



CYPRUS

SELECTED ISSUES

December 2019

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November 12, 2019

Approved by
European Department

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CONTENTS

PROMOTING EXPORT COMPETITIVENESS IN CYPRUS	2
A. Introduction	2
B. Literature Review	2
C. Stylized Facts	3
D. Empirical Analysis	9
E. Key Challenges and Policy Priorities	11
References	13

TABLES

1. Fixed Effects Model Regressions for Determinants of Services Exports	10
2. Error Correction Model Regressions for Determinants of Services Exports	11

BANKS IN CYPRUS: STAYING COMPETITIVE IN THE DIGITAL AGE	15
A. Efficiency of Cypriot Banks	15
B. Impact of Digitalization on Banks' Efficiency and Profitability	16
C. Digitalization of Banks in Cyprus	17
D. Determinants of Bank Digitalization	19
E. Policy Implications	20
References	22

PROMOTING EXPORT COMPETITIVENESS IN CYPRUS ¹

Cyprus' export performance has been strong with a significant improvement in its cost competitiveness in the post-crisis period, albeit showing some slowdown more recently. While Cyprus has been able to leverage its strategic location to diversify its markets for goods exports, as a small island economy, opportunities for diversifying its products mix is more limited. Services exports have performed better in the post-crisis period buoyed by the recovery in Europe and the impact of technological advances on global ICT-enabled trade. Policies to support greater market diversification, enhance competition and efficiency and strengthen technological adoption would help exports growth.

A. Introduction

1. This chapter tries to assess Cyprus's export competitiveness and understand factors that could explain export developments, particularly in the services sector. Exports have made a robust recovery since 2013 but has slowed more recently. To better understand the determinants of export trends in Cyprus, this chapter examines both demand and supply-side factors such as cost competitiveness, productivity, and external market demand at a sectoral level. By evaluating developments and bottlenecks in exports sectors, this chapter tries to identify the main areas for policy interventions. Going forward, policies to support greater market diversification, enhance competition and efficiency and strengthen technological adoption, in addition to maintaining cost competitiveness, would help exports growth. The sections are organized as following: section B provides a short literature review; section C discusses key stylized facts including an overview of current account, and exports of goods and services; section D tests the impact of import demand on service exports; and section E concludes with policy recommendations.

B. Literature Review

2. Studies have established the relationship between price and cost competitiveness with trade performance. Bobeica et al. (2016) analyze the competitiveness of trade of euro area countries and find that Cyprus exported goods mostly to trading partners outside the euro area due to its proximity to non-euro area countries, while its share of imports from outside the euro area declined over time. Their estimated results suggest that export volumes of goods outside the euro area appear to be driven to a large extent by price/cost competitiveness in comparison to those within the common currency area. For services trade, other important factors influencing trade performance include foreign market access, world demand, supply capacity, macroeconomic environment, regulatory governance, human capital especially skilled labor, physical infrastructure, investment, financial development, geography (Ebeke and Siminitz, 2018; Ahmad, et. al, 2017; Loungani, et. al, 2017; WTO 2017; Sahoo, et. al, 2013; Marel, 2011; Kandilov and Grennes, 2010, UNCTAD, 2005).

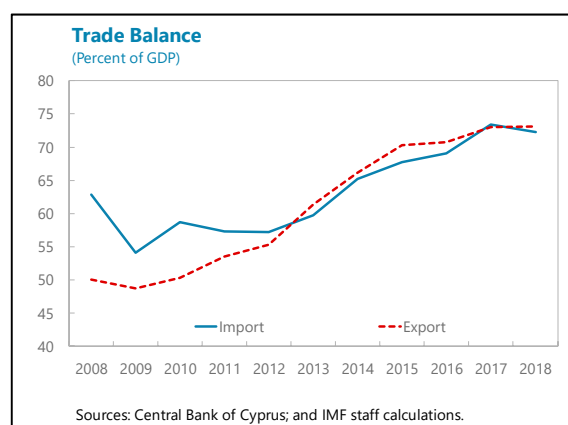
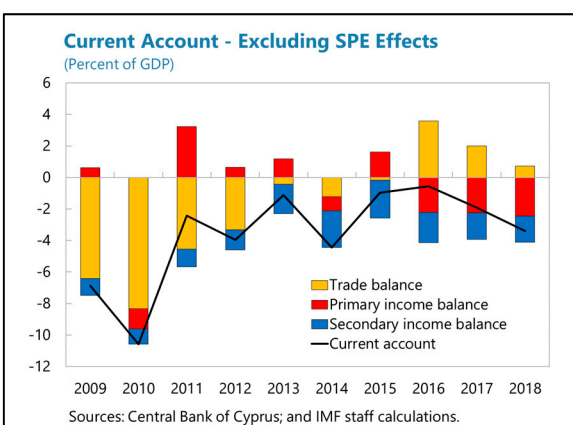
¹ Prepared by Ke Wang (SPR). The chapter benefits from helpful discussions with the Cyprus Economy and Competitiveness Council, and the Cyprus' authorities in Central Bank of Cyprus and Ministry of Finance. Data includes SPEs unless noted otherwise.

3. Several papers have discussed recent favorable developments of competitiveness of the Cypriot economy. Polemioti, et. al. (2018) discusses developments in unit labor costs (ULC) in Cyprus, noting that the ULC index had a sharp correction after the crisis, driven by significant wage declines in the public and private sectors (mainly in construction, trade, transport and tourism sectors). They find the immediate and subsequent continuous adjustment of wages and prices after the crisis demonstrates the Cyprus economy's potential to achieve internal devaluation as a mechanism for the correction of macroeconomic imbalances. The Cyprus Competitiveness Report (Baker et. al., 2019) finds that the economy of Cyprus performed reasonably well with strong service exports, aided by supportive public policy and generally favorable regulatory, institutional and market conditions. The report also highlighted policy areas to strengthen for competitiveness such as relatively low labor productivity, business linkages and connectivity, access to finance, and connectivity to international transportation and business partners.

