United Nations
Economic Commission for Africa

UNLOCKING THE POTENTIAL OF REGIONAL VALUE CHAINS IN NORTH AFRICA

focus on the financial services and digital finance sector

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Foreword

The United Nations Economic Commission for Africa is proud to present its research and findings on the potential of regional value chains in North Africa: a focus on the pharmaceutical industry. The timing of the study is ideal in that it takes advantage of the African Continental Free Trade Area and the increase in demand for pharmaceuticals, stimulated by the COVID-19 pandemic.

Despite having a combined population of more than 250 million inhabitants, linguistic and cultural affinities, continuity of physical space, and adequate infrastructure, trade on the region is below potential. In 2019, intra-regional trade represented only 5 percent of the total North African trade, well below the continental average of 16 percent due to the fragmented nature of North African economies.

To attain structural transformation and change the economic structure of North African economies, away from producing commodities with little value addition to economies, driven by industry and by products with greater value addition, it is essential to move towards producing manufacturing products to warrant the economic take-off desired for the region. In line with our mission to propose ideas and actions that would engender a self-reliant and transformed Africa within the framework of the 2030 Agenda and Agenda 2063, this study is an analysis of what we uncover to be a promising sector - the pharmaceutical sector and its growth potential.

The COVID-19 pandemic has revealed that the pharmaceutical industry is one of the new sectoral trends that could emerge post the COVID-19 period and has the potential to integrate North African countries by making use of existing economic complementarities. Due to disruptions experienced in the global value chain, as a result of the health pandemic, the development of an innovative and solid pharmaceutical industry is ever more timely in the post-COVID 19 period. This is especially true when one takes into account the trend towards the regionalization of sources of supply, the potential relocations of some production segments, the reconfiguration of value chains and the shortening of distribution cycles.

Despite being already well positioned in the medicines sector, this emerging sector has the potential for real comparative advantage that can stimulate economic integration. This means that there is an opportunity to develop the sector post-COVID by putting strategies in place to address structural difficulties through better spending and investments in the health sector and for industrial innovation. The construction of regional chains is again ever more timely since markets for medicines on the region are primarily characterized by generic medicines and the development of production chains for original medicines are still highly dependent on new capacities in the R&D segment.

The study is a detailed mapping of the pharmaceutical sector of the North African region and a comprehensive analysis of the potential for the development of regional value chains. The study does so by uncovering weaknesses and strengths of the sector and proposes regional policies to address these weaknesses, enhance the strengths and to expand regional value chains to attain the desired structural transformation and growth.

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Director of the Subregional Office for North Africa

of the Economic Commission for Africa

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I. Introduction

In the past two decades global value chains (GVCs), which account for a large share of international trade, have benefited from the unprecedented drop in transport costs, a lowering of customs barriers and a deeper integration of economies. These trends, hand in hand with the rapid development of information technology (IT), have led to the breakdown of production processes in countries with different levels of development. It has resulted in particular in the vertical fragmentation of stages of production. The place taken by big multinationals in the global economy, particularly those present in the new communication technology sector, has contributed to this development. Moreover, the upmarket movement of GVCs is largely propelled by the development of regional value chains (RVCs), the building of which is a mainstay in the promotion of regional integration. RVCs are also a mechanism for the development of local productive fabric through the creation of broader economic opportunities than those offered by national markets. By taking advantage of different factor endowments among member countries, enterprises, working with these chains, boost their competitiveness and serve to stimulate the interconnection of the economies of the region.

The region of North Africa possesses most of the structuring factors of a dynamic integrated market, with a population estimated in 2018 to be around 235 million inhabitants, a mean nominal gross domestic product (GDP) of about $2,800 per capita, continuity of physical space and an appreciable level of transport infrastructures. Nevertheless, notwithstanding the existence of most of these factors, intraregional trade and cross-border financial flows remain far below their potential. In particular, in 2019, intraregional trade represented only 5 per cent of total trade flows in the countries concerned. This rate, which is well below the average continent-wide (16 per cent), points to the still marginal character of trade within North Africa. Several factors account for this situation, with interactive effects, including the fragmentation of North African economies. This is reflected in the index developed by the United Nations Conference on Trade and Development (UNCTAD) on the productive integration of intraregional trade, which assigns the lowest scores on the continent to the economies of North Africa.

Besides the non-utilization of the natural advantages for integration in the North African region, particularly in the agrifood, fisheries, energy and chemistry (natural gas, crude oil, mineral products, phosphates and others), mechanical industry and electric component sectors, the coronavirus disease (COVID-19) pandemic has shown that, thanks to its resilience, the financial service and digital finance sector is one of the new sectoral trends that could emerge in post-pandemic times. This emerging sector also has a potential in revealed comparative advantages that might be a real driver of economic integration (trade complementarity, specialization, technological content, sophistication of exports, levels of complexity, and so forth), and especially of a movement up market of GVCs or of the building of regional value chains, provided there is increased private sector development and the necessary structural reforms are carried out in the countries of the region.

The COVID-19 crisis has indeed highlighted both the effectiveness of mobile payments and the desirability of making use of artificial intelligence solutions, which may speed up digital change. Financial services and digital finance thus offer a real potential for recovery in the region. Within this framework, the convergence of degrees of development of payment systems and technical platforms in the region should help to give a fresh impetus to the new tools of technological finance (fintech) and central bank digital currency. Such a digital transition, which would also serve to inject new dynamism into financial integration in the region, is dependent on the lifting of constraints linked to the infrastructure of payment systems, including as regards the interoperability of mobile payment services. The establishment of a regulatory and technical framework serving to promote digital payments will act as a catalyst for the rise of technological innovation and digital change in the field of finance.

This expected evolution cannot be dissociated from information and communications technology (ICT) for the requisite development of digital finance, cloud computing and Web-based products and services through: (i) narrowing the digital divide through better access to information, democratization of means of access, the universalization of broadband access and the introduction of very high-speed facilities; (ii) strengthening digital culture through universalization of ICT use; and (iii) upgrading digital channels and offshoring.

Such is the background to this study which aims to analyse ways and means of accelerating the process of regional integration in North Africa, propose pathways for building regional value chains in the financial services and digital finance sector and, on that basis, assess their potential for development.

Accordingly, the following discussion is in three parts.

The first analyses the potential of North African countries on the map of global value chains and impacts for regional development.

The second is predicated on a consolidated analysis of financial value chains as a basis for successful regional integration.

The third attempts to identify prospects for building regional value chains in the financial services and digital finance sector.

II. Profile of global value chains and potential of the countries of North Africa on the financial value chain map

II.1. Profile of global value chains before the COVID-19 pandemic and place of financial value chains

In the past few years complex GVCs have developed out of the dynamics of inter-country connections, as witness changes in the index of GVC participation, which is equal to the sum of the foreign content of national gross exports (upstream participation in GVCs: table 1) and the domestic content of foreign gross exports (downstream participation in GVCs: table 2). While the GVC participation of high-income countries increased (rising from 9.5 per cent in 2000 to 12.4 per cent in 2017), that of middle-income countries has declined since the 2007-2008 financial crisis, both for simple GVCs and for complex GVCs (Mouley and Fehri, 2021).

Table 1 Indices of upstream participation in GVCs by group of countries (percentage of GDP)

	Index of participation in GVCs			Simple GVCs			Complex GVCs		
Income levels	2000	22007	2017	22000	22007	22017	22000	22007	2017
High	99.5	111.8	112.4	55.6	66.8	77.1	33.8	55	55.3
Higher middle	111.4	114.1	110.5	77.2	88.4	66.4	44.2	55.6	44.2
Lower middle	110.8	112.4	99.1	66.9	77.6	55.7	33.9	44.8	33.4

Source: *Mouley and Fehri (2021) based on data from Li, Meng and Wang (2019).*

Table 2 Indices of downstream participation in GVCs by group of countries (percentage of production of final goods)

	Index of participation in GVCs			Simple GVCs			Complex GVCs		
Income levels	222000	22007	22017	22000	22007	22017	22000	22007	22017
High	99.3	111.7	111.8	55.8	66.8	66.5	33.5	44.9	55.3
Higher middle	112.5	114.1	110.5	77.3	77.7	66.3	55.2	66.4	44.2
Lower middle	111.7	114.2	111.8	77.9	99.3	77.6	33.8	44.8	44.2

Source: *Mouley and Fehri (2021) based on data from Li, Meng and Wang (2019).*

This evolution might be due to replacement of imported intermediate inputs by locally produced intermediate inputs in countries like China, for example. A sector-by-sector analysis shows that the participation index (upstream and downstream) has slightly declined since

2007, practically for all sectors of activity, with a higher responsiveness of more technology-intensive sectors to the financial crisis of the time. Nevertheless, the financial services sector gave proof of distinct resilience or indeed of an ability to bounce right back, with an index of global participation in GVCs rising from 14.9 per cent in 2007 to 15.2 per cent in 2017, owing to its participation in complex GVCs, whether in terms of its contributions to global value added (table 3) or to the production of final goods worldwide (table 4).

