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Luxembourg: Financial System Stability Assessment—Update

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Financial System Stability Assessment—Update

Prepared by the Monetary and Capital Markets and European Departments

Approved by José Viñals and Antonio Borges

April 26, 2011

This Financial Sector Stability Assessment (FSSA) is based on the work of a Financial Sector Assessment Program (FSAP) Update mission to Luxembourg during November 8–23, 2010. The initial FSAP took place in 2001. The FSAP Update team comprised Nicolas Blancher (mission chief), Greta Mitchell-Casselle, Hiroko Oura, Christine Sampic, and Piyaporn Sodsriwiboon (all MCM), Alessandro Gullo (LEG), Francisco Vazquez (EUR); and Keith Bell, Patrice Bergé-Vincent, Gillian Garcia, and Joerg Genner (external experts).

The main findings of the mission are as follows:

- Key sources of vulnerability in Luxembourg's mostly foreign-owned and outward-oriented banking sector reflect banks' exposures to their foreign parent banks and to sovereign risk.

- In the investment fund sector, the systemic importance of Luxembourg as a global hub introduces potential cross-border spillover risks.

- In the longer term, the financial center also faces potential headwinds stemming from a range of regulatory changes, including as relates to bank liquidity and intra-group exposures, and to investment fund activities.

- While a number of critical policy priorities go beyond the Luxembourg authorities' purview and require initiatives at the EU-level, the above vulnerabilities underscore the importance of pursuing domestic policies to strengthen the financial system's resilience.

FSAP assessments are designed to assess the stability of the financial system as a whole and not that of individual institutions. They have been developed to help countries identify and remedy weaknesses in their financial sector structure, thereby enhancing their resilience to macroeconomic shocks and cross-border contagion. FSAP assessments do not cover risks that are specific to individual institutions such as asset quality, operational or legal risks, or fraud.

Contents Page

Glossary 4

Executive Summary 5

Key Recommendations 7

I. Macro Financial Setting..8
A. Structure of the Financial System 8
B. The Financial Crisis 11

II. Stability Assessment 14
A. Financial Sector Soundness and Performance 14
B. Stress Tests..15
C. Summary Risk Assessment 16

Risk Assessment Matrix 18

III. Financial Sector Oversight...20
A. Banking Sector...20
B. Investment Funds Sector 21
C. Insurance Sector 22
D. Securities Markets...23
E. AML-CFT..23

IV. Crisis Preparedness and Safety Net 24
A. Cross-Border Challenges 24
B. Domestic Bank Resolution Framework 25
C. Safety Net..26

Appendices

I. Basel Core Principles for Effective Banking Supervision...40
A. Information and Methodology Used for Assessment 40
B. Institutional and Macroeconomic Setting and Market Structure—Overview.........40
C. Preconditions for Effective Banking Supervision...41
D. Main Findings 41
E. Authorities' Response to the Assessment...47

II. IOSCO Objectives and Principles of Securities Regulation 48
A. Information and Methodology Used for Assessment 48
B. Preconditions for Effective Securities Regulation 49
C. Main Findings 49
D. Authorities' Response to the Assessment 59

III. CPSS/IOSCO Recommendations for Securities Settlement Systems 61
A. Information and methodology used for assessment..61

B. Institutional and Market Structure—Overview 61
C. Regulatory Framework—Overview 62
D. Main Findings 62
E. Authorities' response to the assessment 68

Tables

1. Structure of the Financial System 28
2. Financial Soundness Indicators for the Banking Sector 29
3. Selected Economies: Macro Stress Testing, Macroeconomic Assumptions 30
4. Summary of Macro Stress Testing for the Banking Sector 31
5. Insurance Stress Test Results 32
6. Summary Compliance with the BCPs—Detailed Assessments 43
7. Recommended Action Plan to Improve Compliance with the BCPs 46
8. Summary Implementation of the IOSCO Principles 53
9. Recommended Action Plan to Improve Implementation of the IOSCO Principles 57
10. Summary Observance 63
11. Recommended Action Plan to Improve Observance 67

Figures

1. Banking Sector 33
2. Investment Fund Industry 34
3. Insurance Companies 35
4. Financial Soundness Indicators for Banks 36
5. Financial Soundness Indicators for Insurance Companies 38
6. Macro Stress Testing, Cumulative Changes in Solvency Ratio for Adverse Scenario 39

Boxes

1. Interconnectedness of Luxembourg's Financial System 10
2. Resolution of Troubled Bank 13

Glossary

AGDL	Association pour la Garantie des Dépôts Luxembourg
AIFM	Alternative Investment Fund Managers
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
BCL	Banque Centrale du Luxembourg
BGL	Banque Générale du Luxembourg
CAA	Commissariat aux Assurances
CAR	Capital adequacy ratio
CBL	Clearstream Banking Luxembourg
CEBS	Committee of European Banking Supervisors
CSSF	Commission de Surveillance du Secteur Financier
DGS	Deposit guarantee scheme
EC	European Commission
EU	European Union
FATF	Financial Action Task Force
FIU	Financial Intelligence Unit
FSAP	Financial Sector Assessment Program
FSSA	Financial System Stability Assessment
IAIS	International Association of Insurance Supervisors
ICRG	International Cooperation Review Group
ICSD	International Central Securities Depository
IOSCO	International Organization of Securities Commissions
LCFI	Large and complex financial institution
LSE	Luxembourg Stock Exchange
MFI	Monetary and financial institution
MMF	Money market fund
MoF	Ministry of finance
MoU	Memorandum of understanding
MMoU	Multilateral Memorandum of Understanding
NBFI	Nonbank financial institutions
SBL	Société de la Bourse de Luxembourg
UCI	Undertaking for collective investments
UCITS	Undertaking for collective investments in transferable securities

EXECUTIVE SUMMARY

Luxembourg hosts a large international financial center that plays a pivotal role in its economy and in European financial markets. Over the last two decades, the financial center has been the key driver of domestic economic growth, while also playing an important role in European Union (EU) financial markets, with sizable shares in terms of fund domiciliation, primary bond listing, and private banking. The banking industry is mostly foreign-owned and outward-oriented, and only a handful of banks are active in the domestic retail market.

The crisis exposed significant vulnerabilities in Luxembourg's financial system, due primarily to large cross-border exposures to foreign parent banks. Bank balance sheets contracted significantly during the crisis, mainly through reduced cross-border intra-group transactions, and a few bank subsidiaries failed on contagion from their parent groups. The investment fund industry faced sizable redemptions at the peak of the crisis. However, the effects of the crisis in domestic credit markets were muted, owing to the dual nature of the banking system, relatively low household indebtedness, and resilient housing markets.

The authorities' decisive policy response helped preserve systemic stability, but the crisis uncovered weaknesses in the regulatory and supervisory frameworks and entailed a significant fiscal cost. The authorities proceeded with large public support to systemically important financial institutions under stress (in coordination with neighboring countries) and with a fivefold increase in the deposit guarantee (consistent with EU-wide increases). However, the crisis exposed flaws in the governance, risk management practices and supervision of foreign bank subsidiaries, and significant weaknesses in crisis preparedness and resolution, including with regard to crisis detection and cross-border and inter-agency communication. While warranted from a stability standpoint, public support to Dexia and Fortis banks entailed significant use of fiscal resources and moral hazard.

Going forward, Luxembourg remains vulnerable to renewed international instability, especially through parent bank and sovereign risk exposures. In addition to the exposures of local subsidiaries to liquidity and counterparty risks stemming from their parent banks, concentrated exposures to sovereign risk also constitute a cause for concern in light of the recent deterioration in European sovereign markets. Given the large size of Luxembourg's financial sector relative to GDP, the potential fiscal consequences of severe distress could be significant. In the investment fund sector, the systemic importance of Luxembourg as a global hub introduces potential cross-border spillover risks.

Further strengthening home-host supervisory collaboration and cross-border bank resolution frameworks will be of crucial importance for Luxembourg. The authorities should continue to play an active role in these areas, including through their ongoing participation in colleges of supervisors and, pending completion of EU reforms, seek pragmatic solutions to facilitate coordination in the resolution of cross-border banks.

The above vulnerabilities also underscore the importance of the authorities pursuing policies to strengthen the financial system's resilience. Although steps have already been taken—e.g., the Banque Centrale du Luxembourg (BCL) was granted stronger responsibility for the oversight of systemic liquidity and financial market infrastructures, and the Commission de Surveillance du Secteur Financier (CSSF) has increased its supervisory focus—the supervisory and crisis preparedness frameworks need to be improved further.

While a number of policy priorities go beyond the authorities' purview and require initiatives at the EU-level, key reform areas include (key recommendations table):

- *Continuing to strengthen on-site supervision of banks and the investment fund industry*, including through reduced reliance on compliance-oriented work, more risk based inspections, and stronger and speedier enforcement of corrective actions.
- *Securing full operational independence for the CSSF* by revising its legal framework.
- *Continuing to closely monitor exposures to parent bank*, and taking further action to limit them, including through the use of formal sanctions, when necessary.
- *Clarifying the respective responsibilities of, and collaboration between, the BCL and CSSF in financial supervision*, especially as relates to liquidity risk and financial market infrastructures, and the modalities of their information exchanges.
- *Amending securities regulations to protect the integrity and reputation of Luxembourg's financial center*, by strengthening the responsibilities of custodian banks in the segregation of client assets (especially when custody is delegated), and clarifying investment fund shareholder/ownership rights.
- *Revamping key components of the financial safety net*, including the deposit insurance system, in order to provide for earlier grounds for the intervention of problem banks, to facilitate the orderly wind down of unviable firms, and to ensure prompt payment to insured depositors.
- *Finalizing contingency plans to ensure the continuity of Luxembourg's International Central Securities Depository* (ICSD), one of the world's largest, including arrangements to move participants' positions to a solvent intermediary.

In the longer term, the financial center also faces potential headwinds stemming from a range of potential regulatory changes. Luxembourg's financial center may be affected by more restrictive international and EU regulations on bank liquidity and intra-group exposures, including Basel III. Also, numerous changes to the European and global regulatory frameworks governing investment fund activities may impact the competitiveness of Luxembourg in this sector. Continued reforms will be needed to meet these challenges, including in the areas highlighted above and in fostering a competitive and flexible financial system.

KEY RECOMMENDATIONS

Recommendations	Priority	Time Frame
Overall financial sector oversight		
Make the CSSF's oversight procedures and remedial actions more expeditious and effective (CSSF ¶22,26)	High	Near-term
Continue to increase resources and skills for the supervision of banks, the investment fund industry, and financial market infrastructures in order to better perform risk-focused inspections and enforcement, and reduce reliance on the compliance-oriented work of external auditors (CSSF ¶22,25)	High	Medium-term
Revise the legal framework in order to ensure full operational independence of the CSSF (CSSF, MoF ¶21, 26)	Medium	Near-term
Clarify the respective responsibilities of the BCL and CSSF in the conduct of financial supervision, especially as relates to liquidity risk and financial market infrastructures, and formalize the modalities of their collaboration and information exchanges (BCL, CSSF ¶21)	Medium	Near-term
Banking oversight		
Continue to closely monitor exposures to affiliate and parent banks, and take action to limit them, including through the use of formal sanctions, when necessary (CSSF ¶22)	High	Near-term
Investment funds/Securities markets oversight		
Enhance the duties of investment fund depositaries and clarify the investment fund shareholder/ownership rights (CSSF ¶26)	Medium	Near-term
Crisis management		
Strengthen the deposit insurance scheme through ex ante funding, speedier and automatic payments, the use of funds for bank restructuring, and improved governance (CSSF, MoF ¶38)	High	Near-term
Strengthen the bank resolution framework, including by providing for earlier control of problem banks and enhanced resolution tools (CSSF, MoF ¶36)	High	Near-term
Finalize contingency plans to ensure the continuity of Luxembourg's ICSD, including arrangements to move participants' positions to a solvent intermediary and to continue core functions (BCL, CSSF ¶31)	High	Medium-term
Formalize a multipartite domestic framework providing for specific operational procedures to facilitate crisis prevention and decisive, quick and early intervention (BCL, CSSF, CAA, MoF, and deposit insurance fund ¶37)	Medium	Near-term

I. MACRO FINANCIAL SETTING

A. Structure of the Financial System

1. **Luxembourg's financial sector is exceptionally large and globally interconnected** (Table 1). It represents about one-fourth of Luxembourg's GDP, one-third of its tax revenues, and 12.5 percent of its labor force. It comprises the banking industry, with total assets surpassing 20 times GDP; the investment fund industry, with assets under management equivalent to around 50 times GDP; and the insurance industry, with an aggregate balance sheet of about four times GDP. Luxembourg's international financial center has strong linkages with France, Germany, Italy, the Kingdom of the Netherlands, the United Kingdom, and the United States (Box 1), and is driven by private banking and investment fund activities (Figures 1 and 2). Its monetary and financial institutions (MFIs) intermediate about 16 percent of total cross-border exposures among euro area MFIs.[1]

2. **Luxembourg's banks are mostly foreign-owned and net providers of liquidity to their parent groups.** The banking sector accounts for about 28 percent of total financial sector assets. As of June 2010, there were 149 banks operating in Luxembourg. However, most banks and 90 percent of total bank assets are foreign-owned. The majority of these groups operate through both subsidiaries and branches in Luxembourg, which provides flexibility to accommodate clients' needs for financial services and to optimize funding operations with parent groups. Indeed, reflecting the liquidity generated by treasury management for institutional customers, as well as private banking and custody activities, the local banking system is a net provider of liquidity to parent banks ("upstreaming"). Overall, interbank positions represent about half of bank assets and liabilities (compared to an average of about 28 percent in the euro area), two thirds of these interbank positions are cross-border exposures, and intra-group exposures account for about 40 percent of total bank assets.

3. **Luxembourg is the world's second largest center for investment funds after the United States.** Investment funds domiciled and marketed in Luxembourg account for about 70 percent of its total financial sector assets, and about 30 percent of total assets under management by European funds. Fund sponsors mainly originate from Europe and the United States. Funds domiciled in Luxembourg are generally managed from other international financial centers. Fund shares are distributed in other European countries through an extensive use of the European passport, as well as to investors worldwide (particularly Asia). MMFs represent a fifth of Luxembourg's investment funds and more than 25 percent of total European MMF assets under management.

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[1] Monetary financial institutions (MFIs) include credit institutions and other financial institutions receiving deposits and/or close substitutes for deposits from entities other than MFIs and, for their own account, to grant credit and/or invest in securities (the latter group consists predominantly of money market funds).

4. **Luxembourg's insurance industry is largely outward-oriented.** Most insurance and reinsurance companies are subsidiaries of key international players, particularly major European (re)insurance groups. Nondomestic premiums represent more than 90 percent of total premiums. Despite a large number of insurance companies, the industry is highly concentrated, with about 75 percent of total assets held by the top ten companies. Life insurance and reinsurance companies account for about 60 and 35 percent of total assets respectively (Figure 3).

5. **Luxembourg is also an international financial center for securities listing, and hosts systemically relevant market infrastructures**. The main participants on the Luxembourg Stock Exchange (LSE) include large international banks, brokers, and investment funds. Activity on the LSE is driven by primary issuance, as Luxembourg accounts for about 15 percent of total bonds issued globally. Luxembourg also hosts Clearstream Banking Luxembourg (CBL), one of the two largest international ICSD in the world, which has developed a strong position in international fixed income markets. A core part of CBL's services offering is the settlement of transactions in international securities and domestic securities traded across borders. CBL also manages, safe keeps, and administers securities on behalf of its customers (i.e., more than 1,200 financial institutions in about 110 countries), and has developed services for collateral management and investment funds. As large amounts of collateral are involved in these activities, the operational and financial soundness of CBL is of relevance to international financial stability.

Box 1. Luxembourg: Interconnectedness of Luxembourg's Financial System

Countries are financially interconnected through the asset and liability management strategies of their sovereigns, financial institutions, and corporations. Luxembourg has a large, highly interconnected and systemically-important financial sector that specializes in private banking and wealth management services, with a very strong presence of global banks and asset management firms.[1/]

Banking Sector. Luxembourg is ranked among the top ten financial centers in term of interconnectedness, as measured through various approaches. The cross-border exposures of Luxembourg's banks account for more than 70 percent of their total balance sheets, reflecting the predominance of interbank, and often intra-group, transactions, as local banks intermediate funds to parent groups—primarily in Germany, France, Italy, the United States, the United Kingdom, Spain, Netherlands and Belgium.

Cross-Border Exposures of Luxembourg Banks
(Percent of Total, As of Feb 2010)

Assets		Liabilities	
Luxembourg	22.0	Luxembourg	38.2
Germany	17.6	Germany	18.1
France	8.8	Switzerland	10.1
United Kingdom	6.6	France	3.2
Italy	6.0	United Kingdom	2.9
United States	3.9	Greece	1.9
Spain	3.6	Belgium	1.9
Belgium	3.6	United States	1.3
Netherlands	3.4	Italy	1.2
Switzerland	2.6	Netherlands	1.1
Singapore	2.1	Hong Kong	1.0
Others	19.8	Others	19.3

Source: CSSF

Investment Fund Sector. Luxembourg's investment fund industry is also very large and interconnected. It has established a well recognized brand name that provides cross-border investment opportunities for global investors, under the Undertakings for Collective Investments in Transferable Securities (UCITS) scheme regulated through an EU directive. Luxembourg-based UCITS are sold globally (75 percent in Europe and 15 percent in Asia) and invested worldwide (45 percent in the euro area)—as also reflected in the diverse origin of the parent companies that sponsor investment funds in Luxembourg. The investment funds domiciled in Luxembourg have strong balance sheet ties with global financial institutions: about half of their assets (€1 trillion) are invested in nonbank financial institutions (NBFIs), particularly other investment funds, while €350 billion are placed in MFIs and €320 billion in government securities. The majority of the investments in NBFIs are equity holdings, limiting the interconnectedness to NBFIs through non-equity funding. The potential balance sheet spillover from Luxembourg investment funds to European banks' funding conditions seems to be rather limited, as they hold a small share of cross-border deposits and debt securities issued by euro area MFIs. Luxembourg funds hold about €12 billion deposits in euro area banks, compared to €2 trillion total cross-border deposits in euro area MFIs, and hold less than €100 billion debt securities issued by euro area MFIs, compared to the total outstanding amount of about €5 trillion. As for exposures to government securities, a majority are with Germany, Italy, United States, and France. Exposures to GIIPS sovereign are about 20 percent of the total sovereign exposures, and most are with Italy.

Finally, balance sheet linkages between Luxembourg's investment fund industry and the rest of the *domestic* financial system are limited. Most are through cross-shareholdings between investment funds (over € 110 billion) and through bank deposit (€72 billion), representing about 9 percent of total bank balance sheets. From the banking system side, banks hold about €13 billion assets in investment funds, and provide depository and custodian services to investment funds.

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[1] International Monetary Fund, August 2010, *Integrating Stability Assessments Under the Financial Sector Assessment Program into Article IV Surveillance*, Washington D.C., and October 2010, *Understanding Financial Interconnectedness*, Washington D.C.

B. The Financial Crisis

6. **Luxembourg's financial sector was severely affected by the crisis** (Box 2). The subsidiaries of three Icelandic banks failed on contagion from their parent groups and were promptly subject to resolution procedures. Liquidity and solvency problems facing Fortis and Dexia also affected their Luxembourg-based affiliates and government support was provided by Belgium, France, the Netherlands and Luxembourg. In aggregate, bank balance sheets shrank by almost 15 percent in 2009 (essentially through interbank deleveraging). A few insurance companies exhibited serious problems, primarily reflecting high levels of intra-group concentrated risk exposures. The investment fund industry endured large outflows at the peak of the crisis, causing in particular a group of funds with significant exposures to structured products to suspend redemptions. At the same time, the impact of the crisis on domestic credit markets was muted, reflecting the dual nature of the financial system, as well as moderate household indebtedness and a resilient housing market.[2]

7. **The immediate policy response helped preserve financial stability during the crisis**. Aggressive monetary easing and emergency liquidity provision in the euro area proved critical to reduce financial market distress. In Luxembourg, decisive action was taken to quickly identify and address problems in the investment fund industry, and to support systemically important financial institutions under stress, including through the provision of large public support and a fivefold increase in the deposit guarantee. Overall, these interventions prevented contagion to the rest of the financial system, and risks to financial stability have receded since then, as illustrated by the absence of further bank failures.

8. **The crisis also uncovered a number of weaknesses in the prudential and resolution frameworks**. The crisis entailed the materialization of major liquidity and counterparty risks due to concentrated cross-border exposures vis-à-vis parent banking groups, reflecting the predominance of foreign bank subsidiaries in Luxembourg. Significant weaknesses in crisis response mechanisms were apparent, including with regard to cross-border risk detection and communication, and to international and interagency cooperation. The provision of public support to failing banks, while justified from a stability standpoint, entailed significant fiscal resources and moral hazard.

