

Cyprus: Selected Issues

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CYPRUS

Selected Issues

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Approved by the European Department

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I. GROWING CHALLENGES IN THE CYPRUS FINANCIAL SECTOR¹

A. Introduction

1. **The financial sector is mostly comprised of the banking sector, which largely provides insurance and asset management services as well.**² There are 43 banks

operating in Cyprus, of which eight have Cyprus as their home country; the rest are branches or subsidiaries of foreign banks. Banks whose home country is Cyprus have assets of €108.3 billion (639 percent of GDP); of this total 85 percent are held by commercial banks, and the remaining by cooperative credit societies, or cooperatives. These two types of institutions differ mostly in terms of ownership structure and historical

evolution of business practices. While both types of banks rely largely on a traditional deposit taking and credit granting model, cooperatives have historically been more focused on lending in communities to retail customers based almost exclusively on retail deposit funding. Unlike most commercial banks, cooperatives are not owned by shareholders but by their members who need not be depositors.³ Excess liquidity of individual cooperatives is deposited with the Cooperative Central Bank (CCB), which serves as the lender of last resort—guaranteeing all liabilities of affiliated cooperatives. There are 111 cooperatives at present, a number that has come down considerably from 365 following a period of consolidation after EU accession in 2004. One cooperative institution, the largest, is not affiliated with the CCB and has to comply with EU regulations on a stand-alone basis; nevertheless, the CCB acts also as a lender of last resort for this cooperative.

2. **A large part of banking system assets relates to subsidiaries and branches of foreign banks.** One of the subsidiaries with total assets of €8.9 billion is in the process of merging with its parent and will cease to have a presence in Cyprus by the end of 2010. Subsidiaries of Greek banks have assets amounting to €46.1 billion (270 percent of GDP). They are mostly funded by parent banks (amounting to €33 billion in aggregate); deposits collected in Cyprus total €9 billion, of which €5 billion is from non-residents.

Cyprus: Banking System Structure

(Millions of euros, unless noted otherwise) 1/

	Assets	% of GDP
Total banking system	176,339	1041
EU branches	1,188	7
Non EU branches	5,996	35
Subsidiaries of foreign banks	60,873	359
Local banks	108,282	639
<i>of which: coops</i>	15,886	94
<i>of which: commercial banks</i>	92,396	545

Source: Central Bank of Cyprus.

1/ As of end of May, 2010.

¹ Prepared by Mustafa Saiyid (MCM).

² Non-bank financial institutions include pension funds, insurance companies, and investment companies, with assets of €6.6 billion, €3.5 billion, and €1.4 billion as of end-2009 respectively.

³ Physical persons can only borrow from a co-operative if they are members of that cooperative.

B. Stability and Soundness of the Banking Sector

3. **The banking sector poses risks by virtue of its size and concentration.** With assets a multiple of GDP (more than six times excluding subsidiaries and branches of foreign banks, and 10 times when they are included), the banking sector is large relative to the economy. Moreover it is relatively concentrated, with the landscape dominated by three domestic groups—the Bank of Cyprus, Marfin Popular Bank, and Hellenic Bank. Together these three banks hold about 56 percent of total consolidated banking assets excluding the cooperative banks. All three banks are incorporated locally but operate internationally (Greece, UK, Australia, Russia, Ukraine, Serbia, Estonia, Malta, Channel Islands and Romania). Foreign presence in the domestic market is growing and significant, with Greece’s Alpha Bank the predominant foreign player.

4. **The Cypriot banking system has weathered the crisis better than many other euro zone area countries.** In addition to being adequately capitalized, banks remain profitable compared with peer banking systems, and liquidity ratios are comfortable, although below median for euro-zone peers (Figure I-1). Perceived safety (high credit ratings) have allowed banks to attract deposits from Greece. The traditional business model with high reliance on retail deposit funding has resulted in interest margins being a significant contributor to bank profits.

5. **Bank capital remains adequate from a regulatory standpoint.** The risk-weighted capital adequacy ratio (CAR) of the banking system (excluding the cooperatives) was 12.1 percent at end 2009, compared with 11.0 percent at the end of 2008 (Table I-1). Nevertheless, profitability has declined, partly induced by competition on deposit rates with Greek banks and with cooperatives recently, mark-to-market losses on assets, and provisions for non-performing loans (NPLs). Deposit rates came down following the accession of Cyprus to the euro area, but they remain structurally higher than elsewhere in the euro area. Commercial bank managers believe that cooperatives have been able to offer higher rates on deposits because of the absence of a level playing field from the perspective of regulation (in particular less stringent NPLs classification norms than those applying to commercial banks) and tax treatment.^{4 5}

⁴ NPLs in the cooperatives are compiled on the basis of a 270-day rather than 90-day delinquency rate. While no estimate was provided to staff, NPLs for the cooperative banks may be undervalued by half or more.

⁵ For instance, bank managers point to favorable tax treatment for cooperatives under the current tax regime. Unlike cooperatives, commercial banks must pay a 15 percent tax on 70 percent of income that is not distributed as dividends to shareholders over a period of 2 years in addition to the 10 percent tax charged on income for the year. Cooperatives pay income tax only on the portion of their income emanating from non-members of the cooperative.

Table I-1. Cyprus: Financial Soundness Indicators , 2005–2010 1/
(Percent)

	2005	2006	2007	2008	2009	Mar-10
Commercial Banks						
Core Set						
Regulatory capital to risk-weighted assets	12.4	12.4	12.8	11.0	12.1	11.9
Regulatory Tier I capital to risk-weighted assets	10.0	10.8	10.4	8.3	9.5	10.3
Nonperforming loans net of provisions to capital 2/	34.8	20.4	9.0	16.2	23.5	25.8
Nonperforming loans to total gross loans 3/	7.1	5.4	3.4	3.6	4.5	4.9
Return on assets	0.8	1.4	2.3	1.2	0.8	0.7
Return on equity	14.1	25.5	37.3	16.4	14.0	14.6
Interest margin to gross income	66.2	66.1	55.9	67.9	66.7	72.2
Noninterest expenses to gross income	59.1	49.0	42.6	52.1	50.6	50.8
Liquid assets to total assets (broad measure)	...	...	...	36.5	40.0	39.5
Liquid assets to total assets (core measure)	29.5	31.1	29.5	27.6	30.6	29.8
Liquid assets to short-term liabilities (broad measure)	...	...	...	46.5	51.1	51.6
Liquid assets to short-term liabilities (core measure)	34.9	37.1	35.9	35.2	39.1	39.0
Net open position in foreign exchange to capital	2.0	2.1	1.4	0.8	1.0	1.5
Optional Indicators						
Trading income to total income	5.7	7.5	9.1	1.8	8.7	7.4
Personnel expenses to noninterest expenses	62.2	62.9	57.6	58.1	59.4	60.9
Customer deposits to total (non-interbank) loans	134.7	132.2	122.7	94.2	90.5	92.3
Cooperative Credit Societies						
Core set						
Regulatory capital to risk-weighted assets	12.10	13.80	...	...	10.03	...
Regulatory Tier I capital to risk-weighted assets	12.10	13.80	...	...	9.1	...
Nonperforming loans net of provisions to capital 4/	...	...	...	...	52.1	60.0
Nonperforming loans to total gross loans 4/	...	...	...	...	8.1	9.2
Return on assets	0.6	0.7	1.1	0.9	0.7	...
Return on equity	8.4	9.4	15.2	11.4	10.0	...
Interest margin to gross income	158.5	151.1	83.1	84.9	84.3	...
Non-interest expenses to gross income	135.0	115.6	42.5	53.1	62.3	...
Liquid assets to total assets	26.8	29.5	28.5	19.6	27.4	27.3
Liquid assets to short-term liabilities	28.7	26.5	30.8	21.4	29.6	29.5
Net open position in foreign exchange to capital	0.0	0.1	-0.2	-0.1	0.1	0.2
Optional indicators						
Personnel expenses to non-interest expenses	...	40.2	40.5	39.1	42.9	45.7
Customer deposits to total (non-interbank) loans	129.2	133.9	131.4	116.6	126.2	128.3
Spread between reference lending and deposit rates	1.8	1.9	1.7	1.6	1.7	...
Residential real estate loans to total loans	32.0	32.0	35.2	36.4	36.3	36.7
Commercial real estate loans to total loans	17.5	17.3	16.5	16.9	17.7	18.6

Sources: Central Bank of Cyprus; and Authority for the Supervision and Development of Cooperative Credit Societies.

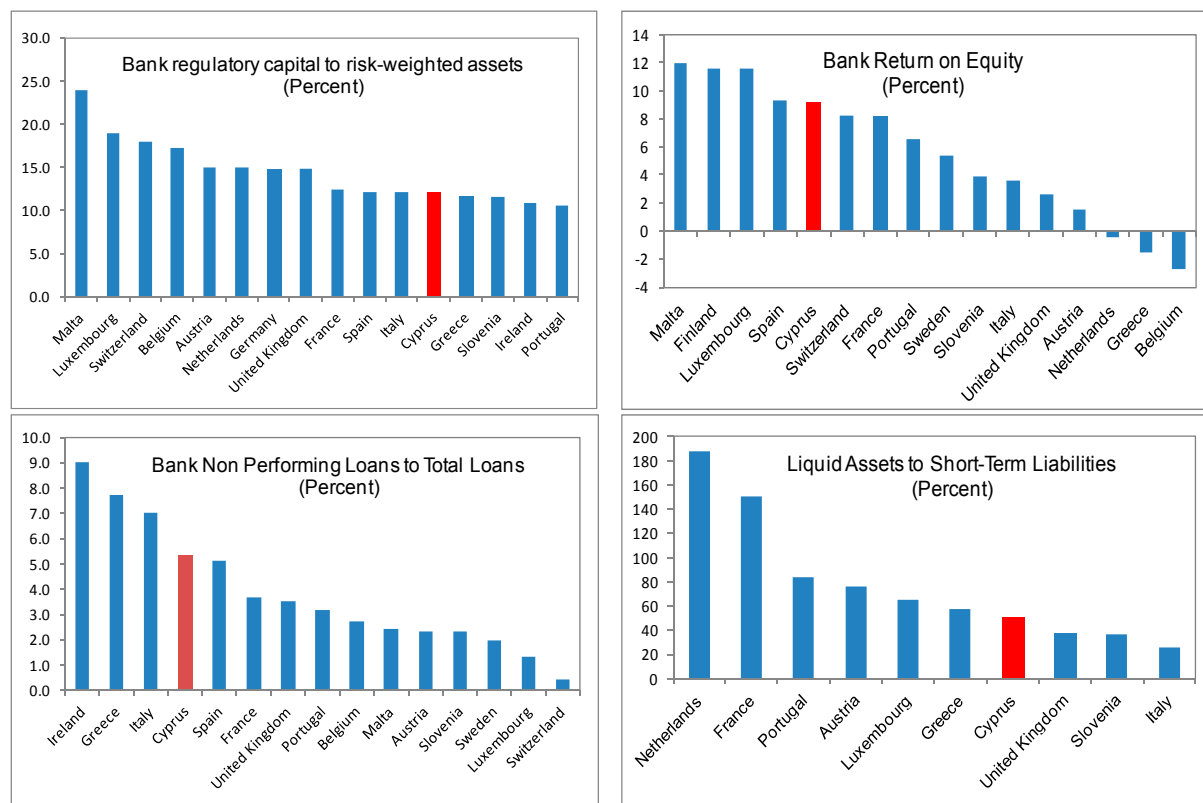
1/ Data for 2005 onwards are for deposit-takers compiled on a domestically-controlled, cross-border consolidation basis do not include the cooperative credit societies and foreign-controlled banks.

2/ Data for 2008 and onwards are for deposit-takers compiled on a cross-border and cross-sector for all domestically incorporated institutions. Due to methodological changes the data for 2008 and onwards is not comparable with historical data.

3/ The numbers are not fully comparable over time. The threshold for classifying loans as non-performing was changed from 6 months in arrears to 3 months in 2006. Data 2005 onwards are compiled according to the methodology and specifications provided in the IMF "Compilation Guide on Financial Soundness Indicators." The decline in nonperforming loan (NPL) ratios since 2005 reflects stricter lending criteria, repayments and write-offs of NPLs as well as denominator effects (growth in capital/loans).

4/ Non-performing loan data available only from 2009.

Figure I-1. Cyprus: Selected Financial Stability Indicators, 2009



Source: IMF, October 2010 GFSR. Cyprus data is for local commercial banks only.

6. **Exposure to Greece is a significant source of vulnerability.** Local commercial banks' exposure includes holdings of Greek government bonds and Greek bank bonds of €5.5 billion and an estimated €0.5 billion respectively. In addition to exposure via holdings of Greek securities these banks have, through their Greek branches or subsidiaries, significant direct lending to Greek households and corporates. For the three largest banks these are reportedly exposures of 38 percent, 53 percent, and 22 percent respectively, corresponding to direct lending of €23 billion. Subsidiaries of foreign, mostly Greek, banks have also a high exposure to Greece, including €6.6 billion of government bonds and an estimated €6.5 billion of bank bonds. These exposures do not include interbank loans.

