment flows were stagnant through the third quarter of 2011 compared to 2010. On the competitiveness front, some gains have been seen in export unit value-based and manufacturing unit labor cost-based real exchange rates as well as in the average CGER assessment (Box 2).

Box 2. Evolution of Competitiveness and External Stability

Following a decade of deterioration, Luxembourg’s competitiveness gap has narrowed since 2010 (Figure 5). Wage increases associated with automatic backward wage indexation outstripped productivity gains for a number of years. In the aftermath of the global financial crisis, labor hoarding resulted in a sharp decline in labor productivity, far exceeding declines in neighboring countries. More recently, labor cost increases have been slowed by a sluggish labor market as well as by the postponement of automatic wage indexation adjustments. In 2011, some competitiveness gains have continued in unit labor cost-based real effective exchange rates and average CGER-based competitiveness gap. Besides some unwinding of labor hoarding, these improvements reflect Luxembourg’s medium-term current account balance that is now projected to be closer to its NFA stabilizing level. These medium-term projections are, however, subject to large uncertainty due to the intrinsic volatility in financial services export statistics.

Balance of payments flows are dominated by the financial sector. Specifically, financial sector flows reflect the liquidity management role of

CGER Assessment for Luxembourg

(in percent)

	Estimate
Average competitiveness gap	0.34
Macroeconomic balance approach	-0.49
Equilibrium real exchange rate approach	1.61
External stability approach	-0.10
Memorandum:	
Current account Norm (percent of GDP)	6.52
Projected current account (percent of GDP)	7.30

Sources: WEO and staff estimates

Luxembourg-based banks, most of which are part of international financial groups with limited impact on domestic intermediation (Annex I). From Luxembourg’s perspective, the financial center can be viewed as akin to a non-financial exporting industry. In this context, global financial shocks can have an asymmetrical impact on the center’s assets and liabilities, contributing to volatility in Luxembourg’s international investment position. The impact of these shocks however has been primarily on employment and tax revenues.

OUTLOOK AND RISKS

7. **In the context of an unfavorable global outlook, Luxembourg's economy is poised to continue slowing in 2012.**

Economic activity is envisaged to roughly come to a standstill in the first half of 2012, before experiencing a mild recovery later in the second half. Weak external demand—reflecting also euro area fiscal consolidation—will hold back exports, and lingering uncertainty will continue to weigh on domestic demand. These factors will also likely reduce price pressures and reinforce inflation's declining trend.

8. **Given continuing uncertainties in the euro area, the balance of risks is tilted to the downside** (Annex II). As elsewhere in

Europe, a slowdown in the euro area would likely increase unemployment, hurt households' ability to service their loans, possibly weaken the quality of domestically-oriented banks' assets and burden fiscal accounts. In contrast to most economies, the impact on domestic credit would likely be limited given that most bank lending is cross-border in nature, which historically has accounted for most of the adjustment. In part this also reflects the fact that domestic deposits exceed non-interbank loans, thus relieving pressure to reduce domestic credit. In the case of a strong intensification of the euro area crisis, Luxembourg-based banks would

face risks stemming from their parent banks. Banks could also be affected through their large cross-border intra-group transactions that are associated with their role of upstream liquidity providers. In such a case, contingent fiscal liabilities—limited to supporting domestically-active banks—could be large. Euro area turbulence and a loss in risk appetite could also result in outflows from Luxembourg's massive investment fund industry. The impact of these outflows on Luxembourg's economy would be limited. Likewise, outward spillovers are likely to be limited as Luxembourg would likely be a conduit rather than an originator of outward spillovers. This is not only because Luxembourg-based financial institutions are generally well-capitalized, but also because they intermediate large financial flows from abroad (mainly intra-group operations), and a global or regional financial shock tends to reduce both inflows and outflows. In any case, a better-than-expected outlook could materialize if efforts to address the crisis quell market uncertainty and lead to a quicker euro area recovery.

9. **The authorities broadly concurred that downside risks have increased, but were more sanguine on the outlook.** They noted that the banking sector's exposure to

distressed sovereigns has declined and represents a small share of overall assets. Moreover, they expressed confidence that, in an extreme tail event, the banking sector's strong capital position provided comfort in this regard. Pointing to the experience in recent crises, the authorities did not expect outward spillovers stemming from

Luxembourg's investment fund industry, also given its small exposures to distressed sovereigns. Regardless, the impact on Luxembourg's economy would likely be confined to a weakening of tax revenues and employment. Pointing to the latter, they noted that the real estate market may also feel the impact, albeit moderately.

POLICY CHALLENGES

10. **Preserving Luxembourg's hallmark stability anchoring its business friendly climate will entail continued efforts to limit financial sector vulnerabilities, ensure fiscal sustainability, and promote growth and employment.** Beyond the current juncture, forthcoming changes in the financial regulatory environment present a challenge to its financial center. Moreover, on the fiscal

front, besides the need to arrest trend increases in current spending, implicit pension obligations loom over fiscal sustainability. Luxembourg's economic stability furthermore cannot be assured without boosting growth, which will require labor market reforms to counter disincentives to work and address growing skill mismatches, and product market reforms to spur productivity growth.

A. Limiting Financial Sector Vulnerabilities

11. **Luxembourg has made substantial progress in strengthening financial sector supervision and regulatory frameworks.** Consistent with the FSAP update's recommendations (Box 3), staff and resources of the *Commission de Surveillance du Secteur Financier* (CSSF) have been increased and resulted in more frequent on-site inspections and increased enforcement actions. Moreover, risk-based supervision has become more prevalent. The financial industry has broadly recognized the value of stronger supervision for financial stability and welcomed the constructive dialogue with supervisors. In

addition, the deposit guarantee scheme's payout period was sharply reduced from three months to no more than 20 working days, consistent with the current EU directive. Likewise, a new disclosure requirement regarding the exercise of investor rights for investment funds was put in place to bolster investor protection.

The CSSF's Supervisory Activities, 2008–11				
	2008	2009	2010	2011
On-site Inspections				
Banks	66	38	56	85
Investment Funds	7	20	13	19
Enforcement Actions				
Banks	1	2	1	8
Investment Funds	0	4	19	72

Source: CSSF

Box 3. Progress in Implementing Key Recommendations of the FSAP Update

A. Institutional Aspects

- Legislation was amended to improve the operational independence of the CSSF granting it authorization power regarding some changes in financial institutions. Further measures are under consideration.
- In light of the European Systemic Risk Board's (ESRB's) recommendation on establishing a national macroprudential authority, the authorities are exploring ways to clarify more broadly the supervisory responsibilities of the BCL and CSSF.

B. Conduct of Financial Sector Supervision

- Staff and resources available for the CSSF's supervisory and enforcement functions have been increased substantially. This has translated into more frequent on-site inspections and enhanced risk-based supervision of banks and investment funds, with stress testing more integrated into supervisory planning.
- A number of organizational and procedural changes have taken place to expedite enforcement actions. These include the issuance of internal rules, the creation of the enforcement committee as well as a division devoted to investment fund enforcement.

- The CSSF continues active participation in supervisory college meetings contributing to improve their monitoring of cross-border exposures to parent banks. Following the EBA recommendations, relevant European supervisors have started to conduct joint risk assessments of banking groups following a common approach.
- Disclosure requirements for investment funds were strengthened to clarify shareholder and ownership rights. An EU-level legislative proposal standardizing and strengthening the role of depositaries is expected to be published in 2012.

C. Financial Safety Net

- A law requiring speedier payments by the deposit insurance scheme was enacted. While waiting for progress of EU-level initiatives, the authorities have been studying options to strengthen the bank resolution framework and upgrade the deposit insurance scheme.
- The authorities have been in discussions with Clearstream Banking Luxembourg to prepare contingency plans and have been studying the need for legislative actions.

12. **But continued improvements are required, particularly to further enhance cross-border supervision.** For the banking industry, its structure and outward orientation underscore the need for close cooperation with home supervisors. In this regard, it is important for the authorities to keep taking advantage of supervisory colleges for EU banking groups. These colleges provide an ideal venue to exchange data, analyze financial groups using a common methodology, and develop coherent group-level strategies, as

required by the European Banking Authority (EBA). As these structures are less developed for non-EU banking groups, continued efforts are necessary to procure the needed data and coordinate group-level recommendations at supervisory colleges. Likewise, given the increasingly global nature of UCITS funds and the different jurisdictions involved in managing these funds, Luxembourg should consider spearheading efforts to establish multilateral supervisory frameworks for investment funds

to complement the existing bilateral arrangements.

13. There are however a number of areas where progress in EU-level financial initiatives is crucial and continued delays pose a dilemma for Luxembourg.

Specifically, these include the EU's efforts to harmonize bank resolution mechanisms as well as deposit guarantee schemes. These are essential for Luxembourg given the banking sector's cross-border exposure. On the investment fund side, the UCITS V Directive can provide an opportunity to strengthen depository regimes including asset segregation. The slow progress in these initiatives, however, creates a tradeoff. Implementing reforms ahead of EU guidance runs the risk of having to revisit reforms should these contravene EU-level Directives. But continuing to place on hold needed reforms can leave Luxembourg's financial system less able to deal with potential risks.

14. As Luxembourg awaits the finalization of EU-level initiatives, there are nonetheless pragmatic steps, not needing legislative action, which should be taken to improve Luxembourg's regulatory frameworks. For instance, bank resolution can be strengthened by Recovery and Resolution Plans (RRPs) that will be required for all major EU banks. These will need to be coordinated with home supervisors, possibly in the context of Crisis Management Groups or supervisory colleges. Regarding the existing ex-post

deposit guarantee scheme, consideration should be given to require mandatory provisioning for the needed payments under the scheme. This would ensure the availability of needed resources to cope with bank resolution.

15. Looking ahead, global and EU-level regulatory reform initiatives will require stepped up efforts by Luxembourg's financial sector and its supervisors. These include:

- *Basel III and Capital Requirement Directive IV (CRD IV).* Given Luxembourg-based banks' strong capital position, the higher capital adequacy requirements would not likely pose difficulties. But tougher liquidity standards could be challenging, because many Luxembourg-based banks are subsidiaries of international banking groups and new standards may require changes in group-wide liquidity management. The authorities' recent study on the Liquidity Coverage Ratio shows that a number of banks would not meet those standards that, if applied on a stand-alone basis, would result in a shortfall of 65 billion euro (roughly 1½ times GDP). While EU discussions are ongoing, the authorities should continue to urge banks to prepare for the implementation of liquidity standards associated with Basel III and the forthcoming EU directive.

- *Central securities depositories regimes.* The European Commission's (EC's) recent legislative proposal to harmonize these regimes could result in stricter rules for those

depositories—such as Clearstream Banking Luxembourg—to provide banking services. In due course, this may require revising the supervisory framework for Clearstream, which is currently supervised as a bank. Meanwhile, the authorities are encouraged to continue discussing ways to strengthen contingency planning for this institution and limit potential outward spillovers.

16. **Further refinements are also needed in Luxembourg’s institutional frameworks for financial supervision and regulation.** In line with the FSAP update’s recommendations as well as forthcoming EU requirements, this will entail:

- Clarifying the respective roles and duties of the CSSF and BCL on liquidity risk supervision. While this has worked smoothly in practice, forthcoming Basel III requirements on liquidity will likely call for a clear demarcation on these matters, particularly as EU rules could provide local authorities the power to grant waivers to banks in their jurisdiction.
- Establishing a national macro-prudential authority following the ESRB’s recommendations, with the central bank taking an important role. Regardless of the specific institutional set-up of the national authority, its proper functioning will require the ability to identify, monitor, and assess systemic risks, and to take actions to mitigate risk and limit potential fallout.
- Strengthening the CSSF’s operational independence. While there is no evidence of

political interference, its operational independence should be strengthened in line with international standards. Steps have already been taken in this regard, but the CSSF remains under the “direct authority” of the Minister of Finance, its senior management can be dismissed by the government over a disagreement about policy or execution of its remit, and the ultimate licensing authority lies with the Minister.

17. **On the Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) framework, the authorities have made progress in remedying the shortcomings identified in the Financial Action Task Force (FATF)’s 2010 mutual evaluation report.** Luxembourg was removed from the enhanced review process of the FATF’s International Cooperation Review Group in early 2011 and is now subject to a yearly follow up by the FATF. The FATF noted that additional improvements are needed, in particular in relation to legal entities transparency (i.e. beneficial ownership and control). Looking forward, the authorities will need to take into account the revised FATF standard of tax crimes.

18. **The authorities broadly agreed and expressed their intention to address matters under their control.** In particular:

- Regarding the bank resolution regime and deposit insurance scheme, they stressed the importance of moving in lockstep with EU-level regulations. This would be consistent

with their tradition of regulatory stability and consistency with other EU partners. The authorities noted nonetheless that they have increased capital requirements for all Luxembourg-based banks (not just those required by EBA) to a minimum 9 percent of risk-weighted assets in Core Tier I capital. They agreed that it was important to continue exploring pragmatic ways to move ahead should delays persist in finalizing EU initiatives. On Clearstream, they noted ongoing discussions on contingency planning, which have focused on ensuring the continuity of critical functions, and awaited the final EU-level agreement to assess whether revisions were needed on the supervisory front.

- The authorities stressed that the

B. Ensuring Fiscal Sustainability

19. The 2012 budget may provide support to the economy, albeit its stimulus is based on current expenditure increases.

Staff estimates that the general government deficit will widen from about $\frac{3}{4}$ percent of GDP to almost 2 percent of GDP in 2012. Overall expenditures will increase by about 2 percent of GDP, the bulk of which reflect increases in wages and social benefits. On the

	2009	2010	2011	2012 Proj
Overall balance	-0.8	-0.9	-0.6	-1.9
Revenues	42.2	41.6	41.4	42.1
Expenditure	43.0	42.4	42.0	44.0
Current expenditure	39.3	38.4	37.9	40.0
o/w Compensation to employees	8.1	8.0	7.9	8.2
Social benefits	21.0	20.3	19.8	20.7
Capital expenditure	3.7	4.0	4.1	3.9

Sources: Ministry of Finance; IMF staff estimates.

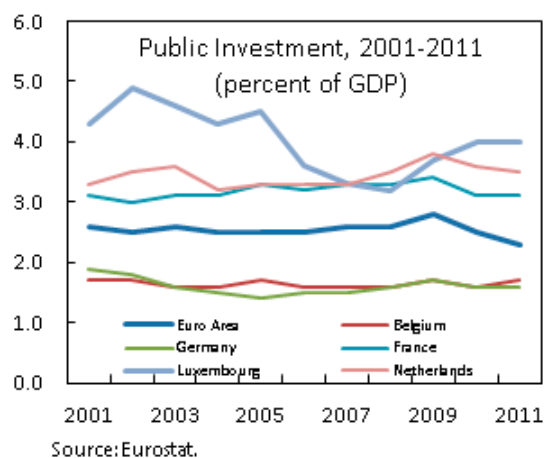
principles embedded in their supervisory and regulatory institutional settings do not differ from those underlying international standards and, in practice, these arrangements have operated smoothly. They agreed nonetheless to revisit these to reflect the FSAP update's recommendations as well as in light of the newly required national macro-prudential authority. The authorities intend to take legislative action to address these institutional issues in a holistic manner and stressed that operational independence of institutions should go hand in hand with accountability and responsibility.

- On AML/CFT, the authorities stressed their commitment to take needed measures to be in compliance with revised FATF standards.

revenue side, the budget sees the early cancellation of the 2011 crisis tax, which consisted of a surcharge on personal income tax of 0.8 percentage points. In effect, staff estimates suggest that the structural deficit will widen by roughly 1 percent of GDP. Given the openness of the economy and the correspondingly small fiscal multipliers, this impulse will likely have only a modest stimulative effect (Figure 6). Staff thus advised to strictly adhere to the budget's expenditure allocations, also in light of the medium-term fiscal pressures. Nevertheless, should the aforementioned downside risks materialize, automatic stabilizers should be allowed to

operate and safeguard the social safety net while maintaining fiscal credibility.

20. **In an effort to contain expenditures, the budget also extends the public investment cap for an additional year.** This will result in capital expenditure declining slightly as a percentage of GDP. In the short run, the cap can help arrest rapid increases in recent years, but it is a blunt tool to prioritize public investment. Moreover, continued reliance on an investment cap could hurt growth prospects in the long run.



21. **In the medium term, Luxembourg's fiscal position is poised to deteriorate.** On current policies, the general government deficit is projected to increase, particularly starting in 2015 when the permanent revenue loss from e-commerce takes effect.³ Public debt would almost double to over 30 percent

³ E-commerce value added tax revenues will be reimbursed to governments according to the residency of the online purchaser. In effect, this translates into a permanent revenue loss of about 1¼ percent of GDP.

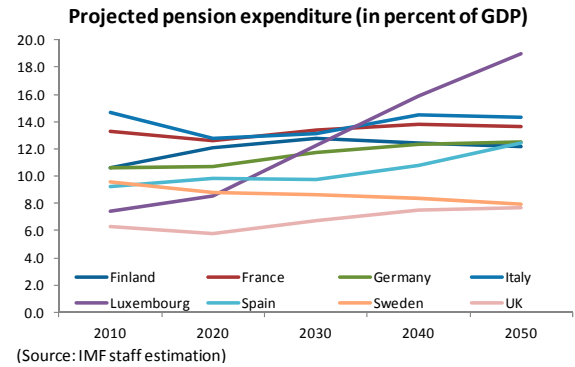
of GDP by 2017, with its trajectory especially sensitive to growth shocks and contingent liabilities shocks (Figure 7).⁴ In this context, the authorities have reiterated their goal of reaching a balanced budget by 2014 and staff estimates that this would require measures of about 1 percent of GDP—beyond the measures announced in the April 2012 Stability and Convergence Program Update—with the sharing of e-commerce VAT revenues requiring additional measures in 2015. While staff noted that the pace of fiscal consolidation should be mindful of economic developments, in particular the aforementioned downside risks, they encouraged the authorities to spell out the needed consolidation actions. The latter should focus on rationalizing and prioritizing current expenditure. A comprehensive review of the generous social transfers and subsidies will be needed to secure a more effective and targeted use of scarce resources as well as to limit adverse work incentives.

22. **Establishing a multi-year budgetary framework can support the needed high-quality fiscal consolidation.** The framework should apply to all levels of government and include binding, multi-year expenditure ceilings. Such a framework would be consistent with EU requirements associated

⁴ The 10 percent contingent liability shock in the DSA is broadly in line with actual costs of rescuing Dexia and Fortis during the crisis (about 8 percent of GDP).

with the legislative “six pack” and the Fiscal Compact, including fiscal sustainability.

23. **Looking forward, the authorities have begun reforming the old-age pension and health care systems.** Aging-related expenditure pressures are widespread in the EU. But the generosity of Luxembourg’s pension system—and its associated low effective retirement age—translates into the largest increases in aging expenditures in the EU (Figure 8). The authorities have recently introduced so-called “pension à la carte.” It fully grandfathers the rights accrued under the existing regime and will take 40 years to be fully in force. At that time, workers could draw a reduced pension (about 8½ percent lower) at the current effective retirement age (about 58 years of age⁵) or elect to work three more years and obtained an unreduced pension. With respect to health care, the 2011 reforms included an increase in contributions and higher financial burden-sharing of the patients, tighter budgetary constraints for hospitals and practitioners, and promotion of generic drugs. As a result, the health care system is estimated to have generated a surplus of about 0.15 percent of GDP in 2011.



24. **Still, fiscal sustainability will require comprehensive old-age pension reform.**

Even if the effective retirement age were to increase by three years in the long run, it would remain below today’s EU average. Moreover, the reform would not suffice to place social security on a strong financial footing and places a disproportionate burden on younger generations to support the unsustainably generous benefits of those being grandfathered. Luxembourg must consider further reforms to better align benefits to contributions. In this regard, it should increase the statutory retirement age—following the lead of other European countries facing far less aging-related pressures (Annex III)—and limit pension benefit adjustments to cost-of-living indexation. The latter would eliminate what amounts to double indexation of benefits to wages and prices. In addition, there remains an urgent need to vastly curtail, if not eliminate, complementary periods, during which benefits accrue without corresponding contributions. On the health care front, beyond the full implementation of the 2011 reforms, further efforts will be needed to ensure the long-term viability of the system.

⁵ This average includes disability pensions.