9. **In response, several financial sector reforms have been implemented or initiated**, reflecting both global and EU-level priorities and Luxembourg-specific risks. The authorities created a macro-financial stability unit in the BCL, and revised the framework for liquidity risk supervision, entrusting the BCL with enhanced monitoring of systemic liquidity and liquidity management by market operators,[3] while the CSSF issued new regulations on

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[2] Credit quality in retail portfolios stands relatively high despite the crisis, with loan impairment rates remaining below 1 percent.

[3] In particular, the BCL introduced daily liquidity reporting requirements and developed a battery of quantitative tools to support its on- and off-site assessments of liquidity risks

qualitative aspects of liquidity risk management, and sharpened the supervisory focus on banks' risk management practices and risk profiles. A revision of prudential regulations governing quantitative aspects of liquidity risk is pending until the issuance of a European Commission (EC) directive reflecting the new Basel III framework. Finally, the authorities prepared a completely new draft law to revamp the deposit guarantee scheme (DGS), but the new regime also awaits the finalization of EC proposals.

Box 2. Luxembourg: Resolution of Troubled Banks

Several financial institutions operating in Luxembourg failed during the recent financial crisis owing to contagion from their parent banks abroad, necessitating swift policy intervention. In all these cases, the transmission of financial distress to Luxembourg-based banks was exacerbated by liquidity and counterparty risks stemming from large intra-group exposures:

- The systemically-important banks Fortis and Dexia lost access to money and interbank markets due to solvency concerns, triggering concerted support by the governments of Belgium, France, the Netherlands, and Luxembourg through capital injections and debt guarantees. Unlike most other foreign bank subsidiaries in Luxembourg, these two banks' subsidiaries had large local retail operations. For the Luxembourg government, the cost of such support amounted to about 7 percent of GDP (which may be recovered with the sale of the associated government claims on the banks going forward).[1]
- In addition, the local subsidiaries of three Icelandic banks faced severe liquidity strains on contagion from their parent companies and were quickly placed under suspension of payments and subject to resolution procedures.

The resolution of the troubled institutions has proceeded as planned:

- The financial situation of the institutions that received public support has stabilized, allowing them to slowly improve their access to market funding. BNP Paribas acquired majority stakes in Fortis' Luxembourg subsidiary, BGL. This operation helped improve the funding and risk profiles of BGL, and the refocusing of BGL's businesses and the integration of its treasury and risk departments with central group management are underway. Dexia exited the government guarantee program earlier than anticipated and continues to implement its EU-approved restructuring plan. This plan provides, *inter alia*, for the winding down of noncore businesses and financial deleveraging. The authorities are closely monitoring these restructuring processes in cooperation with the home and other host-country supervisors.
- The liquidation or restructuring procedures applied to the subsidiaries of the Icelandic banks were ratified in court, and all deposits were reimbursed or transferred. One of the institutions was split in two entities: a bank that started activities in July 2009 and a special purpose vehicle (SPV) that is planned to be unwound over time. Interbank deposits were transferred to the SPV and will be redeemed as assets mature or are sold.
- Restructuring (including divesting from noncore activities and cleaning nonperforming assets) is also taking place in a few other institutions that underwent severe stress during the crisis, including the Luxembourg subsidiaries of German Landesbanken that suffered large investment portfolios losses related to their focus on investment banking activities.

1/ The governments of Belgium, France, the Netherlands and Luxembourg granted state support to Fortis and Dexia totaling €22.9 billion, of which €2.9 billion were provided by Luxembourg. The support packages also included emergency liquidity assistance and state guarantees on certain bank liabilities and impaired asset portfolios. These measures were accompanied with a number of conditions, including on liquidity ratios and restructuring plans. In one case, an initial government loan was converted into shares, so that shareholders' equity was diluted.

II. Stability Assessment

A. Financial Sector Soundness and Performance

10. **Indicators of financial sector soundness and performance appear generally favorable** (Table 4 and Figure 4). Average bank solvency ratios (Basel II regulatory capital-to-risk-weighted assets) are high at 19.5 percent,[4] and have recovered due to the contraction of bank balance sheets, capital injections, and the impact of Basel II implementation in 2008-2009.[5] Asset quality has also improved: non-performing large exposures declined from a peak of 0.8 percent of total large exposures in June 2009 to 0.2 percent at end-2010. Even though Luxembourg compares favorably to other European countries, ROA and ROE levels are still low compared to the strong performance recorded before the crisis.[6] A strong recovery has been registered in the investment fund industry: by end September 2010, total assets under management had increased to about €2.1 trillion assets, close to historical highs.

11. **Liquidity risk in the banking system continues to be a core concern owing to concentrated exposures with parent groups.** The liquidity position of Luxembourg banks appears strong by international standards: the aggregate liquidity ratio stands well above the minimum of 30 percent, and has been stable even during the crisis. As of mid-2010, it was about 64 percent on aggregate. Moreover, banks retain a significant proportion (about half) of their portfolios in liquid assets. Nonetheless, Luxembourg's banking system does incur serious liquidity risks, as illustrated during the crisis: in 2008, several banks faced sudden and large-scale liquidity pressures originating in their parent groups, highlighting the risks associated with large and concentrated balance sheet exposures to parent banks, combined with funding risks reflecting the quality of repoed collateral (e.g., sovereign assets).

12. **In the insurance sector, strong improvements in solvency and profitability have been posted since the crisis** (Figure 5). During the crisis, insurance companies suffered from portfolio losses and stagnant activity. However, the impact was less severe than that of the dotcom crisis and no major liquidity pressures (insurance contract cancellations) were observed. Solvency ratios indicate that, overall, the industry is adequately capitalized. Premium income has expanded rapidly since the crisis, including due to the relocation in

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[4] Over 85 percent of aggregate regulatory capital consists in Tier 1 capital (according to the Basel II definition). The aggregate Tier 1 solvency ratio stands at about 17 percent—higher than in comparator countries (Figure 4). Aggregate Tier 1 capital increased by 20 percent in 2009 (from €31.7 billion to €38 billion). About one third of this increase reflected the public recapitalization of the former local subsidiary of Fortis.

[5] In addition, enhanced supervision (including through stress testing) was implemented for the main banks involved in the domestic retail market, which led the CSSF to require capital add-ons above the Basel II minimum levels for four of these banks.

[6] In 2008, when global pressures were highest, Luxembourg's banks recorded strong net interest rate margins since they are net liquidity providers to parent banks.

Luxembourg of a major international insurance group, and profitability more than doubled in 2009. In line with forthcoming Solvency II standards, the industry has tightened both qualitative and quantitative requirements for technical provisioning and solvency.

B. Stress Tests

13. **Top-down sensitivity and macro-stress tests were implemented based on supervisory data by the authorities, and network analysis was used to assess bank vulnerabilities linked to both large and concentrated exposures, and funding sources.** Sensitivity tests focus on credit, interest rate, and equity price risks. Macro scenario-based stress tests cover a two-year horizon, with an adverse scenario assuming a global double-dip recession and further distress on sovereign exposures (Table 3). In addition, a network analysis framework was used to model the transmission of systemic credit and liquidity shocks through large and concentrated exposures and funding sources, in order to assess in particular the risks arising from Luxembourg's central role in intra-group cross-border financial transactions. These tests are applied to a sample of banks holding over 80 percent of the total assets in the system, and using data as of June 2010.

14. **Overall, stress test results lead to the following conclusions** (Table 4 and Figure 6):

- Luxembourg-based subsidiaries of foreign banks are vulnerable to distress in their parent banks, through both credit and funding exposures. The tests identify 19 counterparties, any one of whose failure could cause the failure of at least one bank in Luxembourg.
- However, interbank contagion risks *within* Luxembourg appear to be limited. Indeed, the failure of a local subsidiary would likely not directly cause that of other banks due to limited interbank balance sheet linkages in Luxembourg.[7]
- The overall banking sector has enough capital to withstand substantial losses from GIIPS sovereign securities; however, the exposures are concentrated in a small group of banks (about 10 percent of the system), which could become undercapitalized.
- Other risks, including market risks, appear fairly contained, including due to the limited size of trading book activities.[8]

15. **Stress test results indicate that the insurance sector can withstand a wide range of shocks** (Table 5). Several both top-down and bottom-up stress tests, including sensitivity tests for market, credit, and catastrophe risks, were applied to the balance sheets of all life and nonlife insurance companies.[9] The system appears resilient, reflecting improved risk

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[7] Of course, correlated defaults by several parent banks may cause multiple defaults in Luxembourg, but the role played by domestic contagion channels would be minor compared to contagion effects among parent banks.

[8] About 85 percent of the total capital requirement (actual) owes to covering credit risk, followed by operational risks (9 percent).

[9] The effect of prolonged low interest rates was not assessed.

management practices as well as high levels of technical provisions and capitalization. While marginal in aggregate, linkages between banks and insurance companies may have a significant impact for several smaller nonlife insurance companies: under the credit risk stress scenario (failure of the largest depository bank), ten small companies would record a solvency shortfall.

C. Summary Risk Assessment

16. **Luxembourg will remain subject to substantial macro-financial stability risks in the period ahead, with relevance to broader European financial markets** (Risk Assessment Matrix). The potential impact of adverse shocks is magnified by the size of Luxembourg's financial sector relative to its economy and its high degree of international interconnectedness. Key sources of risk in the banking and investment fund industries are detailed below.

17. **In the banking sector, key risks reflect large exposures to parent banks and to sovereign risk, as well as the lack of well-defined cross-border resolution framework**. As shown by the stress tests, solvency or liquidity pressures affecting large parent banks could have adverse impacts on their Luxembourg affiliates. Similarly, direct and indirect GIIPS sovereign exposures (i.e., including through parent banks, some of which are incorporated in vulnerable euro area countries) represent another key source of vulnerability. As the crisis illustrated, in case of failure of a large European bank with local presence, potentially large contingent fiscal liabilities may result from the lack of international burden-sharing mechanisms (see below) and the need for Luxembourg to contribute public support as part of a European-level rescue package. In contrast, the potential fiscal cost of domestically-active bank failures seems manageable: there are only a few such banks, and stress tests indicate that there is limited scope for interbank contagion within Luxembourg.

18. **In the investment fund sector, risks reflect primarily the systemic importance of Luxembourg as a European and global hub.** The likelihood of spillovers from investment funds to the domestic banking system may be small due to limited balance sheet exposures (Box 1), but as observed in other jurisdictions, sudden redemption pressures (e.g., on reputational concerns) may create liabilities for sponsoring banks.[10] More broadly, Luxembourg is a systemically-important hub for investment fund business in and out of Europe (about 60 percent of European investment funds distributed internationally are domiciled in Luxembourg). Such concentration of global activity in a single financial center, as well as on European UCITS, raises a number of risks. For instance, fraud events or a tarnishing of Europe's UCITS brand quality could affect global investor confidence in segments of the industry and in Luxembourg's funds in particular. In turn, a loss of

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[10] During the crisis, liquidity facilities from sponsoring banks were called upon in some cases, but overall, such spillovers were limited due in particular to: small direct exposures; regulatory safeguards (e.g., limits to bank credit to investment funds); and the operational nature of investment fund deposits with sponsoring banks.

confidence in Luxembourg's funds may trigger knock-on effects on other European financial systems (due to the close association between these funds and the whole European UCITS industry), and beyond given the global asset allocation of these funds.

19. **In the longer term, Basel III-related and other regulatory changes will represent challenges for Luxembourg's financial center**. While the impact of the Basel III capital requirements seems manageable given the current level and composition of banks' own funds,[11] forthcoming Basel III liquidity regulations could have a material impact. Changes in capital and liquidity requirements in the banking and insurance industries should also have repercussions for global investment fund activities and thus for Luxembourg.[12] Going forward, the international role of Luxembourg in this sector will be impacted by ongoing reforms to taxation, bank secrecy and investment fund regulation, in other countries and at the EU level.[13] However, it is difficult at this stage to determine in which direction Luxembourg's financial center will evolve as a result of these combined changes, as in the past it has shown a strong capacity to adapt and maintain comparative advantages as a global hub for global investment fund domiciliation.

[11] Preliminary estimates from the CSSF indicate that the common equity Tier 1 capital ratio qualifying for Basel III was above 14 percent for the system as of June 2010, compared to a current Tier 1 ratio of about 17 percent. Under conservative assumptions, up to €1.3 billion of additional common equity (i.e., about 3 percent of current aggregate Tier 1 capital) would be needed on total by 16 smaller banks in order to achieve compliance with the Basel III requirement. A full impact study is expected in late 2011.

[12] For instance, the Basel III-related liquidity coverage ratio that banks will have to comply with could negatively impact the MMF industry. MMFs may also be subject to stricter prudential rules going forward.

[13] For instance, the UCITS IV European Directive will increase competitive pressure from other "management" centers in Europe, and the AIFM Directive will increase pressure from other "domiciliation" centers in Europe.

RISK ASSESSMENT MATRIX

Overall Level of Concern		
Main Sources of Risks	**Likelihood (Over Next Three Years)**	**Impact on Macro-Financial Stability**
Failures of parent banks	*Medium* While global macro-economy and financial stability are recovering, significant amount of risks remain in the system. If a global adverse scenario materializes, major global and European financial institutions (parent banks of Luxembourg branches or subsidiaries) could face severe stress.	*High* Most banks in Luxembourg are subsidiaries or branches of major European banks, and are exposed to parent banks through large intra-group positions and reputation effects. As such, the failure of a parent bank would likely lead to that of its Luxembourg affiliates. In the absence of sufficient information exchanges and burden-sharing arrangements with home country counterparts, the authorities may not appropriately assess and address risks in the banking system. Weak crisis management may result in inefficient and costly resolution. The financial sector is extremely large relative to the economy. Resolution costs beyond those covered in the deposit insurance scheme may entail large contingent fiscal liabilities.
Global macroeconomic and financial distress (e.g. double dip recession)	*Medium* Despite the global macro-economy recovery, risks and uncertainties remain high. Relatively small macro and/or financial shocks (e.g., in sovereign markets) could develop into a global double-dip recession reflecting adverse macro-financial feedback loops.	*Medium/High(if severe stress on parent bank)* As long as there is no major failure of relevant parent banks, banks in Luxembourg generally have strong capital buffer to weather severe macroeconomic shocks that cause losses from credit and securities portfolios. If severe stress affects parent banks, liquidity pressures on local subsidiaries could quickly materialize due to the sizable and concentrated intra-group exposures and reputational effects.
Sovereign distress (e.g., in Europe)	*High* Sovereign distress in countries with weak fundamentals and debt-sustainability problems (e.g., GIIPS) is a key risk. It could be aggravated by contagion (e.g., across Europe), through both renewed pressures in global or regional credit and equity markets, and	*High* Non-negligible number and share of banks could face severe stress through direct losses from GIIPS securities. These exposures represent about half of Luxembourg's aggregate bank capital (most of them are in hold-to-maturity account).

Overall Level of Concern		
Main Sources of Risks	**Likelihood (Over Next Three Years)**	**Impact on Macro-Financial Stability**
	balance sheet effects, particularly for the banking groups incorporated in or have large exposures to countries affected.	In addition, subsidiaries would also face losses through indirect exposures, i.e., solvency and liquidity pressures affecting their parent groups. The extent of such effect is hard to assess without close examination of group-wide risks.
Loss of confidence in investment fund industry	*Low/Medium* Damage to Luxembourg's funds' brand owing to negative reputational effects from large global investment fund failures. Renewed turbulence in bond markets (e.g., reflecting the materialization of sovereign risks), and in asset markets more broadly, leading to large scale fund redemptions. The low exposure of Luxembourg-domiciled funds to GIIPS bonds and to asset-backed securities markets limits the likelihood for having strong redemption pressures through direct losses from these markets.	*Medium(domestic)/High(global)* Major damage to Luxembourg's fund industry could affect the European UCITS brand in general, owing to their close reputational association, and lead to contagion to other European countries' investment fund industries. Major runs on funds could depress asset market prices and create an explicit or implicit need for sponsor banks to provide liquidity—despite existing regulatory limits on such liquidity provision. Linkages to domestic banks seem limited. Direct impact on bank funding in Europe through fire sales of assets by Luxembourg's MMFs appears to be limited.
Potentially adverse impact of ongoing regulatory reforms	*Low/Medium* The calibration of the new prudential regulatory regime is critical for Luxembourg, even though implementation will be gradual. A range of regulatory changes (including through EU directives), both in the near and longer term, will have impact on Luxembourg's investment fund industry.	*High* A strong tightening of prudential regulations on liquidity, particularly regarding interbank and intra-group exposures, could disproportionately affect Luxembourg banks and impair the financial center's cross-border activities. Some of Luxembourg's comparative advantages as a financial center for cross-border transactions (including both banking and investment fund industries) may be eroded as reforms to the international taxation and bank secrecy regimes progress. In particular, the near-term formulation of EU directives on investment funds could potentially have a critical impact on the industry.

III. Financial Sector Oversight

A. Banking Sector

20. **Overall, Luxembourg's observance of international standards for banking sector oversight (Basel Core Principles) is high (Appendix).** The CSSF is the competent authority for prudential supervision of banks and a range of other financial institutions, including investment funds, securities markets and their operators, and payment institutions. Basel II and IFRS standards have been fully implemented. As noted, following the crisis, the CSSF has increased its supervisory and analytical capacities and focus on on-site work, upgraded liquidity requirements, and required prudential adjustments from banks.[14]

21. **Nonetheless, there is a need to better guarantee the operational independence of the CSSF, and to clarify its supervisory cooperation with the BCL.** The current legal framework does not sufficiently guarantee the full operational independence of the CSSF: the CSSF is placed under the direct authority of the Minister; its missions include the "orderly expansion" of Luxembourg's financial center; its general policy and budget are decided by a Board whose members are all appointed by the government upon proposals from supervised entities and the Minister; its executives are appointed by the government and can be dismissed in cases of disagreement about policy or execution of the CSSF's remit; and its statute confines the executives' role to elaborating measures and taking decisions required to accomplish its missions. Also, supervisory cooperation may be impeded by unclear segregation of duties between the CSSF and BCL. Such cooperation is mandated on matters relating to payment systems, financial stability and liquidity supervision. While cooperation seems to work in practice, there is scope to clarify the legal framework in order to avoid overlaps and jurisdictional uncertainties that may become critical in crisis circumstances.[15]

22. **In practice, the CSSF's oversight procedures and remedial actions should be made more expeditious and effective.** First, there appears to be a heavy reliance on moral suasion, and a certain reluctance to use formal remedial powers, including sanctions. This is a concern in particular given the potential conflict between the need for managers of local subsidiaries of foreign-owned groups to exercise their fiduciary responsibilities and demands from the parent group, especially given the large-scale related party exposures. Moreover, reports of on-site inspections are sometimes delayed in their presentation to institution management and follow-up is not always timely. This seems to reflect two main factors: the modest number of on-site inspectors relative to the large number of institutions (including non banks), and the CSSF's internal review and decision-making processes. There is also evidence that required corrective actions may not always be forceful enough. Going forward

[14] Qualitative requirements are now in place, and intra-group transactions that result in unsound maturity or currency transformation or entail substantial counterparty risks have been prohibited (including loans to peripheral group entities which, in extreme situations, may lose the support of the parent company).

[15] The BCL has responsibilities for supervising systemic market liquidity and evaluating individual institutions' liquidity situation. The CSSF conducts liquidity risk supervision as a part of its prudential responsibilities.

the authorities might consider the option of establishing a "ladder" of remedial actions and related triggers, which would provide flexibility and help reduce reliance on moral suasion.

23. **Given contagion risks from home jurisdictions, the authorities should continue to closely monitor exposures to parent banks and be ready to take further action to limit them when necessary.** As noted, local subsidiaries are closely interconnected with their parent banks and highly vulnerable to cross-border contagion—often operating de facto as if they were branches. The CSSF acknowledges this risk and has tried to mitigate it, while still permitting central liquidity management by parent institutions. It would be unrealistic to expect the CSSF to fully insulate local subsidiaries against such a risk, and it is important that the authorities continue to take swift action when necessary to address unsound exposures to parent banks, including through formal sanctions. In this context, further progress in strengthening home-host supervisory collaboration is also crucial to allow the CSSF to better anticipate cross-border sources of financial instability. The CSSF's active participation in colleges of supervisors existing for many of the banking groups active in Luxembourg is welcome and should continue.

B. Investment Funds Sector

24. **The regulatory framework for investment fund supervision in Luxembourg is largely compliant with IOSCO principles (Appendix).** As noted, the CSSF is the competent authority responsible for the prudential supervision of the investment fund industry, and it approves and registers Luxembourg-based UCI(TS) on the CSSF's official list.[16] The current regulatory framework closely transposes the relevant European directives, but with a degree of flexibility that constitutes a comparative advantage for Luxembourg in attracting European and global investment fund operators.