Table 3 Indices of upstream participation in GVCs by group of sectors (percentage of value added)

	Index of participation in GVCs			Simple GVCs			Complex GVCs		
Sectors	2000	2007	2017	2000	2007	2017	2000	2007	2017
High tech	25.3	30.7	28.8	13.8	16.1	15.6	11.5	14.6	13.2
Middle tech	22.5	21.6	23.7	14.5	16.4	14.7	8	9.7	9.1
Low tech	12.4	15.8	15.3	7.9	9.9	9.5	4.5	5.9	5.8
Business and financial services	10.7	14.9	15.2	6.6	9.1	9	4	5.8	6.2
Trade and international transport	10.2	13.4	13.4	6.2	7.9	8	4	5.5	5.4
Agriculture	8.3	11.4	10.6	5.8	7.8	7.2	2.4	3.6	3.5
Mines	39.9	54.3	48.3	25.6	34.5	29.6	14.3	19.8	18.8
Other services	2.3	3.5	3.3	1.4	2.1	2	0.9	1.4	1.3

Source: *Mouley and Fehri (2021) based on data from Li, Meng and Wang (2019).*

Table 4 Indices of downstream participation in GVCs by group of sectors (percentage of production of final goods)

	Index of participation in GVCs			Simple GVCs			Complex GVCs		
Sectors	2000	2007	2017	2000	2007	2017	2000	2007	2017
High tech	22.3	28.8	26.8	8.4	9.8	9.6	13.9	19	17.3
Middle tech	19.1	26.9	25.9	10	14.4	13.2	9.1	12.5	12.7
Low tech	16.6	21.8	20.5	9.9	11.7	10.5	6.1	10.1	10
Business and financial services	5.8	8.7	9.4	4.2	5.7	5.9	1.7	2.9	3.6
Trade and international transport	7.1	10.3	10.4	4.9	6.8	6.7	2.2	3.4	3.7
Agriculture	8.4	11.3	9.6	5.7	7.5	6.2	2.7	3.8	3.4
Mines	10.2	12.1	11.4	6.5	6.1	7.6	3.7	5.9	3.8
Other services	6.9	10.2	10	5.3	7.6	7.3	1.6	2.5	2.6

Source: *Mouley and Fehri (2021) based on data from Li, Meng and Wang (2019).*

The dynamics of GVCs is in any case so largely carried by regional hubs that we can speak about RVCs. Whereas in the early 2000s RVCs were organized around three trading platforms (Japan in Indonesia, Germany in Europe and the United States of America in the Americas), the configuration has clearly changed over the past few years, with China becoming a regional hub. China is the biggest global exporter, before the United States and Germany and the second biggest importer, before the United States. The Chinese share of value-added in global final demand for manufactured goods thus rose from 9 per cent in 2005 to around 25 per cent in 10 years, which attests to its predominant place in GVCs. Integration by China is particularly high in the textile and clothing sector, where its share of value added in global final demand is close to 40 per cent but also in the steel and metal industry (more than 29 per cent), the machinery and equipment sector (28 per cent), and the chemistry and non-metallic mineral products sector (24 per cent).

Figure 1 Value added in manufacturing final demand (percentage)

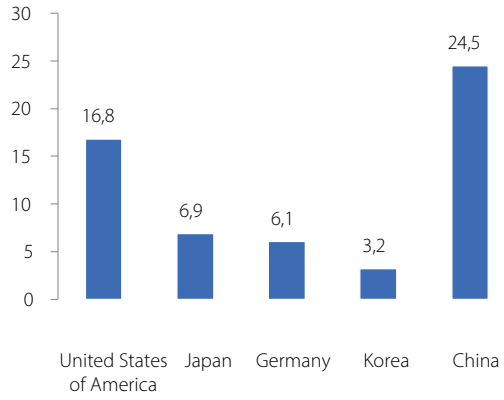
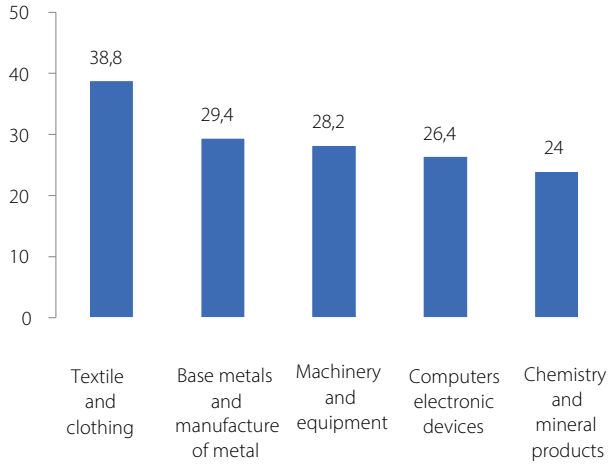


Figure 2 Place of China in GVCs (percentage)



Source: *Mouley and Fehri (2021).*

II.2. Reconfiguration of GVCs during the pandemic

According to the UNCTAD World Investment Report (2020), the post-COVID pandemic trade and investment landscape will be remodelled by the restructuring of GVCs and the creation of new RVCs, which will offer new opportunities for enterprises and States. GVCs were hard-hit by the pandemic, revealing the limits and vulnerabilities of international trade, based essentially on "trade in tasks", rather than trade in goods (Baldwin and Freeman, 2020). It also revealed the dependency of national economies on sensitive inputs from China. The breakage of GVCs led UNCTAD (2020) to envisage several possible scenarios for foreign direct investment (FDI) trends up to 2030 (relocation, diversification, regionalization and replication). Replication in particular will entail shorter value chains and a reorganization of stages of production. It will lead to a broader geographical distribution of activities part a more concentrated value added.

The pandemic highlighted the vital importance post-COVID of strategic sectors linked in particular to health, agriculture, trade, innovation, green energy, transport, infrastructure and finance. The expected transformation of international production opens up prospects for development, notably in the form of RVC formation and new market penetration made possible by digital platforms. Three major technological changes, coming in the wake of the new industrial revolution, will shape international production in the future: automation, digitization of supply chains and additive manufacturing.

Strong sectoral trends will necessarily induce international operators to remodel their supply chains, either by relocating them or by opting for short supply channels, which, for the private sector in the countries of North Africa, could be an opportunity for boosting the dynamics of regional integration. Trends towards the relocation of short supply chains should prove timely for finished products, in terms of matching the productive potential of some with the consumption needs of others. The next strategy of the European countries might conceivably be, in particular, to move from offshoring to nearshoring, in other words to bring their factories back to countries close to their markets, which might be a good alternative for North African countries.

II.3. Potential of North African countries on the financial value chain map

II.3.1. Overview of banking and financial inclusion levels in the region

Comparative analysis of patterns of bank and financial inclusion[1] in the countries of North Africa shows that they remain below the averages of international comparators. However, sustained efforts have been made to increase access to financial services and promote better use of digital finance and financial technology.

a. Findex global platform

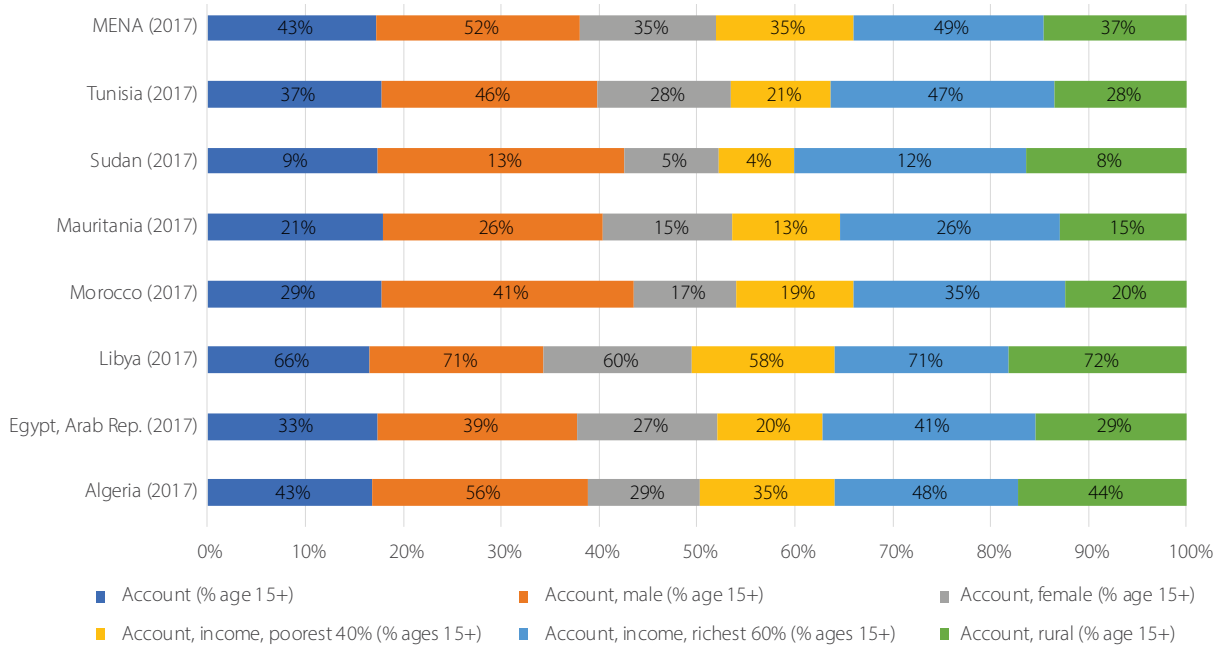
Through the World Bank platform, intended mainly for individuals, the Global Findex database and composite index[2] has been developed. This relies on indicators of use (demand) of banking and financial services, based on measurements of access of adults aged 15 years and over to payment systems (account penetration), loans (current formal loans) and savings products (formal savings) in rural and urban areas. Launched in 2011 with financing from the Bill and Melinda Gates Foundation, it draws on national representative surveys of more than 150,000 adults aged 15 and over in more than 140 economies. The Global Findex initial survey of 2011 was followed by a second in 2014, then by a third in 2017. The third survey provided additional data on the utilization of digital finance and fintech.