7. **Estimated potential losses on Greek exposure for local commercial banks could be of the order of €2 billion by 2013–14, equivalent to about 12 percent of GDP and 30 percent of equity.** This estimate is based on an adverse scenario assuming cumulative loan

Estimated Exposure of Local Commercial Banks to Greece 1/

	Holdings	Yield change	Estimated	Estimated	Holdings at	MTM Loss
	Oct. 09 - Jul.	Oct. 09 - Jul.	Duration	Price Change	Fair Value	Oct. 09 - July
	10 (bps)	10 (bps)	(yrs)	(pct. of par)	(pct. of total)	10
Greek gov. bonds	5.5	750	4	30	23.5	0.4
Greek bank bonds	0.5	800	4	32	23.5	0.0
Total securities	6.0					0.4
	Current NPL	Loss Given	Cumulative	Projected	Projected	
	(pct. of total)	Default	Loss	NPL 2013-14	Cumulative	
		(pct. of par)		(pct. of total)	Loss 2013-14	
Direct loans	23.1	7	50	0.8	14	1.6
Total securities & loans	29.1	...	...	...	...	2.0

Sources: Central Bank of Cyprus; dealer reports; and IMF staff estimates (July 2010).
1/ Excludes interbank loans. In billion of euros unless otherwise indicated.

losses in combination with market losses on securities, based on the latest available CBC data.⁶ For direct loans to Greek households and corporates, a potential cumulative loss is estimated as €1.6 billion, based on a projection that NPLs could double from the present level of 7 percent by 2013–14, and assuming a recovery rate of 50 percent. For securities, mark-to-market (MTM) potential losses are estimated based on changes in pricing of Greek securities held at fair value over October 2009 through July 2010. For local commercial banks, 23.5 percent of securities are assumed held at fair value according to official data. Potential losses for subsidiaries of foreign banks, mostly Greek, on exposures to Greece⁷ are estimated at a further

€0.2 billion, given an estimated holding of securities at fair value of only 1.5 percent of the total portfolio, and potential losses on their direct loan portfolio which assumes a doubling of NPLs and a recovery rate of 50 percent. Potential losses could be higher due to interbank exposures with Greece in case of counterparty failures: local commercial banks have €1.5 billion worth of interbank exposure to Greece; subsidiaries of foreign banks have €11 billion of such exposure, which are assumed to be largely placements with parent banks.

8. Banks are also exposed to deteriorating macroeconomic conditions in Cyprus.

NPLs reported by commercial banks on loans, excluding those fully covered by collateral, have risen in all sectors to 5.3 percent at end-2009 compared with 4.0 percent at end-2008.^{8 9} They may rise further until economic conditions bottom out and growth resumes. By comparison, NPLs reported by cooperatives at end-2009 were 8.1 percent; given that this is based on a weaker definition of NPLs, and while no estimate was provided to staff, NPLs for cooperative banks may be understated. The significant exposure of both local commercial banks and cooperatives to real estate and construction sectors add to the vulnerabilities given the downturn in these sectors in the recent period.

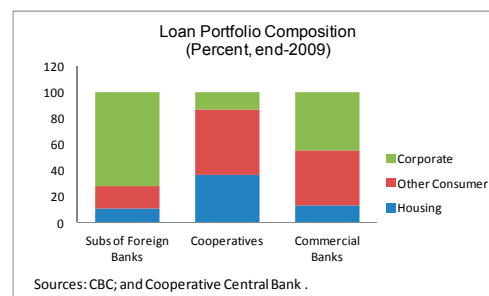
Estimated Exposure of Cyprus Subsidiaries of Greek Banks to Greece 1/

	Holdings	Yield change Oct. 09 - Jul. y 10 (bps)	Estimated Duration (yrs)	Estimated Price Change (pct. of par)	Holdings at Fair Value (pct. of total)	MTM Loss Oct. 09 - May 10
Greek gov. bonds	6.6	750	4	30	1.5	0.0
Greek bank bonds	6.5	800	4	32	1.5	0.0
Total securities	13.1					0.1

	Current NPL (pct. of total)	Loss Given Default (pct. of par)	Cumulative Loss	Projected NPL 2013-14 (pct. of total)	Projected Total Loss 2013-14
Direct loans	1.3	7	50	0.0	14
Total securities & loans	14.4	...	...	...	0.2

Sources: Central Bank of Cyprus; dealer reports; and IMF staff estimates (July 2010).

1/ Excludes interbank loans. In billion of euros unless otherwise indicated.



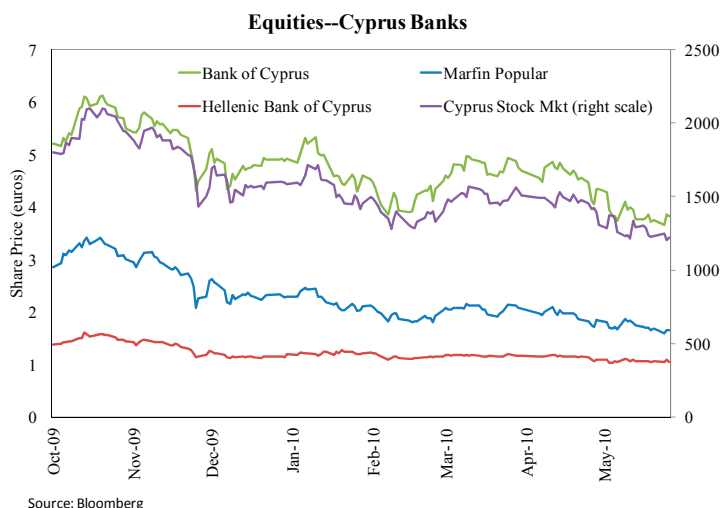
⁶ This estimate does not take into account, as a compensating factor, the capacity of the banks to generate profits to cover all or part of the losses.

⁷ Most of these exposures are the result of transactions booked in Cyprus for tax reasons, which are largely financed by the parent banks.

⁸ NPLs on commercial bank loans are much higher when loans fully covered by collateral are not excluded: 9.8 percent in March 2010, compared with 8.9 percent at the end of December.

⁹ This level of NPLs relates only to credit facilities to customers and excludes interbank exposures.

9. **In recent months, market concerns have risen regarding Cypriot banks.** Equities have weakened mostly due to regional concerns about Greece. Fitch recently revised its short-term outlook for the nation's two largest banks to negative due to Greece exposure; however it continues to maintain long-term investment grade ratings (BBB+ / BBB) for the three largest banks. S&P placed the sovereign on a negative credit outlook, highlighting, in part, concerns about the exposure of the financial sector to Greece.



10. **In anticipation of deterioration in loan portfolios, bank managers have acted defensively.** Given that the first cushion for losses has to come from retained earnings, bank managers have lowered dividend payout ratios from a pre-crisis average of 50 percent to around 30 percent. However, they indicate that further reduction become difficult due to adverse tax consequences.¹⁰ In terms of supporting net income, banks have been cutting operational costs; strengthening non-interest margins by expanding in some countries, such as Russia; and seeking to bolster fee-based activities such as investment banking, asset management and insurance. On the asset side, banks are increasing loan loss provisions; tightening underwriting standards for new lending; and proactively rescheduling problem loans with borrowers. On the funding side, banks are seeking to increase rates to attract deposits, while seeking to diversify sources of funding e.g. through the issue of covered bonds when the legislation is put in place.

11. **For its part, the government has helped provide funding support to banks through the implementation of a special government bond scheme (SGBS).** Since the last quarter of 2009, the government has issued close to €3.0 billion worth of zero-coupon bonds to banks for the sole purpose of obtaining liquidity from the ECB or the interbank market. Although the size of the scheme is equivalent to almost 18 percent of GDP, it corresponds to only 2 percent of the assets of eligible institutions. The bonds, which carry a maximum term up to three years, were issued against high-quality collateral comprised of domestic housing

¹⁰ Commercial banks must pay an additional 15 percent tax on 70 percent of income that is not distributed as dividends to shareholders over a period of 2 years.

and small-medium size enterprise loans. Although the bonds do not pay a coupon, the government receives a commission of 90 basis points for the bonds issued.¹¹

12. **In order to protect the government's potential liability, a number of requirements were set for banks seeking to participate in the scheme.** There was a limitation on the use of the special bonds by individual banks up to 7 percent of customer deposits; a requirement to replace non-performing loans in the collateral immediately; and the need for banks to be compliant with prudential CAR (of 8 percent) and liquidity requirements set by the CBC or the Authority for the Supervision and Development of Cooperative Societies (ASDCS). In addition, beneficiary financial institutions are required to provide monthly reporting on the collateral, which is being monitored on-site by the CBC and ASDCS. In the event that a participating bank is unable to fulfill its obligations under the scheme, then the government would take over the collateral and could ultimately have recourse against the bank itself.

13. **The bonds, which banks have pledged to the ECB, were reportedly used to obtain cheap funding and to lower their average cost of funds.** Part of the liquidity raised from the ECB was used to phase out deposits that the government had made in some banks (about €0.5 billion) and that were financed by a special issuance of treasury bills in 2009. Nine banks have benefited from the scheme (including the Cooperative Central Bank, which in turn distributed bonds to some individual cooperative credit societies).

14. **Consistent with a July 2009 Eurostat decision the bonds have been recorded as a securities lending transaction.** In the event that the loss for the government becomes large, or if the scheme is extended beyond its original date, the bonds may have to be recorded in the government debt. The adoption of covered bond legislation in Cyprus is expected to facilitate repayment by the banks of the support that they have received as they will have access to additional sources of funding.

15. **The authorities indicate that the SGBS was designed to enhance liquidity in the economy via the banking system in the absence of covered bond legislation.** In other euro area countries, notably in Greece, banks have been able to use covered bonds effectively to obtain funding support from the ECB facility. The authorities expect that covered bond legislation will pass in late 2010. Some banks have already factored in the extent of funding they expect to get from covered bonds.

16. **Recent official stress tests conducted by the CBC on the largest and systemic commercial banks indicate these financial institutions have the capacity to absorb further shocks, but resilience of cooperative credit societies is harder to assess.**

¹¹ The scheme, which was reviewed by the European Commission and benefited from an opinion of the ECB, aims at enhancing liquidity in the economy in the context of the adverse effects of the global crisis.

According to the CBC, a doubling of NPLs from the end-2009 level with a 50 percent recovery rate would cause the regulatory capital ratio of local commercial banks to drop by 3.2 percentage points but still remain above the regulatory minimum of 8 percent. On the other hand, stress tests carried out on cooperatives by their supervisor (the Authority for the Supervision and Development of Cooperative Societies-ASDCS) were less stringent. The ASDCS noted that the capital of cooperatives remained above the regulatory minimum for a 2 percentage point increase in NPLs from the level of 9.2 percent. These results are difficult to compare, in part due to weaker NPL classification standards applied by the ASDCS.

17. The July 2010 EU-wide stress testing exercise coordinated by the Committee of European Banking Supervisors (CEBS) that was performed for two of the largest banks provide further comfort that banks will be able to withstand significant deterioration in the market environment. Both banks, Bank of Cyprus and Marfin Popular Bank, passed the tests, which required Tier 1 capital to exceed a hurdle of 6 percent. As a result of the assumed shock under the adverse scenario, the estimated consolidated Tier 1 capital ratio for Bank of Cyprus would change to 9.4 percent in 2011 compared to 10.5 percent as of end of 2009 and for Marfin Popular Bank it would change to 8.5 percent in 2011 compared to 9.4 percent as of end of 2009. An additional sovereign risk scenario would have a further impact of 1.4 percentage points on the estimated Tier 1 capital ratio of Bank of Cyprus, bringing it to 8.0 percent at the end of 2011 and 1.4 percentage points to 7.1 percent for Marfin Popular Bank. Hellenic Bank voluntarily carried out the CEBS stress test in cooperation with the Central Bank of Cyprus and has announced that its Tier 1 ratio would change to 8.9 percent in 2011 compared to 9 percent at the end of 2009 and after the additional sovereign risk scenario it would decrease to 8.3 percent. Moreover, all four Greek banks operating through subsidiaries in Cyprus have passed the CEBS stress test.

C. Financial Supervision, Crisis Management and Contingency Planning

18. There are two different supervisors for commercial banks and cooperative credit institutions, the CBC and the Authority for the Supervision and Development of Cooperative Societies (ASDCS) respectively. A number of improvements in the supervisory framework for commercial banks have been adopted recently, including: (i) a decrease in limits on lending to connected persons; (ii) an increase in frequency of prudential reporting of the CAR and large exposures to quarterly; and (iii) an increase in the level of and extent of monetary penalties. No progress was made regarding the 2008 FSAP recommended one single supervisor for banks and cooperative credit institutions, and the reform is not on the political agenda.

19. The CBC's has broad powers in a crisis situation that could be strengthened further. The CBC has specific (e.g., removal of bank director or manager) and broad (assumption of control for as long as is deemed necessary without a court order) powers and may impose restrictions on banks to prevent financial deterioration, facilitating the identification of appropriate remedies in a timely response. These elements could be

supplemented by explicitly allowing the disclosure of remedial action, and the use of quantitative and qualitative supervisory frameworks with more explicit intervention triggers in order to ensure that early remedial action is taken.