25. **Until recently, the CSSF's structure and procedures tended to make it too reactive to supervisory issues and challenges.** Typically, investment funds domiciled in Luxembourg are administered by a Luxembourg-based operator, and the investment management functions are largely (if not fully) delegated abroad. This led the CSSF to adopt a structure that focuses on the supervision of fund administration and relies predominantly on ex-post review of reports. Recently, increasing staff resources have been dedicated to investment fund supervision, and the CSSF has initiated a more pro-active supervisory approach by performing routine or specific on-site inspections and/or addressing questions to funds or their operators. These efforts should be further intensified, including through additional increases in expert staffing.

[16] UCI(TS) is an abbreviation for both UCITS and UCI funds (the latter may invest in assets other than transferable securities). About 75 percent of Luxembourg-based investment funds are UCITS funds, i.e., funds which comply with the UCITS Directive. While UCI(TS) head offices (i.e., central administration) must be located in Luxembourg, in practice, Luxembourg's UCI(TS) overwhelmingly outsource the tasks related to central administration to external service providers based in Luxembourg. The custody of UCI(TS) assets must also be entrusted to a depositary established in Luxembourg.

26. **Going forward, priority reforms should be pursued in order to strengthen the CSSF's capacity to safeguard investor protection and financial stability.** These include: addressing the lack of operational independence of the CSSF (see above); intensifying the recent efforts towards a more effective and expeditious enforcement of rules; and strengthening investor protection rules. In particular, an operationally independent CSSF could aim at a more effective use of its enforcement powers and should, as a matter of priority, increase further its ex-ante supervision to deter and sanction significant breaches to the rules. In order to better comply with investor protection and financial stability objectives, the rules regarding segregation and protection of client assets also deserve to be clarified and strengthened, and fund ownership rights should be clearer.

27. **Given the cross-border nature of Luxembourg's investment fund industry, the CSSF should remain proactive in cooperating with foreign counterparts and implementing EU-level rules.**[17] Some key functions, including risk management-related, are often delegated to external parties, and other foreign regulators have to rely on investment fund oversight by the CSSF in Luxembourg. In recent years, Luxembourg's law has imposed minimum requirements regarding risk management practices by UCITS. Luxembourg has moved forward in transposing the new UCITS IV Directive, which provides detailed guidelines regarding risk management and is expected to lead to a high level of harmonization of such rules across the EU.[18]

C. Insurance Sector

28. **The Commissariat aux Assurances (CAA) is the competent authority for prudential supervision in the insurance sector**, under the direct authority of the Minister in charge of the financial sector. By law, the licensing and de-licensing of insurance intermediaries is the responsibility of that same Minister (Minister of Treasury), based on CAA recommendations. Similar to other sectors, the role of the Minister in operational tasks of the supervisor introduces a potential weakness in the operational independence of the CAA.

29. **The supervisory approaches applied by the CAA have been enhanced.** In line with the 2001 FSAP recommendations, the CAA almost doubled its staff and has been performing stress testing on an ongoing basis. Its cooperation with domestic and foreign supervisory agencies has also intensified. Going forward, the CAA plans to introduce a quarterly solvency statement for all supervised entities (from the fourth quarter 2010 onwards) and is developing a framework for risk-based supervision consistent with Solvency

[17] The CSSF is signatory to the CESR Multilateral Memorandum of Understanding on the Exchange of Information and Surveillance of Securities Activities; the IOSCO Multilateral Memorandum of Understanding concerning Consultation and Cooperation and the Exchange of Information; and Memoranda of Understanding with a number of supervisory authorities that organize the cross-border cooperation on prudential matters.

[18] UCITS IV, including all its detailed measures, is to be implemented in all EU member countries by June 30, 2011. Luxembourg is likely to be amongst the first countries to do so.

II (to be implemented from 2011 onwards). With respect to cross-border groups, supervision is carried out within supervisory colleges comprising representatives of all insurance supervisors concerned and chaired by a lead supervisor.

D. Securities Markets

30. **There are currently two markets operated in Luxembourg by the same operator, Société de la Bourse de Luxembourg (SBL):** the LSE and a multilateral trading facility (Euro MTF). The establishment of a regulated market in Luxembourg is subject to a written authorization from the Minister responsible for the CSSF. The organization and operations of regulated markets are supervised by the CSSF. The operation of the MTF is part of the investment services and activities defined in the law. The LSE reports on a daily basis and on all transactions to the CSSF which, as the Luxembourg securities markets regulator, performs market surveillance and enforcement.

31. **In order to ensure the continuity of Luxembourg's ICSD, it will be important to strengthen cooperation between its oversight authorities and to improve their contingency planning**. Luxembourg's ICSD, CBL, is a core market infrastructure, supervised by both the CSSF (as a licensed credit institution) and the BCL (as an operator of a system defined in the November 2009 payments law). While supervision is undertaken by dedicated teams on the basis of clear and comprehensive procedures, increased resources and skills are needed to perform more risk-focused inspections and shorten the period needed to complete assessments. In addition, a more formal framework detailing the respective roles and tasks of the BCL and CSSF would help reduce uncertainty and potential overlap between them, and facilitate crisis management. A formal supervisory arrangement with the Belgium authorities should also be established. Finally, the authorities should complete contingency plans in case of CBL's default, including arrangements to move participants' positions to a solvent intermediary and to continue core functions.

E. AML-CFT

32. **The Financial Action Task Force (FATF) recently assessed that Luxembourg has largely addressed the major shortcomings identified in its AML/CFT framework.** In its February 2010 mutual evaluation report on Luxembourg, the FATF had identified numerous shortcomings, judging that overall, Luxembourg's AML/CFT efforts were not proportional to the risks associated with its role as a key international financial center.[19] As a result, Luxembourg was placed under enhanced scrutiny by the FATF's International Cooperation Review Group (ICRG). Since then, the authorities implemented a speedy remedial action

[19] For instance, as regards financial institutions: preventative measures were found to be inadequate; regulatory shortcomings were identified in the areas of customer due diligence, correspondent banking, suspicious transaction reporting and internal controls; supervisory authorities conducted few on-site AML/CFT inspections; the sanctions regime was inadequate; the registration system for legal persons did not provide beneficial owner information; no steps had been taken to prevent the illicit use of bearer shares; and international cooperation was constrained by gaps in the criminalization of ML/FT.

plan, including the adoption of AML/CFT legislation addressing deficiencies in financial and nonfinancial sector areas, and increased supervisory actions in the financial sector. At its latest plenary meeting, the FATF noted that authorities have responded rapidly and agreed to remove Luxembourg from the ICRG process although the effectiveness of these newly implemented measures has not yet been ascertained. Luxembourg will continue to provide updates on its progress as part of the regular FATF follow-up process for assessed members..

IV. CRISIS PREPAREDNESS AND SAFETY NETS

33. **The crisis management framework needs to be improved to limit macro-financial risks**. Given the small size of the economy compared to its financial sector, Luxembourg has very little capacity to bear large resolution costs without jeopardizing its macroeconomic stability. Overall, crisis prevention could be enhanced by setting up institutional arrangements for macro-prudential oversight, for earlier intervention and resolution, and for more effective depositor protection. Effective macro-prudential oversight, in particular, should allocate a consistent set of policy objectives, functions, instruments, and powers across all agencies involved in such a task. Each supervisor would be charged with initiating corrective actions well before financial institutions undergo distress (e.g., based on rules and on a stringent set of supervisory criteria), building an industry database to allow for the identification of macro-prudential risks, and communicating a macro prudential opinion to the entity in charge of macro-prudential supervision for appropriate follow up.

A. Cross-Border Challenges

34. **The dependence of Luxembourg's financial system on foreign parent banks is central to assessing its crisis preparedness**. Experience with the resolution of Fortis and Dexia was relatively successful but costly, and involved ad hoc decision-making among several countries. The authorities had to react promptly by passing a law authorizing the government to raise public funds for extra-budgetary expenditures in order to preserve financial stability. Going forward, more formal or institutionalized crisis preparedness mechanisms should aim to improve international coordination and reduce potential fiscal pressures. Importantly, the effectiveness of the work of supervisory colleges is crucial in allowing the authorities to have a fuller ex ante assessment of potential risks stemming from cross-border financial institutions, and be prepared for early intervention and resolution.

35. **Large uncertainties remain as to how a cross-border insolvency scenario would be handled.** The absence of a unified insolvency and resolution framework for cross-border banking groups leaves unclear the legal treatment of the (large-scale) liquidity transfers through which Luxembourg-based subsidiaries provide unsecured funding to parent companies. The mission recommends that the authorities continue to play a role in promoting gradual moves towards an enhanced coordination framework for the resolution of cross-

border banks.[20] At its level, Luxembourg has also put in place a number of mechanisms to facilitate cross-border resolution,[21] and these could be enhanced, for example through the introduction of mechanisms for mutual recognition of insolvency or reorganization measures.

B. Domestic Bank Resolution Framework

36. **The current framework for bank resolution could be strengthened in several respects.**[22] The intervention should be triggered at an earlier stage than currently contemplated under the suspension of payment proceeding (e.g., based on graduated and objective quantitative thresholds, such as capital ratios). In addition, suspension of payment could be de-linked from the appointment of an administrator, allowing the authorities to take control of the institution on a going concern basis. Also, as is widely recognized, a fully-fledged specific regime for bank resolution would be more appropriate than the current reliance on bankruptcy provisions for commercial enterprises. Finally, the supervisor should be more closely involved also in the liquidation phase, in order to inform the judicial process and ensure that the disposal of the assets and liabilities of failed institutions is consistent with the objective of preserving financial stability.

37. **The multipartite high-level group for financial stability and crisis preparedness purposes should be revamped and formalized.** This framework, led by the MoF and including the BCL, CSSF, CAA, and the reformed deposit insurance scheme (or the two-part financial stability fund, if and when it is introduced),[23] should feature institutional arrangements and procedures for interagency cooperation and information sharing, define the roles and responsibilities of each agency, and develop strategies to deal with potential crises. Such a standing group would facilitate crisis prevention and decisive, quick and early interventions whenever necessary, with closer lines of communication among all the agencies involved than those in place during the recent crisis. It should meet regularly to assess

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[20] See for instance *Resolution of Cross-Border Banks—A Proposed Framework for Enhanced Coordination*, IMF, June 2010, and *Cooperation agreement on cross-border financial stability, crisis management and resolution between relevant Ministries, Central Banks and Financial Supervisory Authorities of Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway and Sweden*, August 17, 2010.

[21] In particular, Luxembourg branches of non-EU credit institutions are subject to the resolution procedures applied in their home jurisdiction; the possibility that foreign liquidators appoint local representatives is envisaged; and, a comprehensive set of provisions seems to protect adequately the interest of foreign creditors, by providing for their notification and the lodgment of their claims in Luxembourg.

[22] The Law of April 5, 1993 provides for a two-step process to address failing banks: (i) a suspension of all payments due by the ailing bank, activated by the CSSF or by the bank itself, while one or more administrators are appointed by court and only protective or precautionary acts can be adopted; and (ii) if the bank's viability is not restored, a winding-up judicial proceeding is initiated upon demand by the CSSF or the public prosecutor, with the appointment by the court of an official receiver and one or more liquidators.

[23] The two-part financial stability fund would include the revamped, prefunded system of depositor protection and a bank resolution fund that would conform to the EU proposal for such funds.

systemic risks and to review plans to address them.[24] For crisis management, useful reference can be drawn from the procedures currently in place at the BCL, which assign responsibilities, set rules for proceeding, and provide contact information.

C. Safety Net

38. **The recently-prepared draft revision of the DGS law is a significant improvement on the existing system, but still falls short of international best practices.** While during the crisis the current DGS allowed for full repayment of failing banks' insured deposits at no fiscal cost, payouts were delayed due to procedural inefficiencies. In addition, the current framework does not allow for the use of DGS funds to assist in bank restructuring; banks are encouraged but not required to build provisions (called AGDL reserves) to cover payouts to depositors in failed banks; and there are neither ex-ante funding mechanisms nor contingent financing alternatives. The MoF's draft deposit insurance law increases coverage, speeds payouts to 20 days, allows for risk-based ex-ante funding,[25] and provides the deposit guarantee fund with backup sources of liquidity. The mission recommended a number of additional changes that would bring the new framework closer to current EU proposals and international good practices.[26] While the authorities are waiting to revise the draft law to conform with forthcoming EU requirements, consideration should be given to introducing promptly those changes which do not require legal amendments or are not precluded by existing laws.

39. **Revamping the DGS will be critical to limit fiscal contingencies going forward.** Insured deposits represent only about 3.5 percent of aggregated bank balance sheets, but still add up to 70 percent of GDP. While available AGDL reserves may suffice to cover the simultaneous failure of several small banks, there are eight banks in the system with insured deposits exceeding the current level of AGDL reserves, and overall, staff estimates that total fiscal contingencies associated with the current DGS under an extreme adverse scenario could amount to 7.5 percent of GDP. The risk-based target of 1.9 percent of covered deposits in the draft law is preferable to the current system that obtains funds only ex post, and would represent significant progress in limiting potential fiscal liabilities. Moreover, implementation of the new forthcoming European regime will further improve DGS coverage and adequacy. Finally, the DGS would have the right to call on additional bank

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[24] This may take place in the context of the arrangements for macro-prudential oversight described above, to ensure that there is no overlapping or inconsistency in the performance of regulatory and supervisory functions.

[25] The draft law specifies that the risk-based system is to be determined by CSSF regulation and should be based on the member bank's capital adequacy, financial leverage ratio, asset quality, profitability, and liquidity.

[26] In particular, the mission advised to: (i) end the dominance of bankers on the DGS board; (ii) require banks to maintain the " single customer view" on each customer's covered deposits; (iii) secure automatic payouts within seven days; (iv) end set-off; and (v) reduce the number of types of deposits excluded from the DGS coverage.

funds ex post, which would give banks (rather than government) first responsibility for depositor repayments.[27]

40. **Given potentially large liabilities from emergency liquidity assistance (ELA) to Luxembourg-based banks, safeguarding the BCL's capital remains important.** The BCL, like other national central banks in the euro area, bears the potential financial costs arising from its ELA provision. Given the exceptionally large size of the local banking system, such costs may threaten the capital position of the BCL. In response, the BCL has established a special privilege over all assets held in Luxembourg by a debtor for claims arising from operations in the context of monetary or exchange policies, as well as ELA. Going forward, the conditions under which this lien would be exercised need to be clarified, for example as relates to its triggers, scope, and articulation with bank insolvency procedures. Such clarification should also aim to address potential unintended consequences on bank resolution. Finally, other means to protect the central bank against potential ELA-related losses may also be considered (e.g., enhanced collateral requirements).

[27] Deposit insurance funds have not, until now, been designed to refund insured deposits in very large banks. In recognition of this fact, the EU is now proposing to create bank resolution funds, and the BCL has prepared a proposal for a BRF in Luxembourg.

Table 1. Luxembourg: Structure of the Financial System

	2008	2009	2010 1/
Number			
Banks	**152**	**149**	**149**
Domestic-majority owned	5	5	5
Foreign-majority owned	106	105	105
Branches of foreign banks	41	39	39
Insurance companies	**357**	**348**	**347**
Life	53	53	53
Mixed	3	3	3
Nonlife	40	41	41
Reinsurance	261	251	250
Collective investment institutions 2/	**3,371**	**3,463**	**3,582**
	(12,352)	(12,232)	(12,685)
Financial holding corporations	2	2	2
Securities dealers 3/	11	11	11
Real estate investment funds with fixed capital 2/	4	6	4
	(7)	(9)	(7)
Private closed end equity funds 4/	-	-	-
Financial System Assets			
			(Billions of Euro)
Banks	**929.5**	**792.3**	**810.4**
o/w large banks	699.0	537.4	585.9
o/w foreign-majority owned	715.0	615.3	617.1
o/w domestic-majority owned	44.3	45.1	49.2
o/w foreign branches	170.1	131.9	144.1
Insurance companies	**104.8**	**137.4**	**n.a.**
Life	60.0	79.4	n.a.
Nonlife	8.2	8.1	n.a.
Reinsurance	36.6	49.9	n.a.
Collective investment institutions	**1,559.7**	**1,841.0**	**2,019.2**
Financial holding corporations	24.7	24.9	29.5
Securities dealers 3/	0.2	0.4	0.5
Real estate investment funds with fixed capital	0.9	0.8	0.9
			(Percent of Total Financial Assets)
Banks	35.8	28.6	n.a.
Insurance companies	4.0	5.0	n.a.
Collective investment institutions	60.1	66.4	n.a.
			(Percent of GDP)
Banks	2,344.8	2,082.4	2,130.0
Insurance companies	264.5	361.3	n.a.
Collective investment institutions	3,934.7	4,839.0	5,307.4
Memorandum item:			
Nominal GDP (Billions of euro)	39.6	38.0	n.a.
Contribution of the Financial Services Sector to the Economy			
Share in income (in percent of total at constant prices)	…	50.8	…
Share in value added (in percent of total at constant prices)	…	25.0	…
Share in employment	…	12.5	…
Size of capital markets in percent of GDP			
Market value of bonds issued	15,331	16,174	…
Market capitalization of equities	723	743	…

Sources: CSSF, CAA, STATEC, Luxembourg Stock Exchange, World Federation of Exchange
1/ Data as of July 31, 2010
2/ The first number corresponds to the number of fund entities, w hereas the number in brackets corresponds to the total number of units (w hich is the total number of sub-funds)
3/ Professionals acting for their ow n account (Art 24-4 LFS)

Table 2. Luxembourg: Financial Soundness Indicators for the Banking Sector[1/]

(percent)

	2005	2006	2007	2008	2009		2010	
	Dec	Dec	Dec	Dec	Jun	Dec	Jun	Dec
Regulatory capital to risk-weighted assets	15.5	15.3	14.3	15.4	17.1	18.9	18.0	17.0
Regulatory Tier 1 capital to risk-weighted assets	12.9	12.7	12.2	13.0	14.8	17.0	16.0	15.0
Capital to assets	4.0	4.0	4.0	4.0	5.0	5.5	5.0	5.0
Return on assets	0.7	0.9	0.8	0.2	0.7	0.6	0.7	0.7
Return on equity	17.0	22.1	20.4	5.5	14.4	11.6	13.0	13.0
Interest margin to gross income	25.1	26.2	27.0	37.7	37.7	36.5	29.0	31.0
Trading income to total income	5.6	4.9	1.9	-8.9	6.4	6.0	1.0	-1.0
Non-interest expenses to gross income	54.0	48.4	50.5	56.2	56.0	56.3	61.0	64.0
Personnel expenses to non-interest expenses	38.0	38.7	37.9	35.7	40.0	38.7	41.0	36.0
Residential real estate loans to total loans	1.8	2.0	2.1	2.2	2.5	2.8	3.0	3.0
Household debt to GDP 2/	40.0	40.0	44.0	45.0	48.0	50.0	52.0	54.0
Non-performing large exposures to total large exposures 3/	0.2	0.1	0.4	0.6	0.8	0.7	0.6	0.2
Sectoral distribution of loans (in percent of total loans)								
residents	19.7	18.4	22.5	26.6	26.4	23.4	27.0	22.0
deposit takers	12.4	10.2	11.7	10.7	12.6	9.8	8.0	7.0
central bank	1.0	1.6	1.5	6.4	2.7	2.3	6.0	2.0
other financial corporations	2.6	2.5	4.7	4.2	5.0	4.8	6.0	6.0
general government	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5
nonfinancial corporations	1.3	1.0	1.8	2.4	2.6	2.6	2.0	2.0
other domestic sectors	2.2	2.4	2.5	2.6	3.0	3.4	3.0	4.0
non-residents	80.3	81.6	77.5	73.4	74.0	77.0	73.0	78.0
Liquid assets to total assets	53.3	52.0	50.0	59.0	56.0	55.9	54.0	56.0
Liquid assets to short-term liabilities	64.3	63.0	61.0	67.8	63.6	64.7	64.0	66.0
Customer deposits to total (non-interbank) loans	189.0	196.0	165.0	134.7	139.6	137.5	120.0	131.0
Foreign currency denominated loans to total loans	41.4	42.3	34.5	30.2	28.7	28.0	29.0	30.0
Foreign currency denominated liabilities to total liabilities	37.5	37.5	33.8	29.1	28.6	28.8	32.0	33.0
Net open foreign exchange to capital	-7.8	-14.0	3.1	1.6	-0.4	-0.6	0.2	0.3

Source: BCL

1/IAS/IFRS introduction in 2008. New capital requirements under Basel II were gradually implemented during 2008-09 periods and contributed to the improvement of solvency ratio.

2/ GDP of 2009Q3 is used for 2009 and 2010 data.