According to the platform, indicators of the population with access to bank services in the countries of North Africa are mixed. Apart from Libya, with 66 per cent of adults over the age of 15 who declare that they have an account in a formal institution – a rate largely exceeding the regional average in the Middle East and North Africa region, which is 43 per cent – the average in North Africa is only 28.6 per cent as against 70.5 per cent in countries of the same income level and 94 per cent in the advanced economies of the Organization for Economic Cooperation and Development (OECD), with a 9 per cent minimum in the Sudan and a 43 per cent maximum in Algeria. It is also important to note that it is difficult for 40 per cent of the poorest adults to have access to formal financial services, only an average of 24.3 per cent having an account in a formal institution. Women more than men are also concerned by this phenomenon of exclusion, only 25.8 per cent having an account in a formal institution as against 41.7 per cent for men (figure 3).

1 See Alliance for Financial Inclusion (www.afi-global.org). Financial inclusion is a broader concept than that of banking inclusion. While the latter is based essentially on the level of conditions of access (supply), measured by factors of penetration, coverage, possession and availability of formal deposit accounts (current bank or postal account), financial inclusion in contrast is based on indicators of use (demand) of financial services, reflecting capacities of activities of individuals (adults over the age of 15) to savings products, bank loans, microcredit and other tools of microfinance, insurance products and, more generally, to basic financial services and to adequate payment systems.

2 See Demirguc-Kunt and others (2015) and Demirguc-Kunt and Klapper (2013).

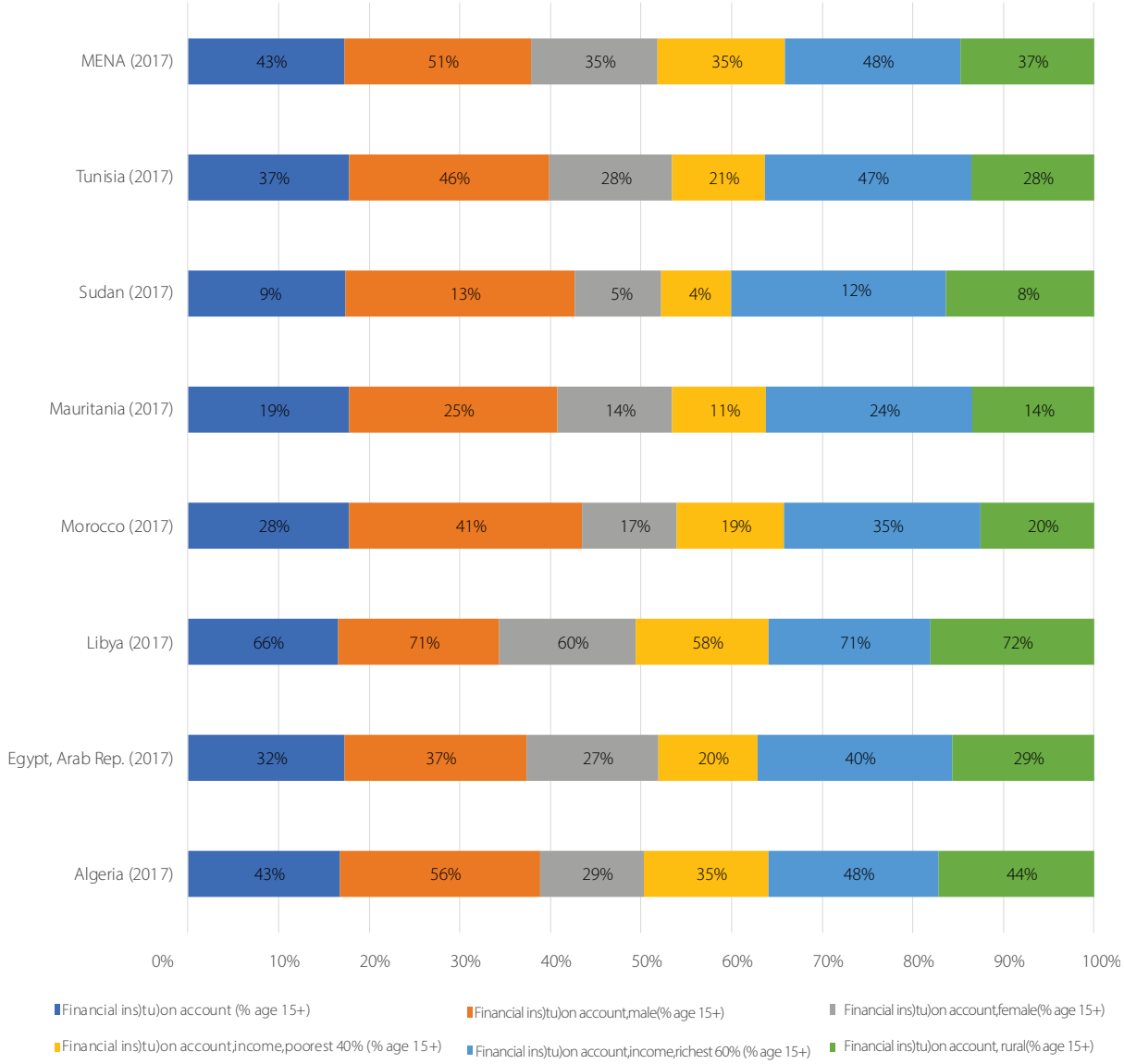
Figure 3 Account penetration (percentage age 15+)



Source: *Based on data from World Databank, Global Findex Survey and Database, World Bank.*

Analysis of varying degrees of formal account ownership in a financial institution in the countries of the region (figure 4) shows the same pattern as the previous analysis of levels of inclusion. Generally speaking and in comparison with international standards, indicators of financial inclusion in countries of the region are, for individuals, below international comparator averages.

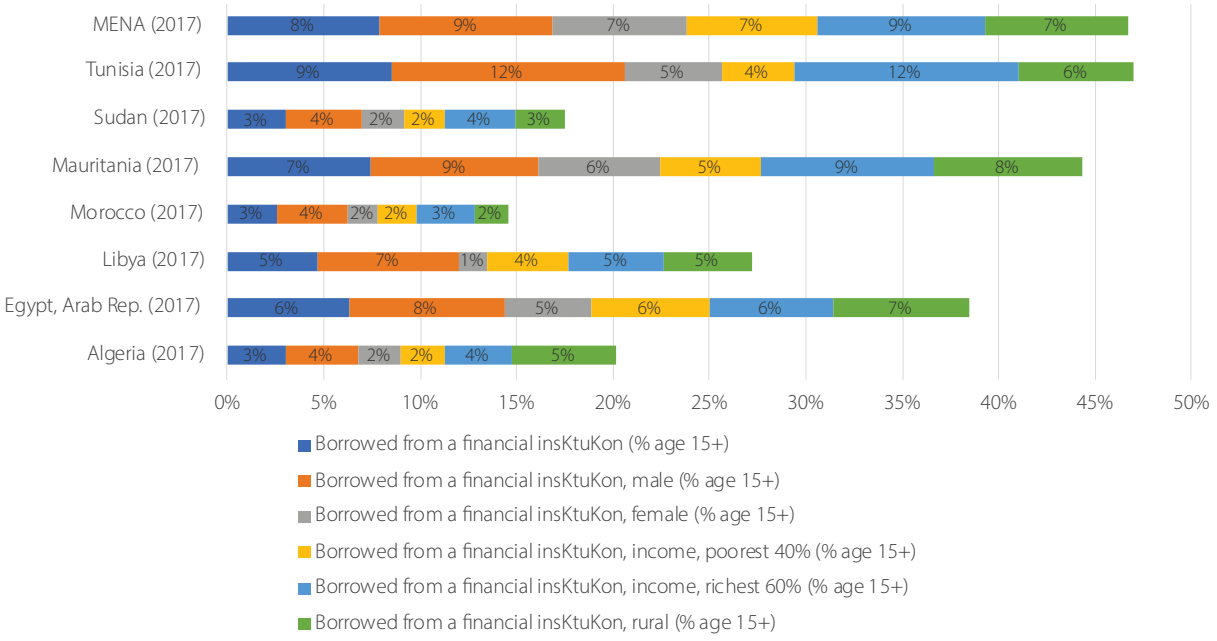
Figure 4 Financial institution account (percentage age 15+)