20. **The deposit insurance schemes were strengthened in July 2009.** The maximum amount of compensation per depositor per bank has been increased to €100,000 from €20,000. All currencies of deposits are now covered whereas before only the currencies of member states of the EU were covered. Coinsurance has been abolished and, therefore, claims up to €100,000 are fully reimbursed (whereas before only 90% of the claims was covered). Following these changes, Cyprus' deposit protection scheme is considered to be at par with similar funds in the EU and especially with Greece, a particularly positive development given the interconnectedness of the Cyprus and Greek banking systems due to the cross-border presence of Cypriot banks in Greece and Greek banks in Cyprus.

21. **The size of the deposit insurance facility for commercial banks is about 0.5 percent of amounts covered and may be raised to 3 percent in case of need.** For the overall system, the deposit insurance facility with initial capital of €100 million provides €21.7 billion in coverage for €55.3 billion in deposits as of March 2010. In case of need, the size of the deposit insurance facility may be increased significantly by requiring additional capital from banks, which would raise the total size of the facility to 3 percent of the coverage provided. By comparison, the size of deposit insurance funds globally varies significantly from 1.25 percent of total deposits in the U.S. to 20 percent in Serbia and Kenya with most funds gravitating toward 5 percent of total deposits.¹²

22. **A domestic coordination framework for a crisis situation is in place.** All financial sector supervisors (the CBC in its dual role as central banker and supervisor) meet with the Ministry of Finance (MoF) on a quarterly basis. The 2008 FSAP recommended (i) the establishment of explicit bank capital thresholds that would trigger consultation between the supervisor and the MoF; (ii) clarification of timing and responsibility for the process; and (iii) coordination of public messages. In order to implement these recommendations a draft law allowing government intervention in case of a financial crisis was submitted to Parliament and it is expected to be approved by early 2011.

23. **As a member of the EU, Cyprus is a member of regional supervisory frameworks—and it has signed MoU for cooperation between home and host supervisors.** These frameworks include: (i) a notification mechanism in the Eurosystem for ELA beyond a certain threshold; (ii) a MoU linking the financial supervisory authorities, central banks, and MoFs of the EU on cross-border financial stability; (iii) a bilateral MoU with the Greek supervisory authorities; (iv) a multilateral MoU with the banking supervisors

¹² See Hoelscher, Taylor, and Klueh, 2006, "The Design and Implementation of Deposit Insurance Systems," Occasional Paper (International Monetary Fund, Washington, D.C.), pp. 49-56.

of South Eastern Europe; (v) participation in the Committee on European Banking Supervisors (CEBS); and (vi) participation as host supervisor in supervisory colleges organized by the home supervisors of foreign subsidiaries and organizations as home supervisors colleges for local banks with cross border activities.

D. Conclusions

24. **Significant headwinds for the overall banking system are expected, and the cooperative banks appear particularly vulnerable.** Commercial banks are exposed to further deterioration of loan portfolios in both Greece and Cyprus. Market losses in the valuation of Greek securities are limited as banks reclassified most of their holdings into the held to maturity category where bonds are recorded at amortized cost. Compared with commercial banks, cooperative credit societies would only be affected by macroeconomic deterioration in Cyprus, but a combination of high exposure to the real estate market, weaker underwriting standards as evidenced by high NPLs using a weaker definition, and lower overall levels of capital, pose higher risks for this sector.

25. **It is imperative to establish a level playing field for the banking system.** Bank managers indicated that they had no need to tap the ECB facility for funding but did so in order to reduce overall funding costs and improve competition for deposits with cooperatives credit societies. Eliminating distortions, in particular regarding the dual supervisory regime and tax regime, which favor cooperatives credit societies over commercial banks, would go a long way towards establishing a level playing field.

26. **As loan portfolio performance weakens, banking supervisory authorities are taking appropriate steps.** They are pushing for new legislation to improve funding prospects for banks through the introduction of covered bond legislation; conducting stress tests to identify vulnerabilities of individual banks; and increasing dialogue with bank managers and regional supervisors to foster cooperation in advance of potential difficulties. In addition to these steps, the authorities may wish to proactively increase the size of the deposit insurance facility to align it more closely with international best practice.

27. **Even though burden sharing between home and host country supervisors is still being discussed at the EU level, Cypriot bank supervisors may wish to seek written commitments from other regional supervisors regarding responsibilities in a crisis situation.** The present (unwritten) understanding that Greek supervisors would take responsibility for the failure of a Greek subsidiary is inconsistent with current EU practice, in which host country supervisors are responsible for foreign bank subsidiaries. It would be important to clarify this commitment since subsidiaries of foreign banks may be exposed to further deterioration in the quality of their loan portfolio until economic conditions in both Greece and Cyprus bottom out and growth resumes; and they will also bear significant counterparty risks arising from large interbank exposures. In addition, the recent crisis management experience, where a foreign subsidiary received a capital injection from the

home country government, highlighted the need for a crisis manual. Such a document would spell out the process to be followed in a crisis situation, identify key personnel, set out timelines, and have sample communications ready to go.

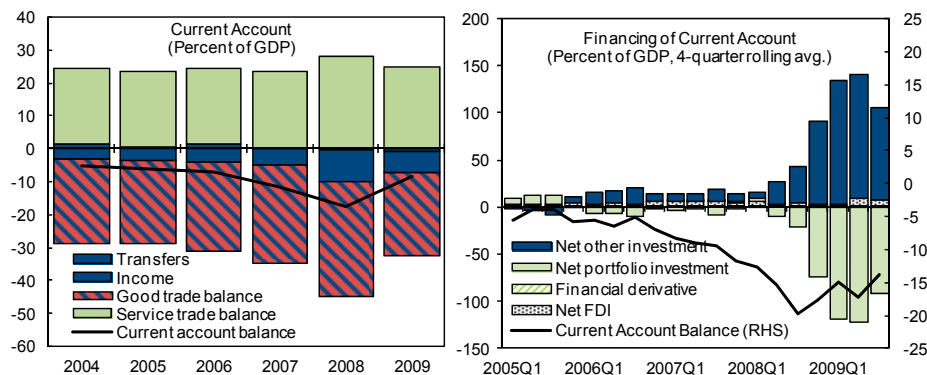
28. **While the 2008 FSAP recommendation of unified supervision appears difficult to achieve at this juncture given the political environment, efforts should be made to harmonize supervisory practices between the ASDCS and the CBC.** Achieving consistency in the definitions of NPLs and conducting similar stress tests for commercial banks and cooperative credit societies would go a long way towards identifying vulnerabilities. This would help the authorities take appropriate and preventive action to mitigate risks. The recent consolidation of cooperatives is expected to make supervision easier. Measures to bolster the supervision and transparency of the cooperatives, and ultimately a single independent supervisor for all credit institutions operating in Cyprus, would ensure a level playing field in the financial sector. That would help contain the potential for unhealthy competition for deposits, contribute to lowering deposits rates in Cyprus, and reduce the incentives for recourse to ECB liquidity for purposes other than the intended ones.

II. EXTERNAL COMPETITIVENESS ASSESSMENT¹

Cyprus' persistent current account deficits over the last decade point to competitiveness problems. This note reviews price and non-price indicators to assess the existence of a competitiveness gap in Cyprus and the factors underlying it. Results show that, while productivity growth has been higher in Cyprus than in the euro area, wages growth outstripped productivity gains. As a result, unit labor costs grew more rapidly than in peer countries, implying a steady loss of competitiveness vis-à-vis Cyprus' trading partners. A solid labor market and a dynamic service sector have somehow preserved Cyprus productivity but action to restore a healthy competitive business environment is needed. Structural measures to enhance efficiency and labor market flexibility, and a revision of the current wage indexation system would increase the capacity of the economy to adjust to external shocks and curb unit labor cost growth, while curtailing government consumption expenditure would increase national saving thereby reducing the current account deficit and lessen real exchange rate appreciation.

A. Introduction

1. **Cyprus experienced persistently negative current account balances since 1995² suggesting weak competitiveness.** Increasingly negative goods trade balance have been only partially offset by surpluses in the services balance, resulting in average trade deficits of 6 percent of GDP since 1995. Although the impact on macroeconomic stability of large current account deficits has been reduced since Cyprus adopted the euro, recurrent deficits point to potential competitiveness problems. Moreover, the financing of the current account imbalances has been guaranteed by sustained capital inflows mostly in the form of short-term non-resident deposits with domestic financial institutions. This exposes the country to external vulnerabilities since the volatile nature of these inflows creates uncertainties with regard to Cyprus' balance of payments sustainability.



¹ Prepared by Valentina Flamini (EUR).

² The only exception was 1998, with a surplus of 3.1 percent of GDP.

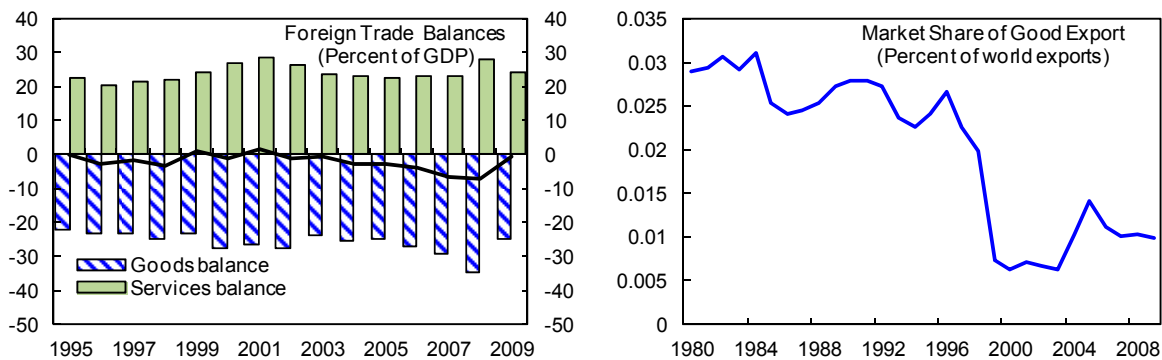
2. **Safeguarding competitiveness is a focal challenge within the context of a monetary union in the absence of exchange rate flexibility.** The performance and flexibility of its labor market as an adjustment channel to asymmetric shocks has become critical for the successful participation of Cyprus in the economic and monetary union (EMU) and even more in the context of the current economic downturn. A competitive and flexible economy can also facilitate the stabilizing role of fiscal policy which is the primary macroeconomic policy tool that is retained by members of a monetary union.

3. **This note reviews Cyprus' price and non-price competitiveness indicators and draws some tentative conclusions as regards the existence of a competitiveness gap, its underlying factors and the structural reforms needed to restore external competitiveness.** The rest of the note is organized as follows. Section B reviews Cyprus competitiveness performance by looking at the main price and non-price indicators and a series of comprehensive indicators developed by international institutions. Section C looks at labor market developments. Section D discusses the wage indexation mechanism and its implications for competitiveness. Section E elaborates on the role of the Service sector. Section F concludes and discusses policy implications.

B. Measuring Competitiveness

Export Market Share Indicators

4. **Cyprus market share in goods has been on a declining trend since the early 1990s with the decline accelerating since the mid 1990s on the backdrop of a rapidly increasing share of service exports on international markets.** As the increasingly service oriented economy has caught up with income levels in more advanced economies, rising labor costs in Cyprus have eroded its earlier comparative advantages in some labor intensive manufacturing sectors. More recently, Cyprus' closer integration to the EU economy during the years prior to EU accession has increased competition in the export market for goods contributing to losses in Cypriot market shares in the EU and global market.

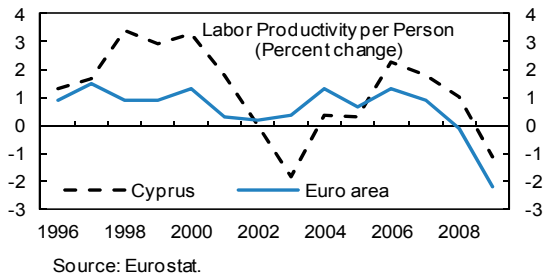


Sources: WEO; and Eurostat.

5. **The rapid increase in several categories of high value service exports has crowded out the market share of good exports and only partially compensated the increase in good imports, resulting in a recurrently negative balance of trade in goods and services.** Diversification in ship transportation and construction as well as financial and other business services has more than offset the decline in tourism revenues thus enabling Cyprus to increase its market share of exports of services. However, persistent surpluses in the services balance have not squared with increasingly negative deficits in the balance on goods thus generating persistently negative trade balances over time.