C. Stylized Facts

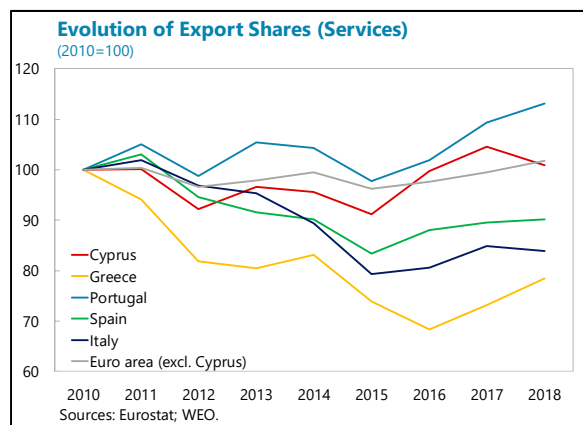
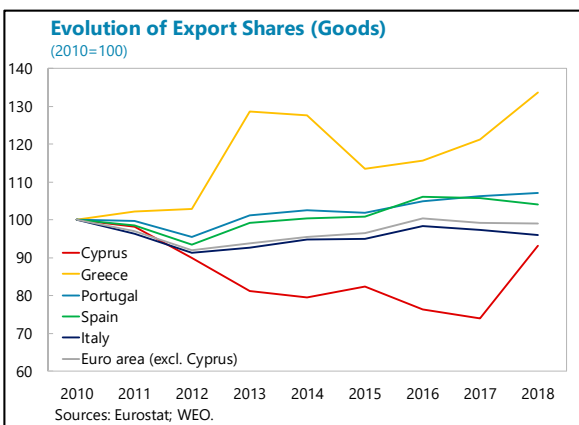
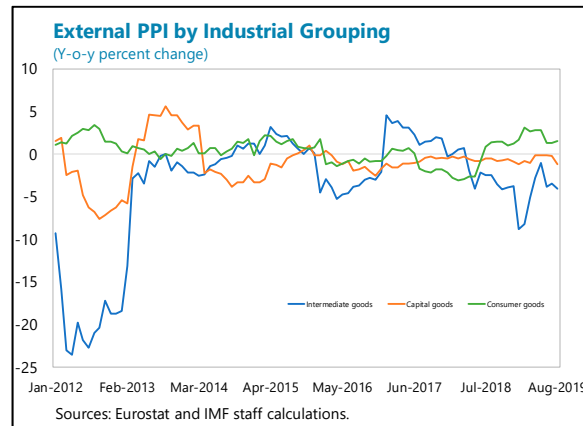
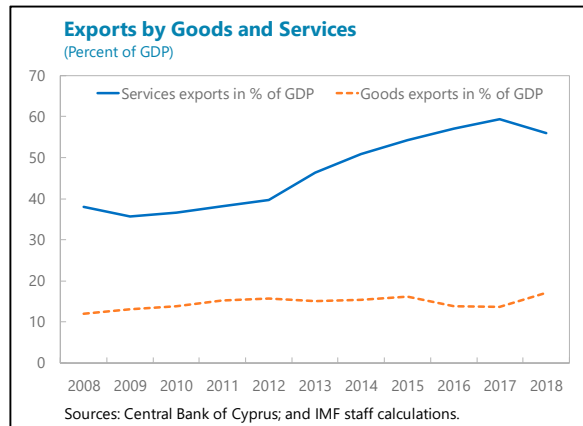
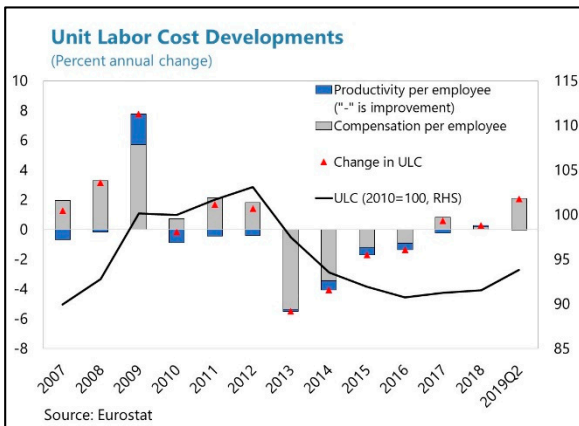
Overview of Export Developments

4. Following a large adjustment in the earlier half of this decade, the underlying external deficits in Cyprus have been widening in recent years. The current account deficit (excluding Special Purpose Entities, SPEs) increased from 0.4 (1) percent of GDP in 2015 to 4.4 (3.4) percent in 2018. The trade balance (excl. SPEs) has also swung from a peak surplus of 2.6 (3.6) percent of GDP in 2015 (2016) to 0.8 (0.7) percent in 2018 as imports rose rapidly driven by an investment boom, outpacing the growth in exports.



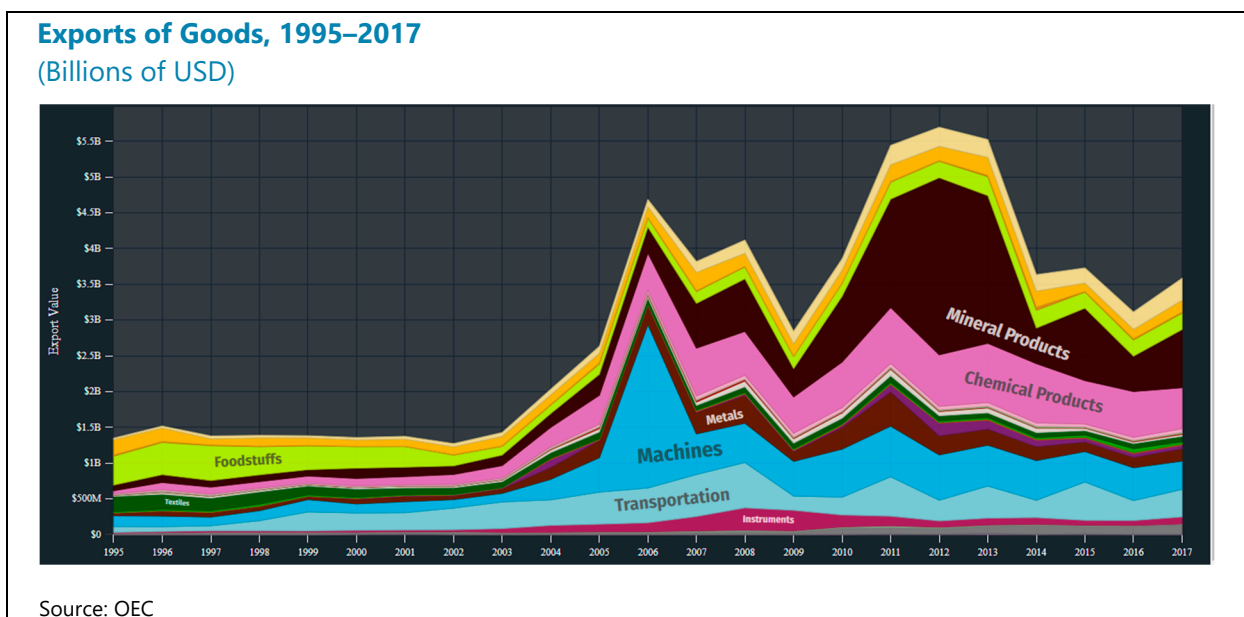
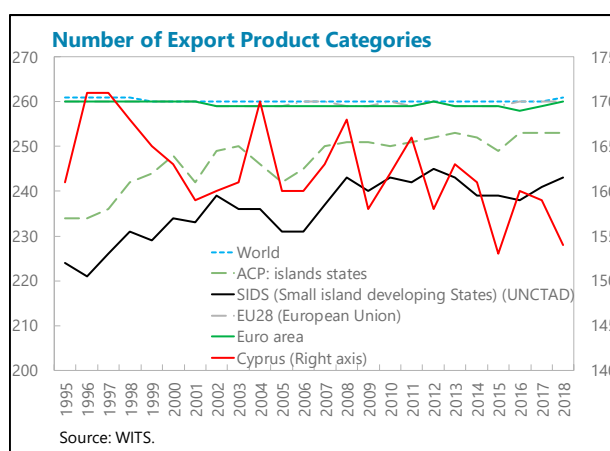
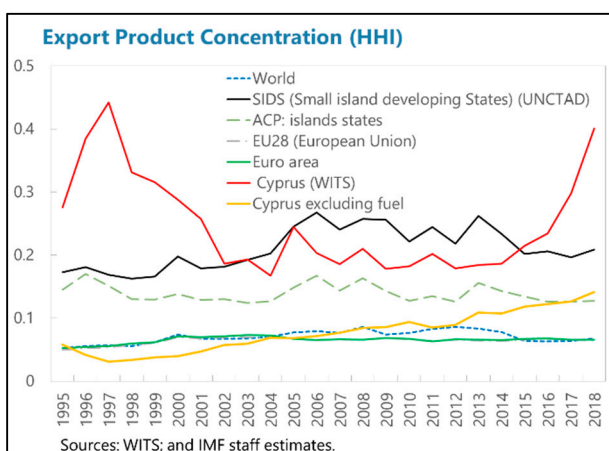
5. Cyprus' export performance has been robust, particularly in the services sector, with a significant improvement in its cost competitiveness in the post-crisis period, albeit showing some slowdown more recently. Overall exports have increased supported by the subdued unit labor cost and producer price indices (PPI) over the past five years and favorable competitiveness rankings. Exports of services, which account for the bulk of exports, have picked up since 2013. However, services exports slowed significantly in 2018 with declining financial services exports and slower growth of other services sectors. Export of goods, which has a sizable component of reexports, have remained stagnant as a share of GDP. In volume terms, growth in export of goods has also lagged that of exports of services. The market share for goods exports, which account for