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

Table 3. Luxembourg: Selected Economies: Macro Stress Testing, Macroeconomic Assumptions

	Baseline (WEO October 2010)								Adverse (WEO baseline with CEBS deviation) 1/							
	Real GDP growth rate		Unemployment		Short-term rate		Long-term rate		Real GDP growth rate		Unemployment		Short-term rate		Long-term rate	
	In percent								In percent							
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Luxembourg	2.39	3.13	5.68	5.49	0.94	1.21	4.07	4.20	1.19	0.53	5.68	5.49	1.84	2.41	4.87	5.50
Belgium	1.16	2.01	8.57	8.40	0.90	1.17	3.87	3.96	0.26	-0.09	8.57	9.20	1.80	2.37	4.67	5.16
France	1.71	1.71	9.80	9.61	0.90	1.17	3.28	3.37	1.21	0.11	9.80	10.11	1.80	2.37	3.78	4.37
Germany	3.30	1.73	7.10	7.06	0.90	1.17	2.94	3.03	2.30	-0.57	7.10	7.46	1.80	2.37	3.44	3.93
Greece 2/	-4.37	-0.06	13.19	14.71	3.32	3.26	8.76	9.11	-4.87	-1.76	13.29	15.41	4.22	4.46	13.76	16.71
Ireland	0.04	3.43	13.25	12.50	1.40	1.67	5.25	5.00	-0.66	1.83	13.35	13.00	2.30	2.87	6.85	7.40
Italy	1.07	1.22	8.65	8.45	0.35	0.63	4.15	4.22	0.07	-0.48	8.75	9.05	1.25	1.83	5.15	5.82
Portugal	-0.10	0.59	10.80	11.21	3.31	3.20	5.20	5.66	-0.90	-1.91	11.00	12.11	4.21	4.40	7.50	9.06
Spain	0.16	1.49	19.60	18.65	0.90	1.17	4.54	4.41	-0.64	-0.71	19.90	19.75	1.80	2.37	5.94	6.51
Euro Area	1.72	1.72	10.06	9.85	0.95	1.21	…	…	0.82	-0.38	10.16	10.45	1.85	2.41	...	...
United Kingdom	2.50	2.00	7.63	6.97	0.84	1.32	3.63	3.81	1.70	0.20	8.03	7.77	1.74	2.52	4.33	4.81
United States	2.30	2.84	9.66	9.22	0.21	0.80	3.90	4.89	1.60	1.44	9.86	10.12	0.21	0.80	4.60	5.89

Source: IMF staff calculation

1/ Adverse scenario is generated by applying the difference between baseline and adverse scenario in 2010 CEBS stress testing exercise to October 2010 WEO projection. In terms of 2-year cumulative real GDP growth rate, the shock in adverse scenario roughly corresponds to 1 standard deviation shock (using 1980-2009 history). Using empirical distribution of real GDP growth rate for 1980-2009 period, the baseline scenario puts euro area countries above 20 percentiles, and the adverse scenario puts euro area countries below 10 percentiles on average.

2/ Baseline projection is adjusted reflecting the actual market data for government bond yields. WEO baseline reflect overall financing cost for the governments, which reflect lower rates carried by EU and IMF funds.

Table 4. Luxembourg: Summary of Macro Stress Testing for the Banking Sector

		All banks 1/			All banks 1/		Sub-groups 1/								
		Act. 2/	Adverse		Adverse w/o profit		Act. 2/	Adverse		Act. 2/	Adverse		Act. 2/	Adverse	
		All					Euro area banks			Noneuro area EU			Rest of the world		
	Unit	2010	2011	2012	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Solvency ratio 3/	CAR in percent	19.4	18.5	16.7	16.8	13.7	18.9	17.2	15.4	17.1	16.3	15.1	26.0	27.6	27.8
Dispersion of solvency ratio (in percent) 3/															
<0	Number of banks	0	1	3	1	3	0	1	3	0	0	0	0	0	0
0-8		0	2	4	5	13	0	2	4	0	0	0	0	0	0
8-12		17	18	17	21	26	12	13	12	2	3	3	3	2	2
12-16		21	21	21	23	13	12	11	10	4	4	5	5	6	6
16-20		13	9	8	5	5	10	8	7	2	1	0	1	0	1
>20		57	57	55	53	48	31	30	29	8	8	8	18	19	18
<0	Assets of banks/total assets in percent	0.0	3.3	5.0	3.3	5.0	0.0	3.3	5.0	0.0	0.0	0.0	0.0	0.0	0.0
0-8		0.0	1.7	5.6	6.0	15.0	0.0	1.7	5.6	0.0	0.0	0.0	0.0	0.0	0.0
8-12		23.0	26.1	25.5	27.2	40.0	22.1	24.0	23.4	0.3	1.7	1.7	0.5	0.5	0.5
12-16		32.6	24.2	24.0	40.4	22.8	28.8	21.1	20.8	2.4	1.5	1.5	1.4	1.6	1.6
16-20		18.5	22.5	22.7	1.4	2.7	17.8	22.5	22.6	0.5	0.0	0.0	0.2	0.0	0.0
>20		25.9	22.1	17.2	21.6	14.5	21.5	17.6	12.7	1.0	1.0	1.0	3.4	3.5	3.4
Quantiles of solvency ratio 3/															
Max	CAR in percent	482.9	464.2	449.4	462.0	445.5	128.2	126.9	120.6	41.4	39.6	37.4	482.9	464.2	449.4
75 percentile		33.9	32.0	32.1	29.6	28.0	34.5	32.3	34.5	28.2	28.3	28.4	37.6	39.6	41.7
median		21.3	21.3	22.1	19.5	15.8	19.7	19.1	18.0	19.0	19.0	18.9	23.3	24.3	26.5
25 percentile		13.3	13.3	12.7	12.1	10.5	13.3	13.0	10.4	12.9	13.1	12.6	14.0	14.9	14.1
Min		8.6	-4.8	-22.0	-6.5	-25.0	8.6	-4.8	-22.0	9.7	10.1	8.1	9.5	9.3	8.9
Risk-weigted assets/Exposure at default (proxy for asset quality)															
Average	In percent	29.8	30.0	32.4	…	…	30.0	30.2	32.8	26.6	27.0	28.4	28.9	29.1	30.5
Max		74.9	98.6	83.4	…	…	72.2	98.6	83.2	48.5	48.0	48.9	74.9	74.9	83.4
75 percentile		35.1	35.7	37.2	…	…	39.1	41.4	45.5	30.4	32.7	34.2	34.0	34.1	34.8
median		24.5	25.9	28.1	…	…	24.4	25.6	27.5	27.8	28.4	29.6	24.3	25.1	27.2
25 percentile		19.9	20.4	21.7	…	…	18.9	18.9	21.0	21.2	22.4	24.1	20.2	21.0	21.5
Min		3.3	3.3	3.3	…	…	3.3	3.3	3.3	14.0	14.4	14.9	6.5	6.5	6.7

Source: CSSF

Footnotes

1/ Sample inlucdes 108 banks (subsidiaries and some branches of non-EU banks that are required to report regulatory capital to CSSF). 67 banks (90 percent by asset) are owned by euro-area domiciled parent, 16 banks (4 percent by asset) are owned by parent domiciled in non-euro area EU countries, and the rest are affiliated with parents domiciled in the rest of the world.

2/ Actual solvency ratio as of June 2010 includes half-year retained earnings.

3/ The solvency position as of June 2012 includes utilization of the lump-sum provision for those banks where CAR turns negative. The lump sum provision is a regime of countercyclical provisioning that allows banks to set aside capital buffers for unrealized losses By year end 2009, the total stock outstanding was 1,3bn€ (72 banks). Under the adverse scenario, the use of the lump sum provision allows two banks to avoid falling below the 8 percent minimum CAR.

Table 5. Luxembourg: Insurance Stress Test Results [1/]

Shocks	Insufficient initial margin	< 100	100–110	110–150	150–200	> 200	Total excl. fully reinsured	Fullly reinsured companies	All life insurance companies
	Solvency Ratio after Stress (in percent) 2/								
Life: Market Risk									
Pre-shock	56.7	156.2	121.7	149.5	179.4	255.3	-	117.7	153.3
i) A 25 percent decline in equity prices	40.7	87.2	106.0	135.9	167.3	253.4	-	112.6	142.5
	(1)	(2)	(5)	(14)	(7)	(12)	-	(5)	(46)
Pre-shock	43.5	138.7	139.7	164.3	180.7	271.9	196.4	109.8	164.1
ii) A 25 percent increase in interest rate	40.0	82.3	102.4	133.8	164.0	271.7	177.0	109.8	151.9
	(2)	(4)	(4)	(9)	(12)	(11)	(42)	(5)	(47)
Pre-shock	43.5	144.3	174.4	172.9	175.7	271.9	196.4	109.8	164.1
iii) Combined equity prices and interest rate shocks	40.0	76.2	107.1	129.5	161.1	271.6	168.5	109.1	146.4
	(2)	(6)	(4)	(10)	(9)	(11)	(42)	(5)	(47)
Pre-shock	56.7	128.7	113.2	154.5	164.8	252.5	-	117.7	153.3
iv) Sovereign distress	52.6	92.1	103.6	127.0	156.6	231.8	-	117.7	141.3
	(1)	(4)	(7)	(10)	(5)	(14)	-	(5)	(46)

Shocks	< 100	100–120	120–150	150–200	200–300	300–400	> 400	Total
	Solvency Ratio after Stress (in percent) 2/							
Nonlife: Market Risk								
Pre-shock	115.4	112.4	136.1	173.4	-	383.0	-	328.9
i) A 25 percent decline in equity prices	96.1	107.0	127.3	165.7	-	368.4	-	315.9
	(1)	(1)	(5)	(6)	-	(17)	-	(30)
Pre-shock	78.2	111.9	189.5	259.0	219.5	360.6	455.5	316.8
ii) A 25 percent increase in interest rate	77.6	108.7	144.1	196.8	189.5	347.0	448.4	290.3
	(1)	(4)	(6)	(4)	(7)	(1)	(6)	(29)
Pre-shock	193.6	138.6	159.2	262.1	282.8	380.6	480.1	316.8
iii) Combined equity prices and interest rate shocks (sum of stress tests)	54.4	116.7	137.3	195.0	242.5	319.9	465.5	261.2
	(5)	(2)	(5)	(3)	(7)	(2)	(5)	(29)
Pre-shock	193.6	138.6	159.2	262.1	282.8	380.6	480.1	316.8
iv) Combined equity prices and interest rate shocks 2/	94.6	116.8	141.0	196.4	253.3	332.3	467.0	271.8
	(5)	(1)	(6)	(3)	(7)	(2)	(5)	(29)
Pre-shock	78.2	111.8	137.3	168.8	257.0	344.5	448.3	316.8
v) A 15 percent decline in real estate prices	78.2	111.9	137.3	168.8	257.0	344.5	448.3	315.0
	(1)	(4)	(2)	(5)	(9)	(2)	(6)	(29)
Pre-shock	-	159.9	134.2	179.5	-	383.0	-	328.9
vi) Sovereign distress	-	107.9	127.6	167.9	-	365.9	-	308.3
	-	(4)	(4)	(5)	-	(17)	-	(30)
Nonlife: Credit Risk								
Pre-shock	186.5	-	191.8	180.4	276.6	364.5	488.3	316.8
vii) Failure of the largest depository bank	12.1	-	144.8	162.8	234.1	328.0	430.0	262.1
	(10)	-	(4)	(4)	(5)	(3)	(3)	(29)

Shocks	< 50	50–100	100–150	150–200	200–300	> 300	Total
	Solvency Ratio after Stress (in percent) 3/						
Nonlife: Catastrophic Risk							
Pre-shock	247.3	155.4	135.3	205.1	354.1	456.7	316.8
viii) A deterioration in the claims situation	27.1	79.1	116.6	166.5	265.1	444.2	173.6
	(6)	(5)	(3)	(4)	(8)	(3)	(29)
Pre-shock	-	118.7	110.4	205.1	368.3	456.7	345.3
ix) A deterioration in the claims situation (excl. mutuals and captives)	-	69.0	106.0	166.5	282.7	444.2	284.1
	-	(3)	(2)	(4)	(5)	(3)	(17)

Source: CAA

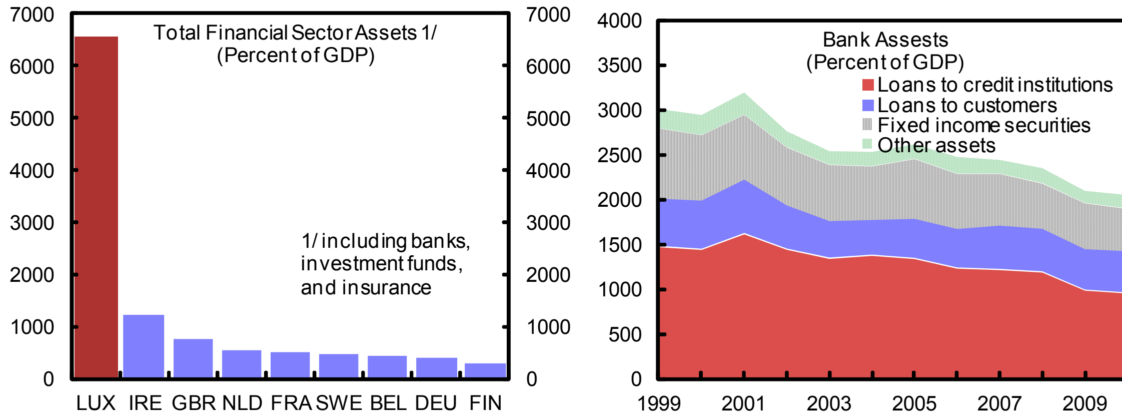
1/ Stress tests for equity prices and sovereign distress use data as of the fourth quarter of 2010. Other tests use 2009 data. The tests cover all balance sheets of insurance companies.

2/ QIS5 correlation factors, the correlation coefficients for the aggregation of the risk modules, are used.

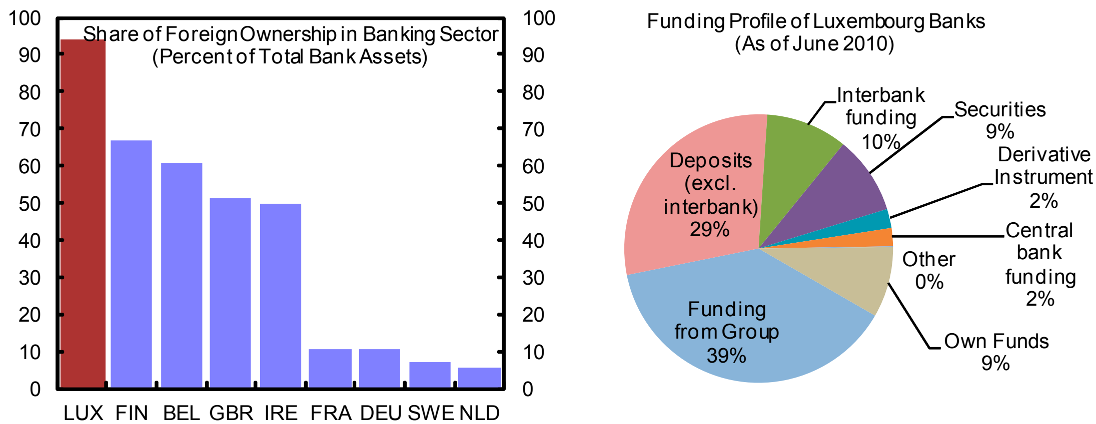
3/ Number of companies corresponding to the distribution of solvency ratio are in the parenthesis

Figure 1. Luxembourg: Banking Sector

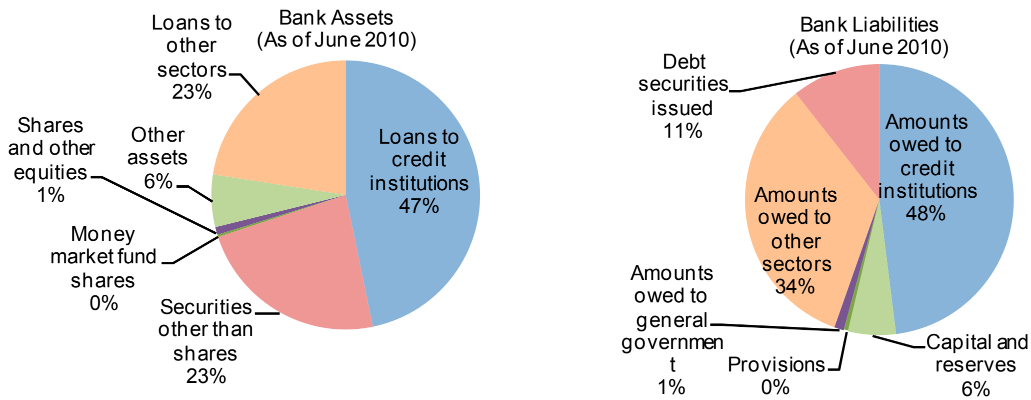
Luxembourg's banking sector is very large in relation to the economy.



Most banks are foreign-owned and specialize in intra-group liquidity management.



The large proportion of interbank assets and liabilities is a key feature of Luxembourg's banking system.

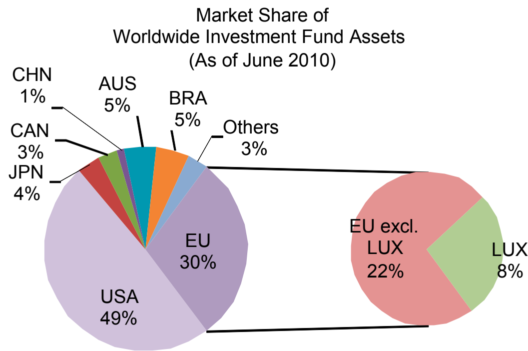


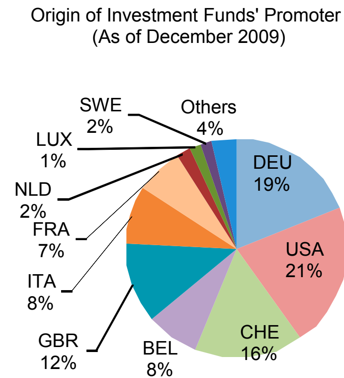
Source: BCL, CSSF, ECB

Figure 2. Luxembourg: Investment Fund Industry

Luxembourg is a major investment fund center .

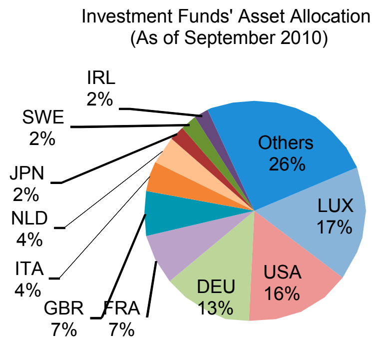
It is sponsored mainly by promoters from Europe and the United States, ...

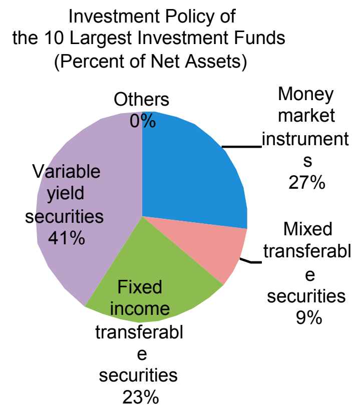




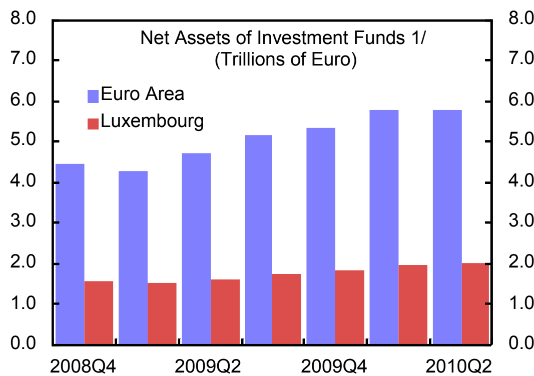
... while its assets are invested globally....

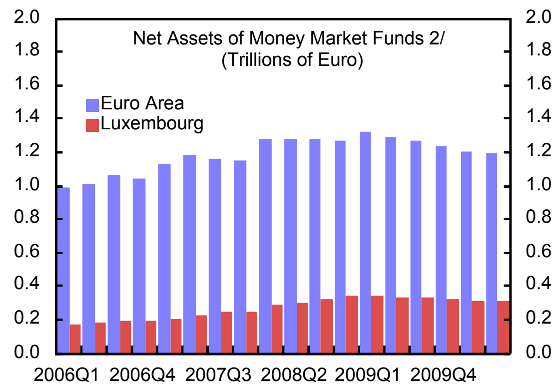
...into mainly transferable money market, fixed income, and equity instruments.





Luxembourg's investment funds, including MMFs, have a significant share in the European investment fund industry. They suffered from large redemptions during the crisis, but strong market performance contributes to fast recovery.