Source: *Based on data from World Databank, Global Findex Survey and Database, World Bank.*

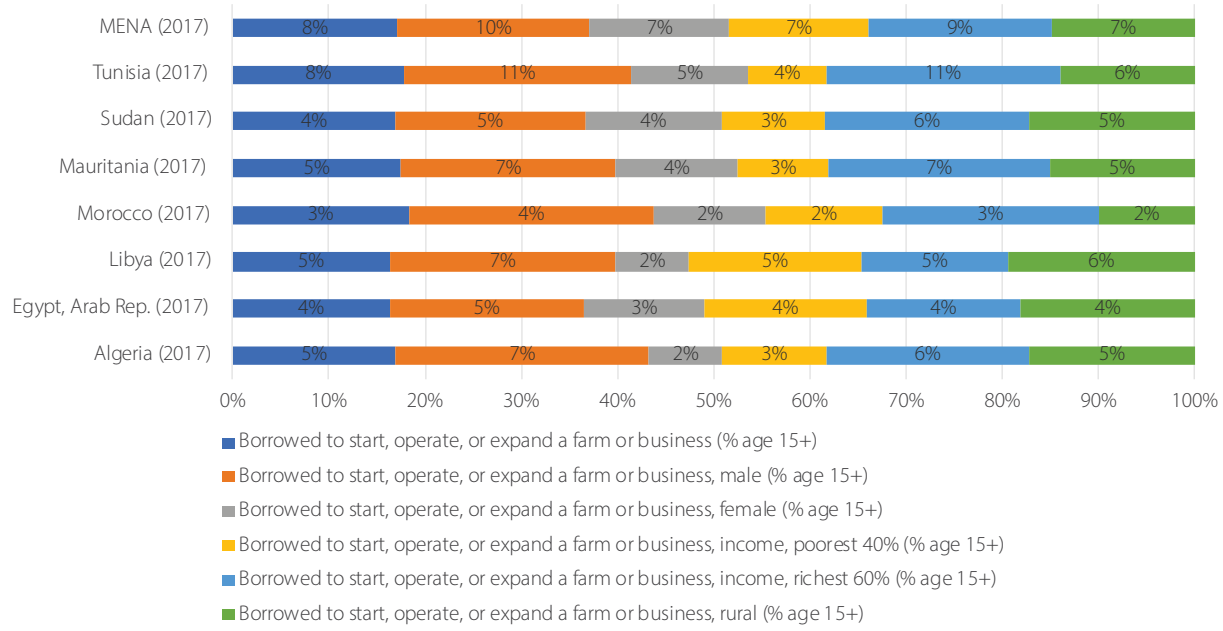
Difficulties of access to loans (figures 5 and 6) and savings (figure 7), in other words, financial exclusion, are more marked in rural areas than in urban areas.

Figure 5 Access of adults to formal loans (percentage age 15+)



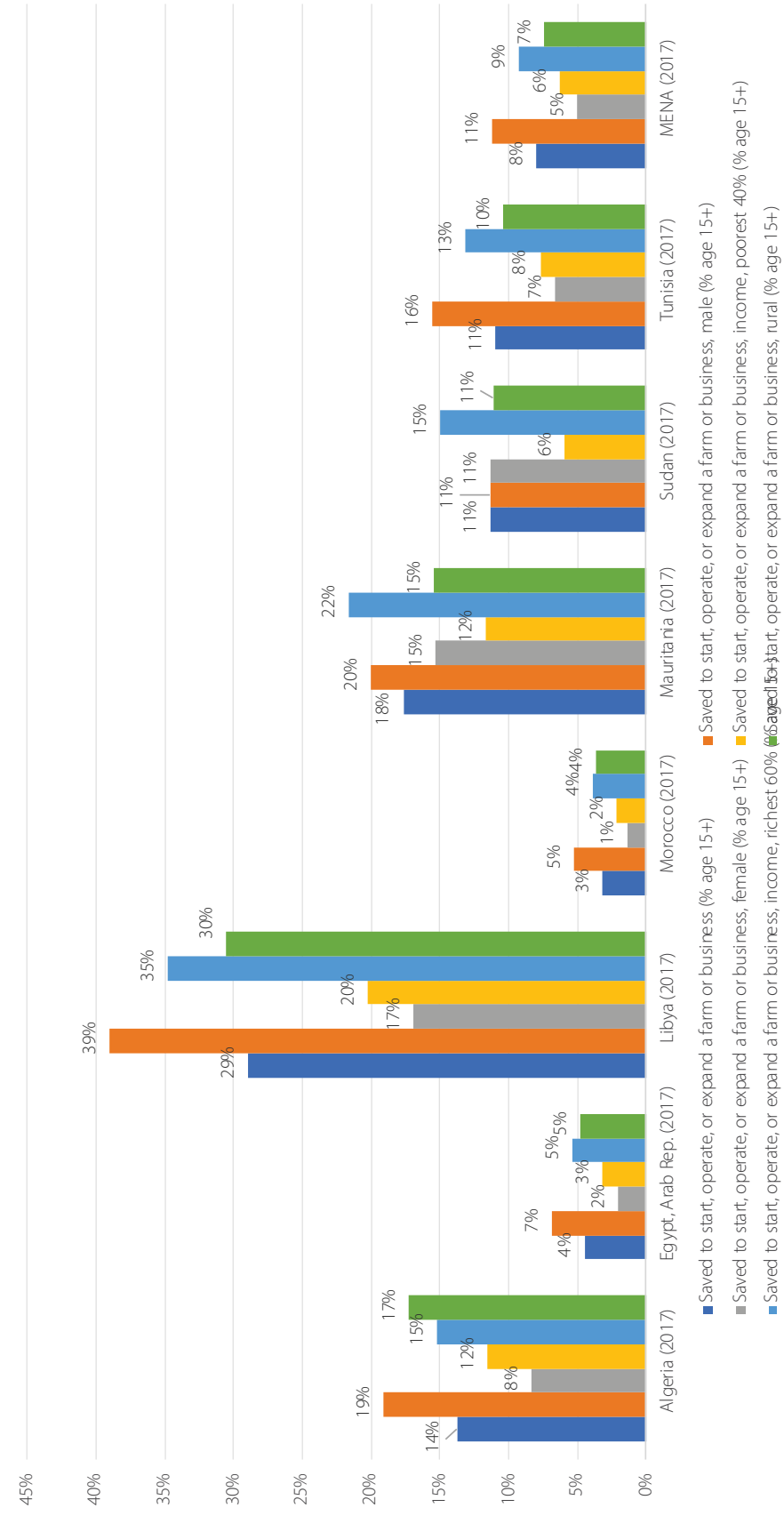
Source: *Based on data from World Databank, Global Findex Survey and Database, World Bank.*

Figure 6 Access of adults to formal loans – continued (percentage age 15+)



Source: *Based on data from World Databank, Global Findex Survey and Database, World Bank.*