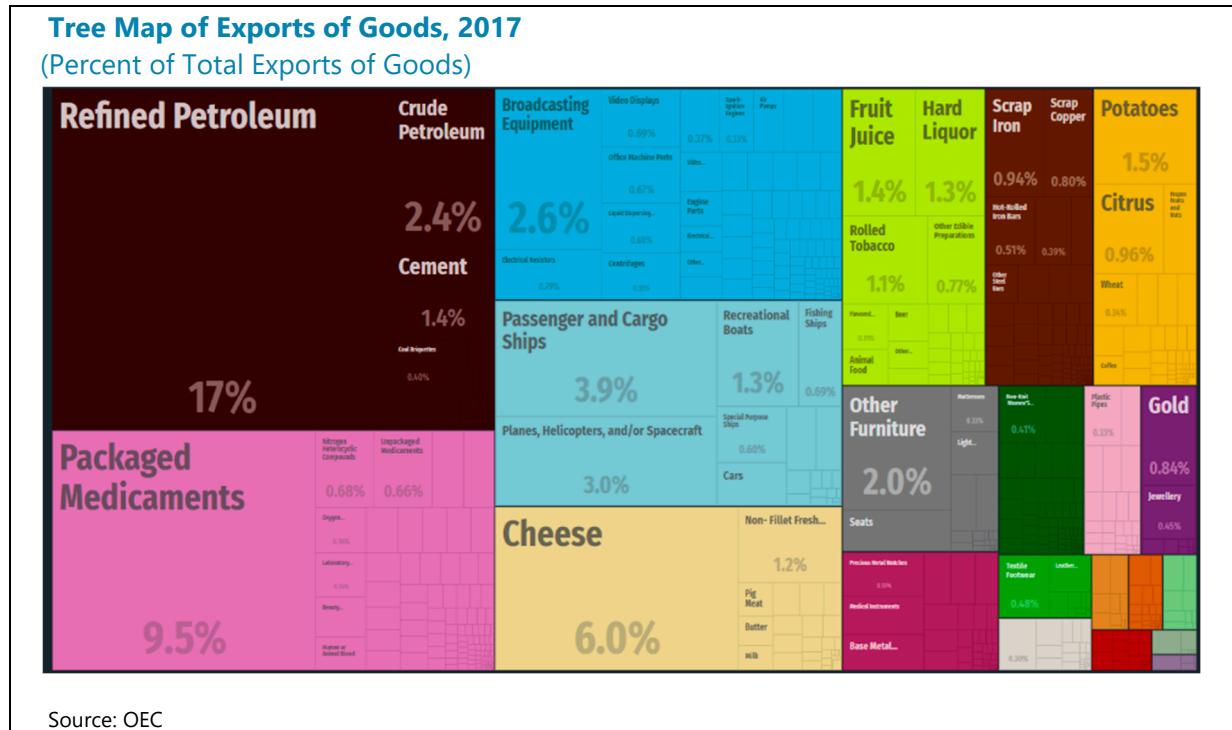
about a quarter of total exports, has declined since 2010 while the regional peer economies have maintained or even expanded their shares. The share of services exports has been broadly in line with the regional peers over the past decade, although the trend for Cyprus is more volatile.



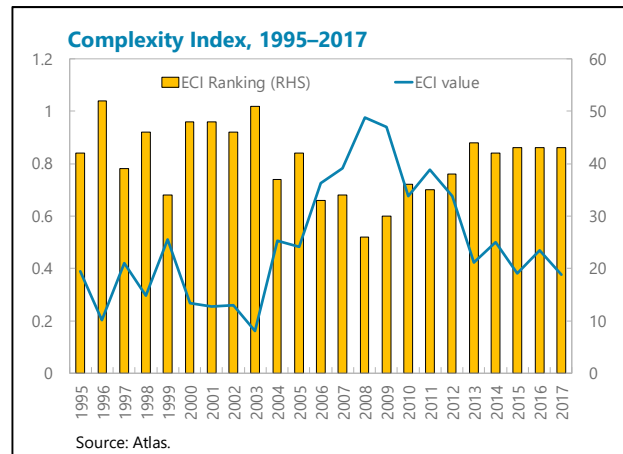
Characteristics of Exports of Goods

6. Product diversification of goods exports remains limited, constrained by the size of the economy. This reflects both extensive margin (number of export product categories) and intensive margin (more balanced shares of products in the export baskets). In 2017, major goods export products comprised of mineral products (17 percent), chemical products/medicaments (10 percent), agricultural products, machines, and transportation products. Although Cyprus made some progress to reduce the export product concentration from mid-1990s to mid-2000s, the diversification process has been stagnant in recent years, likely reflecting difficulties in diversification in small island states. When excluding the effects of fuel re-exports, which are influenced by oil prices, the diversification path has little movement (shown as the orange line in the chart below). Diversification across extensive margin was also low with the number of export products categories declining over the past twenty years, unlike other small states who gained diversification from more categories.