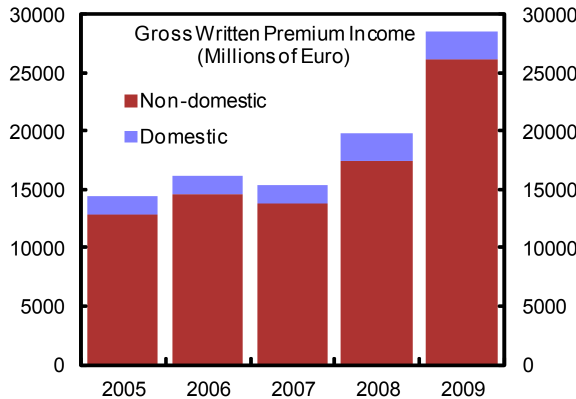
Source: BCL, CSSF, EFAMA, ECB

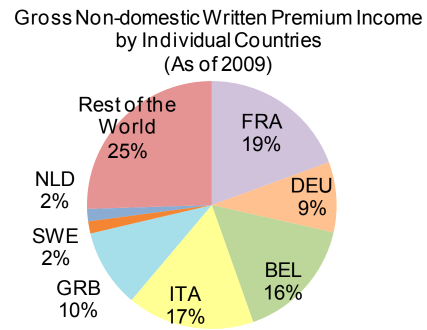
1/ Data for investment funds in euro area starts from 2008Q4.

2/ Data for MMFsin euro are starts from 2006Q1.

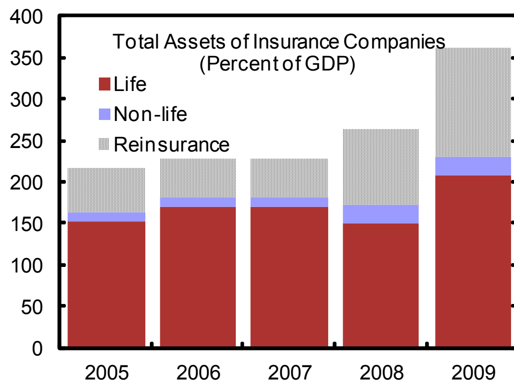
Figure 3. Luxembourg: Insurance Companies

Luxembourg's insurance companies mostly comprises subsidiaries of European insurance groups.

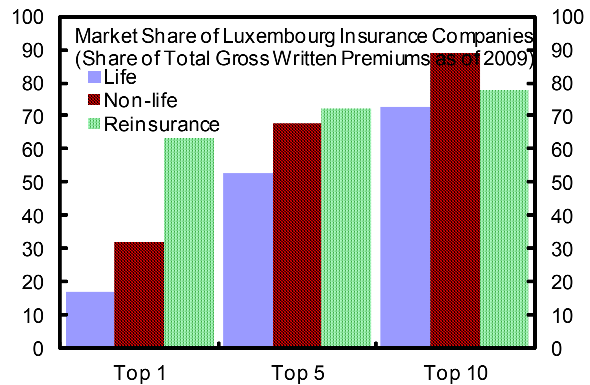




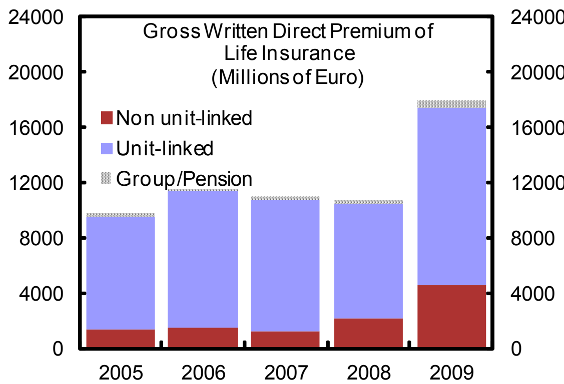
Life insurance and reinsurance dominate the industry.



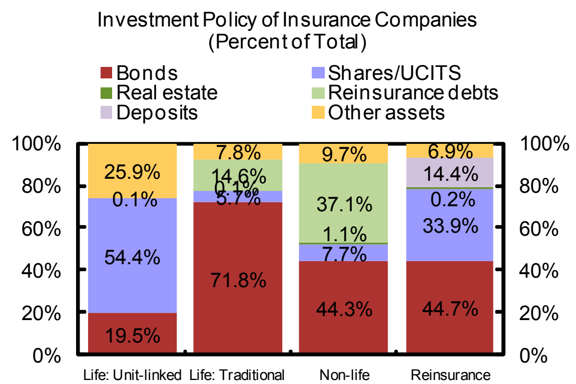
The industry is highly concentrated for all types of insurers.



Life insurance products are mainly investment-linked.



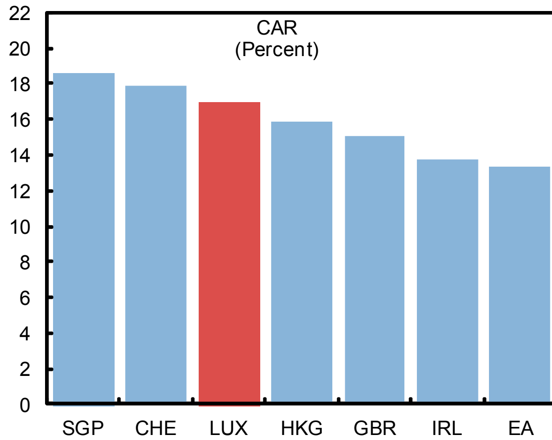
The insurance assets are mainly distributed into debt securities and shares.

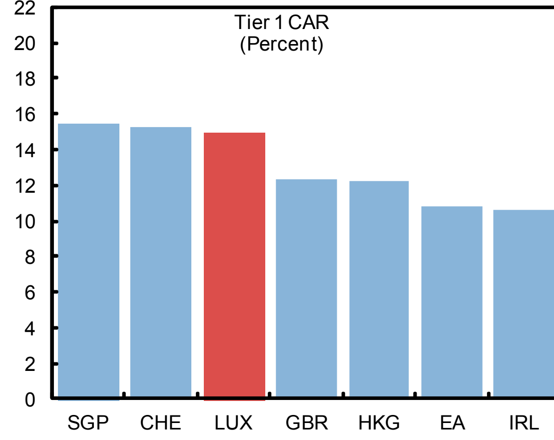


Source: CAA

Figure 4. Luxembourg: Financial Soundness Indicators for Banks 1/

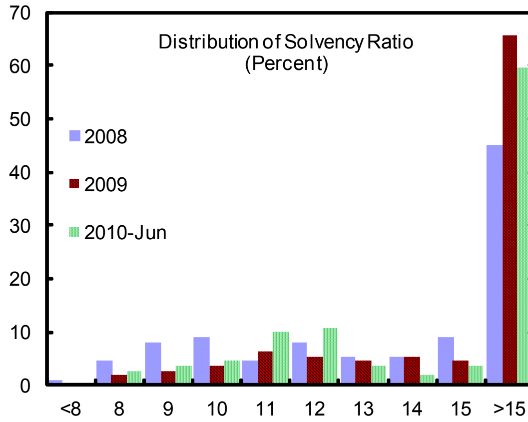
The luxembourg banking sector appears to be adequately capitalized.

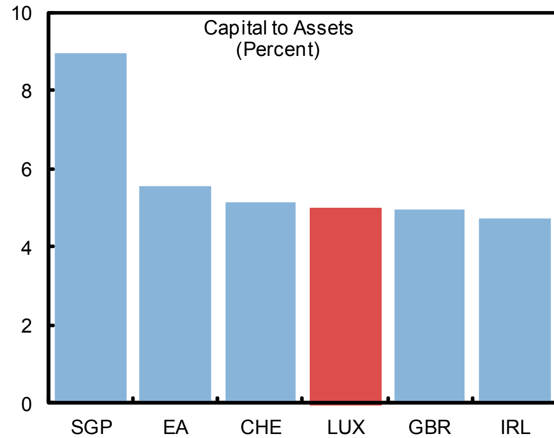




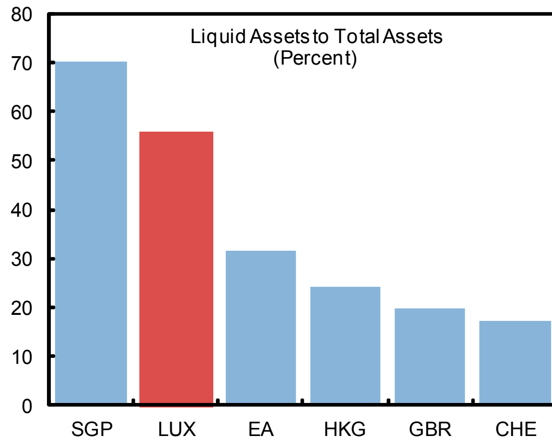
The capital adequacy of all banks exceeds the minimum requirement.

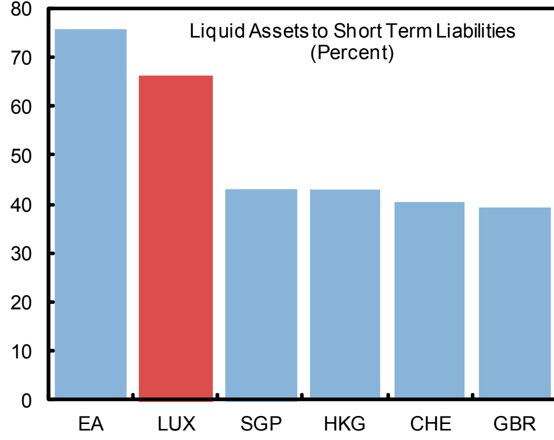
Leverage is comparable with other peers.





In aggregate, the liquidity situation is comfortable.



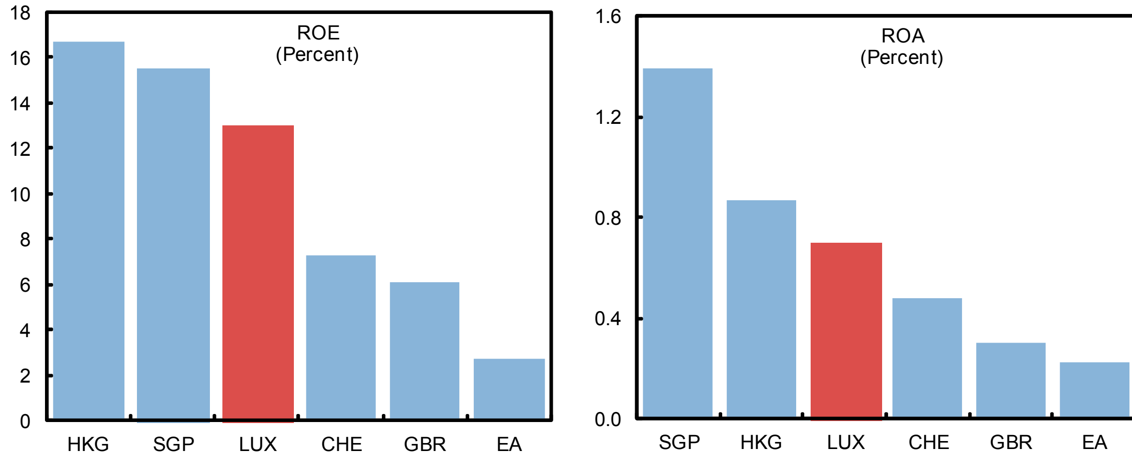


Source: IMF, CSSF, BCL

1/ Data for Luxembourg are as of December 2010. Data for other countries range from Dec 2009 to September 2010, depending on the availability of data.

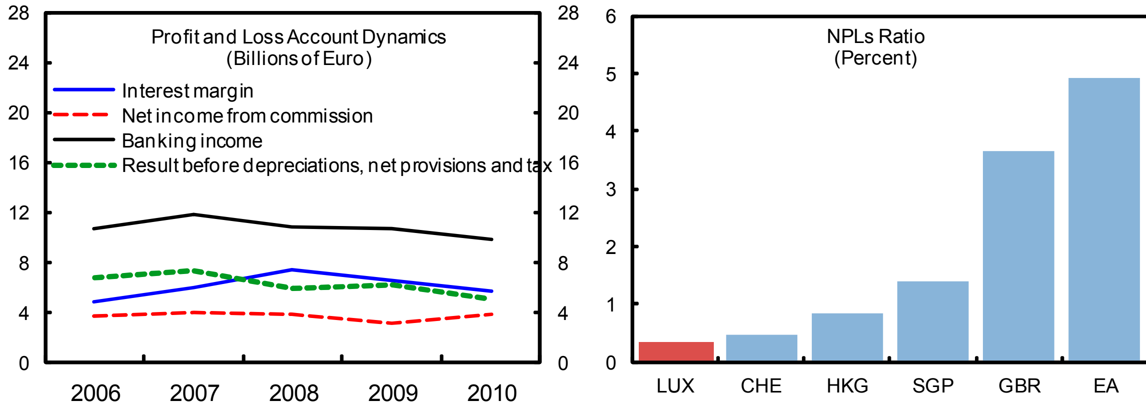
Figure 4 (continued). Luxembourg: Financial Soundness Indicators for Banks

Profitability of Luxembourg banks remains subdued, though is still favorable compared with peers.

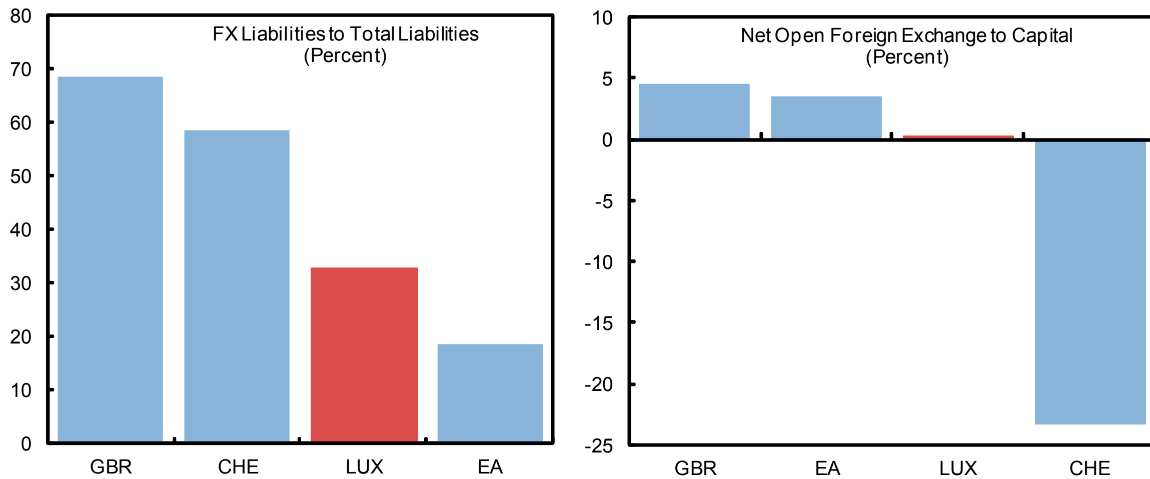


Bank income declined during the crisis, but is recovering.

Non-performing ratios remain low.



Foreign exposures are small, as most transactions are euro-denominated.

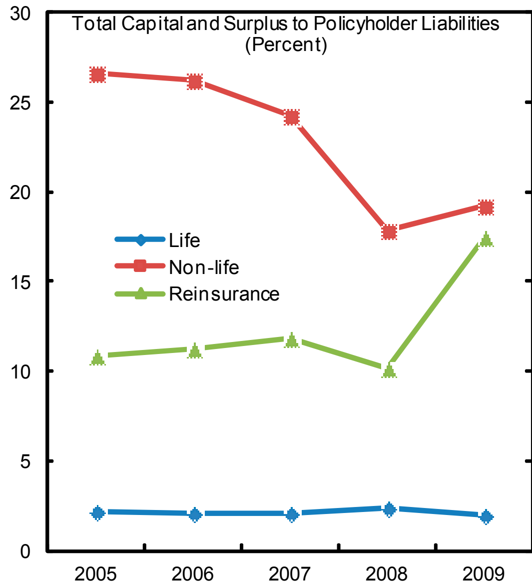


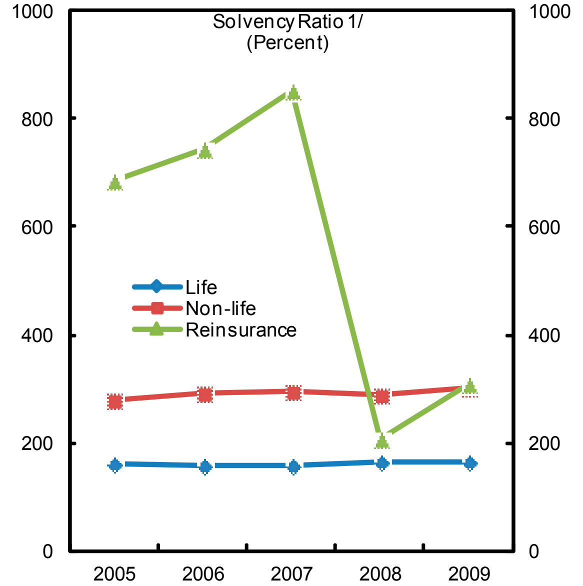
Source: IMF, CSSF, BCL

1/ Data for Luxembourg are as of December 2010. Data for other countries range from Dec 2009 to September 2010, depending on the availability of data.

Figure 5. Luxembourg: Financial Soundness Indicators for Insurance Companies

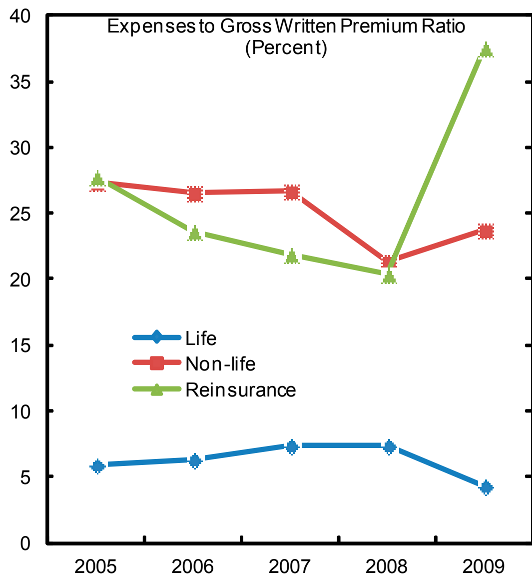
Luxembourg's insurance companies are well-capitalized and solvent.

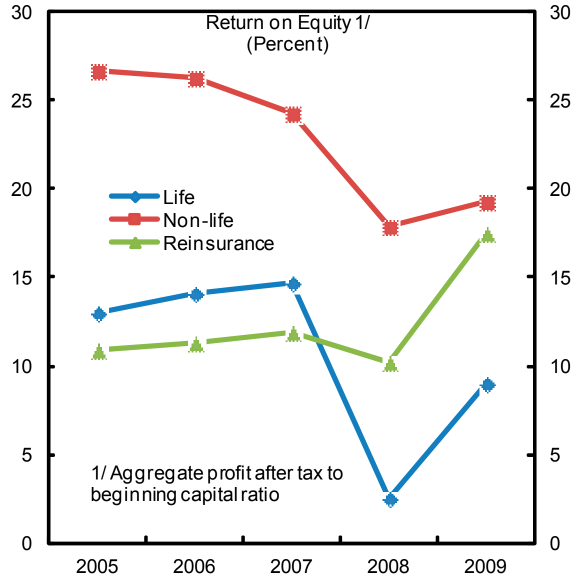




Life insurance manages to reduce some operating costs.