25. **The authorities stressed that fiscal consolidation was needed to preserve fiscal credibility and rebuild fiscal buffers.** They underscored that the 2012 budget would have little, if any stimulative impact given the small multipliers. With respect to the investment cap, the authorities noted that prioritization has been carried out, with several lower-priority projects being delayed. Looking to the medium-term challenges, they concurred that further measures beyond those announced in the April 2012 Stability and Convergence Program could be needed to reach their balanced budget target in 2014. These would focus on limiting growth in current expenditure with the view of reducing adverse work incentives. They also highlighted the need to rebuild fiscal buffers—effectively used during recent crises but now exhausted—to keep public debt from increasing further and cope with future shocks. The authorities noted ongoing plans to implement a medium-term

fiscal framework—to be transposed in line with EU commitments by end-2013.

26. **The authorities concurred with the urgent need to place Luxembourg’s old-age pension system on a sustainable path.**

They noted that the existing pension system suffers from a number of rigidities that are proving to be costly, including the cumulative existing indexation of benefits to real wages. The proposed reforms would also allow for more flexible adjustment mechanisms, including on benefit indexation. In addition, the authorities stressed that the sustainability of the system will be reassessed every five years and needed corrective measures would be taken in case of expected shortfalls. As regards to additional reforms, they have discussed reducing complementary periods and adjusting the indexation factors but underscored the importance of intergenerational fairness in further reforms. On health care, further reforms are being developed, including to restructure the hospital sector starting in 2013.

C. Boosting Long Run Growth and Competitiveness

27. **Enhancing sustainable growth will require addressing long-term joblessness and fostering productivity growth.** Besides a stable macroeconomic environment, Luxembourg’s success has also reflected its ability to react quickly to changes in the global environment, often giving it a first-mover advantage. In addition, the authorities have fostered competitiveness and growth by

investing in key infrastructures and education and establishing public research facilities. As the economy boomed, spearheaded by the financial sector, tax revenues have been increasingly devoted to providing generous social transfers. But robust growth, particularly in the financial sector, masked growing structural problems in labor and product markets associated with the welfare system

and product regulations. Moreover, in response to the global financial crisis, protecting employment became a priority. The downturn has, however, brought to the fore the burden of these policies on the fiscal purse as well as their unintended disincentives to work and impediments to competition.

28. **Labor market policies will thus need to be redesigned to strengthen work incentives and facilitate mobility across sectors.** Besides the disincentives to work, the existing generous social transfer schemes, including unemployment insurance, have diverted resources from active labor market policies (Annex IV). Skill mismatches, particularly for local residents, have recently become more acute in the wake of the global financial crisis. In this connection, labor market programs will thus need to be rebalanced to support the continued development of marketable skills. Human capital accumulation can be further supported by life-long learning and continued attention to improving formal education. In addition, labor market flexibility has been hindered by the long-standing automatic backward-looking wage indexation. Luxembourg's efforts to limit its negative side-effects—delaying wage adjustments and limiting these to no more than once a year—have helped contain rising unit labor costs. But reforms are still needed to further reduce its undesirable effects on competitiveness. This can be achieved by modifying the reference index to exclude volatile prices (notably food

and fuel prices), with a view of eliminating indexation altogether in the medium term.

29. **Product market reforms are also vital to spur competition and productivity growth.** Luxembourg has stringent product market regulations (PMR) compared to other European countries, notably entry barriers. Moreover, while other countries have made progress in reducing regulations, these have increased in Luxembourg (Annex V). In 2011, Luxembourg has sought to lower entry barriers for some professions by substituting work experience for formal education requirements. While a step in the right direction, further reforms will be needed to foster a climate of active competition. Specifically, this will also require further reforms to simplify administrative approval procedures, particularly those regulations surrounding land use. Together, these can underpin productivity growth, enable resources to move freely across sectors, and possibly foster economic diversification.

30. **The authorities shared concerns about labor markets and recognized that product market regulations had a negative impact on competitiveness.** The authorities explained that they are currently pursuing measures to strengthen human capital through continuing education programs. Specifically, they have implemented a program to help unemployed financial sector workers find new jobs after re-training, and reported some success. The authorities acknowledged that the

generous unemployment benefits have contributed to an increase in long-term unemployment. In this regard, a reform to the unemployment categorization scheme is currently under discussion to provide more incentives to work and reduce the fiscal burden. They also recognized wage indexation had propped up unit labor costs and will

continue to explore ways to limit the adverse impact on competitiveness. The authorities also stressed the role of high profit margins—made possible due to weak competition—on competitiveness. In this connection, they noted the need to focus reforms to address the various aspects of competitiveness.

STAFF APPRAISAL

31. **Luxembourg is confronted with the challenge of safeguarding its hallmark economic stability.** The financial sector has endured the global financial as well as the euro area crises and remained stable. Luxembourg's long-standing economic stability has provided comfort in the face of heightened financial market volatility. The economy will nonetheless slow in 2012, reflecting external conditions, and the fiscal deficit will widen but remain low. Headline inflation will slow, as the impact of global fuel prices wanes and wage indexation is delayed. For its part, the unemployment rate is expected to remain broadly unchanged, but long-term joblessness will still account for a large share of unemployment.

32. **In this regard, continued efforts are needed to enhance the stability of its financial system.** Luxembourg has made strides to strengthen its financial center, including by increasing resources to the CSSF. Still, the authorities should continue to take advantage of supervisory colleges for EU banking groups to exchange data and develop

coherent group-level strategies. As these multilateral structures are less developed for non-EU financial groups as well as for UCITS funds, further efforts are needed to ensure coordination among relevant supervisors. Regarding EU-level regulatory initiatives, their slow progress pose a dilemma. On balance, however, as Luxembourg awaits their finalization, it should push ahead with actions not requiring legislation. The authorities should also continue to encourage banks to prepare for the tougher liquidity standards associated with Basel III and CRD IV.

33. **More broadly, there is a growing need to revisit Luxembourg's institutional arrangements for its financial sector supervision and regulation.** Coordination among supervisors has been smooth and there is no evidence of political interference in supervisory matters. Revisions are needed nonetheless to better align Luxembourg's frameworks with international standards. In this regard, it is important that the revised frameworks provide clear roles and responsibilities of the relevant authorities and

ensure the operational independence and accountability of the CSSF and of the needed macro-prudential authority.

34. The challenge for fiscal policy includes implementing a high-quality fiscal consolidation to ensure that Luxembourg's fiscal sustainability remains beyond doubt.

In 2012, this will require strictly adhering to the budget's expenditure allocations, which foresee continuing current expenditure increases with a cap lowering public investment. However, if downside risks materialize, automatic stabilizers should be allowed to operate while maintaining credibility. As growth resumes, balancing fiscal accounts by 2014 will help preserve fiscal stability in the face of medium-term challenges. The needed consolidation should focus primarily on rationalizing current expenditure. In this regard, a medium-term fiscal framework including expenditure ceilings can support high-quality adjustment and should be implemented without delay.

35. Looking ahead, comprehensive old-age pension reforms will be crucial for fiscal sustainability. The generosity of

Luxembourg's old-age pension system will result in the largest aging-related expenditure increases in the EU. Recent efforts to better align benefits to contributions are a step in the right direction. But these will take 40 years to be fully in effect and will not place the old-age pension system on a sound financial footing. Increasing the statutory retirement age,

curtailing, if not eliminating, complementary periods, and limiting benefit indexation to cost-of-living adjustments would go a long way to making the system sustainable.

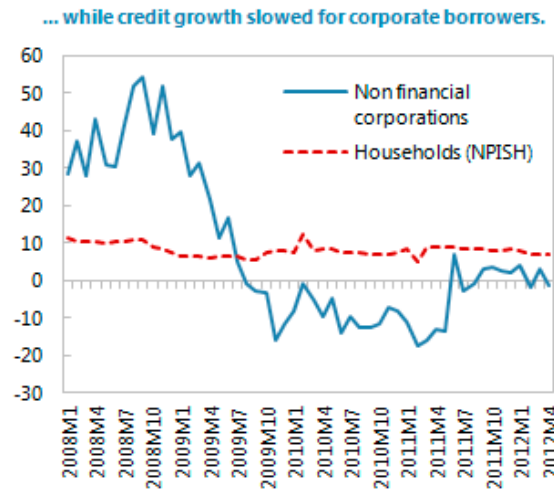
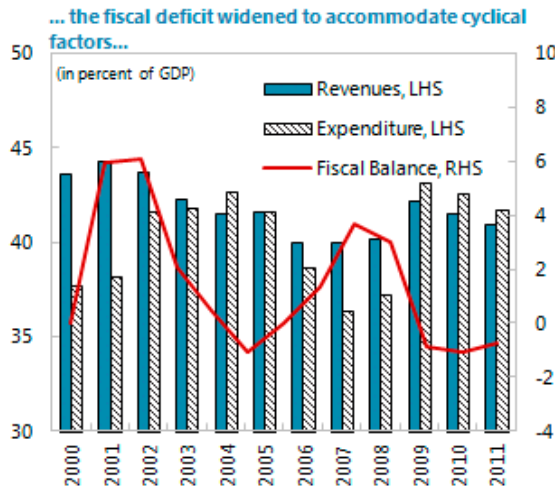
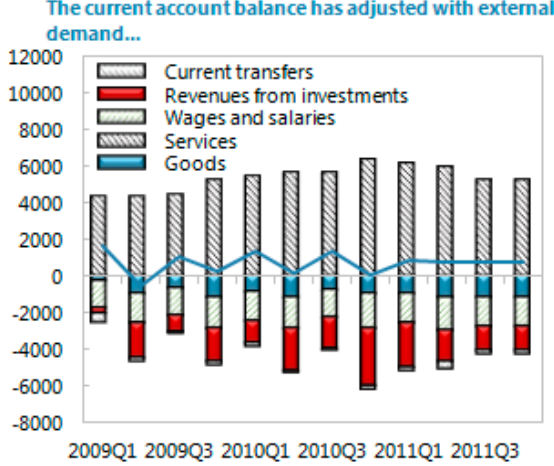
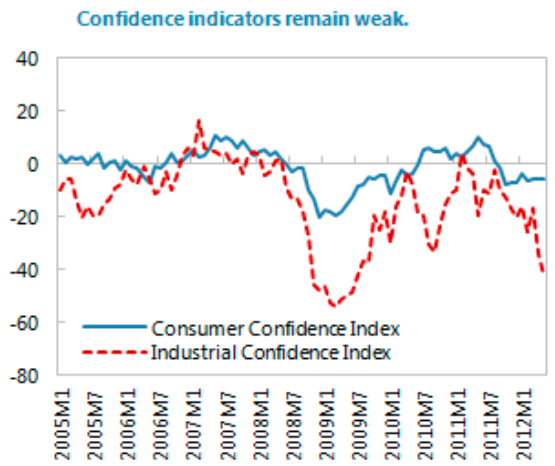
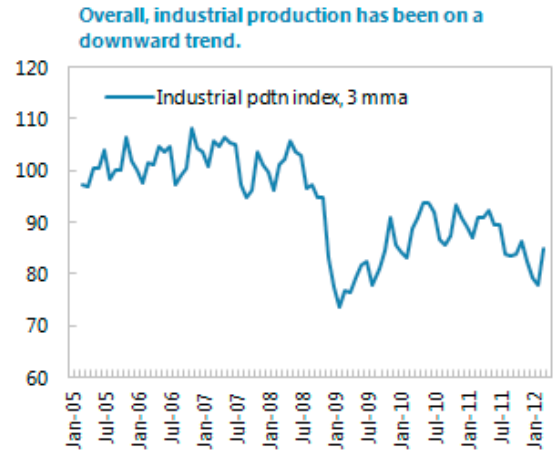
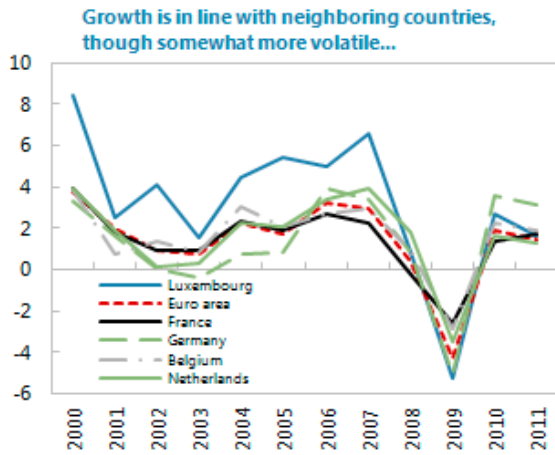
Reforms to the benefit indexation rule would eliminate the existing double-indexation of benefits to wages and prices as well as contribute to intergenerational fairness.

36. Ultimately, Luxembourg's economic stability will hinge on its ability to bolster long-run growth by employing its resources fully and efficiently. Beyond safeguarding

macroeconomic stability and competitiveness, this will involve addressing trend increases in unemployment, particularly long-term joblessness, by rebalancing labor market policies in favor of training and education. Labor market programs and the social safety net will thus need to be revamped to better target subsidies, minimize adverse work incentives and address growing skill mismatches. Long-standing labor market rigidities will also need to be addressed. Delays in the automatic backward-looking wage indexation have helped limit adverse competitiveness effects. But further efforts are needed to revise the reference index with a view of eliminating indexation in the medium term. It is also important to review product market regulations to foster competition, fuel productivity growth, and possibly support economic diversification.

37. It is recommended that the next Article IV consultation with Luxembourg be held on the standard 12-month cycle.

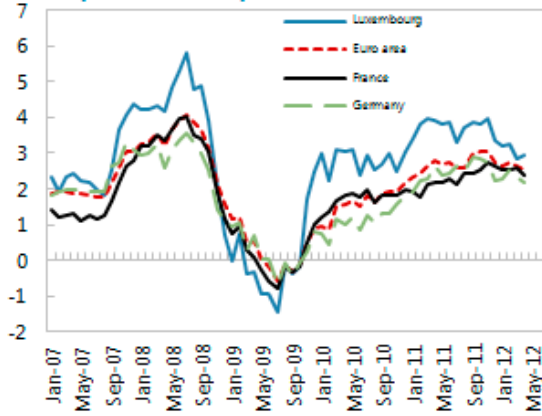
Figure 1. Luxembourg: Recent Economic Developments
(in percent change, unless otherwise indicated)



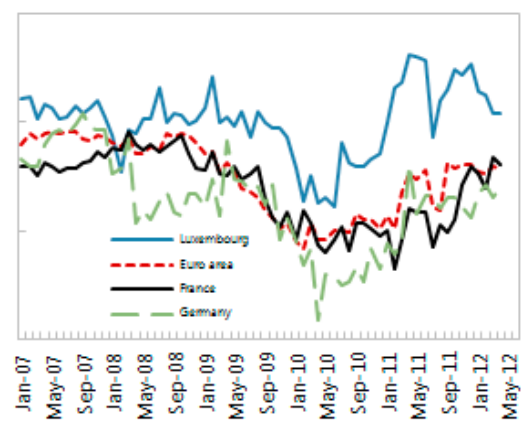
Sources: Haver; IHS Global Insight; and Luxembourg authorities.

Figure 2. Luxembourg Inflation and Labor Market Developments
(Annual Growth Rates, unless otherwise indicated)

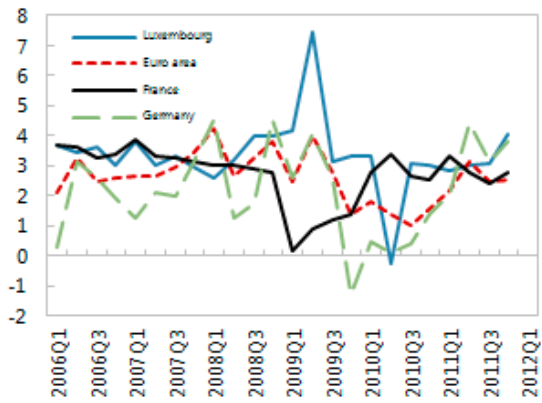
Inflation has fallen as the impact of food and fuel price shocks dissipate.



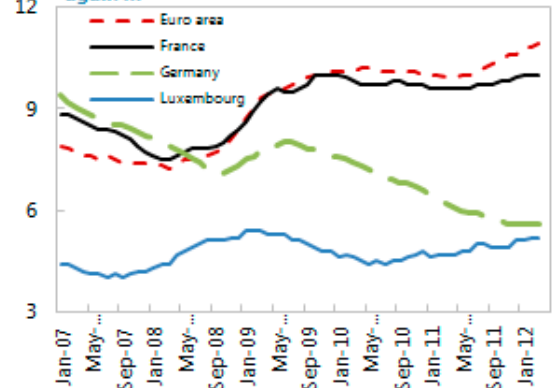
Core inflation has also fallen and remains moderate ...



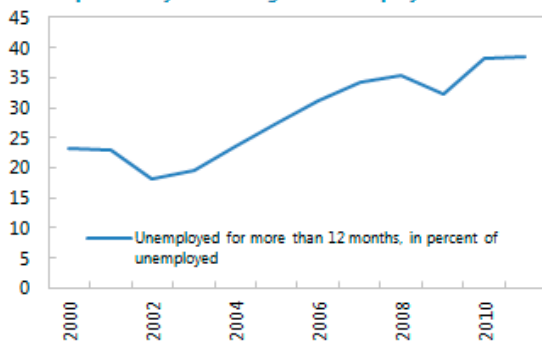
... though wage pressure may be building.



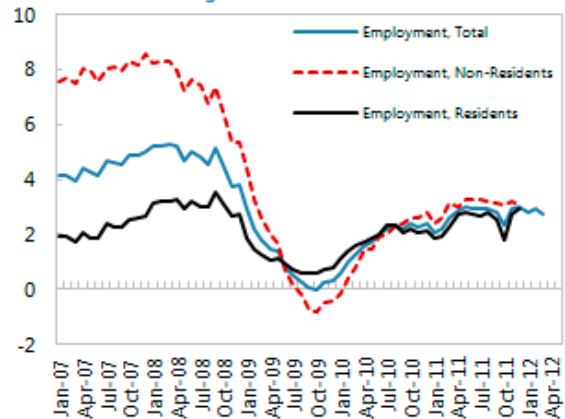
Unemployment has been creeping upward again ...



...particularly for the long-term unemployed.



Meanwhile, employment growth is relatively stable and is higher for cross-border workers.



Sources: STATEC, Haver analytics, IHS Global Insight.