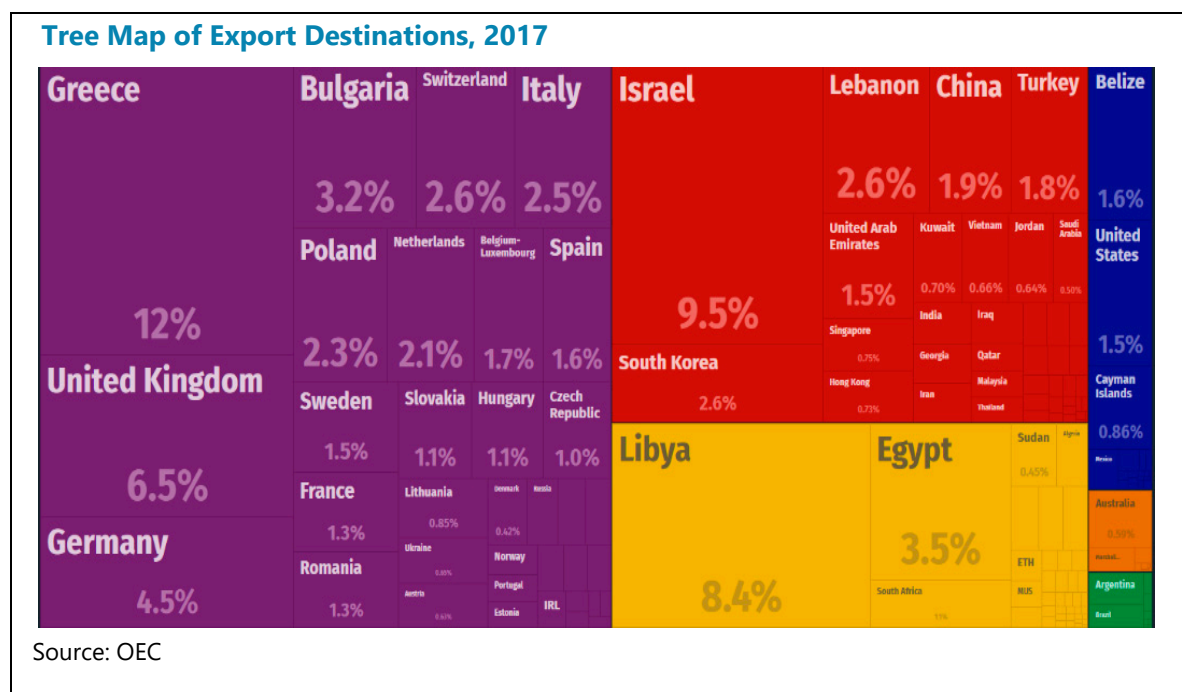
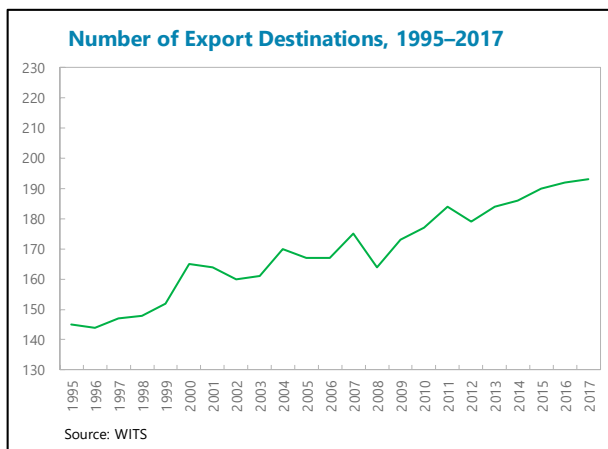


7. Cyprus’s Economic Complexity Index (ECI) has also been stagnant. The index value measures the amount of capabilities and knowhow of the economy as determined by the diversity and complexity of the products it exports. Cyprus gained in complexity index with the development in complex products such as petroleum products and medications. But has declined somewhat in recent years.² Its ranking (43/180) has remained relatively stable since the crisis.



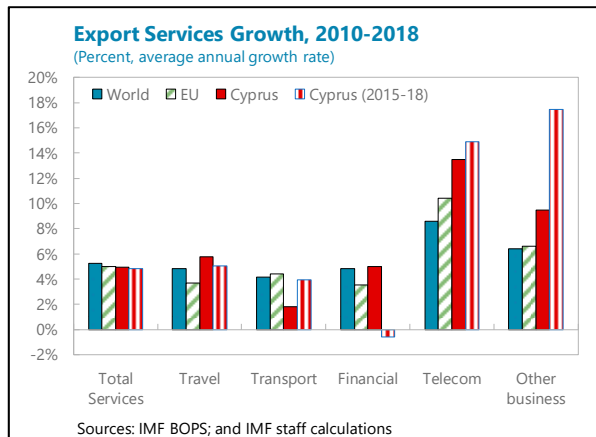
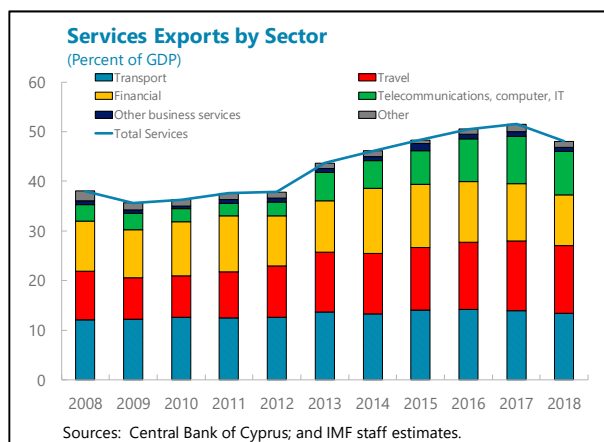
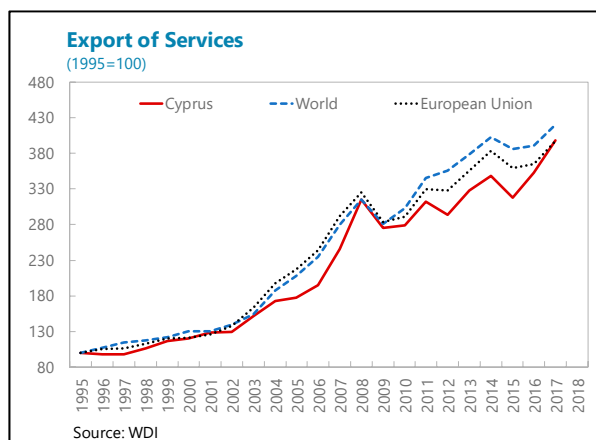
² The Economic Complexity Index (ECI) for Cyprus stood at 0.43 compared with Greece (0.25), Portugal (.26), Spain (.77), Italy (1.12), Ireland (1.4). For further details see Atlas (2019).

8. More progress has been made in export markets diversification. Cyprus has expanded into more markets to export its goods than before, with the main trading partners predominantly in Europe (around a third), but also in Asia, Middle East and Africa. This trend partly reflects Cyprus’s advantage of its strategic location. Furthermore, export volumes outside the euro area appear to be driven to a larger extent by price and cost competitiveness in comparison to those within the common currency area (Bobeica et al., 2016).