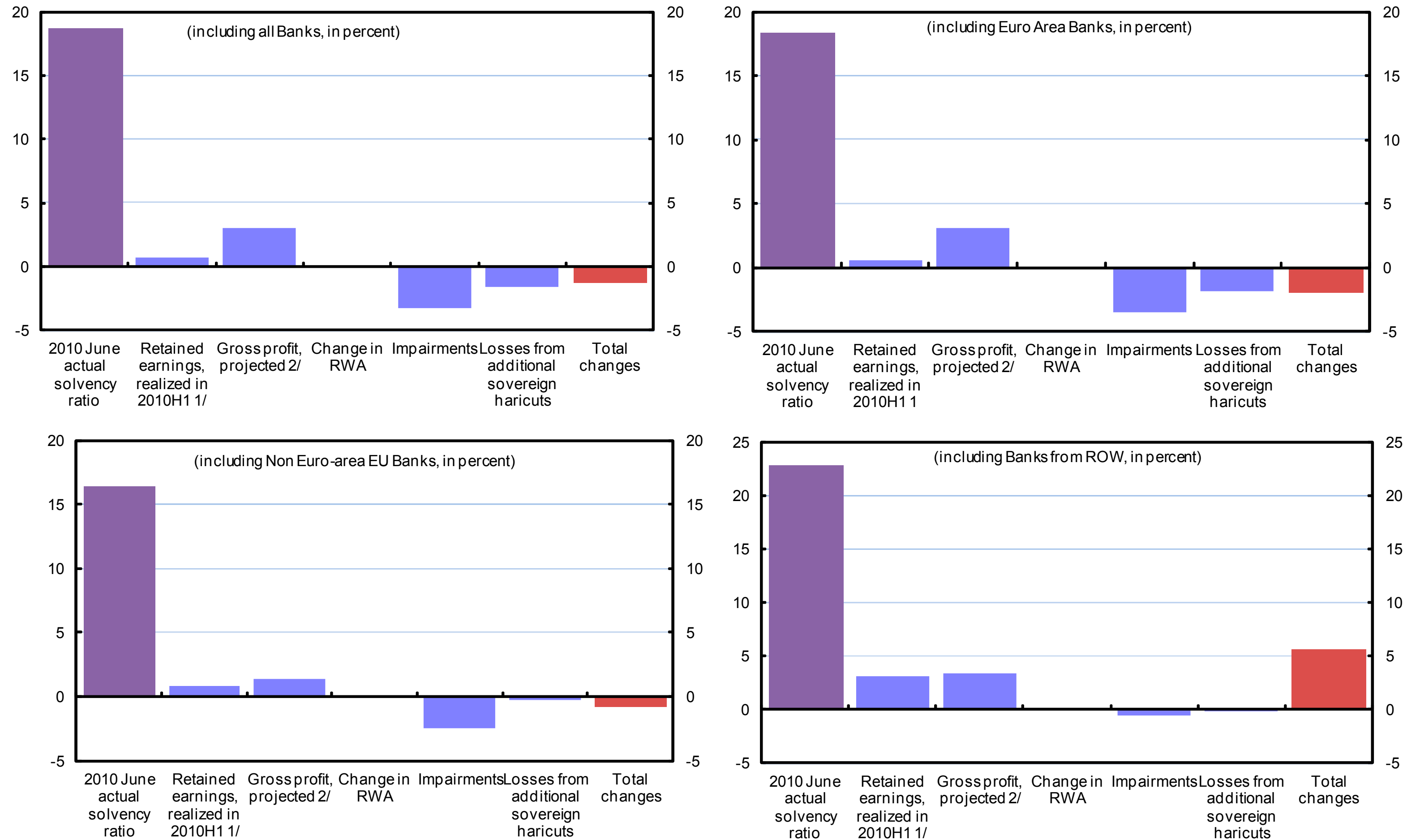
The industry's earnings have been improved since the financial crisis.





Source: CAA
1/ Break in series for reinsurance as accounting changes.

Figure 6. Luxembourg: Macro Stress Testing, Cumulative Changes in Solvency Ratio for Adverse Scenario between June 2010 and June 2012



Source: CSSF

1/ Excluding provisions and dividend payment.

2/ Gross profit before provisions. Projected gross profits implies 10 percent year on year declines overall. Commissions and fees income is projected by applying 0.75 correlation to equity market prices, which are assumed to decline 15% year-on-year for two years. As for interest margin, spread is assumed to remain constant, in contrast with beneficial increases Luxembourg banks actually experienced in 2008 during liquidity crisis as net liquidity provider.

Appendix I: Observance of Financial Sector Standards and Codes—Summary Assessments

I. Basel Core Principles for Effective Banking Supervision

A. Information and Methodology Used for Assessment[28]

41. **The assessment was made on the basis of a study of the legal and regulatory framework, a self-assessment prepared by the CSSF, and detailed discussions with relevant authorities and stakeholders.** The assessment focused particularly on supervisory challenges in interagency and cross-border (home host) cooperation and liquidity risk management. Discussions were held with government representatives, the CSSF, Luxembourg Bankers Association or Association des banques et banquiers Luxembourg (ABBL), members of senior management of banks, and auditing firms. The team would like to thank the CSSF and the representatives of banks and other institutions for their cooperation with the mission.

42. **The assessment was conducted in accordance with the revised Core Principles (CP) Methodology issued by the Basel Committee on Banking Supervision (Basel Committee) in October 2006 and involved a qualitative assessment of compliance with each CP.** The methodology makes a distinction between "essential" and "additional" criteria. However, for assessments conducted as part of an FSAP, the ratings take into account the essential criteria only.

B. Institutional and Macroeconomic Setting and Market Structure—Overview[29]

43. **Luxembourg is a large international financial center specialized in interbank liquidity and asset management activities.** Its financial institutions hold assets equivalent to more than 70 times its GDP, and intermediate about 20 percent of total cross-border exposures among euro area banks and money market funds. The banking sector accounts for about 28 percent of total financial sector assets. Most local banks are foreign-owned, including by international banking groups from Germany, France, and other European countries. A core business model of Luxembourg's banks is to pool liquidity and channel it back to international banking groups, including through intra-group transactions; interbank positions represent about half of bank assets and liabilities, of which two-thirds are cross-border exposures. Intra-group exposures account for about 40 percent of total bank assets. Excluding the relatively small Luxembourg owned–and-operated retail banks, and placements with parents, there are limited lending to the local economy. Typically, banks do not operate trading books, and in almost all cases, liquidity is managed within the centralized framework for liquidity management of the parent company.

[28] The assessors were Keith Bell and Jörg Genner.

[29] In FSAP/FSSA reports, this information will be contained in other parts of the FSAP report. Salient details, however, may be briefly restated for convenience.

44. **Luxembourg was severely affected by the crisis through contagion, local subsidiaries suffering from the effects of solvency and liquidity problems of their foreign parents.** Aggregate bank balance sheets contracted by almost 15 percent in 2009, essentially through interbank deleveraging. At the peak of the financial turmoil, Luxembourg contributed to the bail outs of systemically-important banks, Fortis and Dexia, which were rescued by the authorities of France, Belgium, and the Netherlands. The local subsidiaries of three Icelandic banks failed, and the investment fund industry endured large redemptions. Domestic credit markets were resilient throughout the crisis, both in terms of credit volumes and lending spreads.

C. Preconditions for Effective Banking Supervision

45. **Luxembourg's macroeconomic performance is generally satisfactory.** Unemployment is low; and the trend growth rate and inflation have been satisfactory.

46. **Luxembourg is a Member State of the EU and the wider European economic area.** Consequently, it has been obliged to implement European directives on regulation of financial services. In addition, it has voluntarily followed a policy of adopting wider international standards, such as those of the Basel Committee. Furthermore, Luxembourg has introduced a system of information exchange and withholding tax on financial income in accordance with the EU Savings Directive.

47. **Luxembourg's legal system is based on civil law and a number of its laws are based on French or Belgian legislation.** Most legislation is the result of EU regulations, directives and decisions. There is a highly sophisticated legal infrastructure and a relatively flexible regulatory framework.

48. **Luxembourg has implemented IFRS.** There is a full range of high-quality accountancy, audit, legal, and ancillary financial services available in the jurisdiction.

49. **The 2008 crisis has highlighted weaknesses in the existing safety nets, crisis preparedness, and crisis management.** The existing private deposit insurance scheme was able to deal with the challenges posed by the failure of the three Icelandic banks, but is going to be revamped in the context of European legislation currently under discussion. The crisis revealed a lack of implementation of a European framework for crisis management. The authorities have broadly adequate powers to direct, intervene in, and close a troubled financial institution, which became necessary in the case of the Icelandic banks.

D. Main Findings

50. **The current assessment confirms a high degree of compliance with the Basel Core Principles, but weaknesses remain to be addressed.** Since 2001, and particularly as a reaction to the financial crisis, the CSSF has increased its supervisory capacities, and its ongoing supervision has become more intrusive. At the same time, cooperation with home and other host supervisors within supervisory colleges has intensified.

Objectives, Independence, Powers, Transparency, and Cooperation (CP1)

51. **Safeguards for the CSSF's independence need to be put in place.** Its mission and corporate governance structure require revision in order to grant it fully operational independence and to ensure that promotion of Luxembourg's financial sector or the interests of the supervised entities do not negatively impact the CSSF's prudential supervision and enforcement. While there was no evidence of actual interference, a certain reluctance to use corrective measures expeditiously was observed.

Licensing and Structure (CPs 2–5)

52. **The CSSF should assume the licensing role, notwithstanding current practice whereby the minister grants licenses only on the CSSF's advice.** (The CSSF already has power to grant subsequent authorizations of new members of a bank's bodies performing administrative, management and supervisory functions, new shareholders, and the change of external auditors.) Rather than relying for deterrence on punitive legislative provisions, the CSSF's application assessment procedure should include evaluation of proposed directors and senior management for potential for conflicts of interest.

Prudential Regulation and Requirements (CPs 6–18)

53. **Regulatory minimum capital requirements are often well below actual capital ratios, which may reduce the effectiveness of the capital adequacy regime (CP 6).** The authorities do limit the sources of contagion from related lending but accept that local subsidiaries remain exposed to risk of a failure of a foreign parent. Most of the subsidiaries of large, internationally active banks are actually managed as if they were branches. They often act as deposit gatherers, channeling funds up to the foreign group parent. Thus, they are heavily exposed to their group both from a counterparty and liquidity risk as well as reputational perspective. The CSSF mitigates these risks to a certain extent by limiting maturity transformation and prohibiting lending to peripheral group affiliates.

Methods of Ongoing Banking Supervision (CPs 19–21)

54. **The Supervisory Review and Evaluation Process includes an Internal Capital Adequacy Assessment Process (ICAAP) by each bank and its subsequent evaluation by the CSSF.** Current risk profiles are produced for each bank for use in discussions with bank executives and applicable colleges of supervisors. Techniques tailored to the specifics of the banking system are in place but challenges remain on effective application. Formal reporting of on-site findings (and thereby management action thereon) can be long-delayed (a function of staff deployment and the process of escalation in the CSSF hierarchy). The frequency, scope and depth of contacts with bank management are good.

Accounting and Disclosure (CP 22)

55. **IAS and IFRS are implemented.** Also, European-wide harmonized financial and prudential reporting has been introduced in 2008.

Corrective and Remedial Powers of Supervisors (CP 23)

56. **There is a noticeable reluctance to use the CSSF's formal remedial and corrective powers in the form of sanctions.**

Consolidated and Cross-Border Banking Supervision (CPs 24–25)

57. **Enhancing coordination and cooperation with foreign supervisors within the college framework remains mount for the CSSF.** It is already dedicating significant resources to participation in the colleges of supervisors organized by the relevant home supervisory authorities. These colleges are crucial to the CSSF's being in a position to understand fully the risks to which cross border banking groups and their Luxembourg subsidiaries are exposed.

Table 6. Luxembourg: Summary Compliance with the BCPs—Detailed Assessments

Core Principle	Comments
1. Objectives, independence, powers, transparency, and cooperation	There should be clearer segregation of legal responsibilities and powers regarding the CSSF's micro-prudential role and the BCL's macro-prudential mandate. Domestic coordination and cooperation, particularly on early intervention and crisis management, also require further development.
1.1 Responsibilities and objectives	The program to replace existing circulars (except those for non-normative purposes) by more legally powerful regulations should be vigorously pursued.
1.2 Independence, accountability, and transparency	While no evidence was disclosed during the assessment, the CSSF's statutory administrative structures hold potential for government or industry infringement of its operational independence potential to influence supervisory policy, up to and including dismissal of the entire Executive Board.
1.3 Legal framework	No comment
1.4 Legal powers	No comment
1.5 Legal protection	The law provides the CSSF and its staff sufficient protection under the general framework for public authorities and civil servants.
1.6 Cooperation	A formal agreement codifying cooperation between the CSSF and the BCL, and setting out their mutual obligations is essential.
2. Permissible activities	Permissible activities are clearly defined, and the use of the word "bank" is protected.
3. Licensing criteria	The CSSF should assume the licensing role. Also, the CSSF's application assessment should include evaluation of proposed directors and senior management for potential for conflicts of interest.

4. Transfer of significant ownership	No comment
5. Major acquisitions	No comment
6. Capital adequacy	Interbank (intra-group) and sovereign risk may not be appropriately reflected in the existing (Basel II compliant) capital requirements regime.
7. Risk management process	Despite increased emphasis on the effectiveness of banks' internal risk management processes, the CSSF remains, to a large extent reliant on monitoring and establishing compliance with proper practices.
8. Credit risk	The assessment of credit risk is a major component of the ICAAP and SRP, and an important subject in the external auditors' long form reports.
9. Problem assets, provisions, and reserves	Regulations require banks to reassess and adjust impairment losses on loans as well as provisions on contingent liabilities and off balance sheet commitments.
10. Large exposure limits	The legal framework for large exposures and the CSSF's supervision of risk are in line with international.
11. Exposure to related parties	Risks stemming from intra-group and related party transactions are not explicitly addressed in law or regulation. There is, however, a general provision dealing with potential conflicts of interest in company law and exposures to related parties are dealt with by accounting standards. There is no explicit obligation on bank executives and bank boards to ensure that exposures to related parties are not granted on more favorable terms than corresponding exposures to non-related counterparties.
12. Country and transfer risks	While there is no evidence that the lack of a specific legal framework hampers the CSSF's capacity to assess country risks, the crisis highlighted the Luxembourg banking sector's exposure to country risk, and it is not obvious that this risk was appropriately covered by banks' risk management before the crisis.
13. Market risks	CSSF's assessment of bank market risks policies and processes are commensurate with the size and complexity of the bank.
14. Liquidity risk	The CSSF has an increased focus on the quality of banks' liquidity management, including stress testing.
15. Operational risk	The legal framework and supervisory procedures require banks to have effective systems in place for operational risk. Policies, processes, and models for operational risk, are often developed on the group level, and have to be adopted and implemented locally.
16. Interest rate risk in the banking book	The legal framework requires banks to have effective systems in place for interest rate risk and CSSF monitors this risk.

17. Internal control and audit	The regulatory framework covers internal governance and internal audit and compliance is addressed in the external auditors' Long-Form Reports and assessed in the CSSF's SRP.
18. Abuse of financial services	Luxembourg's last assessment (2009) against the FATF 40 Recommendations resulted in a poor grading. Implementation of an agreed remedial regime, including legislation and application of additional supervisory resources, is being monitored closely.
19. Supervisory approach	The SRP includes an ICAAP by each bank and its subsequent evaluation by the CSSF.
20. Supervisory techniques	Techniques tailored to the specifics of the banking system are in place but challenges remain on effective application. Formal reporting of on-site findings can be long-delayed.
21. Supervisory reporting	European-wide harmonized financial and prudential reporting has been introduced in 2008.
22. Accounting and disclosure	IAS and IFRS are implemented.
23. Corrective and remedial powers of supervisors	Formal powers (e.g., sanctions) are rarely used or used with minimum impact. There is a noticeable tendency to escalate even decisions of minor importance to CSSF's most senior executives which increases the risk of supervisory issues not being dealt with quickly enough.
24. Consolidated supervision	Consolidated supervision is of minor importance given the composition and structure of the banking sector.
25. Home-host relationships	International cooperation is comprehensive and , CSSF actively participates in colleges of supervisors, deriving input from them for its SRP on applicable banks. CSSF is aware of the limited influence it has as a host supervisor, but is, overall, comfortable with the quality of the cooperation.

Table 7. Luxembourg: Recommended Action Plan to Improve Compliance with the BCPs

Reference Principle	Recommended Action
1. Objectives, independence, powers, transparency, and cooperation	Focus the CSSF's activities on discharging its supervisory responsibilities and exclude role of promoter of the financial centre. Revise legal framework to secure full operational independence for the CSSF and the CSSF's internal governance structure to ensure transparent processes and sound governance. Segregate the legal responsibilities for the CSSF's micro-prudential role and the BCL's macro-prudential and develop domestic coordination protocols and adopt enforceable regulations.
3. Licensing criteria	Include as a standard element of its application assessment procedure the CSSF's evaluation of proposed directors and senior management for potential for conflicts of interest.
6. Capital adequacy	Increase regulatory minimum requirements up to a level where there are indeed commensurate to the individual, often atypical, risk profiles of the banks operating in Luxembourg.
7. Risk management process	Reduce number of Circulars dealing with aspects of risk management and condense and update them.
11. Exposure to related parties	Limit maturity mismatches between intra-group assets and intra-group liabilities. Increase the supervisory focus on the responsibility and accountability of the local banks' management regarding counterparty and liquidity risks originating from large intra-group exposures and ensure that intra-group lending is done under arms' length basis. Address lending to related parties by a specific regulation and use the entire range of corrective powers.
12. Country and transfer risks	Continue to use intervention powers to limit country risk including sovereign risk and consider addressing country risk in regulation.
20. Supervisory techniques	Continue to meet with banks' internal audit units to leverage off their work.
23. Corrective and remedial powers of supervisors	Take more effective and timely corrective actions, and hold local authorized managers accountable.

E. Authorities' Response to the Assessment[30]

58. **Despite the CSSF's broad agreement, there are two cases of disagreement as well as one qualification we wish to make.** Following the discussions held during the mission, we believe that these reflect choice of words rather than substance.

Disagreement

Capital Add-Ons

59. **The report qualifies the use of capital add-ons by the CSSF as "symbolic as it does not always have an impact (§17)."** While it is true that the capital add-ons did in most cases not result in increased levels of capital, the measure is far from being symbolic. However, the CSSF determines capital add-ons according to a risk-based analysis. Also, if, on the basis of risks taken, a potential shortfall of capital requirements is determined with respect to the Pillar 1 minimum capital requirements; this shortage is factored into the bank's Pillar 1 regime as a capital add-on. In this process, the actual level of capital is not a decision criterion per se.

60. **As it happens, Luxembourg banks display high capital adequacy as a result of market expectations regarding the capitalization of banks engaging in wealth management activities ("signaling").** These high levels of capital adequacy are the results of higher solvency standards (higher confidence level) fixed by the banks themselves, rather than higher-risk profiles (given the Pillar 1 confidence level). Therefore, most banks operate at levels of capital higher than the minimum Pillar 1 regime augmented by the CSSF capital add-ons.

61. **With our capital add-on decisions subject to judicial review, the CSSF has ever more to base its capital add-on decisions upon objective facts (risk profile), rather than upon subjective effects (higher level of capital).** Furthermore, under the above mentioned signaling effect, banks care about their perceived risk profile and are clearly not indifferent to capital add-ons given by the CSSF, even if these add-ons do not imply the necessity to raise additional capital. Describing the capital add-ons prescribed by the CSSF as "symbolic," not only is unjustified, but it is counterproductive because it undermines their effectiveness as well as the CSSF's position within the mandatory colleges under the capital requirements directive (CRD II) that are required to jointly determine the capital adequacy. In this context, it is extremely important for the CSSF to be able to fix backstop capital levels even if they will be situated below the actual capital levels at the banks.

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[30] If no such response is provided within a reasonable time frame, the assessors should note this explicitly and provide a brief summary of the authorities' initial response provided during the discussion between the authorities and the assessors at the end of the assessment mission ("wrap-up meeting").

Independence and Corrective Actions

62. **While we agree that the organic law of the CSSF should be amended to remove all possible doubts as regards the independence of the CSSF, the assessment team, as stated in the report, did not find "evidence of actual [political] interference."** It is thus not justified to link the "[observed] certain reluctance to use corrective measures expeditiously" to a lack of independence as is the case with §29, second bullet. The reference made within the comments to CP 23, which further pushes the argument, is unacceptable in this respect; and "the lack of independence and the inherent conflict between the CSSF's prudential duties and inclusion in its mission of a duty to promote the financial sector are likely to have an impact." Indeed, it is factually incorrect that the CSSF's mission includes a duty to promote the financial sector. "Promotion" does not appear in its organic law.

Qualification

Circulars and Regulations

63. **The policy to replace circulars by regulations will be pursued within the CSSF's general philosophy to have a coherent regulatory body of laws, regulations and circulars.** Circulars will thus not completely be abandoned, but their use will comply with the recommended action to CP7.

II. IOSCO Objectives and Principles of Securities Regulation [31]

A. Information and Methodology Used for Assessment

64. **The assessment was conducted based on IOSCO objectives and principles of securities regulation and the associated methodology adopted in 2003 and updated in 2008.**[32] The conclusions are based on information and findings as of November-2010. As noted below, important reforms have been introduced in the past year, some of which, have already been adopted as implementation of European Union (EU) directives and/or regulations, and others are to be adopted with the same purpose. For instance, Luxembourg envisages implementing the revision of the undertakings for collective investment in transferable securities (UCITS) directive by end-2010.

65. **The assessor relied on number of sources in carrying out this assessment.** The assessment was based on a review of the relevant legislation; self-assessment questionnaires prepared by the staff of the Commission de Surveillance du Secteur Financier (CSSF); the

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[31] The assessment was conducted by Patrice Bergé-Vincent.

[32] The IOSCO is currently undergoing a substantive review of the Principles, which will be followed by a review of the methodology.

CSSF annual report and website and detailed discussions with CSSF staff, staff from the Luxembourg stock exchange, law firms, representatives of industry and the ministry of finance. An assessment of the securities settlement systems under the Committee on Payment and Settlement Systems (CPSS)/IOSCO recommendations was conducted setely in early-2011. Thus, Principle 30 was not assessed here.