Figure 3. Luxembourg: Fiscal Consolidation

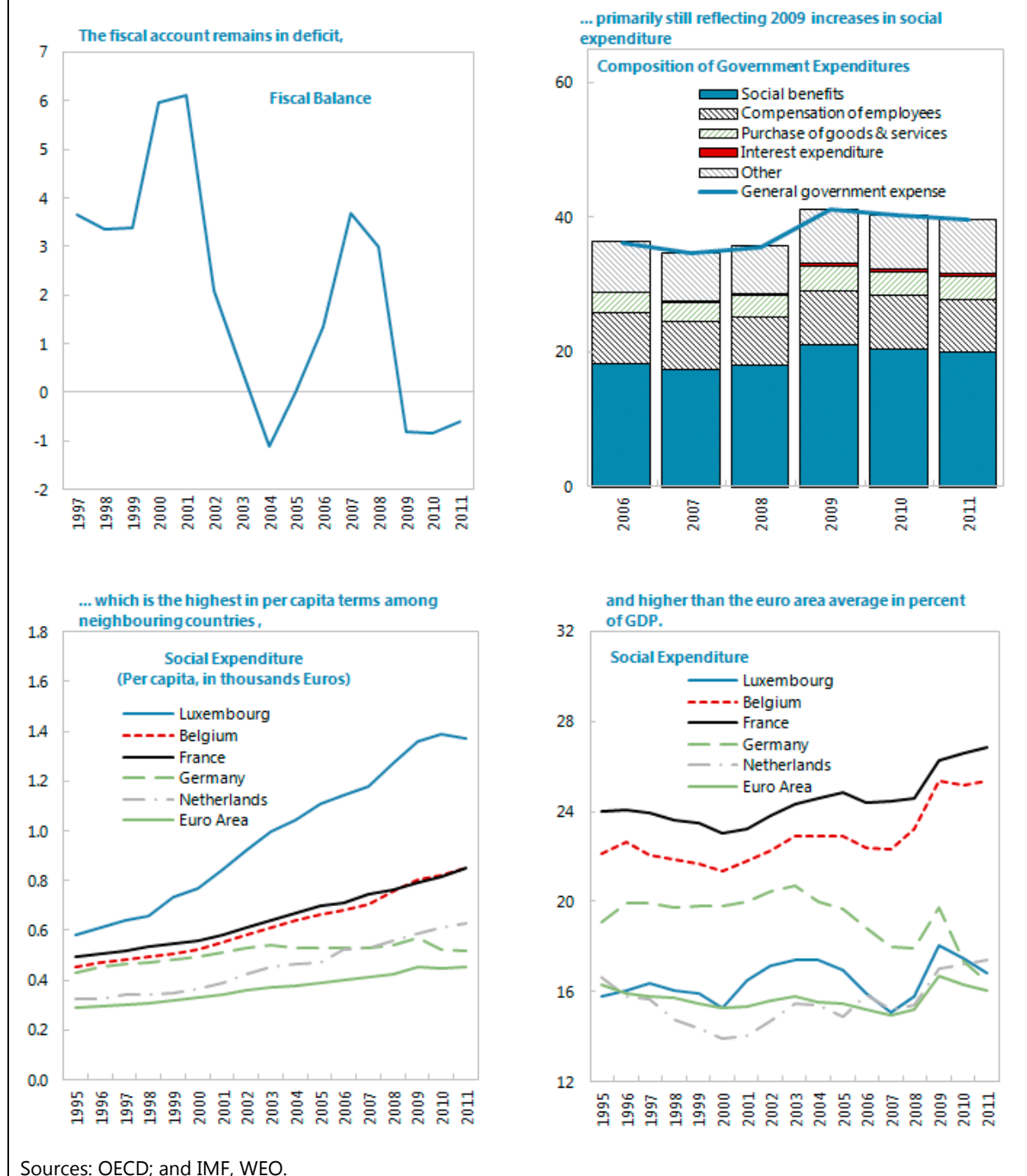
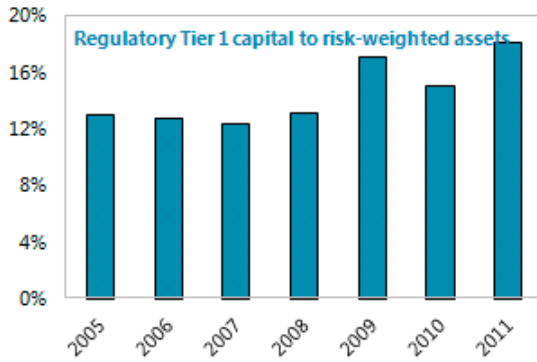
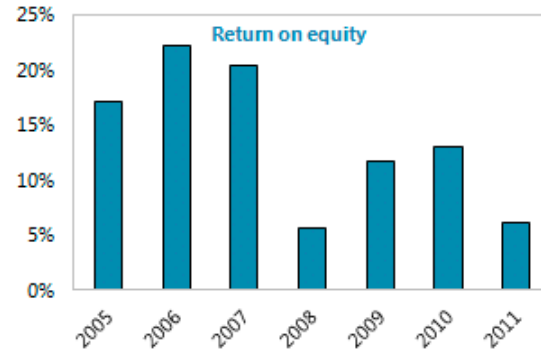


Figure 4. Luxembourg: Banking Sector Indicators
(in percent, unless otherwise indicated)

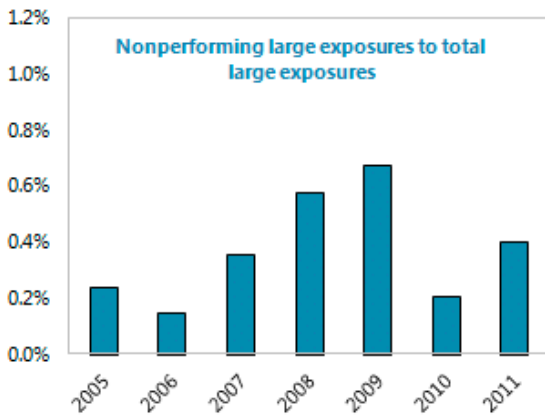
The banking sector is well capitalized ...



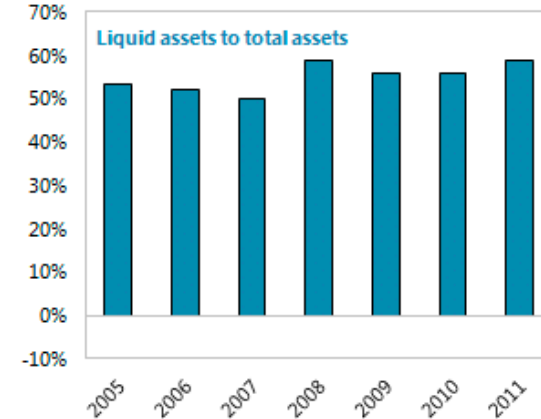
... and remains profitable.



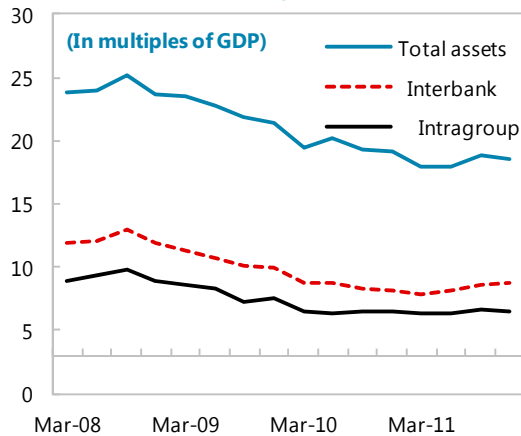
Non-performing loans are relatively subdued ...



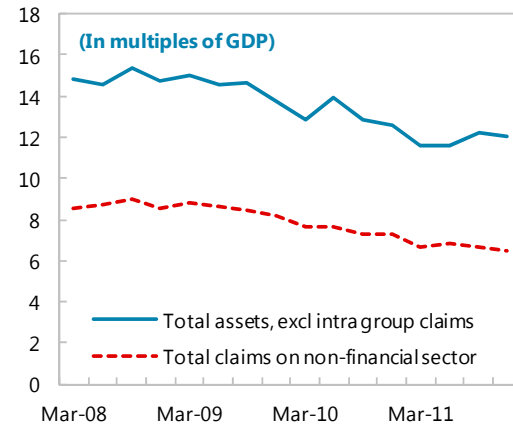
... with a continued high level of liquidity.



Assets are bottoming out ...



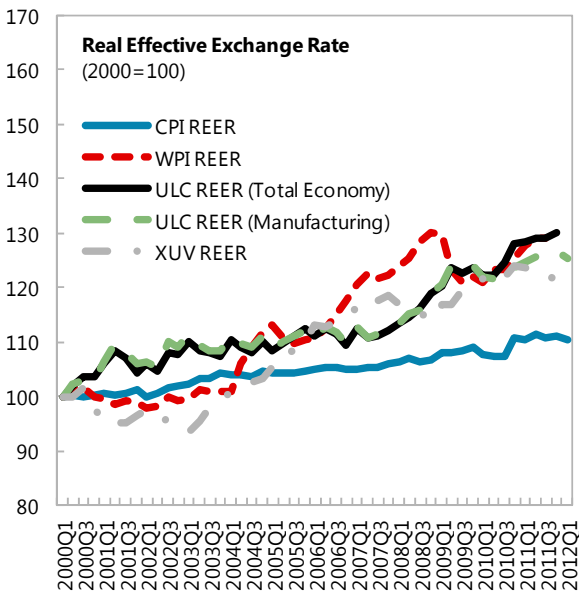
... but intra-group exposures remain large.



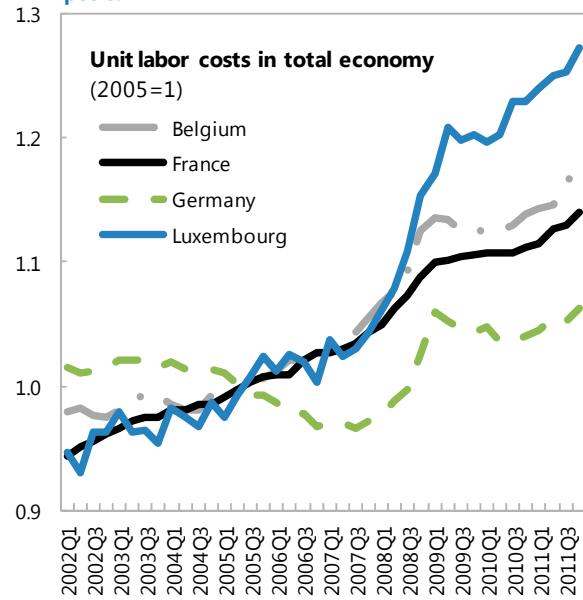
Source: Central Bank of Luxembourg.

Figure 5. Luxembourg: Competitiveness Indicators

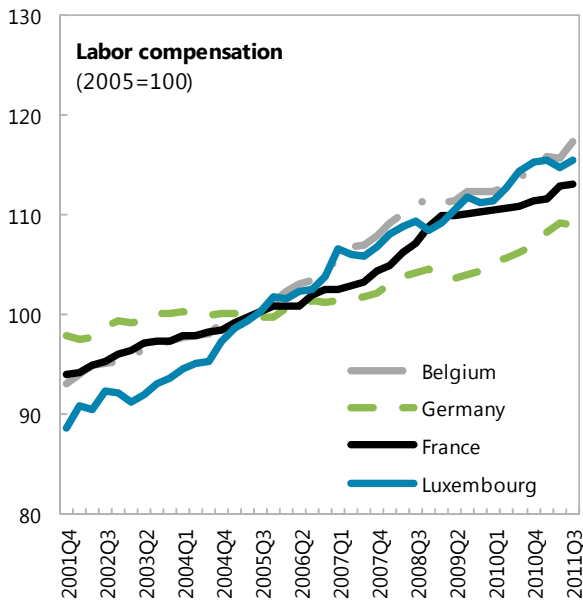
The trend real exchange rate appreciation starting since the early 2000's has shown signs of stabilization.



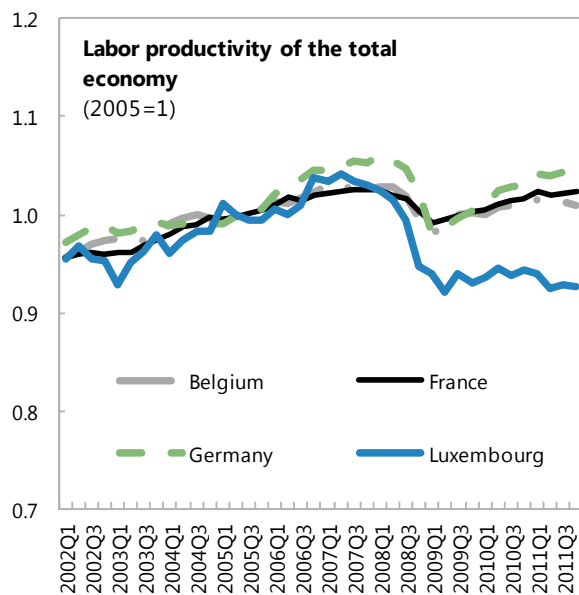
The recent increase in ULC is higher than regional peers.



But the increases in wages are relatively moderate.



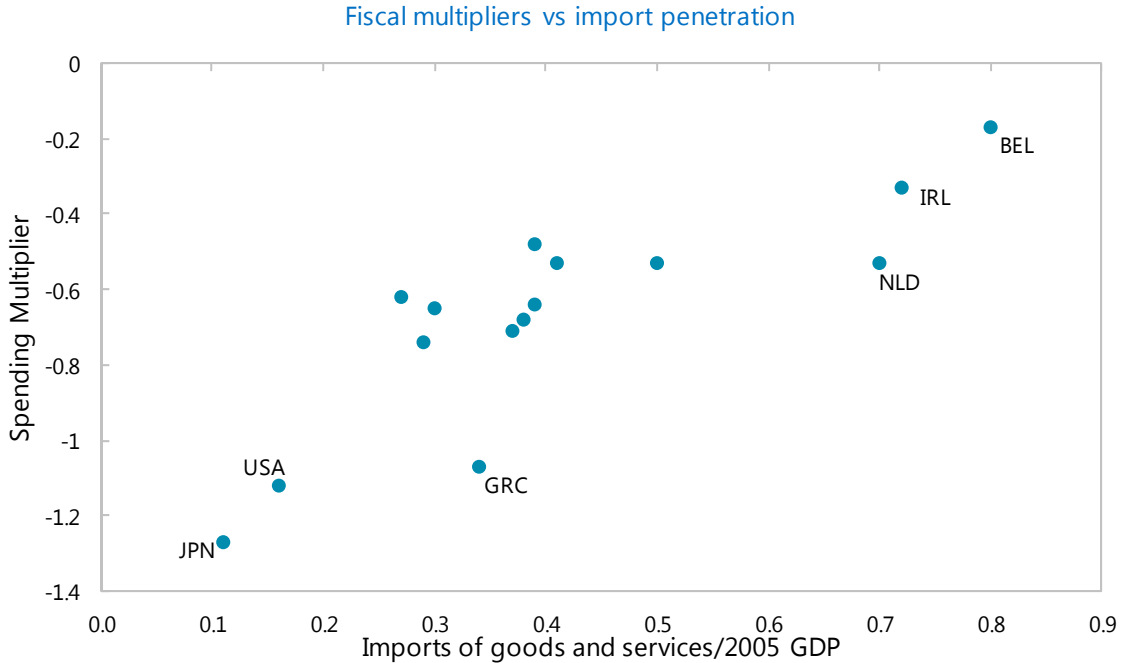
Thus the larger increase in ULC is driven mainly by lower labor productivity growth



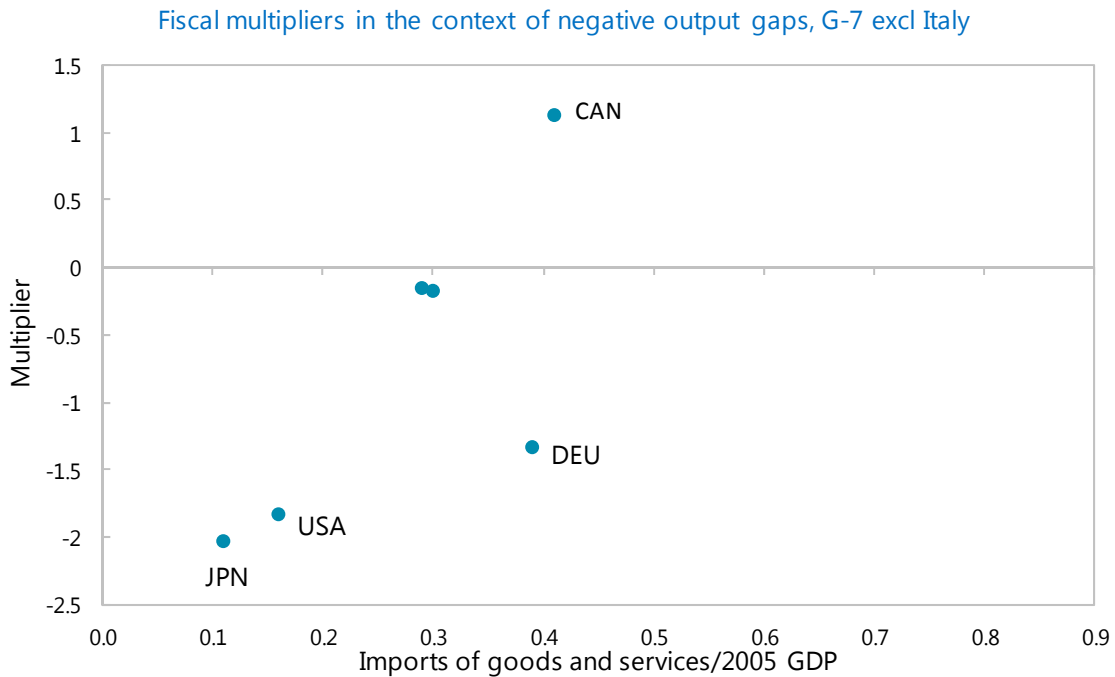
Source: OECD.

Figure 6. Fiscal Multipliers

Traditional analysis of fiscal multipliers have found that more open economies (measured here using imports) tend to have smaller multipliers. Luxembourg's openness measure exceeds 1.

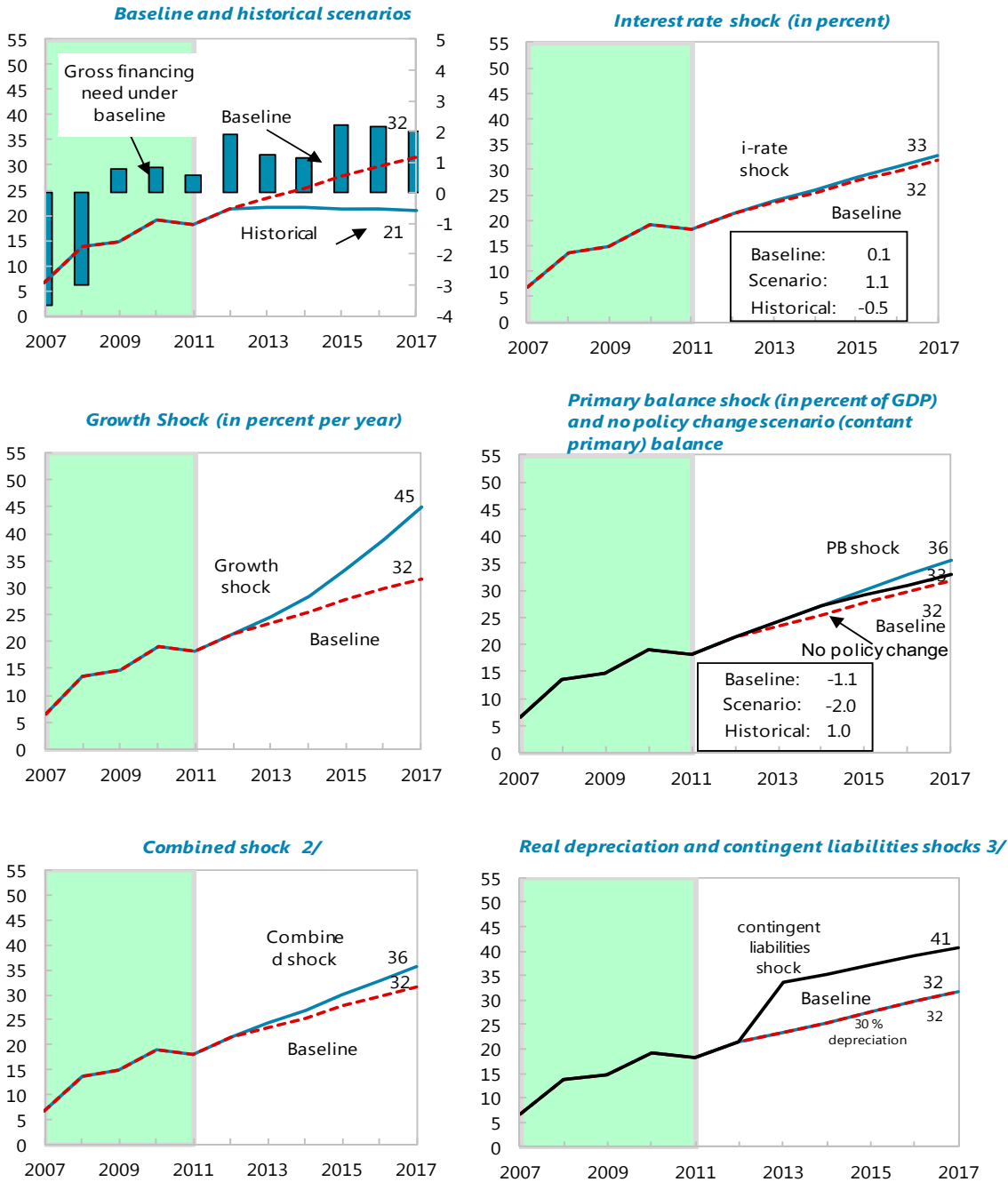


New evidence suggests that fiscal consolidation in the context of negative output gaps could mean larger multipliers, particularly in larger economies.



Sources: OECD (2012), Fiscal monitor (2012).

Figure 7. Luxembourg: Public Debt Sustainability: Bound Tests 1/
(in percent of GDP, unless otherwise indicated)



Sources: International Monetary Fund, and staff estimates.