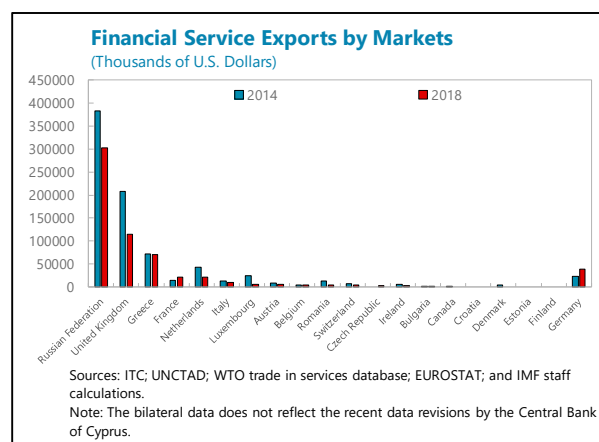
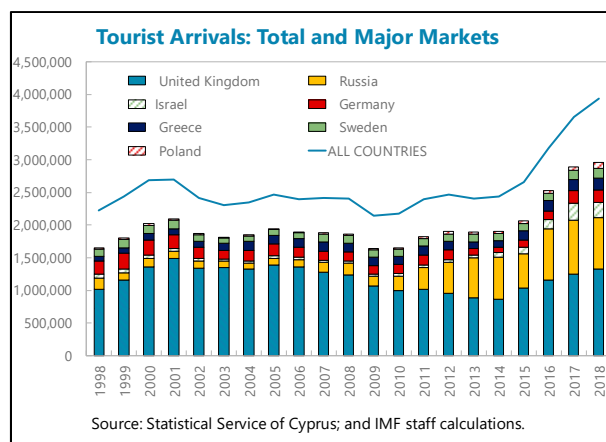


Characteristics of Exports of Services

9. A stronger recovery has taken place in exports of services in recent years in line with global and EU-wide trends. Main service sectors include traditional sectors such as transport, travel, but also modern sectors such as financial services, Telecommunications, Computer, and IT (ICT), and other business services. The recent growth has been fueled by sectors such as ICT, business services and travel. This is consistent with the global trend whereby technological advances including in digital infrastructure have enabled services to be supplied electronically and thus enhanced cross-border tradability of services, particularly in computer services. These “ICT-enabled” or “modern” services such as R&D, professional, management consulting services have also been growing rapidly over the past decade. Growth in financial services exports, however, has been lagging significantly since 2015.



10. The growth rate of services exports has been more volatile compared to other country groups, partly reflecting the heavy concentration of services export destinations in the European market. Nearly two-thirds of services exports are concentrated in the UK, rest of EU and Russia. This pattern is consistent with the trend of intra-regional trade in services (Roy, 2019). Travel exports are dominated by personal travel (tourism) from the UK and Russia, which have experienced a steady recovery in recent years, but are now facing challenges from Brexit-related uncertainties. Financial service exports, which are concentrated in Russia, UK and Greece, experienced rapid growth until 2015 but has slowed considerably since then.



D. Empirical Analysis

11. In this section, we try to examine the key determinants influencing service exports of Cyprus. Given the concentrated export market for services exports, we test if import demand from these trading partners has been the key determinant or other supply side factors such as ULC-based REER have been more important in influencing exports. Using the fixed effects model on annual data from 1995 to 2018, we regress log of service exports by sector on independent variables that include imports demand of main export destinations for each sector; the real exchange rate as a measure to capture the relative prices and costs; Foreign Direct Investment (FDI) to capture the role of foreign investment in raising capital; and productivity index that captures how efficiently labor is used to generate value added in the relevant real sector (e.g. financial sector productivity to match the financial sector exports). We include major export service sectors in the regressions (travel, transport, financial services, ICT, and other business services). We test the long-term effect using data from 1995 to 2018 and the short-term effect using data from 2008 to 2018 to analyze post global financial crisis developments.

12. Our fixed effects model regression results confirm the significant effects of cost competitiveness and import demand on exports. As shown in Table 1, REER depreciation has significant effects to increase service exports. The effects are positive and statistically significant for imports demand of EU trading partners (columns 2 and 4). The effects of imports demand from major trading partners such as Russia and Greece are more significant in the long-term specification (column 1). FDI inflows have very small and insignificant effects on service exports which may be explained by the impact of SPEs in the FDI data. Productivity index has positive effects on exports in the OLS model which is estimated for a robustness check.

Table 1. Cyprus: Fixed Effects Model Regressions for Determinants of Services Exports

VARIABLES	(1) FE, LT	(2) FE, LT	(3) FE, ST	(4) FE, ST	(5) OLS, LT
Imports_UK	-0.316 (0.229)		0.379 (0.271)		0.931*** (0.184)
Imports_Russia	0.459*** (0.0925)	0.0925 (0.0735)	0.197** (0.0913)	0.0971 (0.0940)	-0.0765 (0.0892)
Imports_Greece	0.757*** (0.101)		-0.129 (0.0988)		0.505*** (0.0712)
Imports_EU		0.899*** (0.205)		0.911*** (0.233)	
REER	-2.851** (1.223)	-0.797*** (0.257)	-1.603*** (0.521)	-0.951*** (0.334)	-2.799** (1.230)
FDI inflows	-0.00477 (0.00466)	-0.000910 (0.00111)	-0.00180 (0.00132)	-0.000776 (0.00119)	-0.00431 (0.00519)
Productivity					1.672*** (0.224)
Constant	12.01** (5.548)	-3.140* (1.749)	3.696 (2.860)	-2.544 (2.220)	3.817 (5.642)
Observations	112	55	50	50	109
R-squared	0.685	0.983	0.977	0.983	0.632

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: IMF BOPS; Central Bank of Cyprus; EUROSTAT; and IMF staff estimates.

13. Similar results are evident when using an error correction model (ECM) to examine the long run relationship between exports of services across various sectors and their determinants. Using annual data for the period 1995–2018, we test service exports of all sectors (shown in column 1) and sectoral service exports separately (columns 2 to 5). Our regression results suggest positive and statistically significant effects of imports demand of main trading partners (UK, Russia, Greece) for overall services. A closer examination of sectoral service exports shows that UK import demand is significant for travel exports; while Russia and Greece import demands are positive and statistically significant for transport exports. For sectors such as financial services exports and ICT exports, the productivity index has significant and positive effects. The ICT sector, which enjoyed one of the fastest growth rates, was boosted by strong productivity gains. Similarly, exports of financial services sector, in particular, appears to be significantly affected by low productivity with no significant benefit from external demand. For other sectors, we find that REER depreciation has helped service exports. FDI inflows remain insignificant in all regressions.

Table 2. Cyprus: Error Correction Model Regressions for Determinants of Services Exports

VARIABLES	(1) All sector	(2) Financial	(3) Travel	(4) ICT	(5) Transport
Imports_UK	0.0350** (0.0140)	0.0698 (0.0612)	0.0197*** (0.00507)	-0.0311 (0.0547)	-0.0409* (0.0196)
Imports_Russia	0.0350*** (0.0108)	0.186 (0.445)	0.00991 (0.00662)	0.0817 (0.0788)	0.162*** (0.0237)
Imports_Greece	0.226** (0.0943)	-0.746 (1.754)	-0.0513 (0.0653)	0.791* (0.417)	0.146*** (0.0390)
REER	-0.189*** (0.0433)	-0.0938** (0.0392)	-0.0273** (0.00947)	-0.0432** (0.0154)	0.00986 (0.0118)
FDI inflows	-0.00284 (0.0174)	-0.00064 (0.0197)	-0.0045 (0.0041)	0.00234 (0.00468)	0.00057 (0.00489)
Productivity	-0.288 (0.191)	0.0849** (0.0339)	0.0192 (0.0410)	0.0493*** (0.0136)	-0.00132 (0.0576)
Constant	26.572*** (7.942)	3.985 (4.464)	3.205** (1.349)	1.359 (1.683)	-0.167 (1.892)
Observations	23	20	23	20	23

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: IMF BOPS; Central Bank of Cyprus; EUROSTAT; and IMF staff estimates.