B. Preconditions for Effective Securities Regulation

66. **There are a number of general preconditions necessary for the effective regulation of securities markets which, with some comments, appear to be in place in Luxembourg.** As to the legal system, and given that the massive segment of securities markets is constituted by the investment fund industry in Luxembourg, the UCI(TS) law provides a comprehensive framework for asset management, largely inspired from EU directives. The regulatory framework transposes also all other relevant EU Directives. The regulator has legally enforceable powers of decision and action, although some limits to its independence and one of its mandates (i.e., implementing government initiatives for orderly expansion of the financial sector) may be inconsistent with the IOSCO objectives. Regarding the judiciary, the country has in place mechanisms for alternative means of dispute resolution. The accounting system supports the implementation of requirements and effective regulation of market participants. The accounting framework relies on international financial reporting standards (IFRS) regarding consolidated accounts of listed companies although some accounts may be presented in Luxembourg generally accepted accounting principles (Lux GAAP). Finally there are no indications of barriers of entry to the financial sector. Competition is encouraged and foreign participation is welcomed. The taxation framework is supportive to the operations of the industry in the jurisdiction.

C. Main Findings

67. **The massive size of the investment fund industry is a key challenge**. The regulatory framework developed in Luxembourg by faithfully implementing the European relevant directive provides for a degree of flexibility which is attractive for investment fund operators.[33] Luxembourg is the second largest international financial center for investment funds.

68. **The CSSF has adopted a structure and procedures which make it, for the time being, reactive to issues and challenges**. Usually investment fund domiciled in Luxembourg are managed by a Luxembourg-based operator whereas the management functions are largely delegated to the parent company or to a third-party, often based abroad,

[33] For the ease of reference, the term "operator", when used in the context of investment funds, refers to the body or the entity which is responsible under Luxembourg law for the management and administration of an investment fund.

and whereas the fund administration is performed by the fund operator itself or delegated to only a Luxembourg-based PFS, itself under regulation of the CSSF. This led the CSSF to adopt a structure that allows focusing on the supervision of the funds themselves but from the central administration perspective and on the regulation of PFS in charge of the fund administration. In so doing, the CSSF predominantly relies on its review of ex-post regular or specific reports. However, it has recently initiated a more pro-active approach by performing routine or specific on-site inspections and/or addressing questions to funds or their operators. These efforts deserve to be maintained and, above all, accentuated.

69. **European integration of investment fund market, the pole position as a European center for investment funds and the cross-border dimension of Luxembourg lead other European (and non-European) regulators to rely on the CSSF as the fore regulator, notably regarding investment funds**. Most Luxembourg based financial products and, in particular, Luxembourg UCI(TS) are sold on a cross-border basis to clients who are not resident in Luxembourg. Regarding the IOSCO Principles, no EU Member State can be assessed in isolation but instead as part of a wider community and market. Other European countries where domestic investor protection is crucial may be led to challenge Luxembourg's approach to regulation of financial products and to impose protective additional rules at the national level, notably with regards to marketing/selling practices on their territory.

70. **As a matter of priority, the system should work toward strengthening the operational independence of the regulator, accentuating the recent efforts to make more effective its enforcement powers, and strengthening the investor protection rules** attached to the products and their operators. Luxembourg has implemented most of the IOSCO Principles in a reasonable way. However, some elements of the Luxembourg regulatory system and CSSF enforcement practices deserve attention (see detailed comments for each Principle).

71. **Principles 1–5 relate to the regulator:** The CSSF financial independence is correctly ensured by the funding structure in place. Financial accountability, transparency on CSSF decisions and judicial review of CSSF decisions are in line with international standards. However, the assessment found there might be a potential weakness in the operational independence of the CSSF as it is placed by law under the direct authority of the Minister; its executive board may be dismissed by the Government if any fundamental disagreement arises concerning regulation policy; and one of its mandates is often confused with the expansion of the financial sector. Nevertheless, the assessment could not determine that the current legislative structure has been used so that pressure was exercised on CSSF decision process. Finally, should the Government wish to take a decision contrary to CSSF advice or affecting the level of supervision by the CSSF, such a decision would have to be motivated and could be challenged in a Luxembourg or European court.

72. **Principles 6–7 relate to self-regulation:** there are no self-regulatory organizations (SRO) in Luxembourg. These Principles have not been assessed as they are not applicable to Luxembourg regulation structure.

73. **Principles 8–10 relate to the enforcement of securities regulation:** The CSSF has comprehensive inspection, investigation, and surveillance powers. However, although the anti-money laundering and terrorist financing rules have not been assessed in detail since they are being modified by the Luxembourg Parliament pursuant to FATF findings, the CSSF should pay more attention to enforce all provisions and should clarify and detail, where needed, notably those relating to the entering into a business relationship with a new customer. In addition, in practice, the CSSF should concentrate its efforts and its resources on the market segments which potentially represent more risk for the regulator.

74. **Principles 11–13 refer to the cooperation in regulation:** The CSFF has legal authority to cooperate and exchange information with foreign counterparties. Furthermore, it is signatory of the IOSCO Multilateral Memorandum of Understanding (MMoU). At the domestic level, it is important that a framework for domestic cooperation between the Luxembourg Central Bank and the CSSF be put in place.

75. **Principles 14–16 refer to issuers:** Issuers whose securities are offered to the public or admitted to trading in a regulated market must submit a prospectus to the CSSF, which content is in line with the IOSCO Principles. They are also subject to periodic reporting, including annual and semiannual reports as well as communication of material events (price sensitive information). The CSSF has implemented supervisory measures (in-house practice) for reviewing securities prospectuses to help assure the sufficiency, accuracy and timeliness of the required disclosures. Equity issuers are subject to substantial holdings, as well as insider holdings reporting. Regarding accounting rules however, Luxembourg authorities should pay attention to the gaps between IFRS and Luxembourg GAAP.

76. **Principles for collective investment schemes (Principles 17–20):** Operators and marketers of CIS are subject to registration requirements (in line with the IOSCO Principles) and to CSSF supervision with an emphasis on the products offered to retail investors. However, the Luxembourg financial sector is marked by the massive size of its investment fund industry, largely operating on a cross-border basis. In this context, it has to be noticed that other European regulators have in part to rely on enforcement of European rules by the CSSF in Luxembourg. Therefore, the CSSF should pay a particularly high attention to an effective use of its supervisory and enforcement powers and should, as a matter of priority, increase its ex-ante supervision (e.g. to ensure that disclosures allow all potential investors, including retail investors, to properly evaluate the suitability of the CIS for them). The assessment did not evidence that the CSSF had ever sanctioned actors involved in asset management. The rules regarding segregation and protection of client assets, in particular in the context of delegation of custody functions, should be strengthened. Potential

consequences of a legal practice regarding investor (in funds with the corporate form) ownership rights deserve to be better and more clearly disclosed.

77. **Principles 21–24 refer to market intermediaries:** There are minimum entry standards for all market intermediaries that include, inter alia, criteria relating to initial and ongoing capital. The CSSF should however verify whether the capital standards are sufficient to allow investment firms to absorb some losses in the context of the forthcoming Capital Requirements Directive IV. It should formalize a procedure for dealing with the failure of a market intermediary in order to minimize damage and loss to investors and to contain systemic risk in cooperation with the BCL.

78. **Principles 25–30 refer to the secondary market:** There are licensing requirements on both operators of regulated markets as well as multilateral trading facilities. Although the CSSF does not have the power to license markets and their operators (competence of the minister) no evidence of misuse of the current situation has been found and the potential for misuse seems low. The proper management of large exposures could be improved by formalizing or publishing default procedures for market intermediaries. Principle 30 was not assessed here.

Table 8. Luxembourg: Summary Implementation of the IOSCO Principles

Principle	Findings
Principle 1. The responsibilities of the regulator should be clearly and objectively stated.	The CSSF responsibility is clearly stated in the law.
Principle 2. The regulator should be operationally independent and accountable in the exercise of its functions and powers.	The CSSF financial independence is correctly ensured by the funding structure in place. Financial accountability, transparency on CSSF decisions and judicial review of CSSF decisions are in line with the international standards. However, the assessment concludes that there might be a potential weakness in the operational independence of the CSSF, though no evidence was found to support problems in this area.
Principle 3. The regulator should have adequate powers, proper resources and the capacity to perform its functions and exercise its powers.	The CSSF investigative, supervisory and sanctioning powers are broadly in line with international standards. However, a reform of the legal provisions concerning the powers and procedures to impose sanctions is currently being considered. It should be an opportunity to grant the CSSF the power of injunction on investment funds and their operators.
Principle 4. The regulator should adopt clear and consistent regulatory processes.	The process governing the CSSF rulemaking involves broad consultation to the market, and thus is in line with the IOSCO principles.
Principle 5. The staff of the regulator should observe the highest professional standards.	Most CSSF staff members are civil servant and are subject to demanding rules regarding their professional conduct. The CSSF adopted a Code of ethics in 2003.
Principle 6. The regulatory regime should make appropriate use of self-regulatory organizations (SROs) that exercise some direct oversight responsibility for their respective areas of competence and to the extent appropriate to the size and complexity of the markets.	Not applicable.
Principle 7. SROs should be subject to the oversight of the regulator and should observe standards of fairness and confidentiality when exercising powers and delegated responsibilities.	Not applicable.
Principle 8. The regulator should have comprehensive inspection, investigation and surveillance powers.	The CSSF has comprehensive inspection, investigation, and surveillance powers over regulated entities. The anti-money laundering and terrorist financing rules have not been assessed in detail since they are being modified by the Luxembourg Parliament pursuant to FATF findings. The requirement imposing to each professional of the financial sector to perform customer due

	diligence when they enter into a business relationship with a customer is not seen by the private sector, notably the investment fund industry as clear or detailed enough.
Principle 9. The regulator should have comprehensive enforcement powers.	The CSSF has broad enforcement powers, including the power to impose administrative sanctions on regulated entities as well as third parties.
Principle 10. The regulatory system should ensure an effective and credible use of inspection, investigation, surveillance and enforcement powers and implementation of an effective compliance program.	Figures regarding inspections show that the CSSF exercise adequately its powers regarding market abuses. Nevertheless, the CSSF could exercise its duties regarding supervision of asset management in Luxembourg with more care. The CSSF ongoing monitoring of UCI(TS) and their operators was chiefly, if not only, based on review of ex-post reports. The CSSF recently increased the number of its on-site routine or specific/thematic inspections regarding UCI(TS) and their operators. However, relatively to the massive size of the investment fund industry in Luxembourg, the assessment could not conclude that the CSSF is devoting resources and enforcement powers to the area where most risks reside for the regulator. In addition, no sanctions have been imposed to operators in this industry although an increasing number of errors and breaches to regulation.
Principle 11. The regulator should have the authority to share both public and non-public information with domestic and foreign counterparts.	The CFSS has full authority to cooperate and exchange information with domestic and foreign authorities. The legal framework does not require the existence of an independent interest in the matter for the CSSF to be able to cooperate.
Principle 12. Regulators should establish information sharing mechanisms that set out when and how they will share both public and non public information with their domestic and foreign counterparts.	The CSSF is the sole authority responsible for the supervision of securities markets at the domestic level. Nevertheless, for systemic purposes, it is important that a framework for domestic cooperation be put in place. The CSSF is signatory of the IOSCO MMOU.
Principle 13. The regulatory system should allow for assistance to be provided to foreign regulators who need to make inquiries in the discharge of their functions and exercise of their powers.	In addition to information that is on its file, the CSFF can also require information from regulated entities to assist a foreign counterparty. The CSSF is usually considered by its CESR counterparts as a fully cooperative regulator, even on sensitive file.
Principle 14. There should be full, timely and accurate disclosure of financial results and other information that is material to investors' decisions.	The system reasonably provides different levels of disclosure. Issuers whose securities are offered to the public or admitted to trading in a regulated market must submit a prospectus. In addition, issuers admitted to trading in a regulated market are subject to periodic reporting as well as to the communication of material events. The CSSF has supervisory measures (in-house) practices to help assure the sufficiency, accuracy and timeliness of the required disclosures for issuers of securities listed in Luxembourg.

Principle 15. Holders of securities in a company should be treated in a fair and equitable manner.	The company law provides a basic framework for the protection of minority investors. A corporate governance code completes the regulatory framework.
Principle 16. Accounting and auditing standards should be of a high and internationally acceptable quality.	Issuers are required to submit their financial statements in accordance to IFRS or local GAAP. The CSFF has the authority to enforce compliance with accounting standards. The CSSF has developed a comprehensive oversight regime for external auditors, which encompass on-site inspections and sanctions where required.
Principle 17. The regulatory system should set standards for the eligibility and the regulation of those who wish to market or operate a collective investment scheme.	The legal framework establishes fit and proper requirements for the eligibility of CIS operators However, the CSSF ongoing monitoring of UCI(TS) and their operators is chiefly based on supervision of ex-post reports. In addition, CSSF has focused only on ensuring a systematic compensation of any losses suffered by investors, notably in case of errors in UCITS net asset value calculation and/or breaches to rules.
Principle 18. The regulatory system should provide for rules governing the legal form and structure of collective investment schemes and the segregation and protection of client assets.	The legal framework requires that assets be entrusted to a depository, and the legal framework is explicit on the need for proper segregation of assets. However, the obligation to properly segregate assets is not explicit (CSSF staff own interpretation is not stated in written in the Circular IML 91/75) when custody function is delegated to a third party. The supervisory practice that sufficient time be provided to all investors in the UCI(TS) in order to take an informed decision on the envisaged change to the fund is not clearly stated in the CSSF written regulation. The consequences of situations where the name of an investor is not recorded in the fund registry (corporate form) and the fact that the investor may not be legally considered as the shareholder and, thus, would be prevented from voting at general meeting of shareholders may deserve to be clarified.
Principle 19. Regulation should require disclosure, as set forth under the Principles for issuers, which is necessary to evaluate the suitability of a collective investment scheme for a particular investor and the value of the investor's interest in the scheme.	UCI(TS) are required to submit a prospectus which content is in line with the IOSCO Principles. The assessment did not find strong evidence that the CSSF actual practices for reviewing the CIS prospectuses and/or intervening in a new or an existing offering allow full implementation of this Principle.
Principle 20. Regulation should ensure that there is a proper and disclosed basis for assets valuation and the pricing and the redemption of units in a collective investment scheme.	The legal framework contains specific provisions regarding valuation of assets and pricing of securities. However, regarding enforcement practices, there may be a perception of a lack of firmness by the CSSF when seeking to redress breaches. The assessment did not evidence that the CSSF had ever sanctioned a depositary (duty of surveillance) or another actor in the investment fund value chain or administration involved in asset valuation.
Principle 21. Regulation should provide for minimum entry standards for market intermediaries.	Securities firms are subject to minimum and ongoing capital requirements, as well as fit and proper requirements. While the licensing power belongs to the Minister of Finance, the assessor did not

	find any evidence of misuse of such power.
Principle 22. There should be initial and ongoing capital and other prudential requirements for market intermediaries that reflect the risks that the intermediaries undertake.	Investment firms are subject to initial as well as ongoing capital requirements, the latter adjusted by risks. In practice, it appears that almost all investment firms are overcapitalized. However, the recent financial crisis has demonstrated several short-comings.
Principle 23. Market intermediaries should be required to comply with standards for internal organization and operational conduct that aim to protect the interests of clients, ensure proper management of risk, and under which management of the intermediary accepts primary responsibility for these matters.	Prudential and organizational requirements are fully compliant with this Principle and with international standards.
Principle 24. There should be a procedure for dealing with the failure of a market intermediary in order to minimize damage and loss to investors and to contain systemic risk.	The CSSF could envisage extending the early warning system existing for banks to investment firms. The CSSF has no powers to move client accounts and/or assets from one (defaulting) intermediary to another; but it can request the court to freeze the assets to avoid misappropriation through an abbreviated procedure.
Principle 25. The establishment of trading systems including securities exchanges should be subject to regulatory authorization and oversight.	Both regulated markets and multilateral trading facilities are subject to licensing by the MoF and ongoing oversight by the CSSF.
Principle 26. There should be ongoing regulatory supervision of exchanges and trading systems, which should aim to ensure that the integrity of trading is maintained through fair and equitable rules that strike an appropriate balance between the demands of different market participants.	The CSSF has subjected the Luxembourg Stock Exchange to active oversight. Its rules are subject to prior approval by the CSSF. It is also subject to reporting obligations, including daily information on all transactions. Finally the CSFF also conducts regular visits to the Exchange.
Principle 27. Regulation should promote transparency of trading.	Both RM and MTS that trade equity are subject to pre and post trade transparency requirements.
Principle 28. Regulation should be designed to detect and deter manipulation and other unfair trading practices.	There are clear provisions that sanction market manipulation as well as other unfair trading practices, and there is evidence that the CSSF has been relatively active on the investigation of such type of misconducts.
Principle 29. Regulation should aim to ensure the proper management of	Large positions are monitored through means used to exercise supervision of credit institutions and investments firms relating to the

large exposures, default risk and market disruption.	large exposures regime.
Principle 30. Systems for clearing and settlement of securities transactions should be subject to regulatory oversight, and designed to ensure that they are fair, effective and efficient and that they reduce systemic risk.	An assessment of the securities settlement systems under is to be conducted setely in the forthcoming weeks. Thus, Principle 30 was not assessed here.

Table 9. Luxembourg: Recommended Action Plan to Improve Implementation of the IOSCO Principles

Principle	Recommended Action
Principle 2.	Broader or firmer independence for the CSSF in the law establishing its competences and powers is desirable. The Luxembourg law should be amended to: - indicate that the CSSF is accountable to the minister not placed under his direct authority (a preference should be given to make the CSSF accountable to the Parliament); - ensure immovability of the executive board with a potential corollary that the mandate of the directors would not be renewable or would be renewable for a limited number of times; and - clarify that one of the broad competences of CSSF is to ensure an orderly functioning of securities market rather than an orderly expansion. The forthcoming initiative of amendment to the law regarding the sanctions powers of the CSSF could be used to overhaul the law establishing the CSSF. A draft revision of the law establishing the CSSF should be proposed to the Parliament in the medium term (one year).
Principle 3.	Given the massive size of the fund industry and the attached services providers and the relatively limited size of the securities market in Europe, the CSSF should concentrate its resources and powers the sectors where risk of misconduct might be more pregnant. The CSSF should maintain and intensify its efforts regarding training and educating its staff.
Principle 4.	The CSSF could strengthen its efforts regarding investor education beyond investor protection as Luxembourg based products, notably Luxembourg domiciled UCITS, are largely offered on a cross-border basis to retail investors nonresident in Luxembourg.
Principle 5.	Monitoring of compliance with the obligation for any CSSF civil servant to declare to his hierarchical superior that he has a personal interest in a file which risks compromising his independence could be assigned to the Internal Audit Department. This declaration could be formalized.
Principle 8.	Regarding anti-money laundering and terrorist financing, the provisions imposing to each professional of the financial sector to perform customer due diligence when they enter into a business relationship with a customer and, in particular, to identify their customers by means one or more documents, data or information obtained from a reliable and independent source should be clarified. Relevant regulation will be amended, or new one issued to impose on

	market intermediaries detailed and clear procedures. Such changes should be implemented at short term and the new CSSF Regulation issued within one year.
Principle 10.	The enforcement on UCI(TS) and their operators is chiefly based on ex-post review of regular or specific report and an ex-post review of (external and independent) auditing processes. The CSSF executive board should develop an even more aggressive strategy of routine and surprise on-site inspections so that it could earlier detect errors and breaches and sanction abuses more often. To be implemented at short term.
Principle 12.	The Banque Centrale du Luxembourg and the CSSF should make their best efforts to sign a MoU regarding their cooperation and to put it into practice. This should be implemented at short term.
Principle 16.	Differences between IFRS and Luxembourg GAAP standards do not affect prudential surveillance as it is required from financial entities to report to the CSSF with adopting IFRS standards. The CSSF could promote towards companies based in Luxembourg a voluntary shift from Luxembourg GAAP to IFRS.
Principle 17.	Beyond verifying on an ex-post basis whether the investors adversely affected by errors or breaches have been adequately compensated and whether the UCI(TS) operator in question has improved its procedures accordingly, the CSSF should maintain and strengthen its recent efforts to develop ongoing and surprise on-site inspections with a view to ensure that the operators adopt adequate procedures on an ex-ante basis to detect and sanction breaches and offences to the applicable regulation. However, this might warrant some increase in the resources employed at the CSSF. These weaknesses should be addressed at short term.
Principle 18.	The CSSF should clarify its Circular on the role and responsibility of the UCI(TS) depositary, notably with regards to the duty of surveillance to be discharged by a depositary which delegates the custody of a UCITS assets to a third-party entity based abroad. Due to the mount importance of segregation and protection of client assets, it is recommended to the CSSF to amend the Circular IML 91/75 in order to clarify it and to bring requirements of UCI(TS) segregation and protection in line with international standards. This should be addressed at short term. The consequences of the use of a nominee (legally possible in some circumstances as provided by the civil Code) should be disclosed in a clearer and more prominent way. This should be addressed in the short term.
Principle 19.	As regard CIS prospectus review, the CSSF should use more frequently its enforcement powers to address situations in which the prospectus of a Luxembourg CIS does not properly allow investors, notably retail investors, to fully evaluate the suitability of the CIS for them. In addition to verifying on an ex-post basis whether investors adversely affected by divergence between the actual situation and the information described in the CIS prospectus have been adequately compensated, the CSSF should also strengthen its recent efforts to develop ongoing and surprise on-site, inspections with a view to ensure that the operators adequately and timely update the prospectuses of the CIS they manage.
Principle 20.	Similarly to what it is recommended with regards to Principle 17, the CSSF should maintain and strengthen its recent efforts to develop ongoing and surprise on-site inspections with a view to ensure that the operators adopt on an ex-ante basis adequate procedures for UCI(TS) valuation.