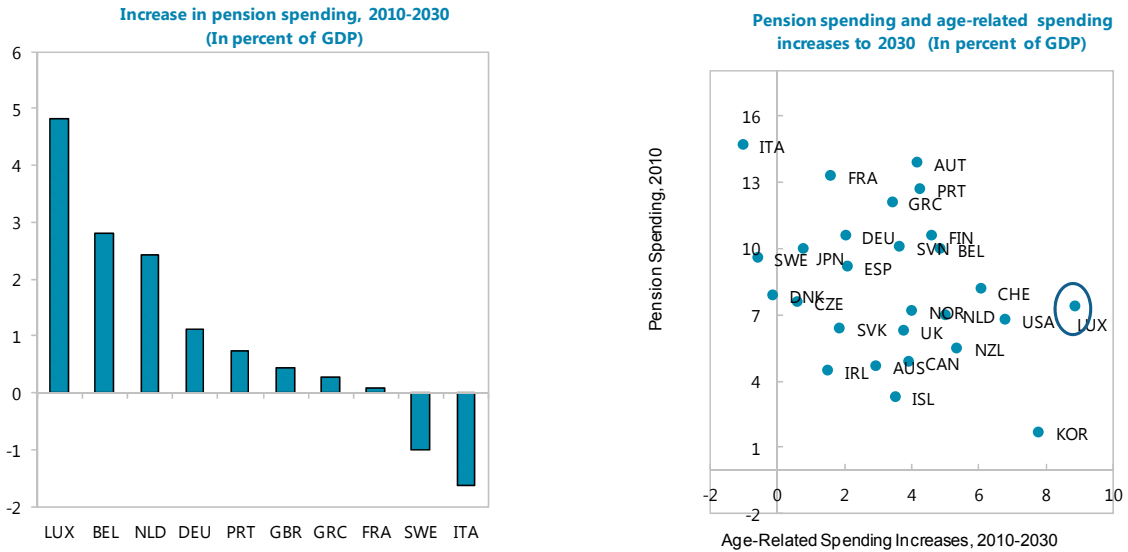
1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.

2/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and primary balance.

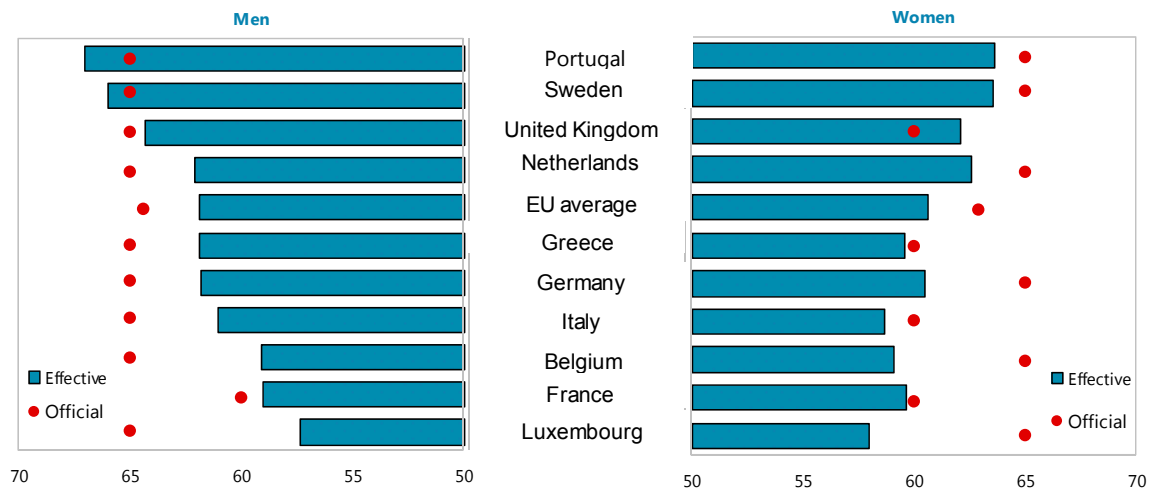
3/ One-time real depreciation of 30 percent and 10 percent of GDP shock to contingent liabilities occur in 2010, with real depreciation defined as nominal depreciation (measured by percentage fall in dollar value or local currency) minus domestic inflation (based on GDP deflator).

Figure 8. Luxembourg: Pension System Sustainability

Luxembourg's projected increase in pension and age-related spending is among the highest, partly due to generous rules which encourage beneficiaries to retire years earlier than the official retirement age.



Effective and official retirement ages, selected EU countries



Sources: IMF staff estimates from "The Challenge of Public Pension Reform in Advanced and Emerging Market Countries", (2011), and OECD "Pensions at a Glance 2011", (2011).

Table 1. Luxembourg: Selected Economic Indicators, 2009–17

	2009	2010	2011	Projections					
				2012	2013	2014	2015	2016	2017
Real Economy (change in percent)									
Gross domestic product	-5.3	2.7	1.6	0.5	2.0	2.3	3.0	3.2	3.2
Total domestic demand	-5.3	6.0	4.5	2.9	3.2	3.3	3.6	3.5	3.5
Private consumption	1.1	2.1	1.8	2.6	2.5	2.5	2.7	2.6	2.5
Public consumption	4.9	3.1	2.5	5.1	3.6	3.2	4.7	4.7	4.7
Gross investment	-21.9	16.2	10.7	2.0	3.9	4.6	4.2	4.0	4.0
Foreign balance 1/	-1.1	-1.7	-1.7	-2.1	-0.5	-0.4	0.1	0.3	0.4
Exports of goods and nonfactor services	-10.9	2.8	1.7	0.3	0.4	2.9	4.3	5.1	5.5
Imports of goods and nonfactor services	-12.0	4.6	3.2	1.5	0.8	3.5	4.7	5.5	5.9
Labor Market (thousands, unless indicated)									
Resident labor force	229.3	233.5	238.8	242.7	246.8	250.9	255.2	259.5	263.9
Unemployed	13.2	14.4	13.5	15.1	15.2	14.9	15.1	15.4	15.1
(As a percent of total labor force)	5.8	6.2	5.7	6.2	6.1	6.0	5.9	5.9	5.7
Resident employment	216.0	219.1	225.3	227.6	231.6	236.0	240.1	244.2	249.0
(change in percent)	1.0	1.4	2.8	1.1	1.7	1.9	1.7	1.7	1.9
Cross-border workers (net)	136.1	138.7	143.1	147.7	151.4	155.2	160.3	166.0	171.4
Total employment	352.2	357.8	368.4	375.3	383.0	391.2	400.4	410.3	420.4
(Change in percent)	1.0	1.6	3.0	1.9	2.1	2.1	2.3	2.5	2.5
Prices and costs (change in percent)									
CPI (harmonized), p.a.	0.0	2.8	3.7	2.3	2.3	2.4	2.4	2.4	2.4
CPI (national definition), p.a.	0.4	2.3	3.4	2.3	2.3	2.2	2.3	2.3	2.3
Average nominal wage growth 2/	1.8	2.6	2.0	2.5	2.6	2.6	3.6	4.6	5.6
Nominal unit labor costs 2/	8.6	1.7	3.3	3.9	2.7	2.6	3.0	4.0	4.9
Public finances (percent of GDP)									
General government revenues	42.2	41.6	41.4	42.1	42.4	42.5	41.1	41.2	41.3
General government expenditures	43.0	42.4	42.0	44.0	43.6	43.6	43.3	43.3	43.3
General government balance	-0.8	-0.9	-0.6	-1.9	-1.2	-1.1	-2.2	-2.1	-2.0
General government gross debt	14.8	19.1	18.2	21.4	23.5	25.4	27.7	29.8	31.7
Balance of Payments (percent of GDP)									
Current account	6.5	7.7	7.1	7.2	7.3	7.5	7.3	7.4	7.4
Balance on goods	-8.7	-10.2	-12.3	-12.8	-12.5	-11.9	-11.2	-11.2	-11.2
Balance on services	48.0	56.3	53.6	52.3	51.2	50.0	49.2	47.5	47.5
Net factor income	-30.1	-36.8	-31.5	-30.6	-29.7	-29.0	-29.1	-27.2	-27.2
Balance on current transfers	-2.8	-1.7	-2.8	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Exchange rates									
U.S. dollar per euro	1.393	1.327	1.4	...	...	...	...	...	...
percent change	-5.4	-9.8	1.3	...	...	...	...	...	...
Nominal effective rate (2005=100)	104.9	102.1	102.6	...	...	...	...	...	...
percent change	1.0	-1.7	-2.2	...	...	...	...	...	...
Real effective rate (CPI based; 2005=100)	104.5	101.8	102.6	...	...	...	...	...	...
percent change	1.0	-1.6	-1.8	...	...	...	...	...	...
Interest rates 3/									
Government bond yield, end period	4.2	3.3	2.3	2.0	...	...	...	...	...
Memorandum items: Land area = 2,586 square kilometers; population in 2010= 502 thousand; GDP per capita = €82,852.									

Sources: Luxembourg authorities; IMF staff estimates and projections.

1/ Contribution to GDP growth.

2/ Overall economy.

3/ For 2012, data refer to April.

Table 2. Luxembourg: General Government Operations, 2009–17 1/

	Prel.			Proj					
	2009	2010	2011	2012	2013	2014	2015	2016	2017
	(In percent of GDP)								
Revenue	42.2	41.6	41.4	42.1	42.4	42.5	41.1	41.2	41.3
Taxes	26.1	26.0	25.8	26.5	26.7	26.6	25.1	25.0	25.0
Social contributions	12.3	11.8	11.9	11.9	12.1	12.2	12.4	12.5	12.6
Other revenue	3.8	3.7	3.7	3.6	3.5	3.6	3.7	3.7	3.7
Expenditure	43.0	42.4	42.0	44.0	43.6	43.6	43.3	43.3	43.3
Expense	41.2	40.3	39.7	41.9	41.7	41.7	41.5	41.6	41.5
Compensation of employees	8.1	8.0	7.9	8.2	8.3	8.3	8.2	8.0	8.0
Use of goods and services	3.7	3.6	3.6	3.8	3.6	3.6	3.6	3.5	3.5
Consumption of fixed capital	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.6	1.6
Interest	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Subsidies	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.7
Social benefits	21.0	20.3	19.8	20.7	20.7	20.8	20.8	20.3	20.3
Other expense	6.3	6.3	6.2	6.8	6.7	6.6	6.6	7.5	7.4
Net acquisition of nonfinancial assets	1.8	2.1	2.3	2.1	2.0	1.9	1.8	1.8	1.8
Gross operating balance	2.9	3.2	3.5	2.0	2.5	2.5	1.3	1.3	1.4
Net operating balance	1.0	1.3	1.7	0.2	0.7	0.8	-0.4	-0.4	-0.2
Net lending / borrowing	-0.8	-0.9	-0.6	-1.9	-1.2	-1.1	-2.2	-2.1	-2.0
Memorandum items									
Structural balance	0.4	-0.5	-0.5	-1.5	-1.0	-0.9	-2.2	-2.2	-2.1
Public gross debt (Maastricht definition)	14.8	19.1	18.2	21.4	23.5	25.4	27.7	29.8	31.7

1/ Projections reflect measures announced in the 13th Stability and Convergence Programme, April 2012.

Sources: Luxembourg authorities, and staff projections.

Table 3. Luxembourg: Estimated Effect of Fiscal Consolidation 1/

	2012	2013	2014	2015	2012	2013	2014	2015
	In percent of GDP				In million euro			
Expenditures	-0.3	-0.8	-0.7	-0.7	-115	-350	-350	-350
Wage indexation single adjustment/12 months	-0.3	-0.1	-0.1	-0.1	-115	-55	-55	-55
Social benefits	0.0	-0.2	-0.2	-0.2	0	-100	-100	-100
Public consumption	0.0	-0.1	-0.1	-0.1	0	-60	-60	-60
Subsidies to firms	0.0	0.0	0.0	0.0	0	-10	-10	-10
Public investment	0.0	-0.3	-0.3	-0.2	0	-125	-125	-125
Revenues	-0.3	0.4	0.4	-0.8	-143	185	185	-415
Taxation of electronic commerce EU directive	0.0	0.0	0.0	-1.2	0	0	0	-600
Increase in solidarity tax	0.0	0.2	0.2	0.2	0	100	100	100
Households	0.0	0.2	0.1	0.1	0	70	70	70
Firms	0.0	0.1	0.1	0.1	0	30	30	30
Minimum tax on corporations	0.0	0.1	0.1	0.1	0	50	50	50
Taxes on goods and services	0.0	0.1	0.1	0.1	0	35	35	35
Crisis tax phase out (0.8 percent)	-0.2	0.0	0.0	0.0	-105	0	0	0
Social contributions (from crisis tax end)	-0.1	0.0	0.0	0.0	-38	0	0	0
Total fiscal adjustment	0.1	-1.2	-1.1	0.1	28	-535	-535	65
memo:								
GDP Growth (staff estimates)	0.5	2.0	2.3	3.0				
Nominal GDP					43,494	45,443	47,586	50,266

1/ Measures announced in the 13th Stability and Convergence Programme, April 2012.
Sources: Luxembourg authorities and staff estimates.

Table 4. Luxembourg: General Government Financial Balance Sheet
(in million of Euros)

	2009			2010			2011		
	Trans- actions	Other economic	Closing Opening	Trans- actions	Other economic	Closing Opening	Trans- actions	Other economic	Closing Opening
Net worth and its changes	....	....	....	....	....	....	....	....	....
Nonfinancial assets	....	....	....	....	....	....	....	....	....
Net Financial Worth:	-304	992	20,858	-344	243	20,758	-253	-1,615	18,889
Financial Assets	-825	1,035	27,582	2,840	285	30,707	76	-1,451	29,332
Currency and deposits	-1,927	-288	3,903	1,421	0	5,324	-494	0	4,831
Debt securities	-196	-5,528	704	-453	-35	216	36	0	253
Loans	-34	0	592	-22	0	570	105	0	675
Equity and inv. fund shares	1,800	6,979	19,015	675	320	20,010	829	-1,451	19,388
Other financial assets	-469	-127	3,368	1,218	0	4,586	-401	0	4,185
Liabilities	-521	43	6,724	3,183	41	9,949	329	165	10,442
Currency and deposits	17	0	194	13	0	207	14	0	221
Debt securities	0	46	2,090	2,000	41	4,131	0	165	4,296
Loans	115	0	3,333	132	0	3,465	100	0	3,565
Other liabilities	-653	-2	1,108	1,038	0	2,145	215	0	2,361
<i>Statistical Discrepancy</i>	-1			0			0		
Memorandum items:									
Net financial worth (in % of GDP)			55.8			51.6			44.1
Financial assets (in % of GDP)			73.8			76.3			68.5
Liabilities (in % of GDP)			18.0			24.7			24.4
o/w foreign liabilities (%)			2.6%			1.9%			1.9%
Nominal GDP			37,393			40,267			42,822

Sources: STATEC and Eurostat.

Table 5. Luxembourg: External Current Account, 2009–17

	Prel. Proj.								
	2009	2010	2011	2012	2013	2014	2015	2016	2017
	(in percent of GDP)								
Current account	6.5	7.7	7.1	7.2	7.3	7.5	7.3	7.4	7.4
Balance on goods and services	39.3	46.1	41.3	39.5	38.7	38.2	38.1	36.3	33.8
Trade balance	-8.7	-10.2	-12.3	-12.8	-12.5	-11.9	-11.2	-11.2	-11.1
Merch exports	29.6	31.2	32.3	31.3	30.4	29.8	29.3	28.5	27.8
Merch imports	38.3	41.5	44.6	44.2	42.9	41.6	40.5	39.6	38.9
Balance on services	48.0	56.3	53.6	52.3	51.2	50.0	49.2	47.5	44.9
Services exports	111.9	125.0	122.6	119.4	115.9	113.0	110.9	108.5	105.7
Services imports	63.9	68.7	69.0	67.1	64.7	63.0	61.7	61.0	60.8
Net factor income	-30.1	-36.8	-31.5	-30.6	-29.7	-29.0	-29.1	-27.2	-24.7
Compensation of employees, net	-17.0	-16.4	-16.0	-16.3	-15.9	-15.5	-15.2	-14.8	-14.5
Compensation of employees, credit	3.0	2.9	2.9	3.0	3.0	3.0	2.9	2.9	2.8
Compensation of employees, debit	20.1	19.3	18.9	19.2	18.9	18.5	18.1	17.7	17.3
Investment income, net	-13.0	-20.4	-15.5	-14.3	-13.8	-13.5	-13.9	-12.4	-10.2
Investment income, credit	257.1	256.2	306.4	252.6	247.8	242.6	237.2	232.2	226.7
Investment income, debit	270.1	276.6	321.9	266.9	261.7	256.1	251.1	244.5	236.9
Balance on current transfers	-2.8	-1.7	-2.8	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7

Sources: STATEC and IMF staff projections.

Table 6. Luxembourg: Financial Soundness Indicators, 2008–11 1/
(In percent)

	2008	2009	2010	Jun-11	Dec-11
Capital Adequacy					
Regulatory capital to risk-weighted assets	15.4	18.9	17.0	17.0	21.0
Regulatory Tier 1 capital to risk-weighted assets	13.0	17.0	15.0	15.0	18.0
Capital to assets	4.0	5.5	5.0	5.0	5.0
Profitability And Efficiency					
Return on assets	0.2	0.6	0.7	0.7	0.3
Return on equity	5.5	11.6	13.0	14.0	6.0
Interest margin to gross income	37.7	36.5	31.0	30.0	34.0
Trading income to total income	-8.9	6.0	-1.0	-3.0	-9.0
Noninterest expenses to gross income	56.2	56.3	64.0	63.0	74.0
Personnel expenses to noninterest expenses	35.7	38.7	36.0	34.0	35.0
Asset Quality And Structure					
Residential real estate loans to total loans	2.2	2.8	3.0	3.0	3.0
Household debt to GDP	45.0	50.0	54.0	51.0	54.0
Nonperforming large exposures to total large exposures 2/	0.6	0.7	0.2	0.3	0.4
Sectoral distribution of loans (in % of total loans)					
Residents	26.6	23.4	22.0	21.0	25.0
Deposit Takers	10.7	9.8	7.0	7.0	5.0
Central Bank	6.4	2.3	2.0	2.0	8.0
Other Financial Corporations	4.2	4.8	6.0	6.0	5.0
General Government	0.4	0.4	0.5	0.5	0.4
Nonfinancial Corporations	2.4	2.6	2.0	3.0	2.0
Other Domestic Sectors	2.6	3.4	4.0	4.0	4.0
Non Residents	73.4	77.0	78.0	79.0	75.0
Liquidity					
Liquid assets to total assets	59.0	55.9	56.0	57.0	59.0
Liquid assets to short-term liabilities	67.8	64.7	66.0	66.0	69.0
Customer deposits to total (non interbank) loans	134.7	137.5	131.0	128.0	119.0
Foreign Exchange					
Foreign currency denominated loans to total loans	30.2	28.0	30.0	31.0	29.0
Foreign currency denominated liabilities to total liabilities	29.1	28.8	33.0	32.0	32.0
Net open foreign exchange to capital	1.6	-0.6	0.3	0.9	2.6

Source: Central Bank of Luxembourg.

1/ There is a break in the series in 2009 due to the adoption of IAS and IFRS in 2008.

2/ Change in the underlying reporting instructions as of 31/12/2010.

ANNEX I. CURRENT ACCOUNT AND IIP DEVELOPMENTS, AND MACROECONOMIC VOLATILITY

1. **Luxembourg's current account balance has been in persistent surplus, mainly driven by financial services.** Pre-crisis (1995–2007), the current account surplus averaged over 10 percent of GDP (Figure A1).

The goods balance has usually registered a deficit of around the same magnitude over the past 15 years. The activity in the financial sector is reflected in the growing services surplus, which reached over 50 percent of GDP in 2011, as well as in the salary remittances of cross-border workers, many of whom are employed in the financial sector.

2. **During the global financial crisis, the current account surplus narrowed by almost half and has since partially recovered.** With trade activity largely stable, financial services activity has underpinned the recovery in the current account.

3. **Roughly mirroring the current account developments, the financial account balance has been in deficit, reflecting the net accumulation of assets abroad.** Despite net portfolio inflows from investment fund activity, the overall financial account balance has registered a deficit due to “other investment” activities. These also to

a large extent reflect financial center activities.¹ Net international investment position (IIP) for this period confirms a large increase in net other investments, reflecting financial transactions.

4. **Financial sector activity dominated developments in Luxembourg's net international investment position (IIP), which has experienced high volatility since 2003.** Luxembourg held a net asset position exceeding 100 percent of GDP in the third quarter of 2011. The overall IIP position showed a large spike in 2008–09, peaking at 152 percent of GDP in the second quarter of 2008 and dropping to about 67 percent of GDP before recovering more recently. This spike reflected financial flows with the sharp decline driven primarily by a large decline in stock market indexes, which hurt net portfolio investment values. The valuation effect swamped the impact of net redemptions. Of note, given the dominance of financial sector activity in these data, only a small fraction of

¹ These include banking and investment fund activities, as well as activities of Special Purpose Entities (SPEs). SPEs include for example in-house banks for corporate groups, or proceeds from international issuance of securities in Luxembourg by multinational corporations.