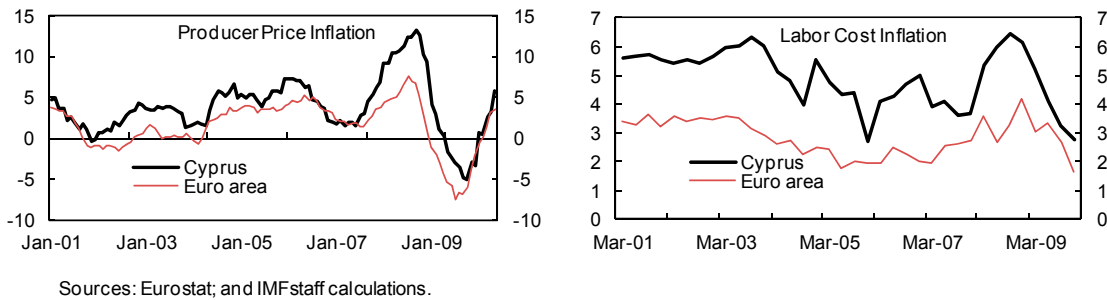
Productivity and Price Indicators

6. **Labor productivity in Cyprus grew slightly faster than in the euro area over the last decade.** Robust growth, sustained by strong labor supply and a friendly business taxation environment has allowed Cyprus to achieve high productivity rates and embark in a



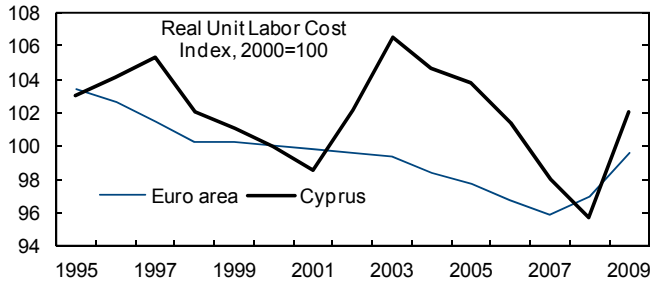
successful real convergence with the EU and accession to the euro. Cyprus real GDP has been growing at an annual average rate of almost 4 percent since 1995, compared to 1.7 in the euro area while employment grew by 2.2 percent, sustained by inflows of foreign workers and a historically low unemployment rate.

7. **However, prices and wages grew faster.** The consumer price index (CPI) as well as the producer price index (PPI) and labor costs exhibit steadily positive gaps with respect to euro area. While the CPI may result in an inaccurate indicator of external competitiveness since it includes a significant share on non-traded consumption goods, and is subject to distortions owing to taxes and subsidies, PPI and labor costs are better indicators of competitiveness in the tradable sector.³ Both these indicators suggest a persistent competitive disadvantage of Cyprus with respect trade partner countries in the Euro area. However, wage increases reflect to some extent the labor shortages and low unemployment rates that prevailed before the crisis.



³ The underlying basket of PPI includes a wide range of intermediate goods that are subject to international competition, and labor costs capture differences in wages and other related costs.

8. **As a result, unit labor costs (ULC) grew more rapidly than in the euro area, implying a steady loss of competitiveness vis-à-vis Cyprus' trading partners.** Real ULC have accelerated since 2001, while they were on a decreasing path in the euro area. After falling lower than the euro area ULC in 2008 as Cyprus economy was booming, the gap has reopened in 2009 as a consequence of the global economic downturn which hit Cyprus with a

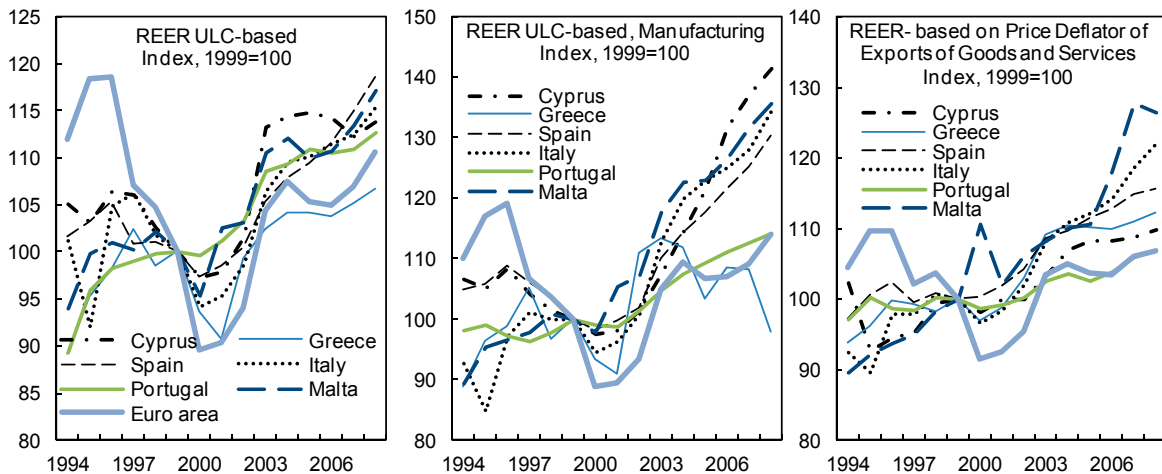


Source: Eurostat.

lag. However, developments in ULC may not provide an accurate indication of the competitive position of the Cypriot economy as a whole since the economy is strongly service oriented and the manufacturing sector contributes for less than 10 percent of GDP.

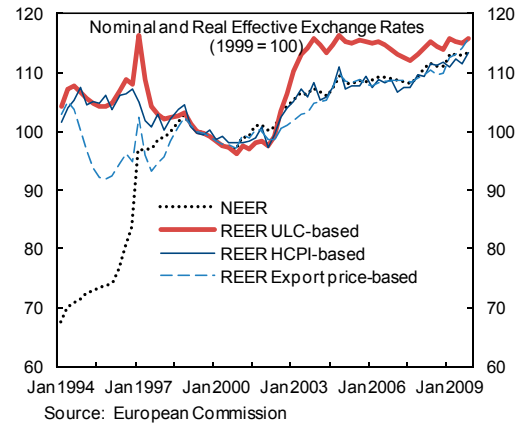
Exchange Rate Based Indicators

9. **Since 2000 real effective exchange rate (REER) measures have exhibited an appreciation trend broadly in line with the other Southern euro area countries.** The real appreciation is mostly hurting the manufacturing sector as high wages in the growing financial and real estate sectors due to high productivity in those sectors put upward pressures on wages in the rest of the economy. When looking at the price deflator of exports, however, the real appreciation has been milder in Cyprus than in peer countries, reflecting the high share of high value services exports.



Source: European Commission

10. **The REER appreciation seems to be largely driven by rapidly growing ULC.** A comparison with the nominal effective exchange rate shows that after 2003 the appreciation of the REER based on the HCPI and the deflator of export is mainly due to a nominal appreciation, while ULC point at a steeper deterioration on competitiveness. This evidence has to be considered on the backdrop of a period of wage moderation over the past five years, in the context of achieving the macroeconomic convergence criteria for Cyprus’s successful integration into the EMU. While such moderate stance was not enough to preserve Cyprus’ competitiveness vis-à-vis its trade partner, in 2008 pay increases at sectoral level were substantially higher compared with the previous years, and in April 2008 the government decided to further increase minimum wages for the five occupational groups covered by the Minimum Wages Law.



11. **CGER-type estimates show that Cyprus is facing a significant competitive disadvantage.** All estimates indicate the same directional conclusion, with negative current account gaps and substantial exchange rate overvaluation, consistent with recent development in wages and the competitive deterioration in the manufacturing sector. However, the large current account swing in 2009 (from -17.5 to -8.3 percent of GDP) suggests that significant current account adjustments can occur in Cyprus without major changes in the exchange rate (or slower growth relative to trading partners). Moreover, CGER type analysis needs to be interpreted with care for services export-oriented economies, since service exports may be less responsive to exchange rate dynamics.

CGER-type Estimates

	Macroeconomic Balance	External Stability	Equilibrium Real Exchange Rate	Purchasing Power Parity
CAB gap 1/	-4.88	-5.77	n.a.	n.a.
REER gap 2/	17.94	21.23	12.11	11.86

Source: IMF staff estimates.

1/ Difference between actual current account balance (CAB) and the estimated equilibrium CAB in percent of GDP

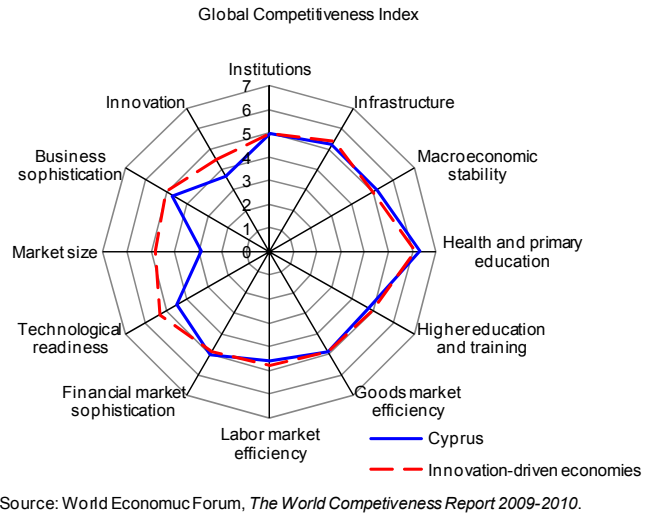
2/ Percentage difference between the actual REER and the estimated equilibrium REER. A positive result suggest overvaluation.

Other Indicators of Competitiveness

12. **Non price indices and survey data used for global ranking give mixed signals about the competitiveness of the Cypriot economy.** Several institutions evaluate competitiveness performance using a comprehensive approach based on hard as well as survey data. Cyprus’ position in selected rankings is reported below:

- The *Global Competitiveness Index* (GCI), published annually by the World Economic Forum (WEF) captures macroeconomic and microeconomic fundamentals of national

competitiveness which are conducive to a healthy business environment and sustainable level of productivity. The GCI considers 12 main determinants of competitiveness, including structural factors; it ranks Cyprus 34th out of 133 countries in 2009–10, with an improvement with respect to the 2008 edition where Cyprus was ranked 40th. Compared to other “innovation driven economies”, Cyprus underperforms in market size, innovation and technological readiness. Survey results point to the following most problematic factors for doing business in Cyprus: (i) inefficient government bureaucracy; (ii) access to financing; (iii) adequate supply of infrastructure; and (iv) restrictive labor regulation.



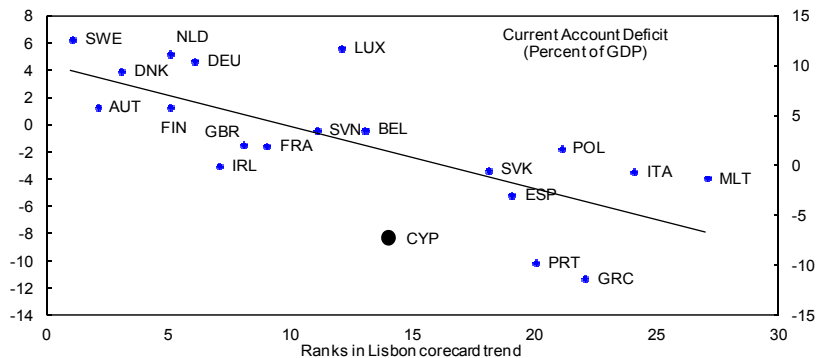
- The *Index of Economic Freedom* published annually by The Heritage Foundation and The Wall Street Journal covers 183 countries across 10 specific freedoms—such as trade, business, investment freedom, and property rights—and assigns a grade to each using a scale from 0 to 100, where 100 represents the maximum freedom. The 10 component scores are then averaged to give an overall economic freedom score for each country. Cyprus’ economic freedom score is 70.9, making its economy the 24th freest in the 2010 Index. The overall score is almost unchanged from last year, with significant declines in property rights and labor freedom balanced by improvements in business freedom and freedom from corruption. Cyprus is ranked 13th out of 43 countries in the Europe region, and its overall score is higher than the regional and global averages.
- The *Doing Business Index* published annually by the World Bank investigates the regulations that enhance business activity and those that constrain it. It presents quantitative indicators of business regulations and protection of property rights affecting different stages of the life of a business, from starting a business to enforcing contracts and closing a business. Cyprus is ranked 40th out of 186 countries on the 2010 report, with a deterioration compared to the 2009 report which ranked Cyprus 36th.
- The *Logistic Performance Index (LPI)*, also published by the World Bank is based on a worldwide survey of operators on the ground (global freight forwarders and express

Cyprus		
Overall LPI	Score	3.13
	rank	46
Customs	score	2.92
	rank	42
Infrastructure	score	2.94
	rank	46
International shipments	score	3.13
	rank	45
Logistics competence	score	2.82
	rank	58
Tracking & tracing	score	3.51
	rank	32
Timeliness	score	3.44
	rank	75