E. Key Challenges and Policy Priorities

14. Cyprus has performed reasonably well with strong service exports over the past few years, aided by improvements in cost competitiveness and a recovery in the European export markets. The concentration of export markets in the EU and Russia risks higher volatility of exports and vulnerability to a synchronized downturn. In some sectors such as financial services, structural weakness that has led to weak productivity growth will be increasingly a drag on exports. Maintaining its cost competitiveness will be crucial for sustaining exports growth. Greater focus is thus needed to strengthen productivity, diversity markets, and ensure cost competitiveness in order to sustain the growth momentum:

- *Policies to help diversify markets for services exports:* Cyprus services exports are heavily concentrated in the EU where tradability has been lagging due to cross border barriers (Ebeke, et. al, 2019 and references therein). Diversification into newer, higher growth economies outside Europe that are rapidly catching up would help reduce volatility while supporting faster growth. Greater investment in digital infrastructure and encouraging FDI in the services sector can provide for better linkages and connectivity and more opportunities for cross-border trade.
- *Policies to ensure greater efficiency and contestability of markets:* Cyprus ranks close to euro area average in terms of the implementation gap with the EU Market Services Directive. Reducing remaining restrictions would help reduce trade costs and facilitate more competition and contestability in domestic markets. This can promote the emergence of new service providers,

attract more FDI, improve the quality and cost of services for other users, and encourage innovation and investment. Ensuring greater efficiency and cost competitiveness will be key given growing entry of lower cost service providers in providing “modern” services (Roy, 2019).

- *Reforming financial services:* Given the large share of financial services in Cyprus’s exports, which has slowed down in recent years and continues to suffer from inefficiencies and regulatory pressure, stronger efforts to address these challenges will also be critical for higher exports growth (see chapter 2, SIP).
- *Policies to support greater investment in R&D, and technological diffusion:* Notwithstanding the strong growth in the ICT sector, Cyprus’s ranking on digitalization is still lagging EU peers. Greater investment in STEM training as well as technological investments, in terms of both fixed investment and intangibles such as software, would help support technological upgrading, strengthen efficiency and productivity, and thus maintain the strong exports growth.
- *Improving goods diversification:* Diversification along the intensive margin would be desirable given the small population size and financing constraints. It is important to promote diversification within sectors that are already competitive, such as through more high-value-added products and upgraded of quality. Having a more balanced share of different products also helps to reduce the volatility of exports.

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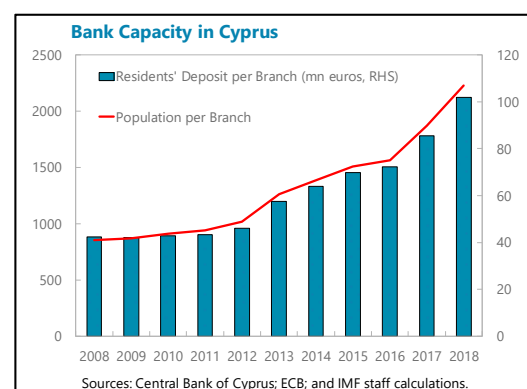
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BANKS IN CYPRUS: STAYING COMPETITIVE IN THE DIGITAL AGE

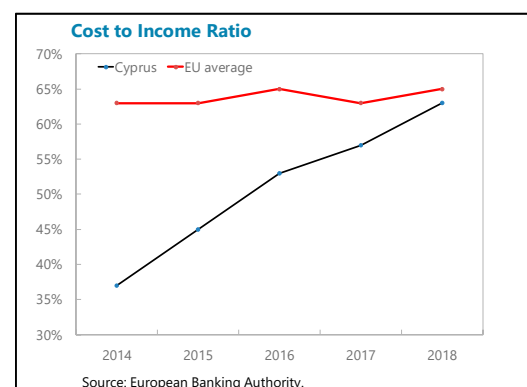
Despite significant improvements since the 2012–13 financial crisis, profitability of Cypriot banks remains low when compared with their regional peers. The ongoing digitalization provides further challenges for banks with additional costs for initial investments, changing customer preferences and increased competition from new entrants. Yet, it also offers opportunities for banks to update their operating platform and rationalize costs, thus improving profitability. This study seeks to understand the digital landscape in Cyprus, analyze prospects for improving efficiency and profitability and discuss policy implications.

A. Efficiency of Cypriot Banks

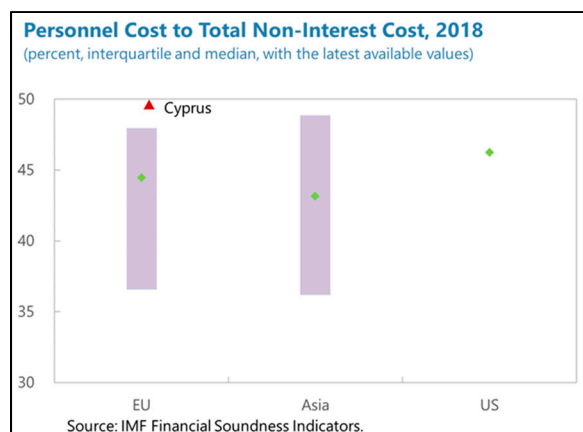
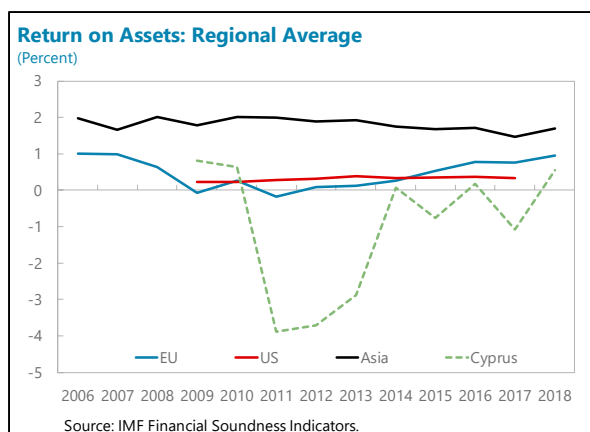
1. Over the past decade, Cypriot banks have undertaken significant efforts to recover from the 2012–13 financial crisis and increase efficiency. They have been repairing their balance sheets, adapting to new regulations under the European Banking Union and exiting unprofitable businesses. NPLs as a share of loans have declined from the peak of 50 percent in 2014 to 30½ percent by 2018. The banking sector has become more consolidated and increasingly oriented towards the domestic market, following the decline of non-resident businesses, withdrawal of foreign banks and resolution of non-viable banks. The acquisition of Cyprus Cooperative Bank by Hellenic bank in 2018 is expected to further increase the efficiency of the banking sector.