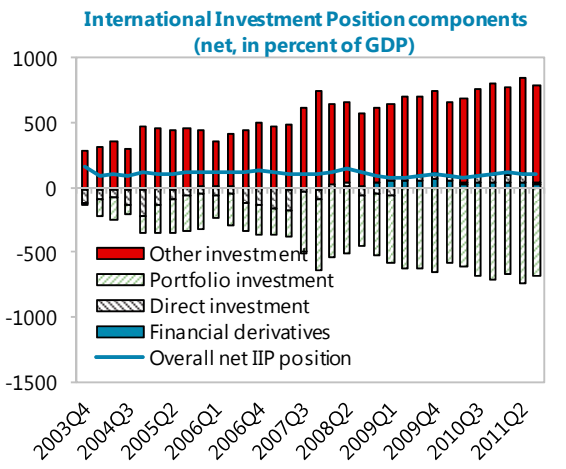
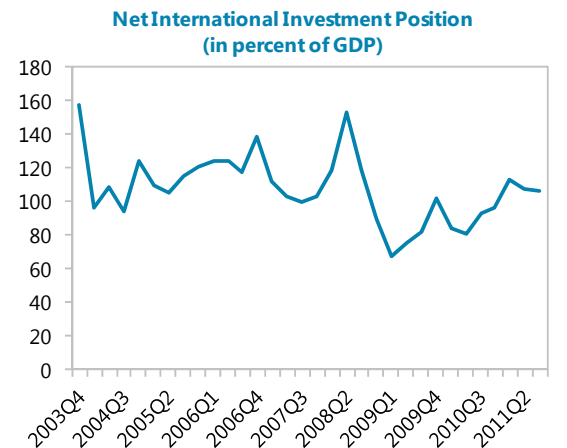
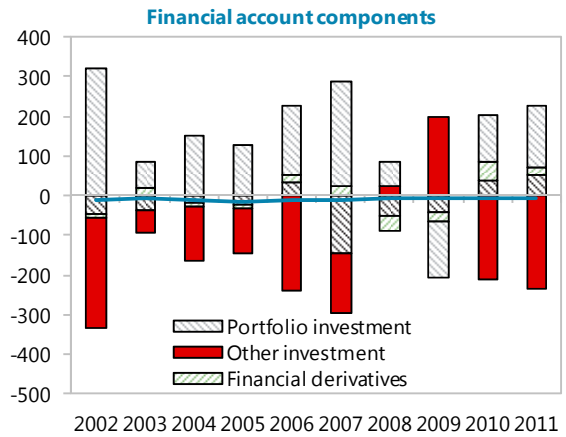
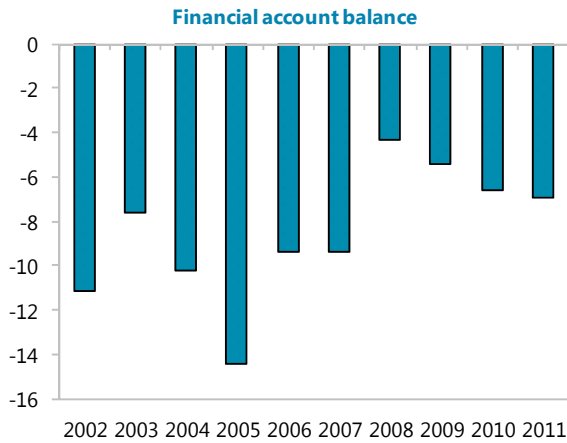
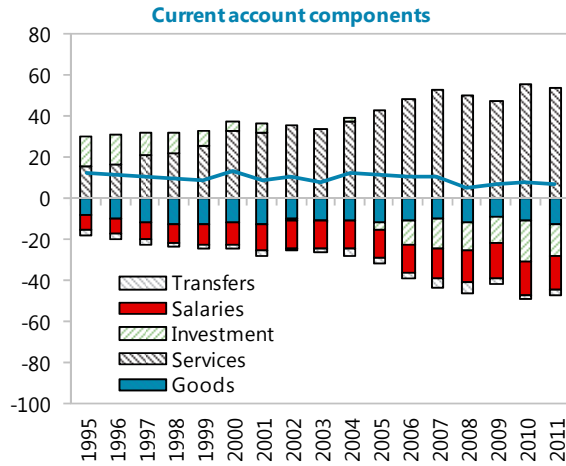
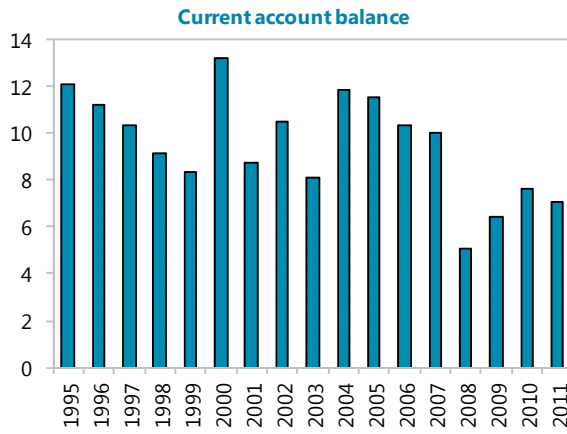
flows are associated with developments in Luxembourg's domestic economic activity. In this regard, IIP movements provide limited insights into Luxembourg's economic developments.

5. **More broadly, Luxembourg's experience illustrates how countries with**

large financial sectors are typically subject to higher macroeconomic volatility.

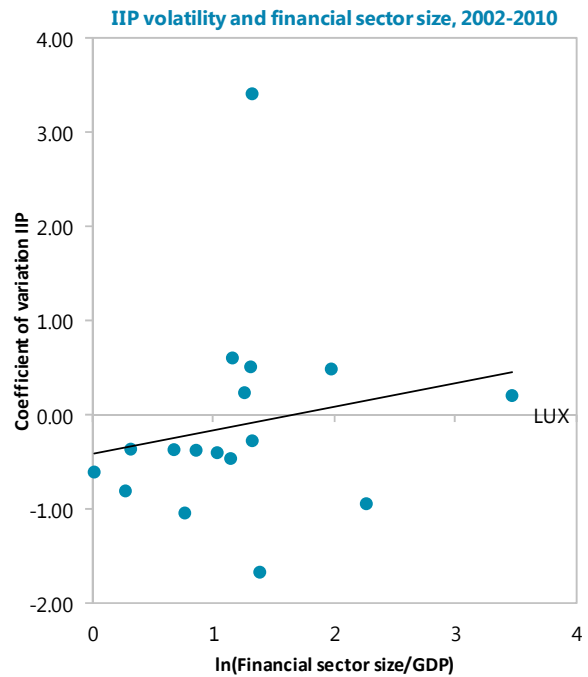
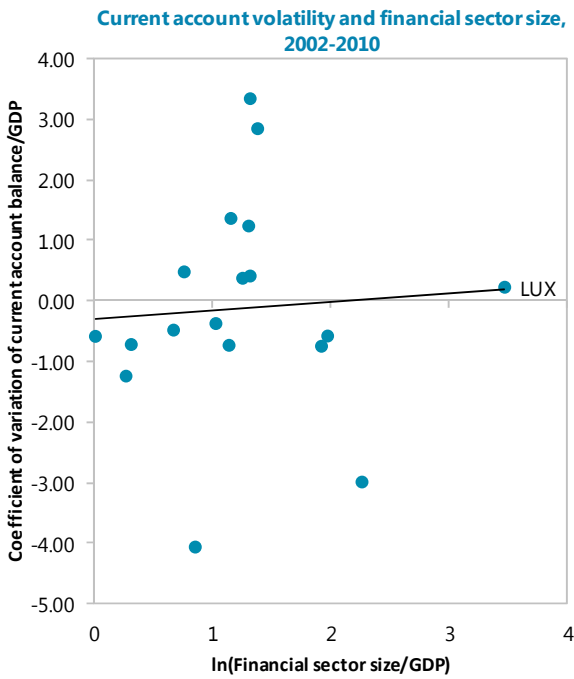
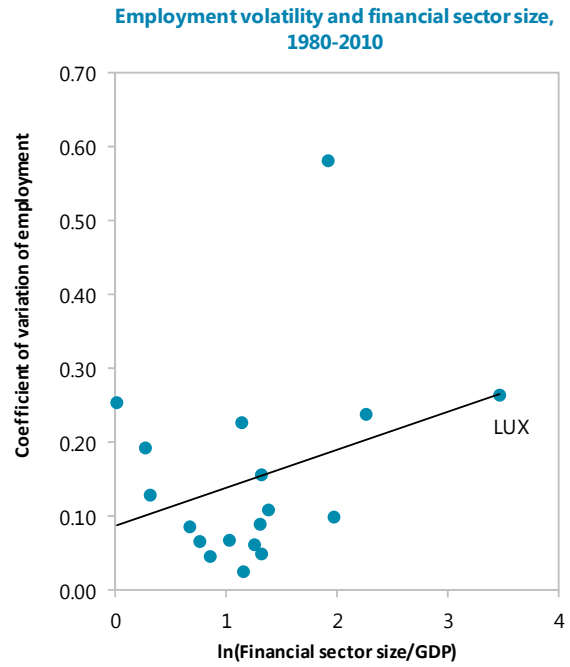
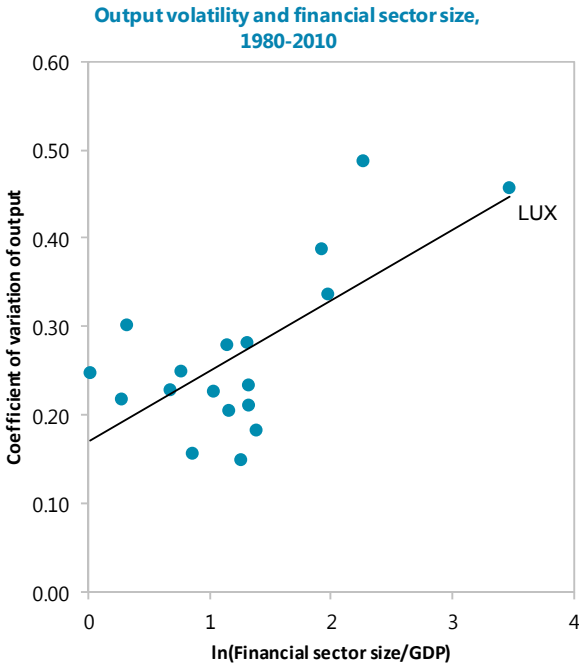
Specifically, output volatility appears to increase with the size of the financial sector (Figure A2). The volatility of employment, current account balance, and IIP also appear to be associated with the importance of the financial sector, albeit less so.

Figure A1. Luxembourg Current Account and IIP Developments (in percent of GDP)



Sources: Central Bank of Luxembourg, WEO.

Figure A2: Financial Sector Size and Macroeconomic Volatility



Sources: WEO, IIP database.

ANNEX II: LUXEMBOURG: RISK ASSESSMENT MATRIX¹

(Scale—high, medium, or low)

<i>Source of Risk</i>	<i>Relative Likelihood</i>	<i>Impact if Realized</i>
Strong intensification of the euro area crisis	<p><i>Medium</i></p> <p>A strong intensification of the crisis could affect both the real economy (a recession affecting employment and output) and the financial system through both direct (losses on sovereign debt holdings) and indirect effects (contagion, intra-group exposures).</p>	<p><i>High</i></p> <ul style="list-style-type: none"> • Output losses and further increases in unemployment. Luxembourg-based outward-oriented banks could be resilient if there is no major failure of relevant parent banks. But liquidity pressures could resurface. Domestically-oriented banks could be affected through higher unemployment and household's inability to repay debt, also possibly impacting real estate values. • Though bank exposure to distressed sovereign bonds has declined, these remain sizeable in some banks. Losses from these holdings could threaten a few small banks.
Failure of a parent bank	<p><i>Medium</i></p> <p>A sizeable sovereign or funding shock could cause major global or European financial institutions to fail.</p>	<p><i>High</i></p> <p>Most banks are exposed to parent banks through large intra-group positions and reputation effects. Thus, parent failures are likely to be disruptive. Also, for domestically-active subsidiaries, the failure of a parent bank could result in large contingent fiscal liabilities for Luxembourg.</p>
Inability to carry out fiscal consolidation in accordance with announced intentions	<p><i>Low/Medium</i></p> <p>Luxembourg's fiscal position appears favorable, but crisis measures have taken their toll on public debt, with forthcoming sharing of e-commerce revenues further challenging fiscal stability.</p>	<p><i>High</i></p> <p>Public debt would almost double in five years with no policy change (Figure 7), and would more than double under a low growth scenario. Luxembourg would not be well-placed to withstand further shocks, nor to manage its looming pension obligations, even if proposed pension reforms are implemented.</p>
Global financial regulation and tax reforms.	<p><i>Low</i></p> <p>Luxembourg's position as a financial center could be threatened by changes in prudential regulations and international taxation.</p>	<p><i>High</i></p> <p>The financial center's cross-border activities could shrink, with adverse impact on employment and value added in the medium-term.</p>
Loss of confidence in investment fund industry	<p><i>Low</i></p> <ul style="list-style-type: none"> • Damage to Luxembourg's funds' brand name owing to negative reputational effects from large global investment fund failures. • Renewed turbulence in financial markets could lead to large-scale fund redemptions. 	<p><i>High (over the medium-term)</i></p> <ul style="list-style-type: none"> • Investment funds redemption could temporarily depress asset market prices and create a need for liquidity. • In the medium-term, the loss of business would hurt employment and value added.
<p>1/ The RAM shows events that could materially alter the baseline path - the scenario most likely to materialize in the view of the staff.</p>		

ANNEX III: PENSION REFORM IN EUROPE

While Luxembourg's projected increases in old-age pensions are the largest, a number of EU countries have been reforming their old-age pension to address demographic pressures. Notably, reforms in Europe have

included increasing the statutory retirement age, modifying benefit indexation, boosting contribution rates and periods, and generally discouraging early retirement.

Cross-Country Pension Reform Experiences

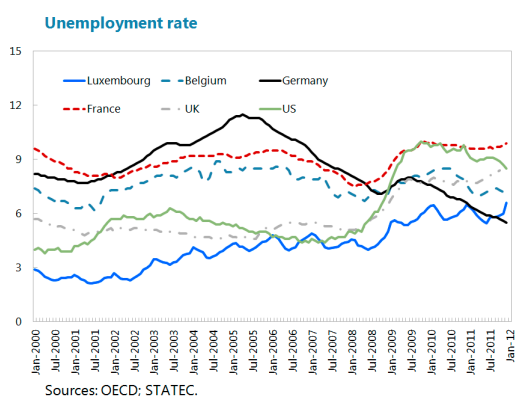
Country	Years	Measure
Finland	2005	Increase statutory retirement age five years to 68 with actuarially fair reductions for those retiring before the age of 63; Eliminate ceiling on pension benefits.
France	1985–91	Increase contribution rates by 1.85 percentage points to 6.55 percent.
	1993	Increase the minimum contribution period for a full pension by 2½ years to 40 years; Change the base wage for calculating pensions from the top 10 years to the top 25 years; Change the pension benefit indexation from wages to prices;
	2003	Link the number contribution years for full pension to life expectancy;
	2010	Increase the minimum retirement age two years to 62 years of age.
Germany	2004	Introduce a "sustainability factor" linking pension replacement to the old-age dependency ratio to partially offset the effect of increases in the dependency to partially offset the effect of increases in the dependency ratio;
	2007	Increase statutory retirement age by two years to 67 years after 2030.
Italy	1992	Increase the retirement age for full benefits for men by five years to 65; Increasing reference earnings five years to last 10 years; Raise contributing years for full pension five years to 20 years;
	1995	Link pensions to lifetime contributions and GDP growth; Freeze pension indexation to 2012–13 levels except for the lowest pensions.
	2011	Increase the minimum retirement age of woman to 62 and the full benefit retirement age to 67; Set the minimum retirement age to 66 in 2018 for men and women; Adjust the retirement age in the future according to life expectancy.
Spain	2002–05	Extend the effective minimum contribution period (from 12.8 to 15 years); Discourage early retirement by reducing contribution rates. (Early retirement is available from the age of 61 for those who entered the system after 1967 with 30 years of contribution (age of 60 for those entered before). Pension benefits are reduced by 6 to 7.5 percent per year depending on the numbers of years of contributions with a reduction of 8 percent for those before 1967;
	2011	Increase the statutory retirement age by two years to 67 years of age; Increasing the minimum retirement age from 61 to 63 years with at least 33 years of contribution; Raising the numbers of years to calculate the earnings base (reference period) from 15 to 25 years Raising the required contribution to qualify for the full pension from 35 to 38.5 years.
Sweden	1999	Index contributions to life expectancy and GDP growth; Increase pension benefits by about 60 percent if retirement is postponed to age 67.
UK	2007	Raise statutory retirement age three years to 68 years of age; Decrease eligibility for full pension: 44 to 30 years.

Sources: IMF and country authorities

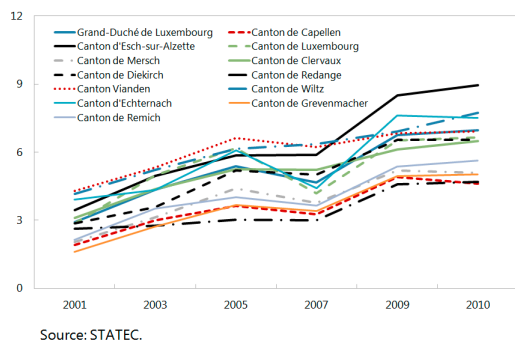
ANNEX IV: UNEMPLOYMENT AND LABOR MARKET PROGRAMS

1. Luxembourg's unemployment rate has roughly doubled in the past ten years.

While this increase has not been driven by an individual geographical area (Table A1), regions that have experienced the largest increases have been mostly those with larger shares of manufacturing jobs. Cyclical factors alone do not appear to explain Luxembourg's rising unemployment either. The global financial crisis (2009–10) aggravated unemployment, but it started increasing well before the crisis.



Unemployment Rate by Canton



2. Increases in unemployment have afflicted workers regardless of their formal educational level.

Although the unemployment rate is lower for more educated workers, unemployment has been increasing faster for workers with above high-school education than for workers with less formal education (Figure A3).

3. Moreover, financial-sector employment has been more volatile for local workers.

Employment growth of locally-based financial sector professionals (about 4 percent of total employment) has been more variable than for their foreign counterparts. Specifically, during 2000–10 the coefficient of variation for local financial professionals was 0.35, or more than three times higher than that for foreign professionals. Moreover, in the aftermath of the global financial crisis, employment of local financial sector professionals declined by 25 percent while employment of foreigners continued increasing, albeit at a lower rate (Figure A3).

4. Rising unemployment has largely reflected skills mismatch.

Despite increasing job vacancies, the share of long-duration unemployment (joblessness in excess of three months) in total unemployment has increased, thus pointing to rising labor market

inefficiencies. Specifically, the long-run Beveridge curve—mapping vacancy and unemployment rate—has moved in the North-East direction in the past decade (Figure A4). Although a simple regression confirms the expected inverse relation between unemployment and vacancy rate, it also shows that over time the average vacancy rate has drifted up (for a given unemployment rate), a telling sign of growing labor market skill mismatch (Figure A4).

5. **Meanwhile, funding for employment training programs has declined as a percent of GDP.** Luxembourg spends less on labor market programs than its peers (Figure A5). Moreover, the existing labor market programs have focused primarily on providing a social safety net and work placement incentives. Spending on these programs has increased over time as a percentage of GDP, while funding for training programs has declined.¹

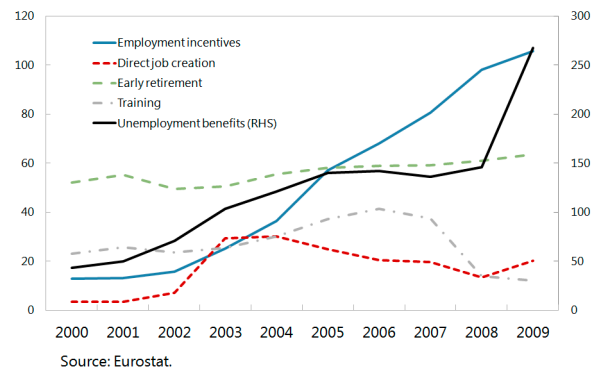
Job vacancy and unemployment

	Dependent variable: job vacancy rate	
	Coefficient	T-stat
Unemployment rate	-0.21***	-5.97
Time dummies		
2002/03	-0.05	-0.73
2004/05	0.30***	3.2
2006/07	0.79***	7.86
2008/09	0.60***	5.63
2010/11	1.16***	7.79
Constant	1.48***	11.24
Number of obs.	140	
R ²	0.65	

Source: Staff estimation.