Source: World Bank

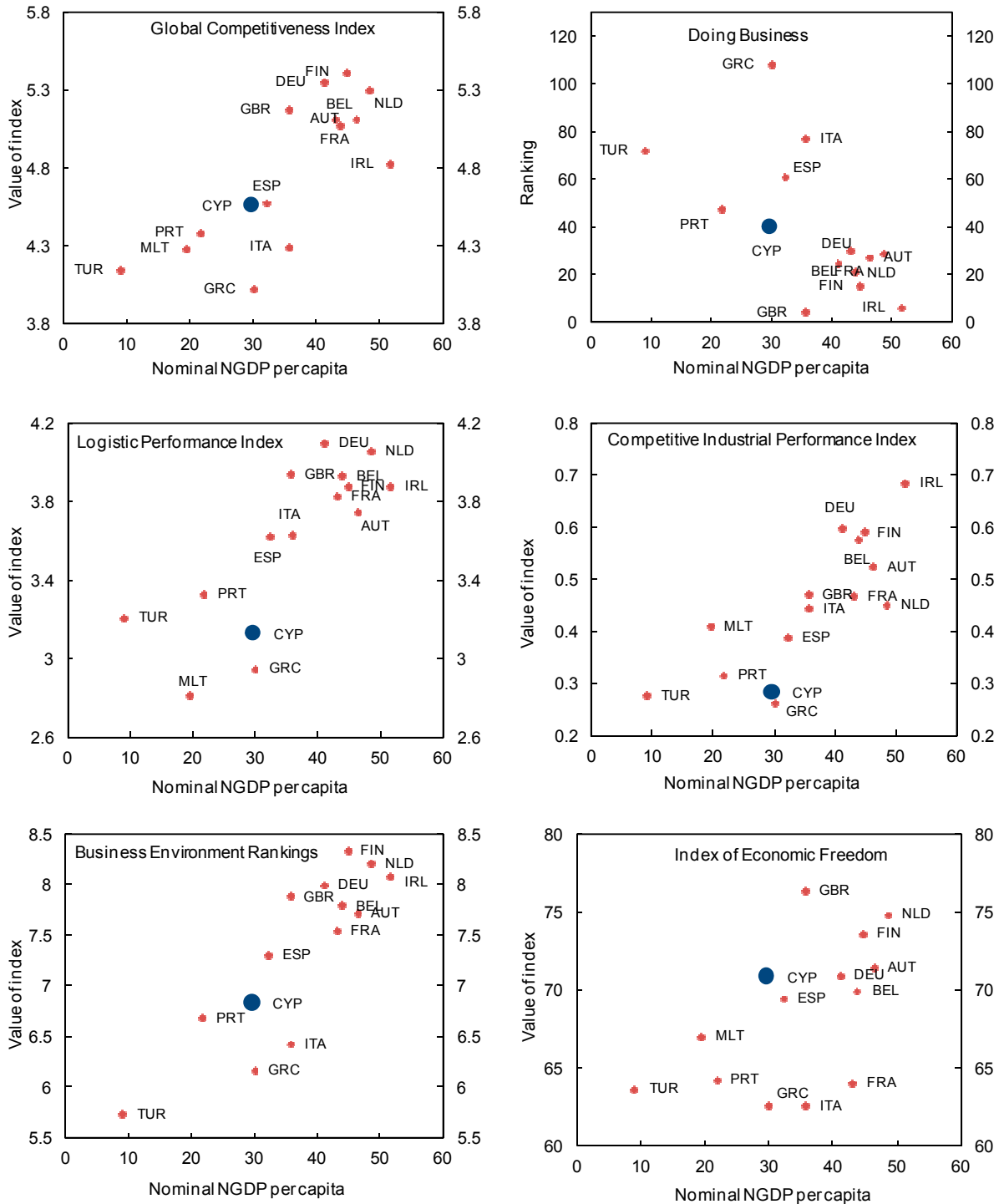
carriers), providing feedback on the logistics friendliness of the countries in which they operate and those with which they trade. Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work. The overall LPI score for Cyprus is 3.13 in a scale from 1 to 5, ranking the Country 46th out of 130, with lower scores on timeliness and logistic competence.

- The *Competitive Industrial Performance Index* (CIP) developed by the United Nations Industrial Development Organization (UNIDO) combines four main dimensions of industrial competitiveness: industrial capacity, manufactured export capacity, industrialization intensity and export quality. The CPI ranked Cyprus 41th over 122 countries in 2005, up 18 places compared to 2000, with a significant improvement in export quality and manufactured export capacity mainly driven by a substantial increase of high technology exports as a share of manufactured exports.
- The *Business Environment Outlook* Index developed by the Economist Intelligence Unit, averaged 6.8 out of 10 in 2005–09 ranking Cyprus 34th out of 82 countries. While no significant change is expected in Cyprus’s business environment score in 2010–14, improvements in some other countries will result in Cyprus’s global ranking falling two places to 36th. The country’s relatively low ranking reflects the small market size and the distance to the main EU market, no market access to Turkey, a culture of cronyism and the division of the island.
- The *Lisbon Reform Scorecard* created by the Center for European Reform assesses individual EU countries’ performances relative to their Lisbon targets. The scorecard is based on EU structural indicators which measure performance in economic, social and environmental categories; it provides an overview of EU countries’ record on economic reform. In the 2009 scorecard Cyprus ranks 14th over 27, up one position compared to 2008. Empirical evidence shows that there is a close relationship between the reform scorecard and current account positions across countries. This suggests that Cyprus should speed the implementation of structural reforms to improve nonprice competitiveness.



Sources: International Monetary Fund, *World Economic Outlook*; and Center for European Reform, *The Lisbon Scorecard X. The road to 2020*.

Figure II-1. Competitiveness Indicators, 2009



Sources: World Economic Forum, *Global Competitiveness Index 2009-2010*; World Bank, *Doing Business 2010*; The Heritage Foundation, *2010 Index of Economic Freedom*; Industrial Development Report 2009, *Competitive Industrial Performance Index*; Economic Intelligence Unit, *Country Forecasts March 2010*; and World Bank, *Logistic Performance Index*.

C. Labor Market Developments

13. **Assessed vis-à-vis the usual macroeconomic and Lisbon benchmarks the Cypriot labor market performs well and better than the EU average.** The labor market has historically been characterized by conditions of almost full employment and high job creation. Unemployment is particularly low partly due to sustained GDP growth and an efficient unemployment insurance system, characterized by relatively low benefits of short duration. Over the last ten years, the unemployment rate averaged at 4.3 percent; it fell to 3.6 percent in 2008. Employment has been growing by 2.5 percent, accelerating to 3.3 during 2003–07, and has been benefiting from sizeable inflows of foreign workers. Long-term unemployment has remained very low, less than 1 percent of the labor force. However, while the employment rates for females and older workers fulfill the relative Lisbon target, the gender pay gap currently stands at 23.1 percent, which is one of the largest, if not the largest, gap among the EU Member States.

D. The Role of Wage Indexation

14. **The current system of wage determination in Cyprus provides for the automatic adjustment of wages on the basis of general changes in price levels (the Cost-of-living adjustment—COLA system).** Specifically, the gross earnings of workers are revised at the end of every six months—that is, on January 1 and July 1—on the basis of the consumer price index percentage of the preceding six-month period. The COLA system has been in operation since 1944. Until recently, it has been considered as a nonnegotiable issue during collective bargaining, enjoying the strong support of trade unions and governments as a catalyst to the harmonization of the relationship between labor and management, despite opposition from the employer organizations.

15. **The uniform application of the COLA does not allow wages to reflect productivity differences across economic sectors while the second-round inflationary effects undermine flexibility and erode competitiveness.** Although there is no empirical evidence that the COLA has contributed to a self-perpetuating inflationary spiral,⁴ it is possible that this might have been due to the low inflationary conditions that have prevailed in Cyprus so far. At times of strong inflationary pressures, the COLA can impede the stabilizing role of fiscal policy, which is a major drawback within the context of a monetary union and the related absence of exchange rate flexibility.

16. **The shortcomings of the COLA become also more evident in the current low-growth economic environment.** By linking wages to CPI rather than productivity, COLA undermines competitiveness and labor flexibility, in addition to exacerbating the level and persistence of price shocks. In addition, downward wages stickiness resulting from the

⁴ Eliafotou (2008).

COLA may become an impediment to the economy's ability to respond to the current low-growth environment. In particular, in the presence of long-duration wage contracts the COLA constrains the markets' ability to correct an overshooting of wages that may result from too optimistic an outlook at the time of the contract's inception.

17. **Another issue raised against the COLA is that it is applied irrespective of the level of wages.** As a consequence, it increases wage differentials between employees at the lower and higher scales, in particular in the public sector, thus contributing to enhancing inequalities as well as to eroding its labor market peace enhancing benefits. The share of employees in the private sector that benefits from COLA has been on a downward trend. Recent estimates by the CBC place at approximately 50 percent the overall share of such employees.

E. Developments in the Service Sector

18. **Sectoral analyses of the labor market reflect a steady transformation of the Cypriot economy characterized by the increasing importance of the services sector.** The Services sector, which contributed 69.5 percent to GDP in 2008, exhibits strong dynamism, reflected in high rates of growth, an increase in their share to value added and an expansion of their shares in international markets. Specifically, the sectors of banking and other financial services, international business services, and shipping appear to have successfully exploited Cyprus' comparative advantages in terms of geographic location, infrastructures, and highly educated human capital.

19. **Such sectoral shift is mostly welcome since the services sector is a key element in the adjustment mechanism within a currency union, and developments in services play an important role for the macroeconomic performance of the entire economy.** Services are increasingly used as inputs in manufacturing and other non-service sectors and can have a positive impact on the economic performance of other sectors. Moreover, most services are relatively labor intensive implying that a strong growth performance of these sectors will better absorb the unemployed. Finally, price rigidities in the service markets may hinder the necessary adjustment essential to facilitate adjustment to shocks while efficiency gains in services may contribute to lower inflation rates⁵.

20. **However, the tourism sector has been growing below potential in recent years and its contribution to growth shrank in 2009, while financial and business services have been growing rapidly.** Tourism is the single most important sector in Cyprus once the restaurant and hotel sector is combined with the effect of tourism on transport, construction and retail. The competitiveness of Cyprus' tourism sector have been falling in recent years, reflecting comparatively high prices and increased competition from other Mediterranean

⁵ Leichter et al. (2010).

destinations as well as the heavy dependence on a severely weakened UK market. On the other hand, low barriers to business establishment, a favorable corporate tax rate and strong telecommunication infrastructures have favored financial and business services, which have been playing an increasingly important role in the economy.

21. **While Cyprus' road, electricity, water and telecommunications networks are of good quality, air transport liberalization has been slow and public transportation is poor.** The relative absence of budget airlines as a byproduct of delayed liberalization, and the infrequency of direct flights to some key destinations have hampered Cyprus' aim to become a regional hub for airlines. The currently poor bus service network and reliability is the origin of the problem of traffic congestion in towns, especially at the beginning and end of the public sector working day. The government has plans to increase the use of public transport (from the current 2 percent of total transport) by improving the quality of public transportation while there are no plans to develop a railway system.

F. Conclusions

22. **Cyprus competitiveness has suffered from high growth rates in wage and labor costs notwithstanding solid productivity trends and labor market developments and the good performance of the services sector.** In light of Cyprus accession to the euro area in 2008 the need to preserve competitiveness in the absence of exchange rate flexibility is paramount. The above analysis suggests that there is room for improving competitiveness with policy measures designed to reduce rigidities, control labor cost increases and raise national saving.

23. **Action to preserve competitiveness includes structural reforms aimed at increasing efficiency and reducing structural rigidities.** Increasing the quality of human capital and the flexibility of product market, streamlining the regulatory environment, improving transport and communication infrastructure, and financial and services support for exports would help stimulate economic activity and external competitiveness. Efforts to reduce the pay gap between men and women are also desirable to buttress a flexible and efficient labor market. There is also room to increase labor participation in view of the challenges of an ageing population by encouraging part-time work and flexible working practices.

24. **In view of the higher growth in labor costs compared to Cyprus' trade partners the automatic wage indexation mechanism should be better targeted to reflect sectoral productivity gains or eliminated.** Current efforts to set up a medium-term budgetary framework present an opportunity to revisit and address the issue of wage setting in the public sector, which accounts for most of the employees benefited by the COLA system. The objective would be to adopt a framework allowing wages to reflect productivity gains and correct the structural rigidities induced by the current system. Allowing wages to reflect sectoral or firm level productivity gains would be conducive to a more efficient allocation of

labor. On the other hand, well targeted social measures for those in need of protection could be implemented to counteract any adverse impact that such reform may have on the most vulnerable fraction of the labor force.

25. Containing government consumption spending is mostly recommended as an action to raise national savings thus reducing the large current account deficit.

Reducing government consumption expenditure is also particularly recommended given empirical evidence that increases in government consumption tend to increase the relative price of nontradables and leads to real appreciation of the exchange rate⁶. Moreover, such a policy squares with the need to reduce the current fiscal deficit and restore the sustainability of the government balance.

26. Overall, there is need to invest in service infrastructure to upgrade the country's overall business environment and attract higher-spending tourists. Efforts to improve the quality of the tourism product and to diversify into sports and business tourism should help to halt the recent decline in competitiveness and attract higher income tourists. The prioritization of investment in transport infrastructure would also enhance the overall business environment and attract non-Cypriot customers and labor force.

⁶ Ricci et al. (2008) and Lee et al. (2008).