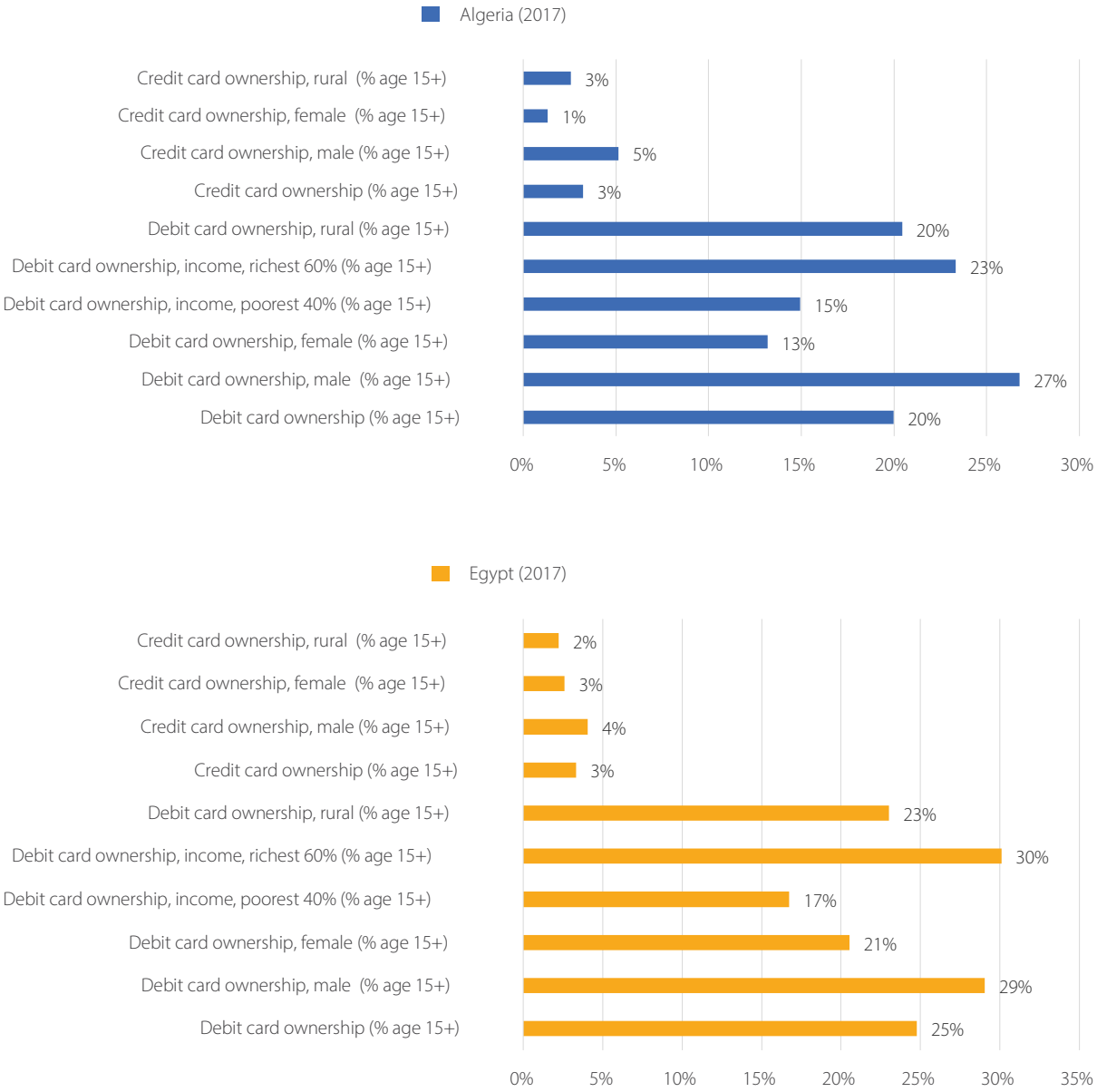
Figure 7 Access of adults to formal savings products (percentage age 15+)

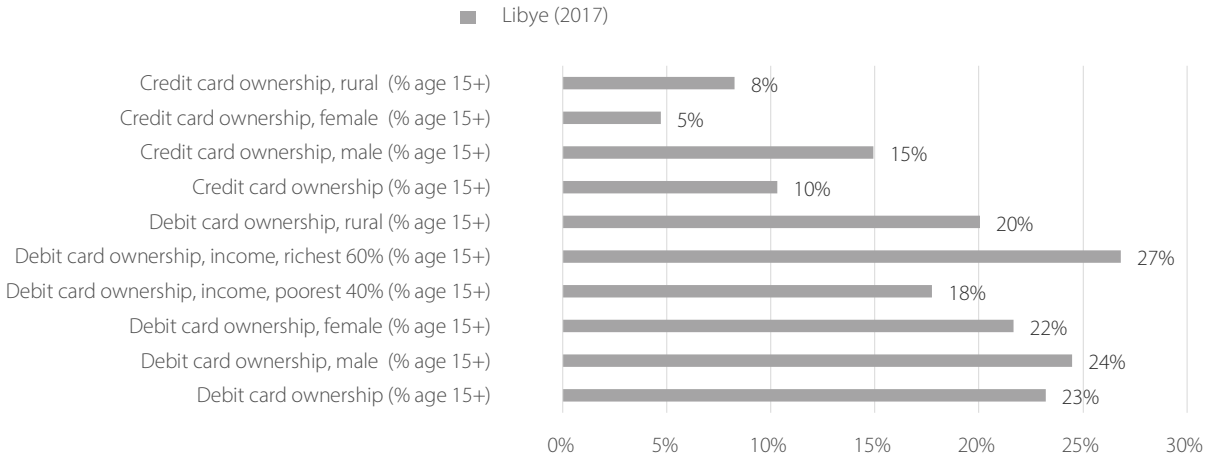


Source: *Based on data from World Databank, Global Findex Survey and Database, World Bank.*

Nevertheless, the countries of the region have set in motion a significant dynamic of access and utilization of digital finance and financial technology (fintech), including the use of mobile telephones and the Internet to conduct financial transactions. The following data show a real potential for increased access to financial services among unbanked individuals and broader and more effective use of digital finance and financial services (figure 8) or of financial technology in general (figures 9 and 10) by individuals with bank accounts.

Figure 8 Parameters of digital finance use (percentage age 15+)