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Employment programs
(In millions of Euros)



¹ Part of these declines are due to reclassification of spending but the evolution does not change qualitatively.

Table A1. Employment Profiles of Cantons

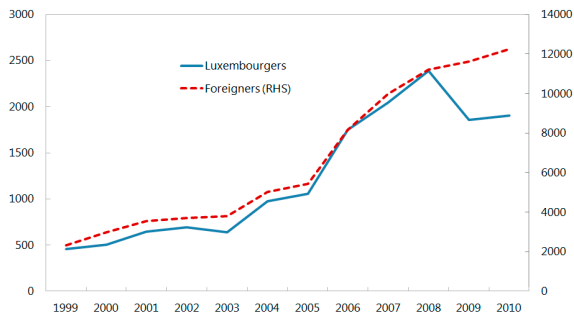
	Share of employment (2005)		Unemployment Rate						magnitude of increase in unemployment (2001–2010)
	Industries	Services	2001	2003	2005	2007	2009	2010	
Grand-Duchy de Luxembourg	0.13	0.76	2.9	4.4	5.4	4.7	6.8	7.0	140%
Canton de Capellen	0.20	0.65	1.9	3.0	3.6	3.3	4.9	4.6	140%
Canton d'Esch-sur-Alzette	0.24	0.60	3.4	4.9	5.9	5.9	8.5	9.0	160%
Canton de Luxembourg	0.05	0.87	2.9	5.0	6.2	4.2	6.5	6.7	132%
Canton de Mersch	0.54	0.36	2.0	3.1	4.4	3.8	5.2	5.1	150%
Canton de Clervaux	0.23	0.52	3.1	4.4	5.2	5.2	6.1	6.5	109%
Canton de Diekirch	0.11	0.73	2.9	3.6	5.2	5.0	6.5	6.5	129%
Canton de Redange	0.08	0.73	2.6	2.8	3.0	3.0	4.6	4.7	78%
Canton Vianden	0.18	0.63	4.3	5.3	6.6	6.2	6.8	6.9	61%
Canton de Wiltz	0.15	0.74	4.2	5.2	6.1	6.4	6.9	7.7	87%
Canton d'Echternach	0.31	0.56	3.9	4.3	6.1	4.4	7.6	7.5	93%
Canton de Grevenmacher	0.23	0.58	1.6	2.7	3.7	3.4	4.9	5.0	214%
Canton de Remich	0.09	0.78	2.1	3.5	4.0	3.6	5.4	5.6	162%
coef of variation	0.65	0.21	0.30	0.24	0.23	0.25	0.19	0.21	
mean	0.20	0.65	2.92	3.99	5.01	4.53	6.17	6.32	
min	0.05	0.36	1.6	2.7	3.0	3.0	4.6	4.6	
max	0.54	0.87	4.3	5.3	6.6	6.4	8.5	9.0	

Sources: STATEC & staff calculation

Figure A3. Employment in Financial Sector and Across Educational Levels

Financial sector employment dropped for Luxembourgers over the recession, but not for foreign workers....

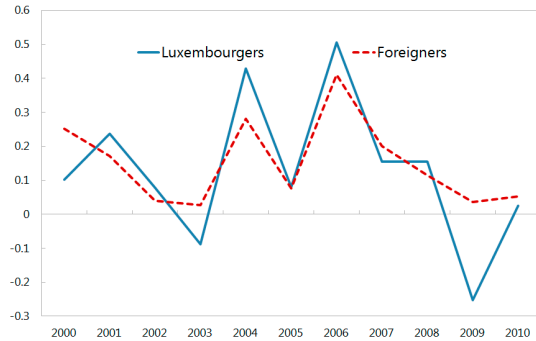
Employment in Financial Sector



Source: STATEC.

Financial sector employment has been more volatile for Luxembourgers than for foreigners...

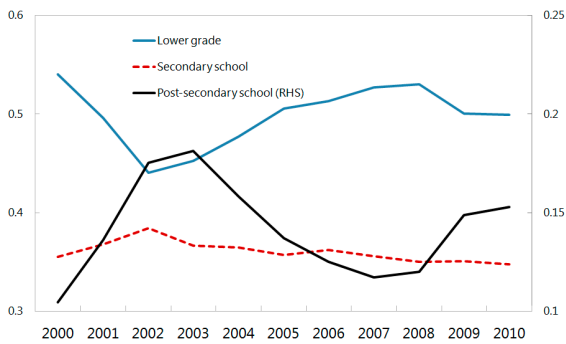
Financial Sector employment growth



Sources: STATEC & staff calculations.

Unemployment for people with higher-education has increased more than other groups.

Composition of unemployment by education

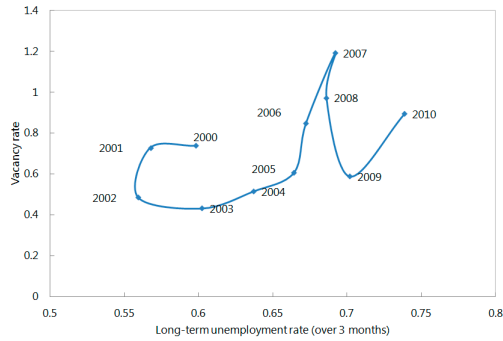


Sources: STATEC & staff calculation..

Figure A4. Increasing Structural Mismatches in Luxembourg Labor Market

The Beveridge Curve indicates increasing allocative inefficiency in the labor market.

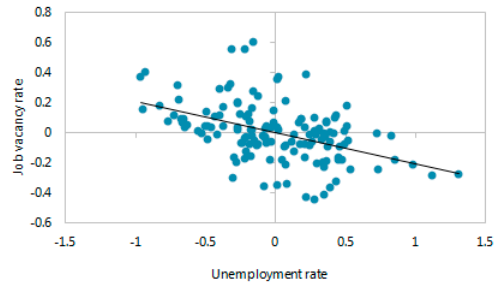
Beveridge Curve



Source: STATEC.

Although regressing job vacancy rate on unemployment shows an inverse relationship between the two,...

Job vacancy and unemployment

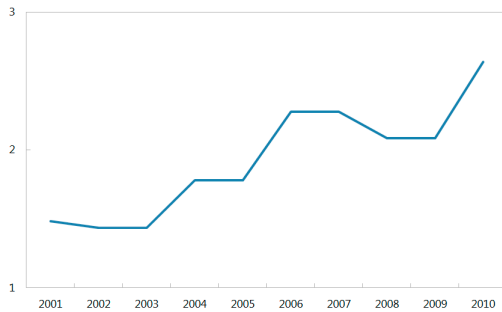


Source: STATEC

...the increasing time dummies coefficients suggest that the labor market mismatch problem is growing.

Labor market mismatches

(Year dummies in regression of job vacancy on unemployment)

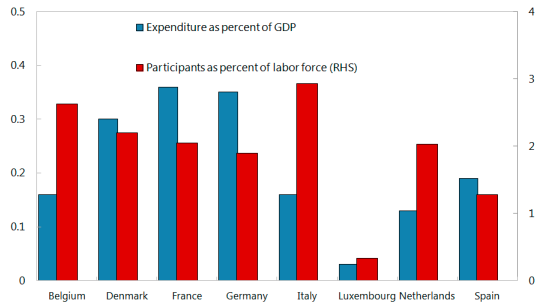


Source: Staff estimation.

Figure A5. Labor Market Program Funding: Cross Country Comparison

Compared to regional peers, Luxembourg devotes much less resources in training its labor force.

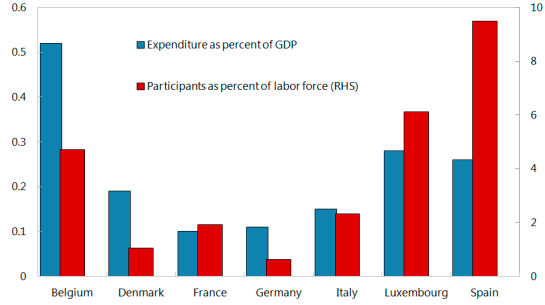
Training programs (2009)



Source: OECD.

A lot more resources go into providing hiring and job maintenance incentives.

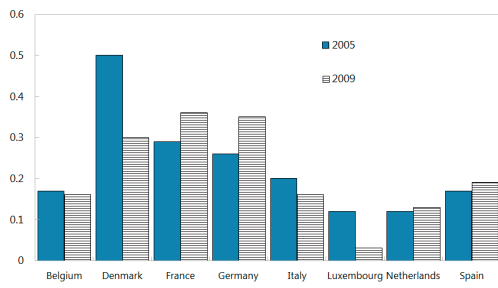
Employment incentive programs (2009)



Source: OECD.

Funding for training programs has decreased over time,

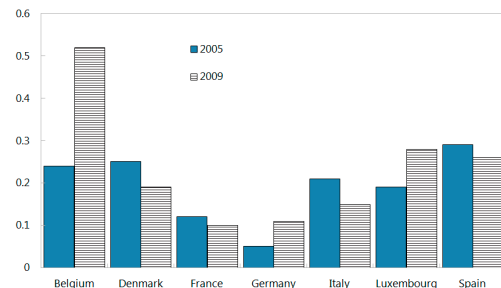
Expenditure in training programs as percent of GDP



Source: OECD.

...while employment incentive programs are becoming larger.

Employment incentive programs as percent of GDP



Source: OECD.

ANNEX V: PRODUCTIVITY AND PRODUCT MARKETS

1. Luxembourg has experienced low labor productivity growth in recent years.

Although aggregate productivity level is among the EU's highest, productivity growth has been substantially lower than its competitors, especially during the recent crisis (Box 2).

2. Low productivity growth afflicts all sectors of the economy, especially the manufacturing sector, which has experienced productivity losses in the past decade

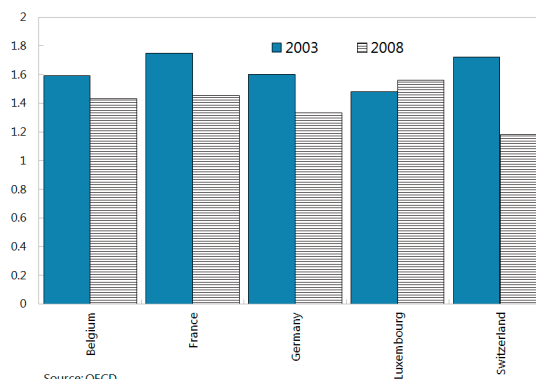
(Figure A6). Luxembourg's manufacturing sector employs a disproportionate share of the labor force. Specifically, the sector's share of employment exceeds its share in output; the opposite holds for the service sector (Figure A6). This is not a typical pattern: in most countries the service sector's employment share is higher than its output share. In large part, Luxembourg's sectoral employment pattern reflects the dominance of financial and associated services, and the underdevelopment of other services (Figure A7). Finance and related services mostly employ highly educated and trained individuals thus limiting its labor-absorbing capacity.

3. Product market regulations as well as employment protection legislation have likely contributed to productivity slow-

downs and limited sectoral structural

change. Luxembourg has among the most restrictive product market regulations (PMR) and employment protection legislation (EPL) in the OECD (Figure A8). For example, Luxembourg fares poorly in terms of barriers to entrepreneurship and FDI, and sectoral regulations in transportation and communication, retail, and professional services. This reflects the fact that Luxembourg has fallen behind in reforming its product markets—which were relatively less regulated earlier in the decade—compared to other European countries. Partly by affecting the efficient allocation of resources, PMR, EPL, and employment support programs have likely impacted productivity growth and held back the development of a diversified service sector that could generate higher employment.

Product market regulations, 2003 & 2008



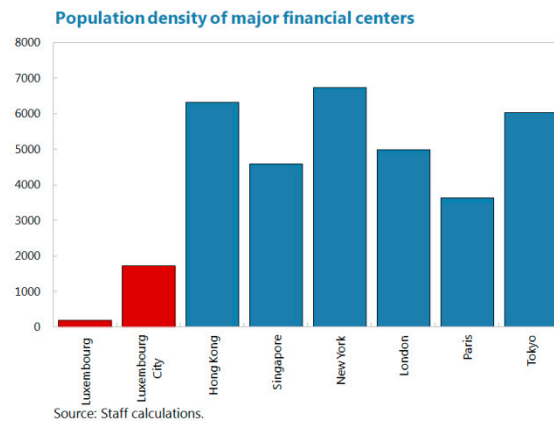
4. **Empirical evidence confirms the adverse impact of regulations on productivity.** A panel regression for OECD countries shows that the manufacturing sector’s productivity growth is inversely related to the level of regulations (PMR and EPL).¹ An analogous inverse relation emerges for service sector productivity growth and professional service regulations (Table A2, Figure A9).

5. **In Luxembourg, this evidence is further supported by new-firm survival rates.** Luxembourg’s new-firm survival rates are generally higher compared to a number of European countries (Figure A10). This may be explained by the fact that when regulations thwart competition, inefficient firms are able to continue operating with limited market pressure. Of note, although the survival rate is higher for Luxembourg in most of the service sector, it is lower in financial services, Luxembourg’s most internationally competitive service industry.

6. **Limited domestic market size may also impede the service sector’s development beyond financial services.**

While geographical size can contribute to a lopsided service sector, other similarly-sized financial centers have developed more

balanced service sectors (Figure A11). But in sharp contrast to Luxembourg, other financial centers—notably, Hong Kong and New York—have denser populations. Sheer population size provides the domestic markets needed for service industries, which are primarily non-traded goods.



¹ The panel regressions use fixed effects and controls for lagged productivity. The sample includes 31 OECD countries for the period 2000–08.

Table A2. Productivity Growth and Regulations

	Dependent Variable							
	Manufacturing productivity growth				Service sector productivity growth			
Lagged productivity level	-0.12 (-1.67)	-0.06*** (-2.80)	-0.15* (-1.81)	-0.36*** (-3.25)	-0.20*** (-4.64)	-0.25** (-2.57)	-0.36*** (-3.09)	
Lagged PMR	-0.04*** (-3.14)		-0.05*** (-3.43)		-0.02 (-1.05)		-0.01 (-1.30)	
Lagged EPL		-0.09*** (-3.89)	-0.03* (-2.02)			-0.01*** (-3.03)	-0.01* (-2.03)	
Lagged prof. service regulation				-0.01** (-2.60)			-0.01 (-1.50)	
N	54	75	50	50	75	54	46	
R2	0.94	0.87	0.95	0.91	0.74	0.86	0.92	

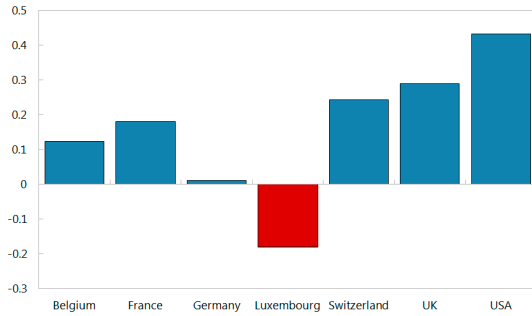
Source: Staff estimation.

Notes: fixed effect panel regressions. The sample includes 31 OECD countries for the period 2000–08. T-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figure A6. Labor Productivity Growth and Sectoral Composition

Luxembourg experiences low productivity growth in both manufacturing sector...

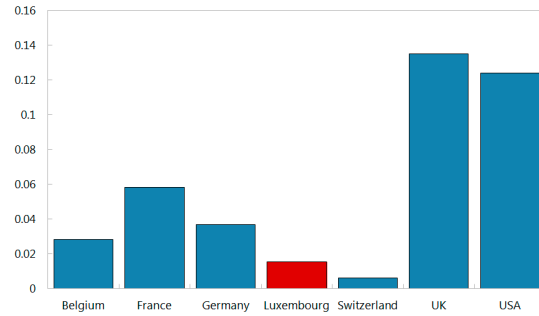
Manufacturing labor productivity growth (2000-2009)



Sources: OECD & staff calculation.

...and service sector

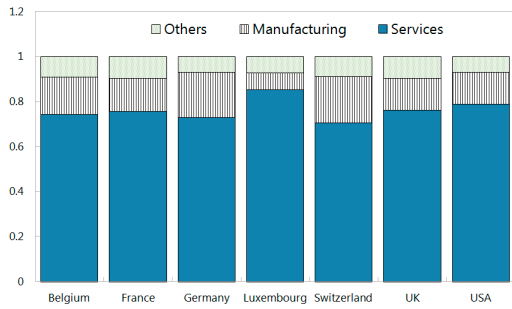
Services labor productivity growth (2000-2009)



Sources: OECD & staff calculation.

Output share for the manufacturing sector is low relative to its employment share,

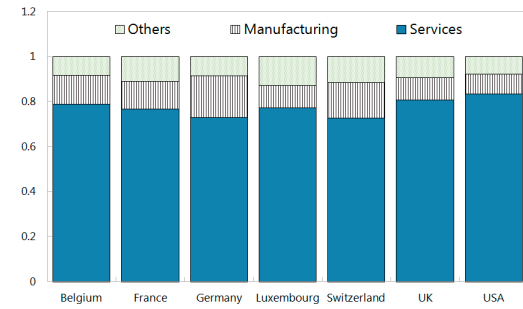
Real value added composition 2009



Sources: OECD & staff calculation.

...while the opposite is true for the service sector

Employment composition 2009

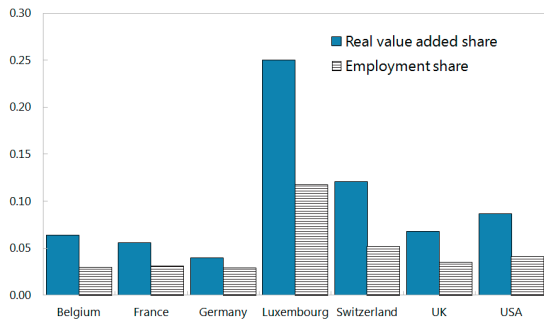


Sources: OECD & staff calculation.

Figure A7. Size of Service Industries

Financial industry, which has limited employment capacity, dominates Luxembourg's service sector..

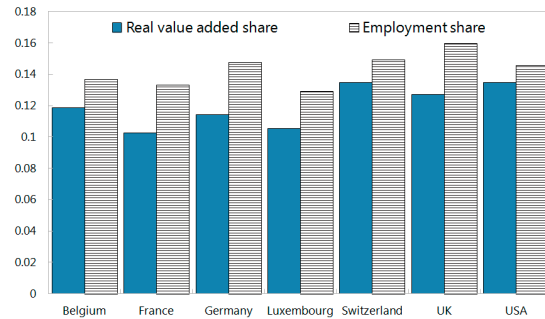
Finance



Source: OECD

Other service industries are less developed compared to peer countries, including trade,

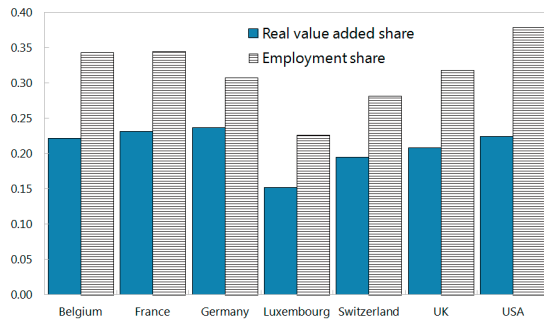
Wholesale/retail trade



Source: OECD

...social and personal services,

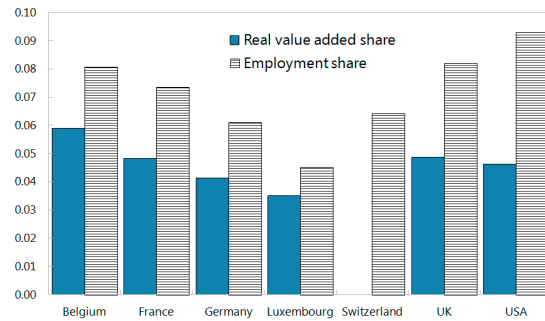
Social & personal services



Source: OECD

...education industry

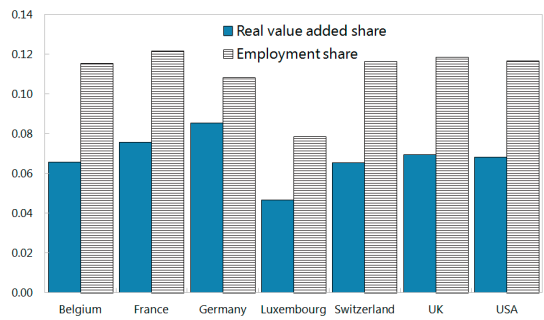
Education



Source: OECD

...health care industry,

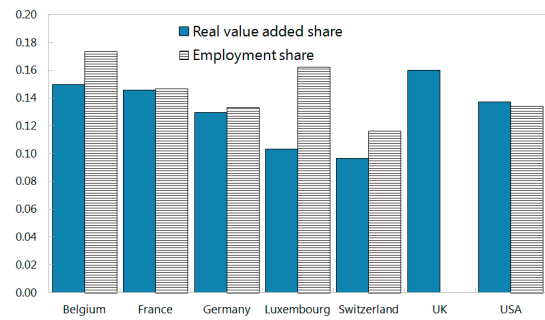
Health care



Source: OECD

...and business services.