2. Despite these improvements, operational efficiency and profitability remain low. The economy remains overbanked given the large number of branches and ATMs per capita, and low deposits and assets handled by each branch and by each bank employee (see text table). Based on the World Economic Forum Global Competitiveness Index, the banking sector in Cyprus is perceived to be one of the least competitive sectors in the global ranking.¹ Overall profitability of Cypriot banks has been persistently below the EU regional average, largely due to provisioning costs to cover the high NPLs and the high share of personnel costs. Cost to income ratios have been steadily rising over the past few years, as total operating expenses remain high despite declining operating income. The current low-interest and low-growth environment further undermines bank profitability.



¹ Cyprus was in 108th position out of 137 countries in the WEF ranking for 2017–18.



Euro Area Banking Sector: Digitalization vs Operational Capacity, 2018

	Deposits per branch (mn euro)	Population per branch	Population per ATM	Assets per bank employee (000' euros)
Cyprus	124	2,227	1,733	7,805
Euro area average	222	4,802	1,531	17,064

Sources: Central Bank of Cyprus; ECB; and IMF staff calculations.

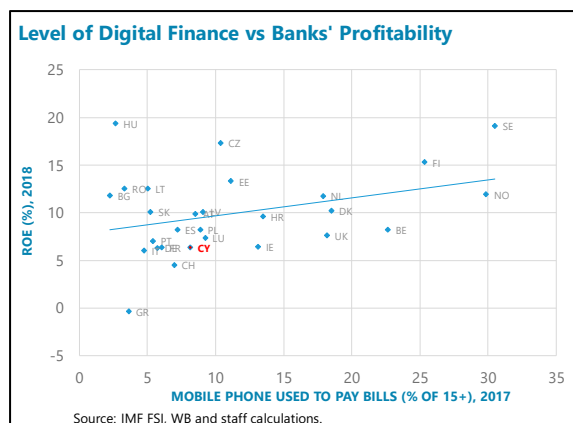
B. Impact of Digitalization on Banks' Efficiency and Profitability

3. Digital transformation is an opportunity for banks to improve efficiency and profitability. Full or partial digitalization of financial processes is seen by banks as a means to stay profitable by cutting different types of costs. The initial investment can be costly, including investment in internal and external hardware, software, services and new staff with information technology skills. However, recurrent costs in the medium- to long-term is expected to be lower, especially as newer, more flexible development technologies are adopted and banks spend less in maintaining inefficient legacy systems. The new technology would also allow banks to enhance the operational efficiency with fewer operational personnel and branches. For example, online distribution channels reduce investment in branches and staff in these branches and back-office departments.

4. The ongoing digitalization is also an imperative given the additional challenges banks face to stay competitive. In recent years, banks around the world are facing challenges from new entrance of fintech companies, challenger banks led by big-tech companies, and digitalization of customers. These new entrants are often leading with customer-friendly solutions. For example, without the overhead of physical branches, challenger banks could leverage technology and data to streamline retail banking by offering better convenience and pricing. To maintain the market share, banks are accelerating their digital transformation to provide better and more digital based customer services.

5. Although it is still too early to assess the full impact of the digital transformation on the costs and profitability of banks, some broad global trends can already be detected.

Cross country comparison suggests that more digital advanced countries tend to experience a higher profitability and operational capacity (text table). Some estimates (Citi, 2019) suggest that digitalization could cut banks' operational cost by 30 to 50 percent, mainly due to fewer branches and employees, while also reducing revenues for all banks by 10-30 percent due to enhanced competition and transparency.² According to a



recent survey by Accenture (2019), digital maturity is associated with increased profitability. Digital advanced banks have on average experienced an overall increase of return on equity (ROE) of 0.9 percent between 2011 and 2017, while the less digital advanced banks have seen a ROE decline of 1.1 percent. This divergence of profitability is expected to widen in the following years.

Euro Area Banking Sector: Digitalization vs Operational Capacity, 2018

	Deposits per branch (mn euro)	Population per branch	Population per ATM	Assets per bank employee (000' euros)
	Ratio to Euro area average			
Cyprus	0.6	0.5	1.1	0.5
Digital advanced countries 1/	1.2	1.4	2.2	1.7
Digital lagging countries 2/	0.5	0.8	0.9	0.8

Sources: ECB; Central Bank of Cyprus; and IMF staff calculations.

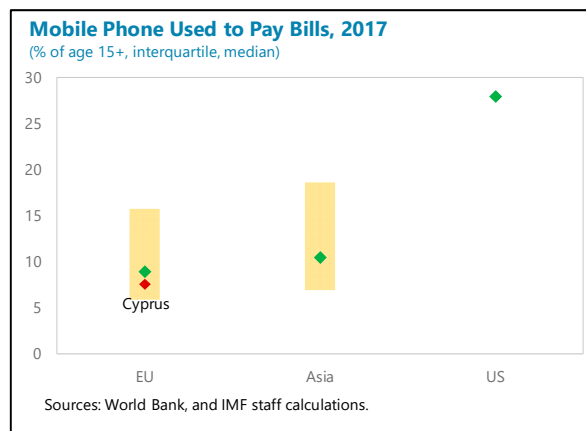
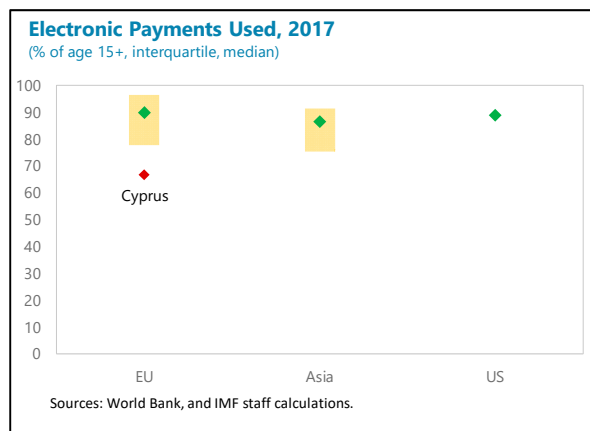
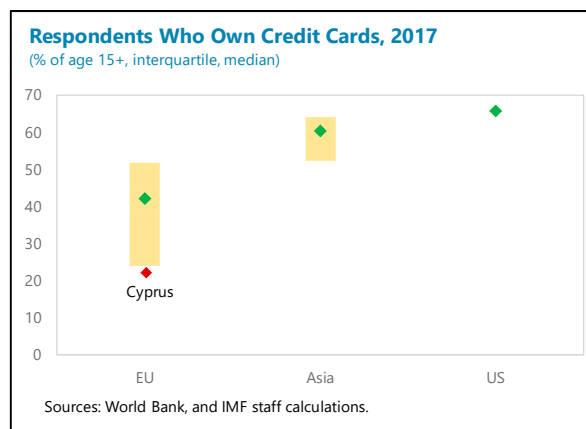
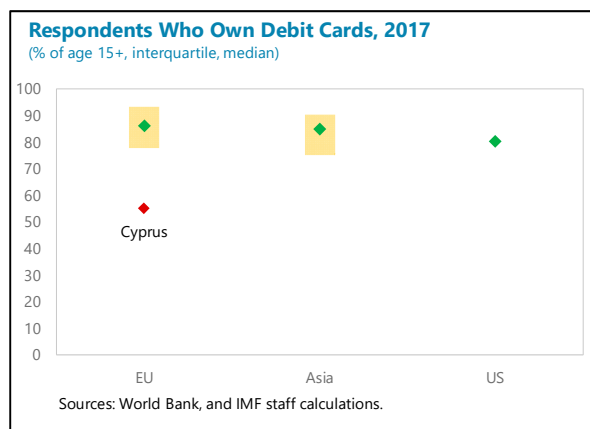
1/ Digital advanced countries include Finland and Sweden, which were top two EU countries in terms of the use of mobile phone payments in 2017.