Libye (2017)
Credit card ownership, rural (% age 15+)
Credit card ownership, female (% age 15+)
Credit card ownership, male (% age 15+)
Credit card ownership (% age 15+)
Debit card ownership, rural (% age 15+)
Debit card ownership, income, richest 60% (% age 15+)
Debit card ownership, income, poorest 40% (% age 15+)
Debit card ownership, female (% age 15+)
Debit card ownership, male (% age 15+)
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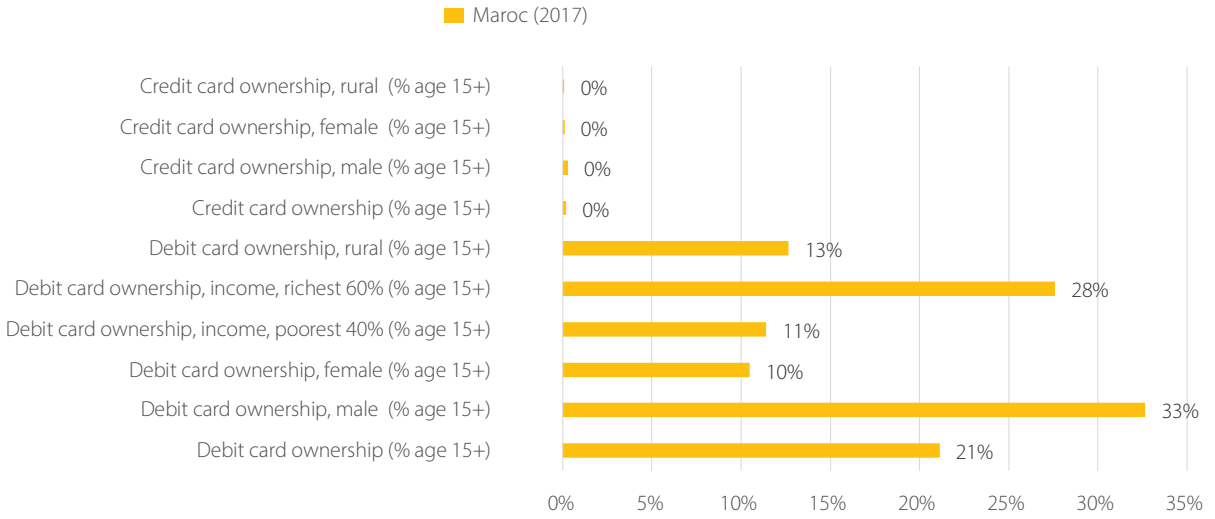
Maroc (2017)
Credit card ownership, rural (% age 15+)
Credit card ownership, female (% age 15+)
Credit card ownership, male (% age 15+)
Credit card ownership (% age 15+)
Debit card ownership, rural (% age 15+)
Debit card ownership, income, richest 60% (% age 15+)
Debit card ownership, income, poorest 40% (% age 15+)
Debit card ownership, female (% age 15+)
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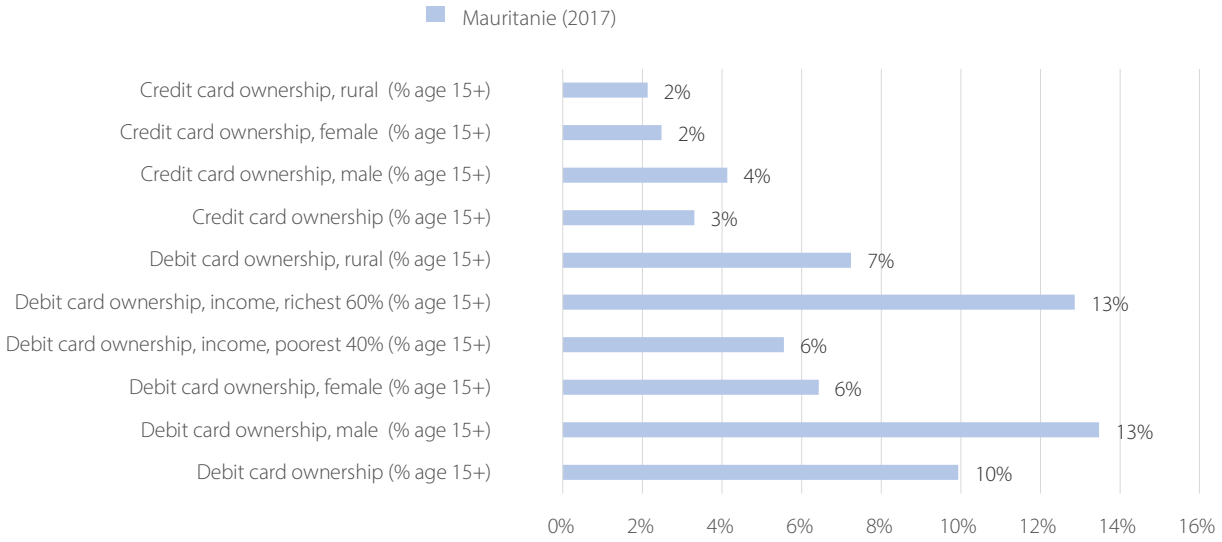
Mauritanie (2017)
Credit card ownership, rural (% age 15+)
Credit card ownership, female (% age 15+)
Credit card ownership, male (% age 15+)
Credit card ownership (% age 15+)
Debit card ownership, rural (% age 15+)
Debit card ownership, income, richest 60% (% age 15+)
Debit card ownership, income, poorest 40% (% age 15+)
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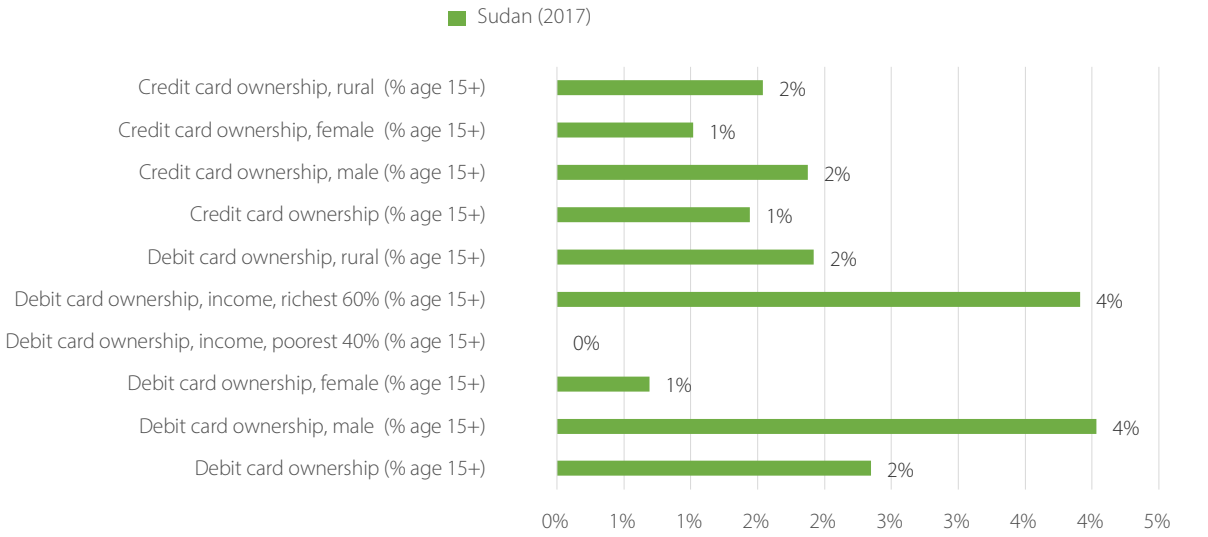
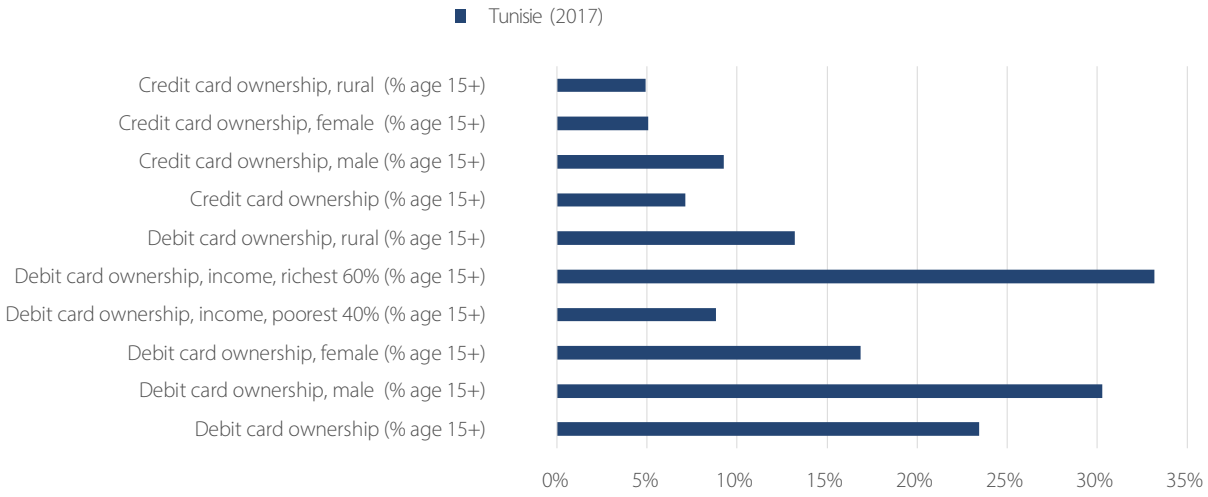
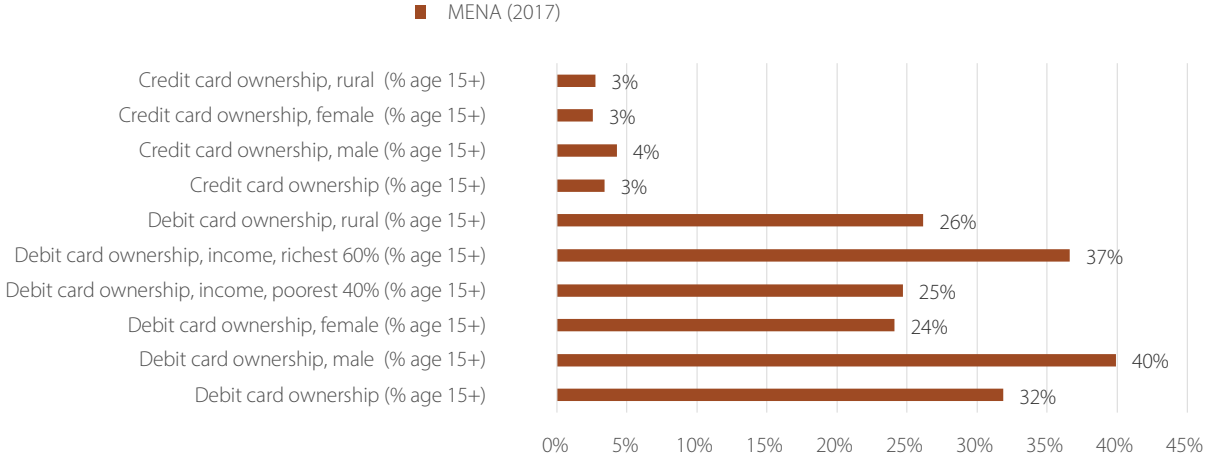
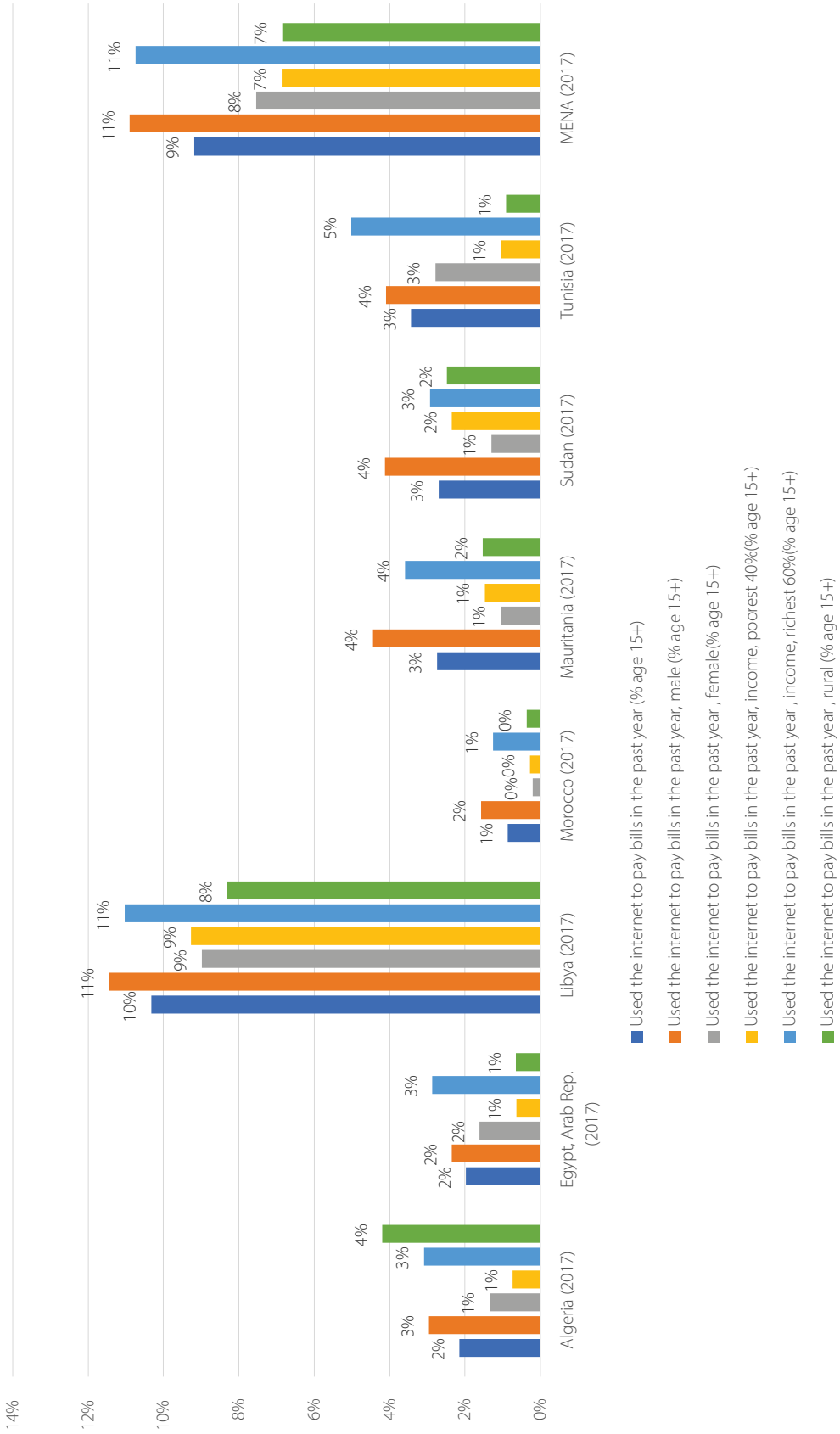