Principle 21.	Ideally, the power of granting the authorization and withdrawing it, if required, should be transferred to the CSSF itself. Nonetheless, this is not a priority.
Principle 22.	Specific attention should be paid to the question of whether capital standards are sufficient to allow an intermediary to absorb some losses and to wind down its business over a relatively short period without loss to its customers or disrupting the orderly functioning of the markets. This should be addressed at medium term (3 years) in cooperation with the Banque Centrale du Luxembourg.
Principle 24.	Although the current legislation may indirectly allow the CSSF to ring-fence client assets within a failing intermediary, investor protection would be improved by granting the CSSF with the power to move client accounts/assets from one (defaulting) intermediary to another in exceptional circumstances. This should be addressed at medium term (three years). The CSSF should implement early warning systems and resolution plans as part of its supervision on market intermediaries. This should be addressed at short term (one year). Finally, the comments made regarding Principle 12 and, in particular, with regards to domestic cooperation are reiterated here as they are of mount importance so far financial stability is concerned.
Principle 26.	Although no evidence of misuse of the current situation has been found, Luxembourg authorities could even improve the oversight of securities markets by granting the CSSF the power to confer and withdraw the market operator license provided legal and regulatory conditions are met. This could be addressed at medium term (three to four years).

D. Authorities' Response to the Assessment

79. **The Luxembourg authorities appreciate the work performed by the IMF to prepare this FSAP and are grateful for being given the opportunity to comment on the findings of the IMF.** The Luxembourg authorities essentially agree with the assessment made by the IMF, but would like to add the clarifications and comments made below, which are exclusively in relation to CIS related aspects of the FSAP. The CSSF would like to stress its commitment to further strengthen, as this has already been the case, its resources, including in the division in charge of the supervision of CIS and their operators, on a short and medium term basis.

80. **With respect to the different comments, findings and Principles in relation collective investment schemes, the CSSF has the following specific comments:**

- The CSSF considers that the absence of sanctions against actors in the CIS value chain (administrators or valuation agents and depositaries) and the specific focus of the CSSF practice, which has been to ensure systematic compensation of all investors in cases of losses to CIS investors due to errors in relation to the asset valuation/pricing of units in collective investment schemes (Principle 17 and 20), is justified due to the absence, in relative terms, of any concentration of acts and omission with defined actors in the CIS value chain. In relation to the reporting of errors of asset valuation/pricing of units in collective investment schemes, reporting

which as such is mandatory in only very few jurisdictions at European and non-European level, nothing has come to the attention of the CSSF that would indicate any disproportionate concentration of errors with certain specific actors in the CIS value chain subject to the prudential supervision of the CSSF. The CSSF has been looking more closely, beside others by way of on-site inspections, at those of the actors in the CIS value chain in relation to which an above-average reporting of the number of errors has been observed, without nevertheless considering that imposing sanctions was necessary.

- Recommended action on segregation and protection of client assets (Principle 18) states that Circular IML 91/75 shall be amended for the purpose of clarifying applicable CIS asset segregation requirements and to bring requirements of UCI(TS) asset segregation and protection in line with applicable IOSCO standards. The CSSF considers that local CIS laws and regulations correctly implement segregation and protection of client assets Principles as provided for under applicable European Union and IOSCO Principles. In this context it should be noted that the general Principle (which has historically been applicable to UCITS funds) according to which the mandate with regard to the core function of investment management shall not be given to the depositary, has been extended generally to all UCITS and non-UCITS funds under the Luxembourg law regarding collective investment schemes end of 2010 (Law dated 17.12.2010 concerning undertakings for collective investment). As a consequence of the financial crisis the general depositary duties and liabilities are in the process of being revised, beside others at European level. The CSSF, which supports and contributes to the discussions taking place at European level in this context, will implement changes resulting from those discussions in relation to the CIS depositary duties in due course.
- In relation to the assessment of the CSSF supervisory practice regarding the review of CIS prospectuses under the IOSCO principles related to Collective Investment Schemes, the CSSF considers that evidence has been given in the context of the assessment that such supervisory practice is fully in line with applicable IOSCO principles, and this in terms of both, the criteria on the basis of which such review is being performed as well as regarding the diligence applied in the review of all prospectuses (including the review of any changes made to such prospectuses).
- Recommended action in relation to clarification of investor rights and more specifically investor ownership rights states, that current regulatory practice in relation to the protection of investor rights in the event of major changes to investor rights as well as in relation to situations where the investor name is not registered in the fund registrar, shall be embedded in local regulations. The CSSF agrees with the recommended actions proposed by the assessor and will ensure that the proposed recommendations will be implemented rapidly.

III. CPSS/IOSCO Recommendations for Securities Settlement Systems[34]

81. **This assessment against the Recommendations for Securities Settlement Systems (RSSS)[35] was undertaken in February 2011, as a follow-up of the November 2010 IMF Financial Sector Assessment Program (FSAP) mission to Luxembourg.** It covers Clearstream Banking S.A. (CBL), which is a Luxembourg based ICSD, licensed as a general purpose bank under Luxembourg law. CBL is a subsidiary of the Luxembourg based company Clearstream International S.A., which belongs to the German Deutsche Börse Group AG.

82. **CBL is a key international financial market infrastructure. As one of the two largest ICSD in the world,[36] it has, over a period of 40 years, developed a strong position in the international fixed income market.** A core part of CBL's service offering is the settlement of transactions in global and international securities and domestic securities traded across borders. It also manages the securities it holds for over 1,200 financial institutions in 110 countries and its global network of domestic settlement links includes 50 countries. Besides core clearing and settlement services, CBL offers value added services in the area of collateral management, as a third party service provider.

A. Information and methodology used for assessment

83. **In 2010, the Banque Centrale du Luxembourg (BCL) and the Commission de Surveillance du Secteur Financier (CSSF) completed the first comprehensive formal assessment of CBL's observance** of the ESCB-CESR Recommendations for Securities Settlement Systems, which are derived from the CPSS-IOSCO RSSS. They provided it to the Fund, as well as documents relevant for the assessment. Extensive meetings were held with officials from the BCL and the CSSF, supplemented by discussions with officials from CBL as well as with representatives of three CBL participants, one CBL participant's client, two cash settlement banks, and the Luxembourg Stock Exchange (LSE).

84. **The assessment methodology for RSSS issued by the CPSS/IOSCO in November 2002 was used when assessing CBL.**

B. Institutional and Market Structure—Overview

85. **The LSE is a prominent market for the listing of international bonds and investment funds.** Equity listings are small relative to global stock market capitalization, but still very large in relation to the economy. Activity on the LSE is driven by primary issuance

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[34] The assessment was conducted by Christine Sampic.

[35] Issued in November 2001 by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO).

[36] The other large ICSD is Euroclear bank, based in Belgium.

and secondary trading plays a limited role. No central counterparty (CCP) is registered in Luxembourg. However, market participants may use the services of CCPs located outside the country, such as Frankfurt-based Eurex Clearing, London-based LCH Clearnet Limited, and Paris-based LCH Clearnet SA.

86. **There are currently two Luxembourg-based securities settlement systems. CBL is the main one.** The other one, VP Lux is a fully owned subsidiary of the Danish CSD VP SECURITIES, and was established in 2008 to enable Danish issuers to issue securities that are eligible as collateral in Eurosystem credit operations. A third system, LuxCSD, is being constituted as a joint venture between Clearstream International S.A. and BCL, to settle euro transactions in central bank money and be in a position to connect to the future Eurosystem settlement platform, Target2 Securities.

87. **In December 2010, the value of assets under custody in CBL was around €5 trillion.** About 20 million settlement transactions were processed in 2010, for a value of around €63 trillion.

C. Regulatory Framework—Overview

88. **As a licensed credit institution, CBL is supervised by the CSSF and must comply with banking requirements.** As an operator of a system, CBL is overseen by BCL.

D. Main Findings

89. **The overall assessment is that the system is reliable and effective in providing delivery versus payment settlement on a real time gross basis**. The ICSD benefits from large amounts of liquid resources; in particular, as a credit institution, it can access euro central bank liquidity by providing eligible collateral. Given the global systemic importance of CBL, more systematic liquidity and credit risk stress-testing of different kinds of disruptions should be implemented. In addition, the authorities should finalize a contingency plan to face a potential CBL's default; in particular pre-define arrangements to move participants' positions to a solvent intermediary and continue core functions. The role and responsibilities of relevant public authorities with respect to securities settlement activities are statute-based and transparent. The ICSD's supervision and oversight are undertaken by dedicated teams at the central bank and the banking supervisor, on the basis of clear and comprehensive procedures. They need to increase resources and skills in order to perform more risk-focused inspections and shorten the period needed to complete assessments.

Table 10. Luxembourg: Summary Observance

Responsibility	Comments
Legal risk	
1. Securities settlement systems should have a well-founded, clear and transparent legal basis in the relevant jurisdiction.	There is a consistent set of laws, regulations, and contractual arrangements that form a sound and clear legal foundation for settlement and custody activities. The Luxembourg's implementation of European directives provides a firm statutory foundation for netting, set-off and securities lending, consistently with the other member states. Both securities and payment transfers, when finalized, and default arrangements are protected from the ordinary operation of Luxembourg insolvency law. A draft law on immobilization and dematerialization is currently being worked out by the authorities. 2009 amendments to the Settlement Finality Directive that extend the protection of the system against a participant's insolvency to night time settlement and cross-border links are in the process of being transposed in Luxembourg law.
Pre-settlement risk	
2. Confirmation of trades between market participants should occur as soon as possible after trade execution, but no later than trade date (T+0). Where confirmation of trades by indirect market participants (such as institutional investors) is required, it should occur as soon as possible after trade execution, preferably on T+0, but no later than T+1.	Most trades between direct market participants are confirmed the same day, following international market standards. All DvP transactions must be matched before being settled in CBL. The regulatory authorities do not monitor the performance of the trade confirmation process.
3. Rolling settlement should be adopted in all securities markets. Final settlement should occur no later than T+3. The benefits and costs of a settlement cycle shorter than T+3 should be assessed.	Most trades are settled on a continuous basis, using a rolling settlement cycle, three days after trade execution for equities, and between zero and three days for debt instruments. Values and average duration of failed settlements are not available and not monitored.
4. The benefits and costs of a central counterparty should be assessed. Where such a mechanism is introduced, the central counterparty should rigorously control the risks it assumes.	Luxembourg has not introduced a CCP mechanism or a guarantee arrangement, due to the small size of the trading activity, and CBL's customers may chose to centrally clear their transactions before entering them in CBL, by resorting to CCPs located outside Luxembourg.

5. Securities lending and borrowing (or repurchase agreements and other economically equivalent transactions) should be encouraged as a method for expediting the settlement of securities transactions. Barriers that inhibit the practice of lending securities for this purpose should be removed.	CBL offers well-developed securities lending and collateral management services that contribute to the settlement process. They are clearly acknowledged in, and supported by, law, regulation, tax and accounting systems.
Settlement risk	
6. Securities should be immobilized or dematerialized and transferred by book entry in CSDs to the greatest extent possible.	In CBL, securities are held in book-entry form and immobilized as long as they remain in custody with the ICSD.
7. Securities settlement systems should eliminate principal risk by linking securities transfers to funds transfers in a way that achieves delivery versus payment.	CBL uses a model 1 DvP system, ensuring simultaneous final settlement of securities and funds transfers on a gross (trade-by-trade) basis.
8. Final settlement on a DVP basis should occur no later than the end of the settlement day. Intra-day or real-time finality should be provided where necessary to reduce risks.	CBL settles in quasi real-time throughout the day (more than 300 settlement cycles) complemented by a multi-batch settlement processing overnight. CBL allows unilateral revocation of non-settled transactions, even matched and late in the settlement day, which may create liquidity risk for participants.
9. Deferred net settlement systems should institute risk controls that, at a minimum, ensure timely settlement in the event that the participant with the largest obligation is unable to settle. In any system in which a CSD extends credit or arranges securities loans to facilitate settlement, best practice is for the resulting credit exposures to be fully collateralized.	CBL offers credit lines (mostly secured) and securities lending to increase settlement efficiency. It also invests funds held by its participants in its books. This creates credit and liquidity risks that need to be closely monitored and mitigated. The default of a large participant or several ones could have an impact on the efficiency of the settlement process (liquidity shock for the other participants). In addition, it could have an impact as far as credit and securities lending are concerned (credit risk for CBL and securities lenders). CBL already conducts monthly and quarterly stress tests; however, these should be complemented by including multiple participant failures, as well as the liquidity impact of the default of the participant with the largest exposure. The ICSD benefits from large amounts of liquid resources; in particular, as a credit institution, it can easily access euro central bank liquidity by providing eligible collateral.

10. Assets used to settle the cash leg of securities transactions between CSD members should carry little or no credit risk. If central bank money is not used, steps must be taken to protect CSD members from potential losses and liquidity pressures arising from the failure of a settlement bank.	CBL settles securities transaction in commercial bank money and is its own settlement agent; however, CBL has access to the Target2 system, which allows its customers to easily use central bank money to fund their euro activity in CBL. It is a general purpose bank, but its banking activities are only in relation to its settlement and custody administration services. Its overall credit and liquidity risks are subject to prudential requirements. Cash is deposited with cash correspondent banks, which execute payments and may provide CBL with free and mostly unsecured intra-day liquidity facilities, as well as overnight credit if need be. CBL determines which institutions can be used based on criteria such as rating, industry rank, liquidity, and operational efficiency. They are subject to supervision by local authorities. CBL monitors their operational performance and financial conditions on a continuous basis, as well as concentration of exposures.
Operational risk	
11. Sources of operational risk arising in the clearing and settlement process should be identified and minimized through the development of appropriate systems, controls and procedures. Systems should be reliable and secure, and have adequate, scalable capacity. Contingency plans and back-up facilities should be established to allow for timely recovery of operations and completion of the settlement process.	Operational risk is significant but well-controlled. The system is reliable and secure, and has adequate, scalable capacity. Contingency plans and back-up facilities are in place to allow for timely recovery of operations and completion of the settlement process. However, there is no compulsory contingency testing for the largest participants, and no third IT site (three sites architecture). No disaster recovery test, simulating operational disruptions at the level of the whole Luxembourg financial sector, has been organized yet.
Custody risk	
12. Entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities. It is essential that customers' securities be protected against the claims of a custodian's creditors.	Assets safekeeping is regulated by the CSSF. In the event of a custodian's bankruptcy, its clients would be entitled to claim their securities or equivalent securities deposited with CBL up to the amount that has not been reserved for CBL to cover ongoing transactions of the defaulting custodian's clients. However, there are no pre-defined arrangements to move clients' positions to a solvent custodian. Most of the securities held by CBL are sub-deposited with sub-custodians, mainly outside Luxembourg. However, legally, CBL holds depositors' accounts in Luxembourg and the rules of the ICSD select Luxembourg law as the applicable law. Continuous reconciliation is done to secure proper matching of custodians' positions with the underlying at CBL. The reconciliation process forms part of both the internal and external audit activities. The authorities are working on a contingency plan or resolution

	process to face a potential CBL's default; in particular to design pre-defined arrangements to move participants' positions to a solvent intermediary and continue core functions.
Other issues	
13. Governance arrangements for CSDs and central counterparties should be designed to fulfill public interest requirements and to promote the objectives of owners and users.	CBL governance arrangements are not primarily designed to fulfill public interest requirements and promote the objectives of users, but rather to make a profit for the benefit of the stakeholders of Deutsche Börse. However, in practice this objective is not currently contradictory with greater efficiency and safety of the system, as well as user satisfaction.
14. CSDs and central counterparties should have objective and publicly disclosed criteria for participation that permit fair and open access.	As a bank, CBL does not publish access criteria and access to CBL services is at CBL's discretion. The procedures for the exit of participants, whether initiated by the participant or by the ICSD, are clearly stated in the participant rules.
15. While maintaining safe and secure operations, securities settlement systems should be cost-effective in meeting the requirements of users.	The ICSD routinely reviews its pricing levels against its costs of operation. The Clearstream group has undertaken a cost reduction programme since the financial crisis. Ad-hoc surveys are used to assess user satisfaction with the system and the service it provides.
16. Securities settlement systems should use or accommodate the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions.	CBL uses the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions.
17. CSDs and central counterparties should provide market participants with sufficient information for them to accurately identify the risks and costs associated with using the CSD or central counterparty services.	CBL provides a number of information on its website, but could provide market participants with more information for them to accurately identify the risks and costs associated with using the ICSD.
18. Securities settlement systems should be subject to regulation and oversight. The responsibilities and objectives of the securities regulator and the central bank with respect to SSSs should be clearly defined, and their roles and major policies should be publicly disclosed. They should have the ability and resources to perform their responsibilities, including assessing and promoting implementation of these recommendations. They should cooperate with each other and with other relevant authorities.	The role and responsibilities of relevant public authorities with respect to securities settlement activities are statute-based and transparent. However, there is no formal framework for cooperation between BCL and CSSF, or a working document, detailing their respective roles and tasks, to reduce uncertainty and potential overlapping between the two authorities, and facilitate crisis management. There is no formal supervisory framework with Belgium authorities, even though CBL's activities are highly relevant for both Luxembourg and Belgium (through the Bridge with Euroclear Bank) .The ICSD's supervision and oversight are undertaken by dedicated teams at the CSSF and BCL, on the basis of written procedures. Given the global systemic importance of CBL, BCL and the CSSF need to increase resources and skills in order to perform more risk-focused inspections and shorten the period needed to

	complete assessments.
19. CSDs that establish links to settle cross-border trades should design and operate such links to reduce effectively the risks associated with cross-border settlement.	The ICDS has established a bilateral direct link via the Bridge to Euroclear Bank and several unilateral direct links with domestic settlement systems. Credit exposures stemming from the Bridge are collateralized. However, until now only one stress test has been performed to assess the level of liquidity in various currencies that is needed by CBL under extreme but plausible scenarios affecting the Bridge, and none for the other links.

Table 11. Luxembourg: Recommended Action Plan to Improve Observance

Reference Recommendation	Recommended Action
RSSS8	CBL should not allow unilateral revocation of non-settled matched transactions late in the settlement day so as to avoid the liquidity risks that such actions can create. CBL's Handbook should more clearly explain when unilateral or bilateral revocation of a transfer order is possible, and CBL should check if the definition of the moment of entry in the system is consistent with the Settlement Finality Directive requirements.
RSSS9	CBL should regularly evaluate the probability and impact of multiple participant failures.
RSSS13	CBL should publish more updated information on its governance arrangements (for example CBL's board composition, and the process by which major decisions are taken and management made accountable). Independent members should be included on CBL's board.
RSSS14	Access criteria should be objective, clearly stated, and publicly disclosed.
RSSS17	The fee structure should allow participants to easily calculate the cost of their participation in CBL. CBL should publish regularly updated activity statistics on its website. The CPSS/IOSCO questionnaire published on CBL's website should be up to date.
RSSS18	BCL and CSSF should establish a formal framework or a working document, detailing their respective roles and tasks. A formal supervisory framework with Belgium authorities should be established. BCL and the CSSF need to increase resources and skills for the oversight/supervision of CBL in order to perform more risk-focused inspections and shorten the period to complete assessments.
RSSS19	CBL should perform regular stress tests to assess the level of liquidity in various currencies that is needed by CBL under extreme but plausible scenarios affecting the Bridge and CBL's exposure on Euroclear Bank, as well as the other links.

E. Authorities' response to the assessment

90. The authorities welcome the IMF assessment of the securities settlement system (SSS) operated by Clearstream Banking S.A. against the CPSS-IOSCO Recommendations for SSSs and take note of its conclusions and observations. They are of the opinion that the IMF has performed a thorough and comprehensive assessment in a dynamic and interactive way.