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III. POTENTIAL GROWTH AND THE OUTPUT GAP¹

This note presents medium-term estimates of Cyprus' potential growth and output gap and long-term projections of trend growth. Historical estimates and medium-term projections are based on a multivariate Bayesian approach which incorporates relevant information on unemployment, core inflation, capacity utilization, and construction cycles. The long-term exercise is based on a production function analysis and long run demographic projections. Results show that Cyprus economy was growing above potential during the boom years prior to the crisis. The growth rate of potential deteriorated significantly in 2009 as a consequence of the crisis, from an average 3.5 percent pre 2008Q4 to 2.1 percent thereafter. There is evidence, however, that potential growth started to weaken before the crisis, namely in 2008—when Cyprus entered the euro area—suggesting a possible initial loss of competitiveness associated with the euro adoption. Long term potential growth projections based on demographic and labor productivity assumptions show a slowdown to 1.9 percent by 2060 mainly due to the demographic transition to an older population and a deceleration in labor productivity growth. In light of the above, a reduction in labor costs through an adjustment of wages and structural measures to achieve fiscal consolidation are paramount for Cyprus to enhance the competitiveness of its economy and boost its growth potential in the medium and long term.

A. Introduction

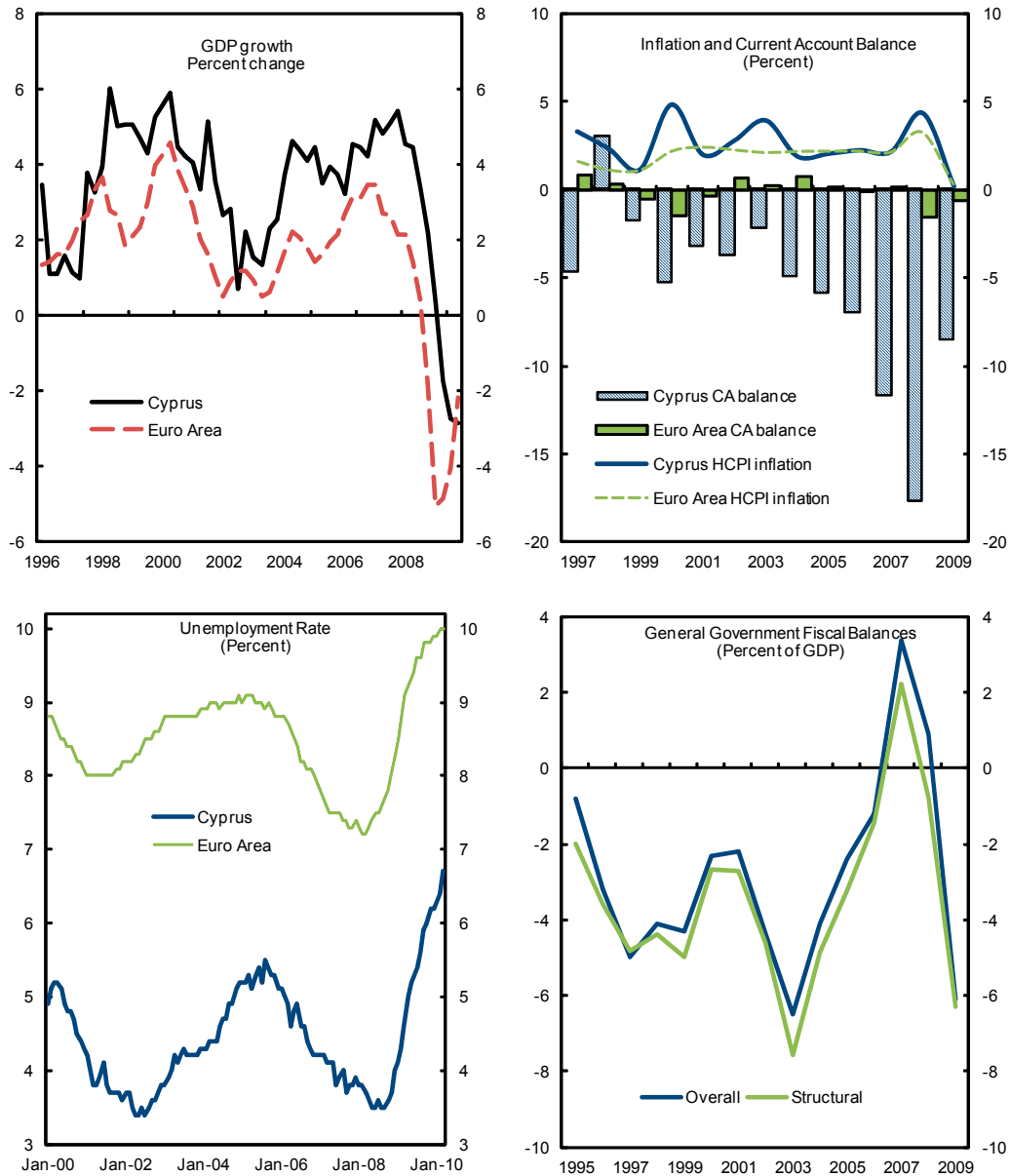
1. **Framing a view on potential output and output gap is important for policy makers in order to maintain the appropriate stance of monetary policy and assess fiscal sustainability.** Inaccurate output gap estimates would provide a distorted assessment of the relative importance of business cycle fluctuations versus structural changes in potential output in determining output volatility, with the risk inflationary misalignments and rising external and fiscal imbalances. Having access to a reliable measure of potential growth is also helpful in the aftermath of the recent financial turmoil to guide policymakers with regard to the appropriate timing for exiting support measures.

2. **While Cyprus growth has been relatively high and unemployment low by international standards, inflation and current account deficits have been higher than in peer country, and fiscal balances have been historically negative, suggesting that potential output and the output gap need to be carefully monitored.** Real GDP has been growing at an average 3.7 percent per year since 1995, compared to an average 1.7 in other euro area countries. Unemployment has been historically low, at about 3 percent, and increased to 5.3 in 2009 as a result of the global financial crisis. However, CPI inflation has also been on a recurring positive differential with the euro area, suggesting periods of economic overheating. Current account deficits have widened over the sample period,

¹ Prepared by Valentina Flamini (EUR).

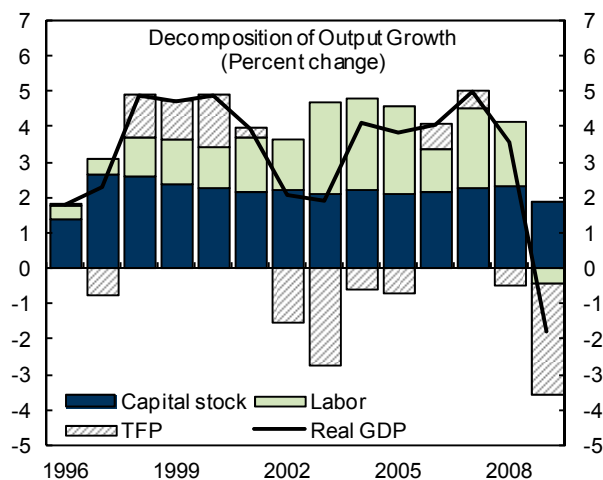
reaching -17.5 percent of GDP in 2008, followed by a substantial improvement in 2009 in response to a sharp contraction in domestic demand. After having turned positive 3.4 and 0.9 percent respectively in 2007 and 2008, the fiscal balance deteriorated sharply in 2009 (-6.1 percent of GDP) and is projected to further deteriorate over the medium term, mostly on account of structural measures.

Figure III-1. Cyprus: Economic Indicators



Sources: Eurostat; and European Commission, *Consumer Survey*.

3. **A preliminary decomposition of output growth² shows that since 1995 Cyprus has been growing mostly as a result of labor and capital accumulation, while the contribution of total factor productivity (TFP) has been relatively small and variable over the period under review.** This feature of Cyprus' growth dynamics is particularly significant given that potential growth and the standards of living can only be raised on a lasting basis if efficiency increases. If it does not, and wages are indexed to inflation, domestic demand could easily exceed supply in times of positive business cycles, resulting in higher inflation and increasing external accounts imbalances.



Sources: Eurostat; and IMF, *World Economic Outlook*.

4. **Typically, beside the steep fall in actual output, potential growth is likely to be persistently lower following a crisis as a result of the effect of the crisis on production inputs, including:³**

- **Subdued capital investment and obsolescence of the existing capital stock through business failures.** Decreasing demand for product and high uncertainty on returns and risk premia might have lowered the incentive to invest, while tighter lending standards might have limited firms' access to finance.
- **Discouraged worker effects and erosion of skills as a consequence of high and prolonged unemployment.** Weaker labor market can lead to an increase in the structural unemployment rate through hysteresis effects, particularly in economies with rigid labor market institutions.
- **Lower spending in research and innovation (R&I) with negative effect on TFP.** R&I spending tends to be pro-cyclical by nature and might therefore have been discouraged by the economic downturn also due to higher risk premia.

² The decomposition is based on a standard Cobb-Douglas production function with labor share in value added equal to 0.7 as in most industrialized economies. Data are from Eurostat (real GDP, employment and gross fixed investment) and staff calculations (TFP). Past data availability restricts the analysis to the time frame 1995 to 2009. The capital stock series is constructed from total investment according to the formula: $K_t = (1 - \delta)K_{t-1} + I_t$ and assuming perpetual inventories. The depreciation rate δ is assigned the value 0.055 while an initial benchmark is computed as: $K_{1995} = I_{1995}/(\delta + i)$ with i being the average logarithmic growth rate of investment in the sample period.

³ See Furceri and Mourougane, 2009 for estimates of the effects in OECD countries.

- **Policy responses from public authorities to mitigate the economic downturn might have also an effect on growth.** For example, temporary fiscal measures can lead to permanent increases in government size and in debt, with negative effects on growth, while investment in infrastructure is likely to boost potential output.
5. **While some of the above listed channels are not directly applicable to Cyprus, the economy remains significantly exposed to an enduring downward correction in the real estate market.** According to data by the Central Bank of Cyprus, the lending conditions in Cyprus have not been significantly tightened and credit/loans continue to record positive growth rates in 2010. Moreover, prolonged unemployment is not a feature characterizing the Cyprus labor market and the average long-term unemployment in 2009 was only 0.5 percent, while R&I spending is very low and not concentrated in sectors hit most by the crisis (construction and tourism). On the other hand, investment in construction consists mainly of investment in housing, which is likely to be persistently lower post-crisis as a consequence of the real estate bubble burst.
6. **In the long run, in a full recovery scenario potential output should return to its pre-crisis level.** However, this is subject to several conditions, and less optimistic scenarios may unfold. In particular, potential output might recover but at a lower than pre-crisis level or, at the worst, potential output may linger below both its pre crisis level and growth rate. The prevailing outcome will depend on the structural adjustment that Cyprus, as well as its peer countries, will manage to undertake as the recovery takes place.
7. **The remainder of this note is organized as follows.** Section B presents results from medium term estimates. Section C explains the assumptions underlying the long term exercise and summarizes the results. Section D discusses risks to the proposed outlook and concludes. Details on the model and parameter estimates are provided in the Annex.

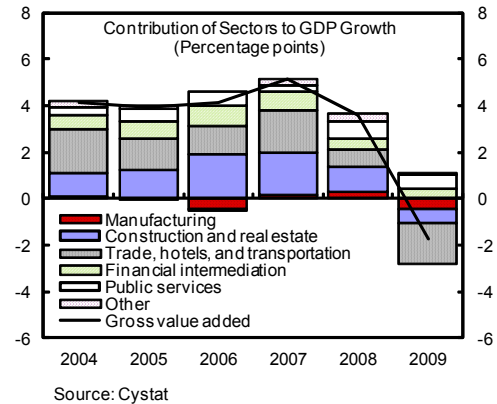
B. Medium Term Analysis

8. **Several techniques have been presented in the literature to estimate potential output.** Univariate approaches such as the Hodrick and Prescott (HP) (1997) filter provide estimates of the potential growth of output by decomposing real output in a trend and a cyclical component.⁴ Due to their univariate fashion, however, such techniques disregard relevant economic information besides the actual GDP data series itself, thus providing a purely historical analysis. In addition, some of these methods are subject to ‘end-point bias’ and undergo large revisions as new information becomes available. A production function approach, which applies univariate filters to the function’s inputs, partly solves this problem, but it ignores relevant linkages between the output gap and other variables such as inflation and unemployment.

⁴ Additional univariate methods include the Baxter and King (1999) filter, the Christiano and Fitzgerald (2003) filter, the Beveridge and Nelson (1981) decomposition.

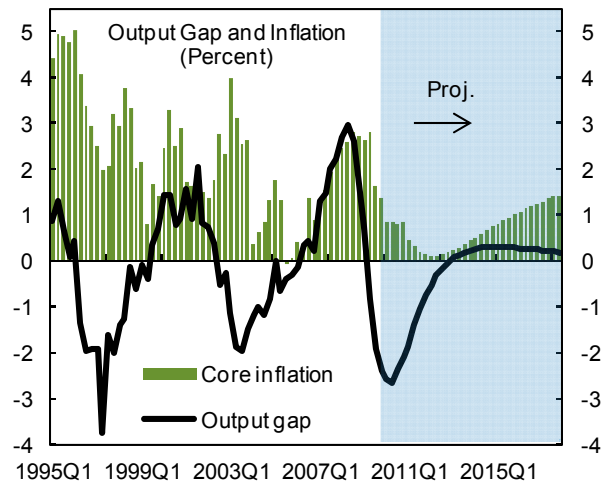
9. **This note is based on a multivariate Kalman Filter analysis which incorporates relevant empirical relationships between actual and potential output, core inflation, unemployment, and capacity utilization.** Such methodology is an augmented version of the one proposed by Benes et al. (2010) for measuring and updating potential output and the output gap within the framework of a small macroeconomic model.