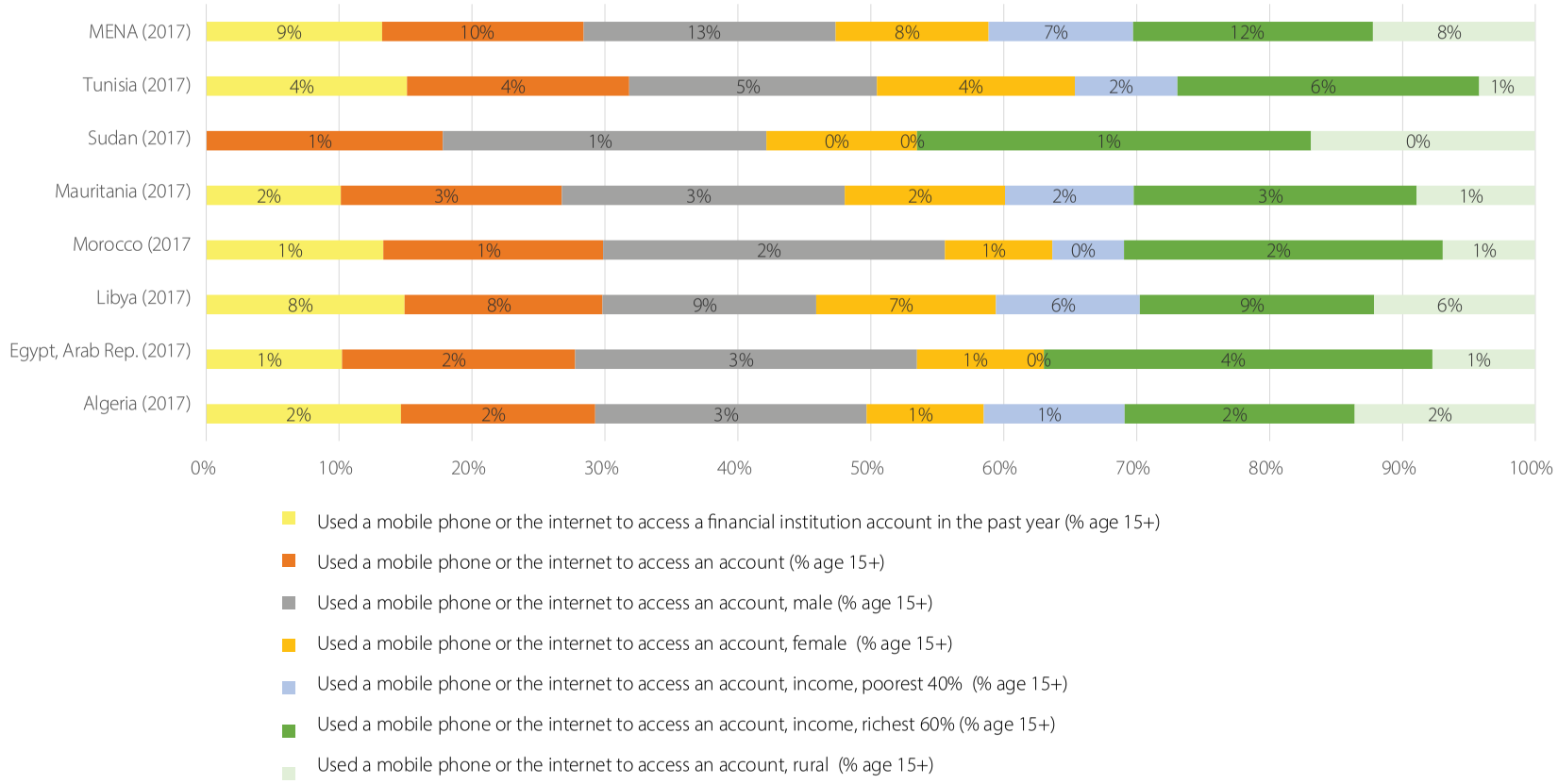
Source: *Based on data from World DataBank, Global Index Survey and Database, World Bank.*

Figure 9 Parameters of financial technology use (fintech: percentage age 15+)



Source: *Based on data from World DataBank, Global Index Survey and Database, World Bank.*

Figure 10 Parameters of financial technology use – continued (fintech: percentage age 15+)