2/ Digital laggard countries include Bulgaria, Greece, and Italy, which ranked among bottom five EU countries in terms of use of mobile phone payments in 2017. The selection of countries are based on data availability.

C. Digitalization of Banks in Cyprus

6. Despite its perceived importance, financial service digitalization in Cyprus is at a low level compared with digital frontier countries. In 2017, 66 percent of adults in Cyprus used electronic payments versus above 95 percent of top 10 ranked countries, such as Norway (99 percent), New Zealand (96 percent), and Canada (97 percent). Similarly, only 8 percent of adults in Cyprus have used mobile payment, versus above 25 percent in the top 10 ranked countries, such as Australia (27 percent), United States (28 percent) and Sweden (30½ percent).

² According to Citi (2019), more than 50 percent of banks' workforce are working on operations and technology, taking data out of the systems, cleaning it up, and parsing it. Because of digitalization, the majority of these posts are expected to be eliminated.



7. Meanwhile, competition from fintech companies has been largely absent. Many existing fintech companies in Cyprus provide non-bank financial services by providing online trading platforms to global investors for various financial assets, including forex, commodities and cryptocurrencies. There are no active alternative lending and crowdfunding platforms in Cyprus, and activities in transactions of crypto currencies and the use of robo advisor have been limited.³ In the field of digital payments, however, both fintech start-ups and incumbent banks have adopted innovative technologies to provide a range of payment solutions. Despite the absence of domestic competition, banks in Cyprus are increasingly facing competition from global fintech firms. For example, Revolut, a UK fintech company which offers banking services including prepaid debit card, has attracted increasing usage in Cyprus.

³ Cyprus is one of the first countries to accept bitcoin as payment.

8. However, acknowledging the importance of digital transformation, major Cypriot banks have taken various initiatives. Banks have been cooperating with tech companies, incubators and accelerators.⁴ For example, Bank of Cyprus (BOC), the largest bank in Cyprus by assets, started its latest round of digital transformation in mid-2017. With IBM as its strategic partner, BOC is seeking to enhance digital customer interface, improve internal processes and provide tools to improve staff performance. Hellenic Bank, the second largest bank by assets, is also building a new omni-channel digital platform, which can provide flexible and cohesive customer-experiences across its channels. The availability of cloud computing in recent years has allowed banks in Cyprus to access both hardware and software services and shift away from investing in these technologies.

D. Determinants of Bank Digitalization

9. The low level of financial service digitalization in Cyprus calls for extra efforts and swift actions to catch up with digital advanced countries. The diffusion of digital technologies occurs at an accelerating pace (Brynjolfsson and McAfee, 2016), thus the initial difference of digital adoption could be quickly aggravated and technology advances further. This is particularly relevant to policy makers since disparity in technology adoption are suggested to contributed to the divergence in productivity growth (Van Ark et al 2008).

10. A range of factors help to explain the advancement of financial service digitalization.

- **Characteristics of banks.** Digital transformation is in the first place a business decision. The nature of new technologies and the necessary large initial investment tend to favor large banks with stronger balance sheet as opposed to small banks with weaker balance sheets.
- **Regulations and government policies.** Regulations and policy environment have important implications on innovation and the landscape of the financial industry (OECD, 2015). For instance, since the global financial crisis, tightening financial regulations and ever-increasing compliance requirements, though necessary to safeguard financial stability, have constrained banks' resources for technology adoption, while at the same time led to the emergence of regtech companies-a type of fintech companies which provide technologically advanced solutions to regulatory requirements.
- **Human capital.** Given the complexity of technology, banks with greater human capital, particularly in the field of information and computer technology, tend to adopt and implement new technologies in a more effective manner. Major digital transformations such as Artificial Intelligence (AI), machine learning and big data analytics, change skills requirements, impact capacity building and skills development for the digital economy.

⁴ Starting from 2017, both Bank of Cyprus and Hellenic Bank have adopted digitalization as one of their business priorities.

E. Policy Implications

11. Policymakers should exploit opportunities brought by the digital transformation while addressing the accompanied risks.

- Build a forward-looking regulatory framework.** During the process of banks' digital transformation, banking regulations should maintain the high standards for integrity, soundness and consumer protection objectives, while be flexible to accommodate new innovations. A continuous improvement process for regulatory frameworks and supervisory practices is needed.⁵ In this regard, the Cyprus Securities and Exchange Commission (CySec)- the fintech regulator in Cyprus, has been actively developing a regulatory framework for forthcoming application of financial technology.⁶ Close cooperation between the CySec and the Central Bank of Cyprus—the bank regulator, could facilitate the process of technological diffusion and better monitor the collaborations between fintech companies and banks.
- Strengthen the oversight of large banks.** Scale matters in the process of digitalization: smaller banks tend to face higher costs in pursuit of the same performance standard, such as fully automating compliance processes. In consequence, the banking sector is likely to be increasingly consolidated with large banks accounting for higher share of the sector. The remaining large banks are likely to be more efficient, competitive and profitable, but are also increasingly systematically important. In this context, adequate oversights of large banks are increasingly important.
- Ensure sufficient supply of skilled labor.** In Cyprus, despite increase in demand for Information and Communication Technologies (ICT) graduates, there has been a low number of students graduating with ICT disciplines and more general students majoring in science, technology, engineering and mathematics (STEM).⁷ Various factors are suggested to have contributed to low numbers of ICT students in Cyprus, including preferences to study in foreign universities, 'brain drain' and a lack of 'prestige' of ICT and STEM studies. To reduce skill mismatch and raise digital literacy throughout the society, the government's digital strategy⁸ needs to be promptly implemented.

⁵ For example, as the financial sector is increasingly dependent on information and communication technologies, it becomes a high-profile target for cyber threat actors, posing danger to the stability and national and global financial systems. Good cybersecurity risk management practices are critical to mitigate the cybersecurity risk. These practices include collection of information through coordination with other national supervisors, stocktaking of key technology systems in use by banks, and inclusion of cybersecurity risk in the offsite and onsite supervisory review processes. See IMF (2019) for detailed discussions.

⁶ Actions by CySec include the introduction of a crowdfunding mechanism for start-ups, which will cover initial coin offerings (ICOs), tokenization and asset securitization.

⁷ See Cyprus Competitiveness Report (2019).

⁸ The Digital Strategy for Cyprus, introduced in 2012, sets out a comprehensive agenda to promote the use of ICT in all sectors of the economy.

- **Take preemptive measures to help employees who may potentially lose their jobs.** A recent study by Ernst and Young (2019), commissioned by the Monetary Authority of Singapore by providing training program, have identified 17 job posts at retail and corporate banking that are at high risk because of the digitalization. Preemptive measures the government could take include retraining for younger and skilled employees and packages to guarantee basic living standards for older and lower-skilled staff.

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