Business services



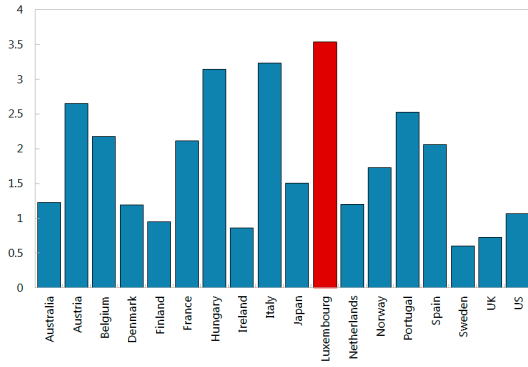
Source: OECD

Figure A8. Cross-Country Comparison in Product and Labor Market Regulations

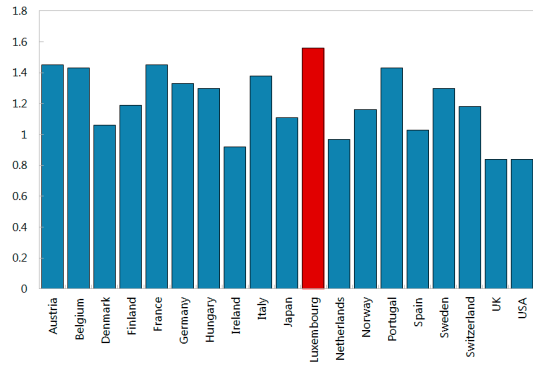
Luxembourg is among the most restrictive in various regulations, including regulation in professional services,

...in product market regulations,

Regulation in professional services (2008)



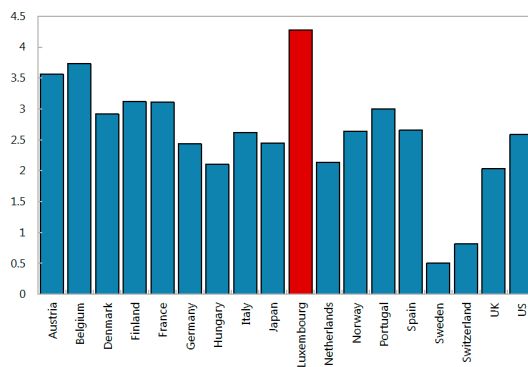
Product market regulations (2008)



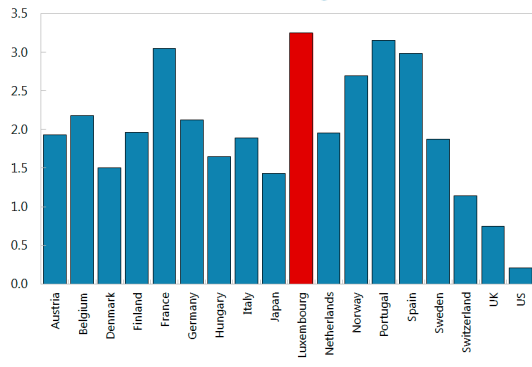
...in retail trade regulations,

...and in labor market regulations.

Regulation in retail trade (2008)



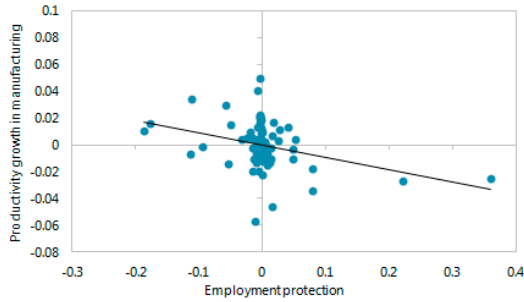
Strictness of labor market regulations



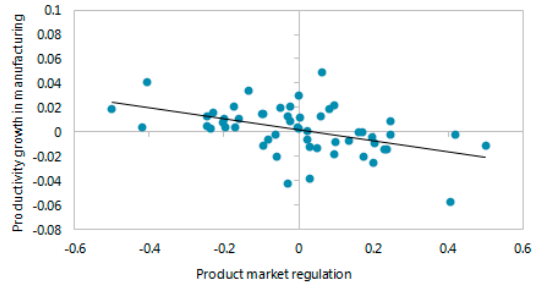
Source: OECD.

Figure A9. Productivity Growth and Regulations

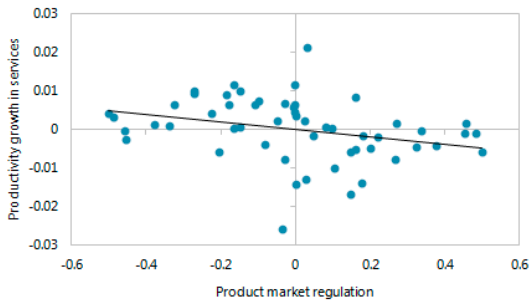
Manufacturing productivity growth is inversely related to the strictness of EPL...



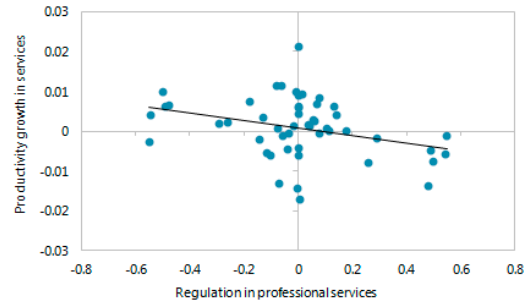
It is also inversely related to product market regulations....



Service sector productivity growth is inversely related to PMR...



It is also inversely related to regulation in professional services....

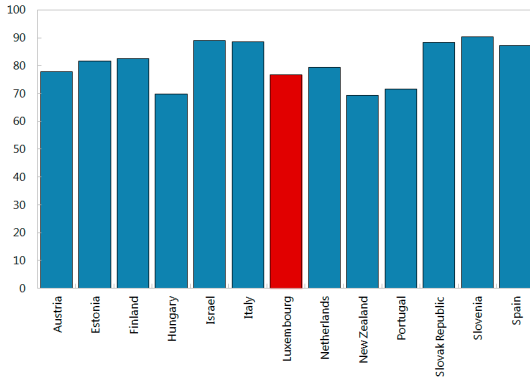


Source: Staff estimates.

Figure A10. New Firm Survival Rates by Industry

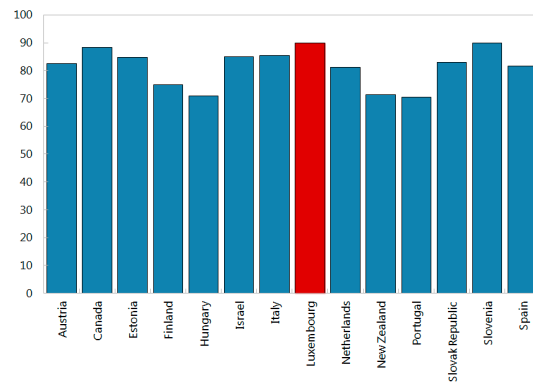
New firm survival rate is high in the service sector compared to other countries...

Survival rate: finance



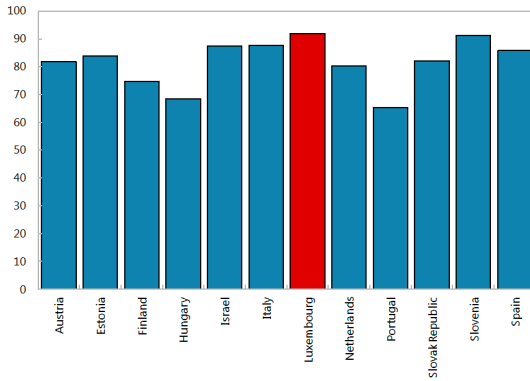
...including in education industry,

Survival rate: total services



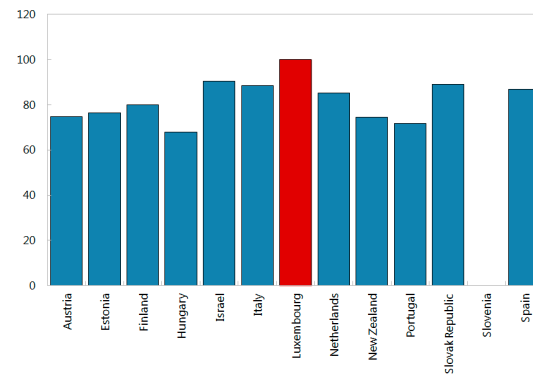
...trade industry,

Survival rate: real estate & business services



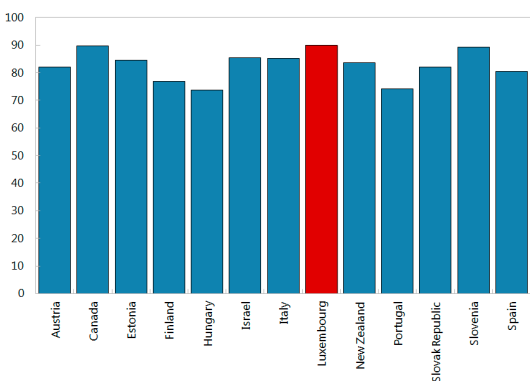
...real estate and business services,

Survival rate: education



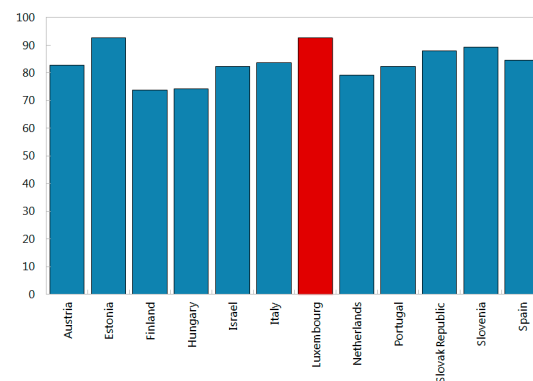
...and transportation and communication.

Survival rate: whole sale & retail



But the finance industry has lower survival rate than in many other countries.

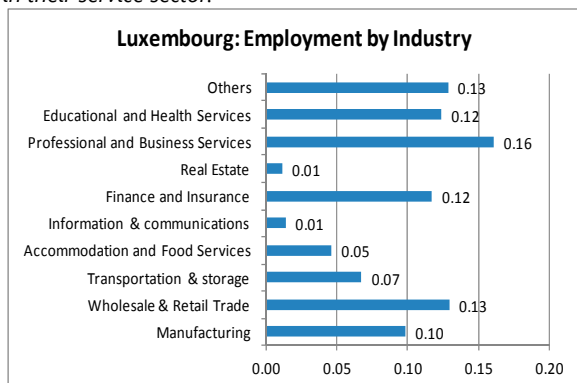
Survival rate: transportation, storage, communication



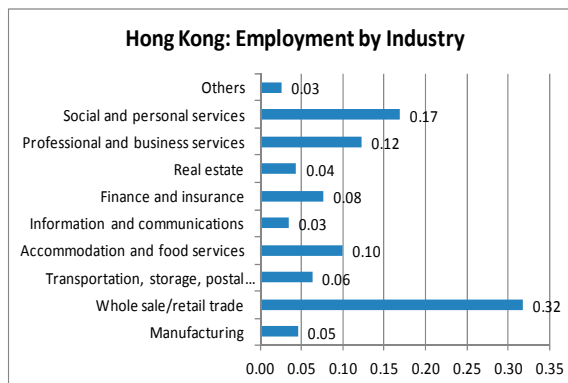
Source: OECD.

Figure A11. Employment Composition of Major Financial Centers

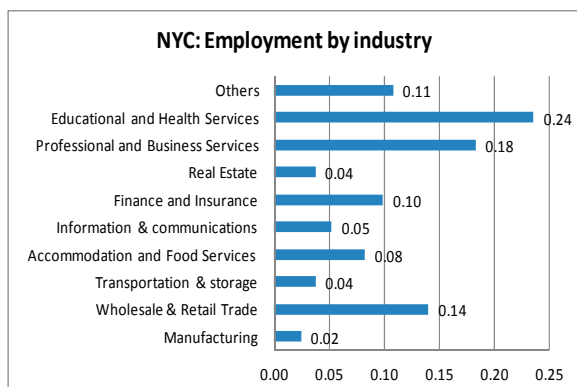
Luxembourg relies heavily on finance and related industries. In comparison, other financial centers are more diversified in their service sector.



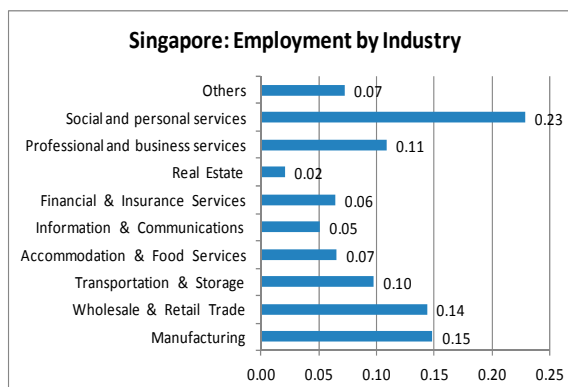
Hong Kong has a large trade sector.



New York City is strong in education and health services.



Singapore has a very balanced service sector.



Source: staff estimates.



LUXEMBOURG

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION—INFORMATIONAL ANNEX

June 12, 2012

Prepared By

European Department

CONTENTS

I. FUND RELATIONS.....	2
II. STATISTICAL ISSUES	3

FUND RELATIONS

(As of May 31, 2012)

- **Mission:** May 3-14, 2012. The concluding statement of the mission is available at: <http://www.imf.org/external/np/ms/2012/051412.htm>
- **Fund relations:** The previous Article IV consultation took place on March 24–April 4, 2011 (IMF Country Report No. 11/108). The staff report and associated Executive Board’s assessment are available at: <http://www.imf.org/external/pubs/cat/longres.aspx?sk=24858.0>

Membership Status:

Joined: December 27, 1945; Article VIII

General Resources Account

	SDR Million	Percent Quota
Quota	418.70	100.00
Fund Holdings of Currency	264.48	63.17
Reserve Position in Fund	154.23	36.84
Lending to the Fund	99.00	

SDR Department:

	SDR Million	Percent Allocation
Net Cumulative Allocation	246.62	100.00
Holdings	243.91	98.90

Outstanding Purchases and Loans

None

Financial Arrangements

None.

Projected Payments to the Fund

(SDR million based on existing use of resources and present holdings of SDRs):

Type	Forthcoming			
	2012	2013	2014	2015
Principal	0.00	0.00	0.00	0.00
Changes/Interest	<u>0.00</u>	<u>0.01</u>	<u>0.01</u>	<u>0.01</u>

Exchange Rate Arrangement

Luxembourg’s currency is the euro, which floats freely and independently against other currencies. Luxembourg has accepted the obligations of Article VIII, Sections 2, 3, and 4, and maintains an exchange system free of restrictions on payments and transfers for current international transactions, other than restrictions notified to the Fund under Decision No. 144 (52/51).

Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT)

In early 2011, the Financial Action Task Force (FATF) concluded that Luxembourg had made progress to remedy several deficiencies in its AML/CFT, and ended the enhanced review process of the FATF’s International Cooperation Review Group. Luxembourg is now subject to a yearly follow-up by the FATF. However, some

shortcomings remain, in particular in relation to legal entities transparency (i.e. beneficial ownerships and control), and the FATF has

been encouraging Luxembourg to continue its efforts to remedy all deficiencies identified in its mutual evaluation report.

STATISTICAL ISSUES

(As of May 31, 2012)

I. Assessment of Data Adequacy for Surveillance	
<p>General: Data provision is adequate for surveillance. The Central Service for Statistics and Economic Studies (Statec) regularly publishes a full range of economic and financial data and provides an advance release calendar for main statistical releases at: http://www.statistiques.public.lu/fr/agenda/calendrier-diffusion/index.html.</p> <p>On-line access to Statec’s databases and those of other jurisdictions is available to all users simultaneously at the time of release through the Statistics Portal of Luxembourg.</p> <p>Key publicly accessible websites for macroeconomic data and analysis are:</p> <p>Statistics Portal of Luxembourg http://www.statistiques.public.lu/fr/ Statec http://www.statec.public.lu/fr/index.html Central Bank of Luxembourg http://www.bcl.lu/en/index.php Ministry of Finance http://www.mf.public.lu/</p> <p>National Accounts: Luxembourg avails itself of the SDDS special flexibility for the timeliness of the national accounts, and generally disseminates national accounts data not later than four months after the reference period (the SDDS timeliness requirement for the national accounts is three months). Reduction of the reporting lag would aid surveillance.</p>	
II. Data Standards and Quality	
<p>Subscriber to the Fund’s Special Data Dissemination Standard (SDDS) since May 12, 2006. Uses SDDS flexibility options on the timeliness of national accounts and analytical accounts of the central bank.</p>	<p>No data ROSC is available.</p>

Luxembourg: Table of Common Indicators Required for Surveillance

(As of May 31, 2012)

	Date of Latest Observation	Date Received	Frequency of Data ⁷	Frequency of Reporting ⁷	Frequency of Publication ⁷
Exchange Rates	05/31/12	5/31/12	D	D	D
International Reserve Assets and Reserve Liabilities of the Monetary Authorities ¹	04/30/12	05/23/12	M	M	M
Reserve/Base Money	04/30/12	05/23/12	M	M	M
Broad Money	04/30/12	05/23/12	M	M	M
Central Bank Balance Sheet	04/30/12	05/23/12	M	M	M
Consolidated Balance Sheet of the Banking System	04/30/12	05/23/12	M	M	M
Interest Rates ²	05/31/12	05/31/12	D	D	D
Consumer Price Index	04/30/12	05/09/12	M	M	M
Revenue, Expenditure, Balance and Composition of Financing ³ – General Government ⁴	2011 Q4	04/04/12	Q	Q	Q
Revenue, Expenditure, Balance and Composition of Financing ³ – Central Government	2012 Q1	04/27/12	Q	Q	Q
Stocks of Central Government and Central Government-Guaranteed Debt ⁵	2011 Q4	04/04/12	Q	Q	Q
External Current Account Balance	2011 Q4	04/08/12	Q	Q	Q
Exports and Imports of Goods	03/31/12	05/25/12	M	M	M
GDP/GNP	2011 Q4	04/04/12	Q	Q	Q
Gross External Debt	03/12/12	04/08/12	Q	Q	Q
International Investment Position ⁶	2011 Q4	03/30/12	Q	Q	Q

1 Including reserve assets that are pledged or otherwise encumbered.

2 Both market-based and officially-determined, including discount rates, money market rates, rates on treasury bills, notes and bonds.

3 Foreign, domestic bank, and domestic nonbank financing.

4 The general government consists of the central government (budgetary funds, extra budgetary funds, and social security funds) and state and local governments.

5 Including currency and maturity composition.

6 Includes external gross financial asset and liability positions vis-à-vis nonresidents.

7 Daily (D); weekly (W); monthly (M); quarterly (Q); annually (A); irregular (I); and not available (NA).



INTERNATIONAL MONETARY FUND

Public Information Notice

EXTERNAL
RELATIONS
DEPARTMENT

Public Information Notice (PIN) No. 12/67
FOR IMMEDIATE RELEASE
July 2, 2012

International Monetary Fund
700 19th Street, NW
Washington, D. C. 20431 USA

IMF Executive Board Concludes 2012 Article IV Consultation with Luxembourg

On June 27, 2012, the Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation with Luxembourg.¹

Background

Economic growth has slowed in 2011 amid the euro area sovereign debt crisis. Private consumption held up in the first half of the year. But as the crisis and uncertainty lingered, consumer and manufacturing business confidence fell and slowed domestic demand. Reflecting the waning impact of global fuel price increases and postponements in automatic wage indexation, inflation has eased. In recent months, employment growth has remained stable but the unemployment rate has risen, particularly long-run joblessness that accounts for about 45 percent of overall unemployment.