10. **The baseline model is extended to take into account peculiarities of the Cyprus' economy, such as the importance of the construction and tourism sectors.** Tourism is the single most important sector in Cyprus, when the restaurant and hotel sector is combined with the impact of tourism on retail, construction and transport. Moreover, Cyprus experienced a buoyant housing market in recent years, which has been fuelled by the purchase of holiday homes by non-residents, especially Britons, and has contributed to drive the economy to overheating in 2007–08. The weakness of the tourism and construction sectors has also been one of the main drivers of the recession in 2009. In order to take into account the impact of these sectors on the business cycle we modify and extend the baseline model to introduce linkages between the output gap, capacity utilization in the tourism sector, and a construction output index.



Empirical Results

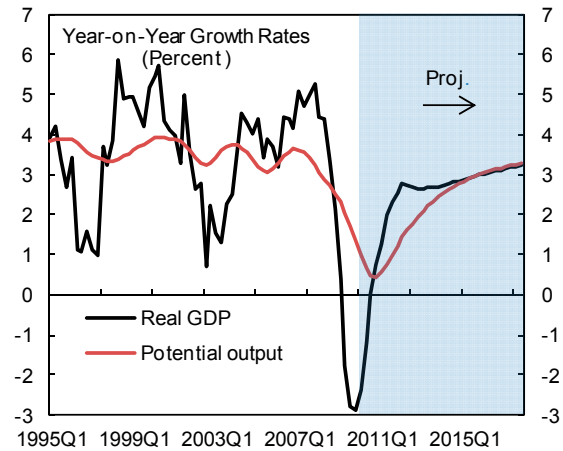
11. **Results show that Cyprus was growing above potential during the boom years prior to the global financial crisis.** The country went through two full economic cycles over the last fifteen years before falling into the recession in the second quarter of 2009. The model shows negative output gaps during the period 1996–99 as a string of adverse shocks dampened growth, including a fall in tourism receipts due to disorders along Cyprus' "Green line", a particularly severe three-year drought, and a strong earthquake in October 1996. The output gap turned positive in 1999 as a consequence of the high-technology bubble, before reverting into negative territory in 2002 when the bubble burst and Cyprus got affected by the global slowdown, mainly through the fall in tourism arrivals and the decline in air traffic following the events



of September 11. The resulting contraction was however moderate compared to the previous one. Starting in 2006 Cyprus has experienced a period of strong expansion, with growth above its potential and an output gap up to 3 percent sustained by a thriving real estate and construction sector. The output gap turned negative in the second quarter of 2009 as the global crisis started to affect Cyprus and the real estate bubble burst. The output gap for 2010 is projected to reach its bottom at -3 percent, and to turn positive only in 2013.

12. The growth rate of potential GDP deteriorated substantially in 2009 as a result of the global crisis.

Potential output growth varied substantially over time in line with the business cycle. However, while being systematically above its assumed long-run steady state level, at an average of 3.5 percent during the pre-crisis period, the growth rate of potential GDP is estimated to be only around 1.4 percent at the end of 2009. Thereafter, forecasts suggest potential growth to bottom out at 0.4 percent in the last quarter of 2010 followed by a gradual convergence to the assumed steady state, but at a lower than the pre-crisis level. It is worth noting that the large decline in potential growth makes the current recession comparable to the contraction that occurred in 1995–99 in terms of output gap, although the fall in real GDP growth has been much steeper in 2009.

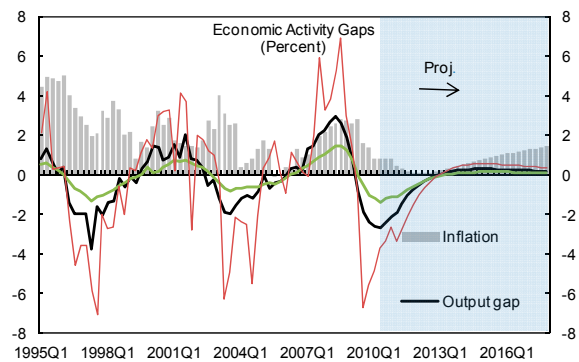


Source: IMF staff estimates.

13. While output gap only turned negative in the second quarter of 2009, potential growth already started to decline at the beginning of 2008 at the time of Cyprus's accession to the euro area. This development suggests that Cyprus might have experienced a loss of competitiveness which outstripped productivity when joining the euro area, possibly due to overvalued relative prices and real effective exchange rate appreciation. This hypothesis is confirmed by external sector dynamics, as evidenced by the significant widening of the current account deficit in 2008.

14. Notwithstanding substantial variation in potential output growth predicted by the model, the output gap depicts significant fluctuations consistent with movements in inflation and in the other economic gaps.

As expected, the estimated unemployment gap is strongly correlated with the output gap while slightly lagging behind and exhibits a more persistent dynamic with longer cycles and smaller variability. This is consistent with the

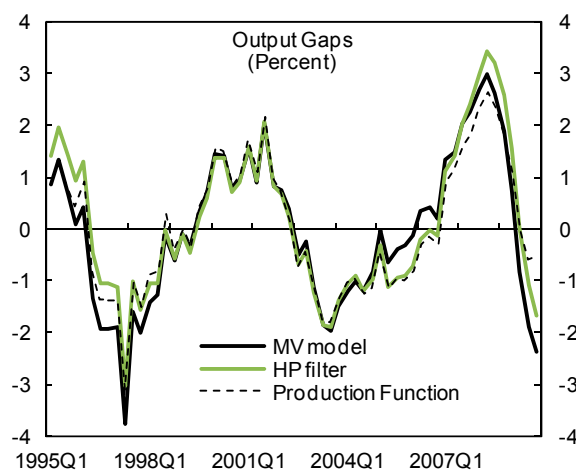


Source: IMF staff estimates.

relative rigidity of the labor market and its lagged response to changes in the business cycle. On the other hand, the capacity utilization gap in the tourism sector is subject to more pronounced volatility and wider cyclical fluctuations. Movements in inflation are consistent with the business cycle and they evolve in tandem with the economic activity gaps.

15. **Medium term estimates predict a gradual recovery in the output and unemployment gaps, with the latter characterized by a more prolonged revival, while capacity utilization displays a steeper upswing given the marked decline occurred during the 2009 recession.** The output gap is projected to close by 2013 after dropping to its lowest level, at -2.7 in 2010:Q2. While staff estimates forecast the gap to close by 2015, the implied shorter horizon reflects an acknowledged feature of the MV filter rather than an idiosyncrasy of Cyprus economy. The unemployment and capacity utilization gaps are also projected to close by 2013 although at different relative speeds. Estimates also show evidence of hysteresis in the labor market, with the non-accelerating inflation rate of unemployment (NAIRU) climbing above 5 percent in 2010 and persisting there, likely due to discouraged worker effect and skill erosion. For the rest of the forecasting horizon the model predicts a mild recovery with positive but narrow output gaps and a smooth rebound in inflation.

16. **HP filter and production function based estimates provides a similar picture of the output gap path, with some noteworthy minor discrepancies.** In particular, with the exception of the 1999–04 period where the three estimates move closely together, the multivariate (MV) model estimates more negative output gaps during the 1996–99 recession, and less positive ones during the 2006–08 economic booms. This suggests that the information conveyed by core inflation, unemployment, capacity utilization and the real estate cycle translates into higher estimates of potential output. Therefore the model would suggest comparatively tighter policies during downturns and more accommodating ones during booms. Consistent with this finding, the current economic downturn is estimated to be significantly worse under the MV model while the production function method suggests an economic recovery taking place as soon as in the 2009:Q3. Finally, the MV model also estimates a faster recovery from the tech bubble crisis and a positive output gap as soon as 2006:Q2, compared to 2007:Q1 in the alternative models implying a longer (although comparatively less buoyant) boom episode prior to the global financial crisis.



Source: IMF staff estimates.

C. Long Term Analysis

17. **This section presents a longer term exercise which translates long-run demographic and productivity projections into potential GDP growth projections. The time frame is 1995–60.** Calculations for 2010-2015 are based on the 2009 summer WEO round, those beyond reflect population projections produced by Eurostat and the macroeconomic assumptions and methodologies on labor force and labor productivity agreed by the European Commission.⁵ Potential GDP growth is calculated combining the resulting profiles in employment and labor productivity growth net of normal cyclical variations.

18. **Population in Cyprus is projected to increase through the end of the projection period, supported by high life expectancy and inward migration. Its structure is also expected to become increasingly dominated by elderly people as a result of ageing.** Population is expected to rise by some 65 percent by 2060 compared to its level in 2009, with positive although slower rates of growth over the whole projection sample.

19. **The projections show a significant increase in the dependency ratio (young and old over total population) mostly driven by a marked increase in people aged more than 65 years.** The share of people aged over 65 years is projected to more than double through the end of the sample as compared to its value in 2009 vis-à-vis a decreasing share of younger people. As a result, the dependency ratio, which is projected to be at its lower in 2012, will be on an increasing path over the projection horizon to reach 41 percent in 2060.

20. **Working age population is also projected to increase in the long run but the growth rate is limited by the rising dependency ratio which acts as a drag on growth.** Working age population is expected to peak around 2040 and then to stabilize in until 2060, with sharply lower and occasionally negative rates of growth consistently with the dynamic in dependent population.

21. **The labor supply and employment are on a raising path, therefore providing a positive contribution of labor input to potential GDP growth.** The participation rate is expected to peak in 2025 and slightly decrease to stabilize at 78 percent thereafter. The unemployment rate is assumed to converge to its long term NAIRU by 2015. As a result, labor supply is projected to increase and employment will also be on a growing path although with significantly decreasing growth rates after 2015.

22. **The labor input in terms of hours worked is projected to grow in line with employment growth.** Hours worked per employee, which have been decreasing over the last decade as a result of increasingly flexible labor markets and part time labor, are projected to stabilize by 2030, and to grow in tandem with employment thereafter. The total hour worked

⁵ Relevant assumptions for Cyprus and other European countries are in the European Commission 2009 Ageing Report and 2009 Sustainability Report.

are projected to grow as high as 1.7 percent in 2015 and decelerate thereafter, to 0.1 in 2050 and 1.2 in 2060.

23. Labor productivity growth (per hour worked) is assumed to be the main contributor to growth over the long run, with TFP explaining most of productivity growth. The capital deepening contribution to productivity is comparatively higher in the first part of the projection period reflecting some catching up progress, but gradually declining to the steady state growth value of 0.6 percent in 2040. TFP growth is assumed to climb at 1.7 in 2020 and converge toward the rate of 1.1 by 2050. As a result, labor productivity growth is projected to peak in 2010 and converge to its steady state growth rate of 1.7 by 2050.

24. The long run demographic and productivity assumptions ultimately translate in a positive but decreasing potential output growth over the projection horizon, down to 1.9 percent in 2060. While the contribution of both labor input and productivity growth remain positive, growth rates are assumed to decelerate considerably implying a marked slowdown in potential growth compared to the historical average of 3.6 percent.