The fiscal deficit fell in 2011, reflecting an over performance in revenues and continued expenditure restraint. Staff estimates that the structural deficit, at ½ percent of GDP, was roughly unchanged from 2010. Public debt has nonetheless almost tripled to about 20 percent of GDP since the outset of the global financial crisis and is poised to continue increasing in the face of medium-term fiscal pressures.

¹ Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the Executive Board. At the conclusion of the discussion, the Managing Director, as Chairman of the Board, summarizes the views of Executive Directors, and this summary is transmitted to the country's authorities. An explanation of any qualifiers used in summings up can be found here: <http://www.imf.org/external/np/sec/misc/qualifiers.htm>.

The financial sector has endured the crisis and remained stable. The investment fund industry experienced some valuation losses in 2011 mainly due to euro area related market turbulence, but has largely recovered, with assets under management surpassing €2 trillion in early 2012. Though bank assets have been slower to recover, Luxembourg-based banks have generally remained well capitalized, profitable, and liquid. Their exposures to distressed sovereigns in the European periphery are generally contained, but cross-border exposures remain high. Cross-border, mainly intragroup, exposures still account for about $\frac{3}{4}$ of bank loans.

Reflecting sluggish external demand, economic activity is expected to further weaken, with growth projected to decline to $\frac{1}{2}$ percent in 2012. Volatile financial markets and unclear economic prospects will likely continue to weigh on domestic demand. These factors will also likely reduce price pressures and reinforce inflation's declining trend. Risks are tilted to the downside given ongoing uncertainties in the euro area.

Executive Board Assessment

Executive Directors welcomed the continued stability of Luxembourg's economy despite the turbulence in the euro area, but noted that slowing activity and an uncertain economic outlook call for further steps to limit financial sector risks, safeguard fiscal sustainability, and boost medium-term growth.

Directors commended the authorities on measures taken to strengthen the financial sector and implement recommendations from the Financial Stability Assessment Program update. They supported further participation in EU supervisory colleges and the development of similar arrangements to promote cross-border cooperation among supervisors of non-EU banking groups and investment funds. Directors also advised the authorities to continue pursuing ahead of EU-level initiatives, if appropriate, regulatory enhancements not requiring legislation, and to continue encouraging banks to prepare for tighter liquidity standards under Basel III. More broadly, Directors saw scope for revisiting institutional arrangements for regulation and supervision, to better align these with evolving international standards. Regarding the AML/CFT framework, Directors noted the authorities' commitment to undertake the needed measures to comply with revised FATF standards.

Directors welcomed the support to the economy provided by the 2012 budget. They urged the authorities to adhere to the budget's expenditure allocations but cautioned that reliance on public investment caps could hurt growth in the long run. Directors generally agreed that automatic stabilizers should be allowed to operate if downside risks materialized. A few Directors, however, were not convinced that this would be effective, given low fiscal multipliers and the need to preserve hard-won credibility.

In light of the expected deterioration in public finances in coming years, Directors encouraged high-quality consolidation measures supported by a medium-term fiscal framework. In particular, while welcoming the proposed pension reforms, they urged the authorities to undertake a more comprehensive reform of the pension and healthcare systems to ensure fiscal sustainability.

Directors commended the authorities' efforts to lay the foundation for higher medium-term growth through a comprehensive reform agenda. They encouraged nonetheless further steps to improve active labor market policies and the social safety net with a view to minimizing work disincentives and addressing market rigidities. Directors also welcomed measures to limit the adverse competitiveness effects of the wage indexation system, and suggested revising or eliminating this system in the medium term. Product market regulations should also be reviewed to foster competition, productivity growth, and economic diversification.

Public Information Notices (PINs) form part of the IMF's efforts to promote transparency of the IMF's views and analysis of economic developments and policies. With the consent of the country (or countries) concerned, PINs are issued after Executive Board discussions of Article IV consultations with member countries, of its surveillance of developments at the regional level, of post-program monitoring, and of ex post assessments of member countries with longer-term program engagements. PINs are also issued after Executive Board discussions of general policy matters, unless otherwise decided by the Executive Board in a particular case. The [staff report](#) (use the free [Adobe Acrobat Reader](#) to view this pdf file) for the 2012 Article IV Consultation with Luxembourg is also available.

Luxembourg: Selected Economic Indicators

	2009	2010	2011	2012 /1
Real economy	(Change in percent, unless otherwise indicated)			
Real GDP	-5.3	2.7	1.6	0.5
Gross investment	-21.9	16.2	10.7	2.0
Unemployment (as percent of the labor force)	5.8	6.2	5.7	6.2
Resident employment (thousands)	216.0	219.1	225.3	227.6
Total employment (thousands)	352.2	357.8	368.4	375.3
CPI (harmonized), p.a.	0.0	2.8	3.7	2.3
Public finances	(Percent of GDP)			
General government revenues	42.2	41.6	41.4	42.1
General government expenditures	43.0	42.4	42.0	44.0
General government balance	-0.8	-0.9	-0.6	-1.9
General government gross debt	14.8	19.1	18.2	21.4
Balance of payments				
Current account balance	6.5	7.7	7.1	7.2
Balance of trade in goods and services	39.3	46.1	41.3	39.5
Factor income balance	-30.1	-36.8	-31.5	-30.6
Transfer balance	-2.8	-1.7	-2.8	-1.7
Exchange rates	Member of the euro area			
U.S. dollar per euro	1.4	1.3	1.4	...
Nominal effective rate (2005=100)	104.9	102.1	102.6	...

Sources: Data provided by the authorities; IMF, WEO database; and IMF staff calculations.

1/ IMF Staff projections.

**Statement by Willy Kiekens, Executive Director for Luxembourg
and Amela Hubic, Advisor to the Executive Director
June 27, 2012**

The Luxembourg authorities would like to thank staff for their comprehensive and useful analysis that provides an objective view of the macro-economic situation in Luxembourg and the challenges the economy is facing. However, the authorities note that the structure of the staff report is not rightly balanced as financial sector issues cover a significant part of the report. The FSAP update, that took place in September 2011, has already tackled in detail the current state of the financial sector and the remaining challenges. More analysis and advice on macro-policy and on public finances would have been appreciated. The authorities broadly share the views of the staff.

The country's stable political, social and regulatory environments have helped its economy and financial sector to endure the recent global financial and the ongoing European sovereign debt crisis. The authorities have followed prudent macroeconomic policies and have paid careful attention to developing a business friendly climate and will continue to do so. They are committed to take all the necessary measures to further ensure the stability of the financial sector; long-run fiscal sustainability; and continued growth and employment. Diversification of the forward-looking financial sector across business types, investment destinations and customer bases has helped the economy to weather the crisis. Looking forward, the authorities are committed to pursue efforts to diversify the structure of the economy by developing new lines of business outside of financial sector realm (e.g. ICT, logistics or clean technologies). Finally, Luxembourg is among the very few European countries to maintain an AAA credit rating assessment with stable outlook, clearly demonstrating the market's trust in the country.

Recent economic developments and outlook

After a severe downturn in 2009, the Luxembourg economy recovered in 2010 and registered a real GDP growth of 2.7 percent. In 2011, growth decelerated to 1.6 percent in the context of the slowdown of European economies. During the last quarter of 2011, the Luxembourg economy grew by only 0.8 percent. This deteriorating situation primarily reflects weaker export demand resulting inter alia from a restricted fiscal stance at the European level, a substantial deterioration in both business and consumer confidence stemming from the sovereign debt crisis and the negative effect that all these developments had on financial markets. In 2012, the Statistical Office (Statec) and the Central Bank of Luxembourg (BCL) project real growth to be 1 percent of GDP, 0.5 percent higher than staff's projections, before recovering to just above 2 percent in 2013.

In this difficult economic environment, employment growth has been decelerating, although remaining positive at 1.9 percent in April 2012. Close to one third of new jobs were created in the public sector (broad definition) while employment growth in the private sector was more subdued. Nonetheless, the seasonally adjusted unemployment rate is on the rise, reaching a historical peak of 6.1 percent in April 2012. Unemployment tends to become more structural as rightly emphasized in the staff report. Almost half of

the unemployed are low-skilled and a quarter of them are older than 50. The authorities are aware of this tendency and are planning to adopt measures to address it. The Ministry of Labor has already put in place some policies designed to preserve labor market participation among individuals over 50 who have recently lost their job.

Public finances

The economic and financial crisis has weakened the state of public finances in Luxembourg. Despite this negative evolution, Luxembourg has maintained its relatively low level of public debt as well as a budgetary safety margin in relation to the Maastricht reference value of 3 percent of GDP. Nevertheless, the country is facing a series of challenges of a structural nature that will have an impact on public finances. Potential growth is declining, and so will be the growth of public revenues. The high degree of openness of the economy and its specialization in financial services make public revenues subject to high volatility. At the same time, public expenditures are sticky downwards with a significant part being growing autonomously, independent of the business cycle. Finally, public finances in Luxembourg are highly exposed to population ageing.

The general government deficit declined from 0.9 percent of GDP in 2010 to 0.6 percent in 2011. Spending growth was kept below nominal GDP growth. New tax measures are estimated to have yielded 0.5 percent of GDP additional revenues. The debt-to-GDP ratio declined from 19.1 percent to 18.2 percent.

With weak GDP-growth this year, the fiscal deficit is allowed to increase to 1.5 percent of GDP in 2012. For next year, in line with the country's latest update of its Stability and Growth Program (April 2012) fiscal consolidation measures have been announced for the period 2013 – 2015. These measures should reduce the deficit to 1.2 percent of GDP in 2013 and by an additional 1 percent of GDP annually thereafter, compared to unchanged policies. Adjustment measures include expenditure reductions for 2/3 and revenue increases for 1/3. The authorities would have appreciated a clearer presentation of this consolidation package in the staff report for the period 2013 – 2014, as it is not clear whether staff's projections include the government's consolidation package or not.

The authorities are skeptical about staff's suggestion to let automatic stabilizers operate since in Luxembourg fiscal multipliers are rather low or close to zero, as recognized by the staff. Given the political difficulties in reducing the fiscal deficit, the authorities are reluctant to allow deviations from the nominal consolidation path.

The general government balance is projected to continue to improve in 2014. However, in 2015, despite a favorable macroeconomic context, a structural change in the VAT regime will cause a revenue loss of about 1 percent of GDP due to a shift from the domicile of the e-commerce service provider to the residence of the consumer. This revenue drop will gradually increase as the change in the VAT regime is introduced gradually. In line with the European directive, 70 percent of the VAT receipts will be transferred to the 'consumer' countries during the first two-year period, 85 percent in 2017 and 2018, and 100 percent only in 2019. The staff estimate of these revenue losses seems to neglect this gradual phasing in.

If Luxembourg has not achieved its medium-term objective of a structural surplus of 0.5 percent of GDP in 2015, the authorities are committed to adopt additional measures in order to bring public finances back towards the medium-term fiscal objective.

The staff report rightly points out that the debt-to-GDP ratio has almost tripled in the period 2007-2011, from 6.7 to about 18.2 percent. Let us nonetheless observe that Luxembourg's debt level remains well below the 60 percent level of the Maastricht criteria, that the net public debt is significantly lower (Luxembourg's participation in PNB Paribas alone amounts to 6 percent of GDP) and that the public debt is entirely denominated in euros. The authorities are committed to keep the public debt at low levels as the only sustainable trajectory for Luxembourg.

Short-term public finances indicators in Luxembourg are favorable when compared with peer countries. Nonetheless, there are long-term challenges. The authorities are aware of the importance of putting the public finances on a sound footing in the long term. Since Luxembourg is a small open economy, from the authorities' point of view, public debt levels should remain well below the Maastricht criteria, even in case of a renewed downturn. This will preserve long-term economic stability and business attractiveness of the country. Therefore, several initiatives have been taken. An important healthcare reform has become effective from January 1, 2011. Further reforms are being developed, including the restructuring of the hospital sector starting in 2013. A draft pension reform will be discussed in Parliament in the second half of 2012. The government concurs with the staff's view about the urgent need to place Luxembourg's old-age pension system (public and private) on a sustainable path. The existing pension system suffers from a number of costly rigidities, including the indexation of benefits to both price and real wage developments. The authorities are aware that this reform might not be sufficient to solve the problems of the pension system. Under the new pension regime, the government's reassessment every five years should prompt corrective measures in case of expected shortfalls. Finally, the authorities are working on establishing a multi-year budgetary framework to deliver the needed fiscal consolidation. The framework would apply to all levels of the government, and include multi-year expenditure ceilings, consistent with the new EU requirements under the legislative "six pack" (to be transposed by the end of 2013) and the Fiscal Compact.

Financial sector and developments in supervision

The banking sector has recently suffered from the ongoing sovereign debt crisis in the euro area. The aggregate bank balance sheet, after having recovered to more than euro 800 billion in January 2012, receded again in the following months to stabilize in April 2012 at a level slightly higher than the yearly average observed in 2011 (780 billion euros). This contraction follows declining asset values and reduced exposure on sovereigns and other banks. Bank profits before taxes, depreciation and provisions, declined by more than 11 percent in the first quarter of 2012 to around 1.4 billion euros. Still, Luxembourg-based banks remain well capitalized, profitable and liquid.

While some banks are retreating from Luxembourg, mainly because of restructuring measures or because their business model does not fit the Luxembourg financial sector, large banking groups expand their presence in Luxembourg because of its role and expertise as a hub for back-office and custodian services. Private banking is also undergoing a transformation, becoming more service oriented and catering increasingly to a more sophisticated clientele.

The investment fund industry is an important component of the Luxembourg's financial system. Although affected by the recent global financial crisis, the fund industry has recovered well. With over 2.2 trillion euro in April 2012, assets in Luxembourg-domiciled regulated funds reached a historical ceiling¹. This is a result of both revaluation of assets held and new inflows. The number of investment funds has increased by 178 units between end 2010 and 2011 (from 3667 to 3845). Anecdotal evidence also suggests that investment funds that used to be offshore before the crisis are now seeking the safety of a regulated product like the UCITS brand and of a domicile in Luxembourg. Overall, it seems that the Luxembourg fund industry is weathering well the ongoing sovereign euro area debt crisis – both from a financial stability point of view and with regard to its reputation as a well regulated product. Moreover, the authorities do not share staff's point of view that euro area turbulence could result in outflows of funds. If the investors want to change their investment portfolio and invest in other regions rather than in the euro area, they will probably opt for another Luxembourg-domiciled fund offering exposure to that specific region which in the end would not cause any outflows from the fund industry. The experience in recent crisis (e.g. Irish case) provides some evidence. Both the authorities and the fund industry's management are confident about the outlook. The data of the first four months of 2012 indicate that the net asset value as well as the number of units has continued to increase. The industry management indicated that it does not expect any significant new inflows of assets for the rest of the year but is confident that the industry is able to maintain the current level.

Luxembourg financial sector exposure to European periphery countries has declined significantly since the last consultation, as rightly noted in staff report, and represents a small share of overall assets. Moreover, the authorities are confident that, in an extreme tail event, the banking sector's strong capital position provides comfort in this regard. Regarding Luxembourg Fund industry, the exposure to distressed sovereigns is limited.

Solvency, Tier 1 capital and liquidity indicators are traditionally high in Luxembourg and remain so. Although Luxembourg-based banks have registered losses in their securities portfolios in 2011, they remain highly capitalized. Moreover, following the EBA recommendation of 8 December 2011 on the recapitalization of European banking groups, the banking supervision authority (CSSF) has increased the capital requirements for all Luxembourg based banks (not just those required by EBA) to a minimum 9 percent of risk-weighted assets in Core Tier I capital. The authorities acknowledge that the liquidity standards under Basel III (CRDIV/CRR in Europe) could be challenging if

¹ The country is the second largest investment fund domicile in the world after US.

applied at the solo/sub-consolidated level. The CSSF and the BCL are closely following developments on that front.

Regulatory issues. The authorities have made substantial progress in strengthening financial sector supervision and the regulatory framework. To improve the financial stability policy framework, the authorities followed the FSAP recommendation by further enhancing on-site supervisions and by hiring highly qualified staff. Indeed, the staff and resources of CSSF have been significantly increased and resulted in more frequent on-site inspections (from 38 in 2009 to 85 inspections in 2011 of banks) and augmented enforcement actions (from 4 in 2009 to 72 inspections of investment funds). Similarly, the BCL has vastly expanded its supervisory activities by also recruiting additional staff and expending the financial stability and prudential supervision department resources. The latter integrates one unit in charge of liquidity surveillance, one in charge of oversight of payment and settlement infrastructures and the financial stability unit tackling the macro-prudential aspects and assessing systemic liquidity risk. The BCL liquidity monitoring and surveillance framework at the institutional level comprises qualitative and forward-looking quantitative analysis, which includes both off-site analysis and on-site inspections. In this context, the BCL has conducted in 2011 nine on-site inspections in close cooperation with the CSSF. In addition, the central bank requires from a large proportion of banks to provide their liquidity gap projections on a daily basis. As regards the bank resolution regime and deposit insurance scheme, the authorities would like to emphasize the importance of moving in lockstep with EU-level regulations which is consistent with Luxembourg tradition of regulatory stability but also with other EU countries.

The financial industry had recognized the value of stronger supervision for financial stability, which provides an additional safety net for investors, and has welcomed the constructive dialogues with supervisors (CSSF and BCL) as well as with Luxembourg authorities.

The authorities take note of staff recommendations for refinements in Luxembourg's institutional frameworks for financial supervision and regulation – in line with the FSAP update as well as forthcoming EU requirements – namely: clarifying the respective roles and duties of the CSSF and BCL on liquidity risk supervision; establishing a national macro-prudential authority with a central bank taking a leading role; and strengthening the CSSF's operational independence. They take all these three issues very seriously and intend to take legislative actions to address them in a holistic manner. They stress that operational independence of institutions should go hand in hand with accountability and responsibility. The legislative actions will probably take place in the second part of 2012.

At the international level both the BCL and the CSSF are engaged in exchange, discussion and analytical work on the new European supervisory infrastructure EBA and ESRB. Moreover, exchange of supervisory information and home-host coordination takes place at the level of supervisory Colleges and Cross Border Stability Groups for all important banking groups with cross border activities. In addition, the BCL and the CSSF

are engaging intensively with banks to prepare them for potential future changes in regulation.

Other issues

Diversification of the economy. The authorities are committed to pursue efforts to diversify the structure of the economy which is currently largely based on the financial sector activities (close to 30 percent of GDP) that contribute significantly to fiscal revenues (around 25 percent of total revenues) as well as to employment (around 10 percent of employment). At the beginning of 2012, the authorities founded a Luxembourg Future Fund to support the diversification and sustainable development of the economy. The Fund should invest directly or via other funds in innovative small and medium enterprises in a start-up or development phase in technology sectors (e.g. ICT or clean technologies). The government will invest 120 million euro in the Fund via the ‘Société Nationale de Crédit et d’Investissement (SNCI)’ and the European Investment Fund will contribute another 30 million euros. In addition, the government will invest in health sciences and technology via an existing private fund.

Competitiveness and unit labor cost. The authorities have noted the deterioration in price competitiveness over the last decade (unit labor costs rising much faster than in neighboring countries) due to high wage increases coupled with low productivity growth. Wages and benefits are linked to inflation through an automatic indexation mechanism. The authorities took steps to improve competitiveness by adjusting the system of wage indexation. In December 2011, Parliament adopted a law to temporarily modify the automatic indexation of wages. The automatic indexation of wages, which would have occurred in March 2012, has been postponed to October 2012. Moreover, until 2014, at least 12 months should elapse between each indexation step of 2.5 percent. With the introduction of this minimum interval, wages and benefits will no longer be fully indexed to the cost of living in the event that inflation exceeds 2.5 percent. This so-called ‘modulation of the wage indexation system’ prevents an upward spiral of cost and price increases and will have a temporary effect on cost competitiveness, especially in times of high inflation. From 2015 on, the automatic indexation will return to its previous mode, but the counter for the next automatic wage indexation will be set to zero. As a consequence, some of the gains in cost competitiveness will be permanent. The authorities are aware that this modulation is only temporary and that the room of manoeuvre in terms of productivity gains is getting smaller. Therefore, it is essential to ensure the competitiveness by limiting the growth of unit labor costs. During this temporary modulation period, the authorities will be working with unions and employers’ representatives on a more permanent solution which should not undermine social cohesion in Luxembourg.