Table III-1. Cyprus: Long -Term Projections

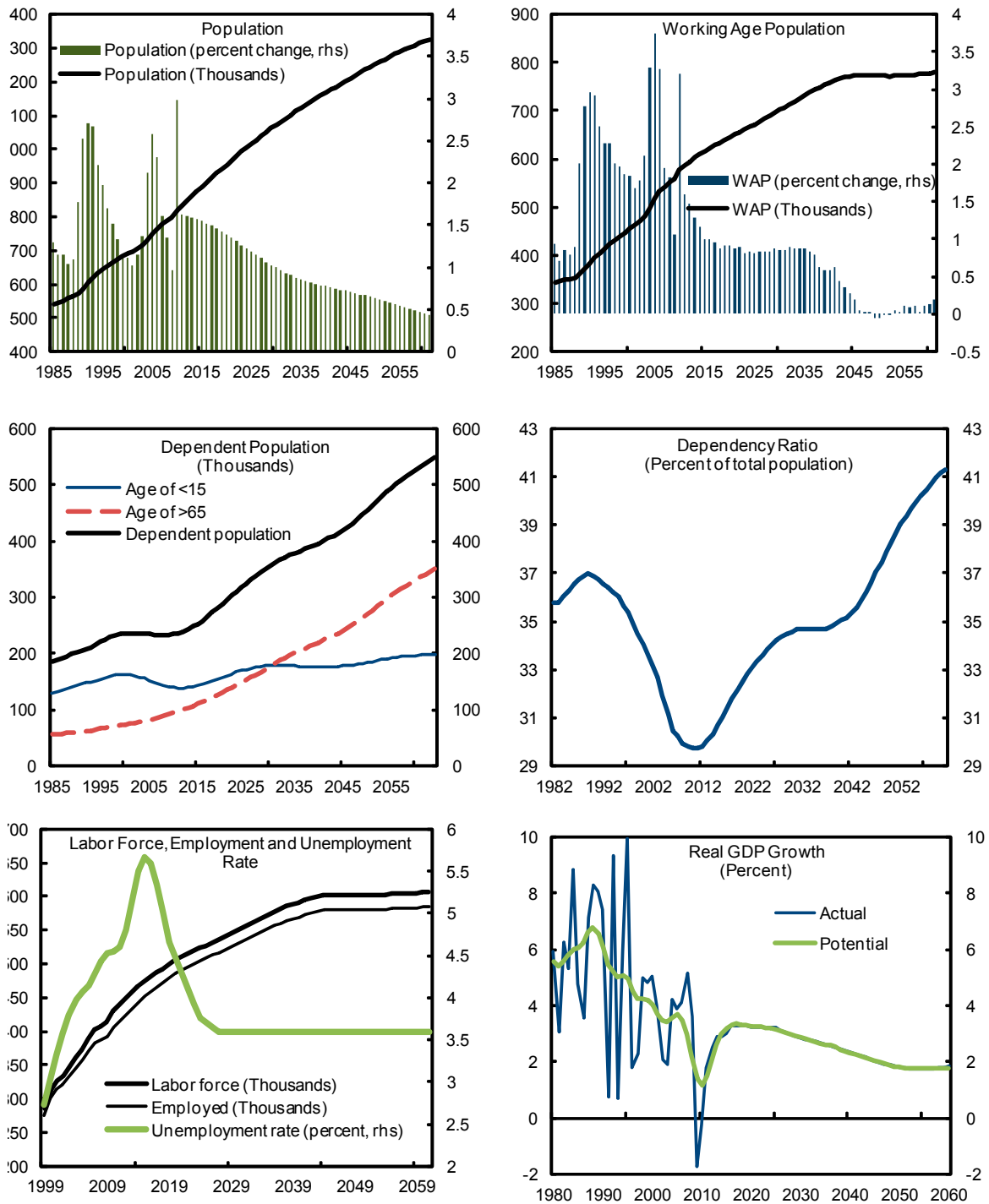
	Avg 09-60	2009	2015	2020	2030	2040	2050	2060
Demographic projections				(Thousands)				
Population	1.06	0.80	0.89	0.95	1.07	1.17	1.25	1.32
<15	0.17	0.14	0.15	0.17	0.18	0.18	0.19	0.20
15-64	0.69	0.56	0.62	0.64	0.70	0.76	0.77	0.78
>64	0.20	0.10	0.12	0.14	0.19	0.23	0.29	0.35
Macroeconomic assumptions								
Participation rate	77.40	74.00	76.90	78.50	78.40	78.00	78.00	78.00
Unemployment rate	4.16	5.30	5.70	3.75	3.60	3.60	3.60	3.60
Labor input (hours worked, growth rate)	0.91	1.85	1.70	1.10	0.80	0.60	0.10	0.20
Labor productivity per hour (growth rate)	1.97	1.80	2.10	2.70	2.00	1.80	1.70	1.70
TFP (growth rate)	1.22	0.85	1.3	1.70	1.30	1.20	1.10	1.10
Capital deepening (contribution to labor productivity growth)	0.75	0.95	0.8	1.00	0.70	0.60	0.60	0.60
Potential GDP growth	2.88	3.65	3.8	3.80	2.80	2.40	1.80	1.90

Sources: European Commission Services (DG ECFIN); Eurostat; EPC (AWG); and IMF staff calculations.

D. Conclusions

25. After growing above potential during the boom years prior to the global financial crisis, Cyprus entered the recession in 2009 and is only projected to return to its potential in 2013. Cyprus approached the crisis with positive output gaps, meaning that the economy was overheating in the years leading to the crisis. The output gap is estimated to have turned negative in 2009 and bottom out in 2010 at -2.7, slowly recovering thereafter in concert with other activity gaps.

Figure III-2. Cyprus: Long Term Projections



Sources: Eurostat; European Commission Services, EPC; and IMF staff calculations.

26. **Cyprus' estimated potential growth rate deteriorated substantially in 2009 as a result of the global crisis** from an average 3.5 percent pre-crisis to an estimated 1.4 percent at the end of 2009. While the output gap only turned negative in the second quarter of 2009, however, potential growth already started to decline at the beginning of 2008 at the time of Cyprus's accession to the euro area, suggesting an initial loss of productivity.

27. **In the long run, a demographic transition to an older population and a projected deceleration in labor productivity growth is also expected to translate into a further deterioration of potential growth to reach 1.9 percent by 2060.**

28. **There are however risks to this outlook.** The analysis assumes that the sharp and rapid deterioration of economic activity due to the global financial crisis will have no structural implications over the medium and longer term. In particular, the medium run exercise assumes no change in the steady state level of the relevant variables and in the structural relationships among them. However, these relationships may have been altered as a consequence of sectoral shifts or a persistent increase in the NAIRU during the crisis period. On the other hand, the labor productivity assumptions—which are determinant for the long term projections—do not incorporate possible effect of the global financial crisis on capital deepening and TFP.⁶

29. **All in all, the results discussed above provide a baseline scenario.** They consider the current crisis as 'normal', with no structural adjustments to the economy. This might not however be the case and the global financial crisis will likely continue to weight on economic performance on a structural basis for some time to come.

30. **In light of the above considerations structural efforts towards fiscal consolidation, better designed wage policies and measures to attract foreign workers will be key to enhancing potential growth both in the medium and longer run.** Fiscal relaxation and salary indexation in recent years have resulted in excessive price and wage increases, which have corroded Cyprus' competitiveness on international markets. Without an adjustment of wages and a reduction in labor cost the economy will face an inexorable corrosion of potential growth. In view of population ageing and the resulting tightening in domestic labor supply, maintaining the supply of labor through immigration flows would also be chief to ensuring wage moderation and sustain potential growth in the long run. While it is difficult to implement structural measures in years of slow economic activity such reform are urgent for Cyprus to enhance its growth potential.

⁶ The AWG/EPC macroeconomic scenario was finalized in 2008 while crisis only started to take hold in Cyprus in 2009.

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Annex

The model

The model has six observable inputs, namely real GDP, the headline and core CPI inflation, unemployment, a measure of capacity utilization in the tourism sector and a real estate variable.⁷

The output gap is defined as the log difference between actual and potential output:

$$y_t = Y_t - \bar{Y}_t \quad (1)$$

Similarly, the unemployment gap is defined as the difference between the actual unemployment rate and the equilibrium unemployment rate, or NAIRU:

$$u_t = U_t - \bar{U}_t \quad (2)$$

The tourism capacity utilization gap is the difference between the actual tourism utilization index—in terms of percentage bed occupancy—and its equilibrium level:

$$c_t = C_t - \bar{C}_t \quad (3)$$

The level and the change in the output gap influence current year-on-year core inflation according to an augmented Phillips curve:

$$\pi_t = \pi_{t-1} + \beta y_t + \sigma(y_t - y_{t-1}) + \epsilon_t^\pi \quad (4)$$

where the level of the gap incorporate short run effect and the change reflects rigidities in the adjustment of the economy.

The unemployment gap is also linked to the output gap through an Okun's Law equation modified to take into account the lagged reaction of employment to changes in output:

$$u_t = \varphi_1 u_{t-1} + \varphi_2 y_t + \epsilon_t^u \quad (5)$$

A similar relation describes the capacity utilization gap:

$$c_t = k_1 c_{t-1} + k_2 y_t + \epsilon_t^c \quad (6)$$

⁷ See Benes et al. (2010) for a more detailed description of the baseline model.

The equilibrium unemployment rate (NAIRU) is modeled as a stochastic process that assumes a fixed steady-state level of unemployment in the long run \bar{U}^{ss} while including persistent and more transitory shocks⁸:

$$\bar{U}_t = U_{t-1} + G_t^{\bar{U}} - \frac{\omega}{100} y_{t-1} - \frac{\lambda}{100} (U_{t-1} - \bar{U}^{ss}) + \varepsilon_t^{\bar{U}} \quad (7)$$

where the persistent shocks follow a damped autoregressive process:

$$G_t^{\bar{U}} = (1 - \alpha) G_{t-1}^{\bar{U}} + \varepsilon_t^{G^{\bar{U}}} \quad (8)$$

Potential output depends on changes in the NAIRU as well as the underlying trend growth rate $G_t^{\bar{Y}}$:

$$\bar{Y}_t = \bar{Y}_{t-1} + G_t^{\bar{Y}}/4 + \varepsilon_t^{\bar{Y}} \quad (9)$$

And the underlying growth rate of potential follows serially correlated deviations from the steady-state growth rate $G_{SS}^{\bar{Y}}$:

$$G_t^{\bar{Y}} = \tau G_{SS}^{\bar{Y}} + (1 - \tau) G_{t-1}^{\bar{Y}} + \varepsilon_t^{G^{\bar{Y}}} \quad (10)$$

The stochastic process for the equilibrium capacity utilization also includes persistent as well as pure level shock:

$$\bar{C}_t = \bar{C}_{t-1} + G_t^{\bar{C}} + \varepsilon_t^{\bar{C}} \quad (11)$$

where:

$$G_t^{\bar{C}} = (1 - \delta) G_{t-1}^{\bar{C}} + \varepsilon_t^{G^{\bar{C}}} \quad (12)$$

The long term inflation objective follows an autoregressive mean reverting process which converges to the steady-state inflation target π_{SS} :

$$\pi_t^{LT} = (1 - \gamma) \pi_{t-1}^{LT} + \gamma \pi_{SS} + \varepsilon_t^{\pi^{LT}} \quad (13)$$

⁸ The steady-state level of unemployment in the long run \bar{U}^{ss} and the steady-state growth rate $G_{SS}^{\bar{Y}}$ are assigned priors equal to 3.63 and 3.5 respectively, the steady-state inflation target π_{SS} is assumed equal to the ECB inflation target of 2 percent.

To include real estate macro linkages we add to the baseline model a block of equations with respect to a real estate variable R , which is assumed to be a function of its equilibrium level \bar{R} which is itself a random walk and the future expected output gap 4 quarters ahead:

$$R_t = \bar{R}_t + \mu y_{t+4} + \varepsilon_t^R \quad (14)$$

$$\bar{R}_t = \bar{R}_{t-1} + \varepsilon_t^{\bar{R}} \quad (15)$$

Finally, the output gap is explained by its lag and the inflation deviation from the target, as well as by η , a distributed lag of ε^R :

$$y_t = \rho_1 y_{t-1} - \frac{\rho_2}{100} (\pi_{t-1} - \pi_{t-1}^{LT}) + \theta \eta_t + \varepsilon_t^y \quad (16)$$

$$\eta_t = 0.5 \varepsilon_t^R + 0.5 \varepsilon_{t-1}^R \quad (17)$$

The output gap equation, along with equation (4) formalizes the transmission of monetary policy to the core rate of inflation through the output gap, while also taking into explicit account the effect exerted by real estate on the output gap itself. Thus, if activity in the real estate sector is higher than expected based on future economic conditions the output gap will be wider. The coefficients imposed in equation (17) are intended to reflect a pattern in which both present and lagged unanticipated shocks to the real estate sector affect the output gap with equal weights.

Parameter Estimates

The table below presents prior distributions and estimated posterior distributions from regularized maximum likelihood estimation.

Parameter	Prior		Posterior	
	Mode	Dispersion	Mode	Dispersion
α	0.5	0.016	0.5	0.022
β	0.3	0.032	0.237	0.04
σ	0.4	0.032	0.376	0.042
ρ_1	0.8	0.016	0.798	0.021
κ_1	0.1	0.063	0.137	0.063
ϕ_1	0.5	0.032	0.493	0.041
ϕ_2	0.3	0.016	0.281	0.022
τ	0.1	0.016	0.091	0.021
δ	0.5	0.016	0.499	0.022
κ_2	1.5	0.158	1.601	0.166
ω	5	0.316	4.923	0.431
ρ_2	5	0.316	5.02	0.429
λ	1	0.316	1.081	0.425
η	0.5	0.032	0.519	0.043
θ	0.7	0.032	0.673	0.043
γ	0.5	0.032	0.5	0.043
Standard deviation of shock to equation: 1/				
(16)	1	0.032	0.904	0.045
(10)	0.2	0.003	0.201	0.004
(5)	0.5	0.032	0.136	0.057
(7)	0.1	0.016	0.07	0.021
(8)	0.1	0.003	0.098	0.004
(6)	0.4	0.032	0.562	0.035
(11)	0.25	0.016	0.273	0.022
(12)	0.075	0.003	0.076	0.004
(4)	0.5	0.032	0.437	0.037
(13)	0.3	0.032	0.3	0.044
(14)	1	0.063	0.879	0.076
(15)	0.3	0.032	0.473	0.032

Source: Staff estimates.

1/ Standard deviations of the Gaussian prior distributions before truncation