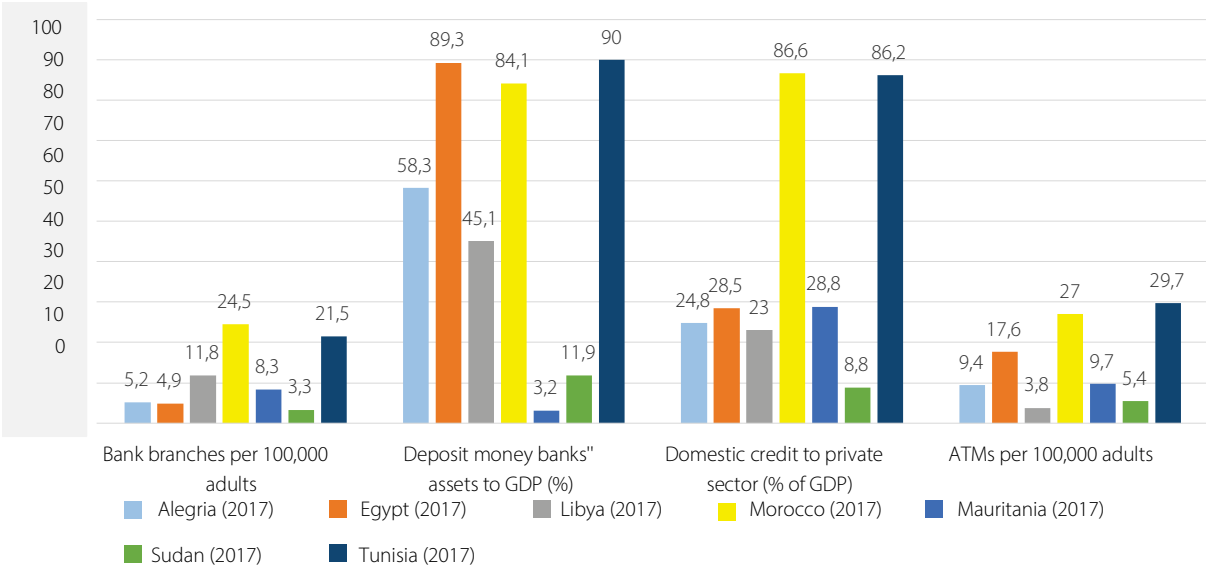
Source: *Based on data from World DataBank, Global Index Survey and Database, World Bank.*

b. Financial Access Survey platform of the International Monetary Fund

The Financial Access Survey platform of the International Monetary Fund (IMF) analyses a global bank population which includes both private individuals and enterprises. It is based on the level of conditions of access (supply) and factors of bank deposit account penetration, coverage and availability, adequate payment services, granting of credit to enterprises or microcredit to individuals (including the poor) and insurance products. In this context, IMF engaged in a standardization and international comparability exercise in respect of indicators of bank and financial inclusion by combining international data within the same frame of reference. In addition to the Group of 20 countries, the Financial Access Survey has since 2004 clustered the annual data of 187 jurisdictions. Since 2009, the Financial Access Survey annual survey has been sponsored by the Ministry of Foreign Affairs of the Netherlands and by the Bill and Melinda Gates Foundation.

In contrast with the methodology of the World Bank's Global Findex, the Financial Access Survey platform does not distinguish between rural and urban areas. Data are clustered in three subcomponents which are processed only on an aggregated national scale for the entire banking population (individuals and enterprises): (i) bank deposit account penetration, coverage and availability, measured by the size of the banking population (approximated by the number of bank counters per 100,000 adults); (ii) factors of access to bank services, measured by stocks of deposits and credits (as a percentage of GDP); and (iii) factors of access and availability of adequate financial services and payment services, measured by the number of automatic teller machines (ATMs) or automated banking machines (ABMs) for 100,000 adults. According to the Financial Access Survey, the patterns are highly heterogeneous in the countries of the region. Unlike Morocco and Tunisia, levels of bank and financial inclusion in the other countries remain below regional averages, with small financial intermediation underpinned by a relatively low level of access to financial services.

Figure 11 Factors of bank service penetration and access and financial service availability



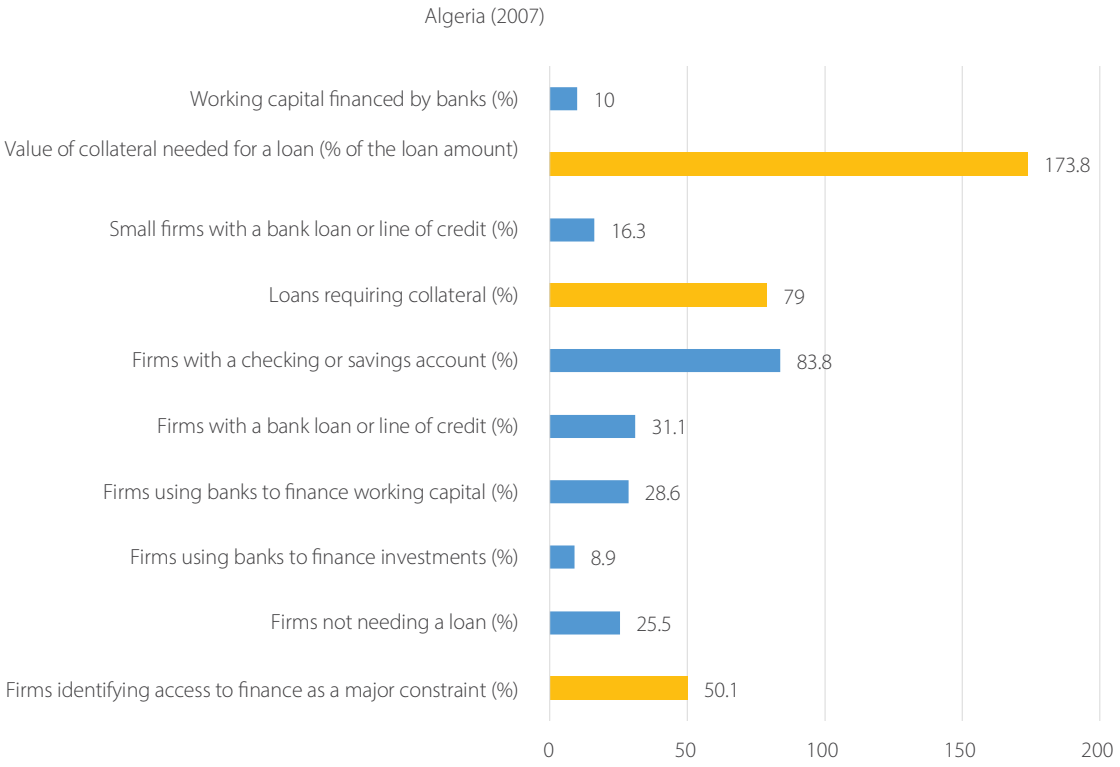
Source: *Based on data from the Financial Access Survey of IMF and the Global Financial Development Database of the World Bank.*

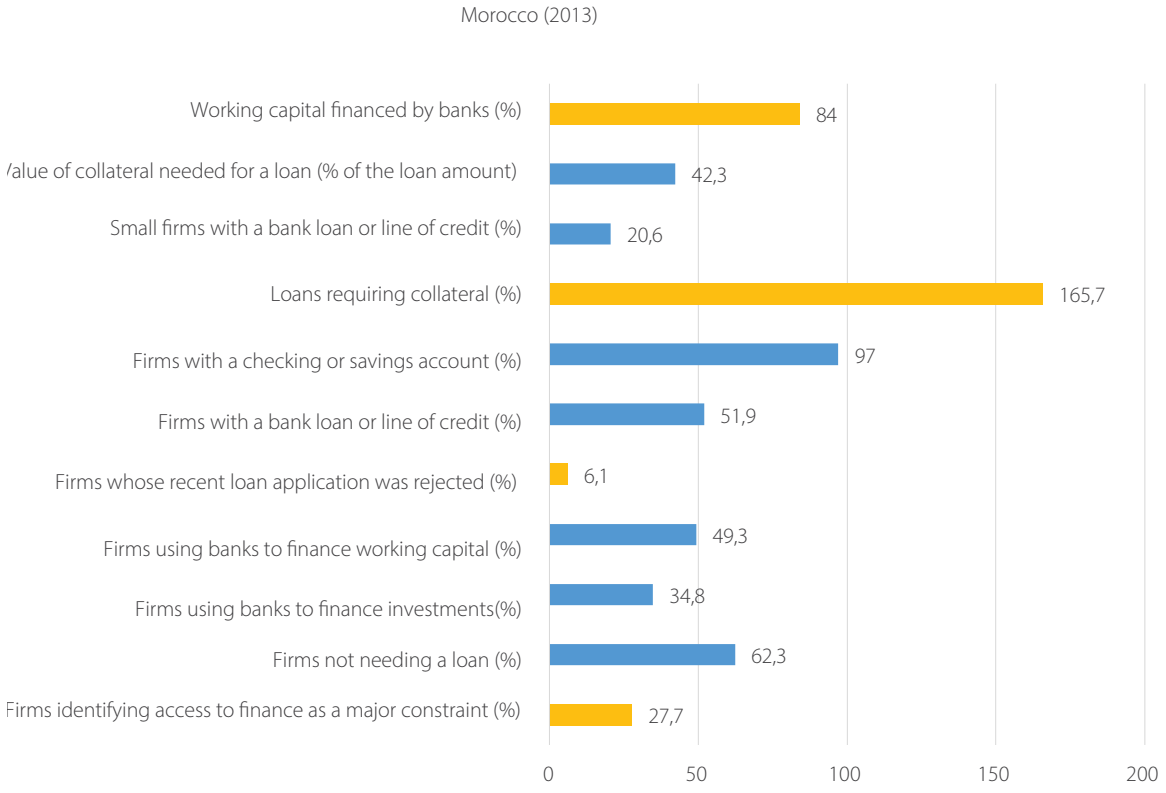
(c) World Bank enterprise surveys

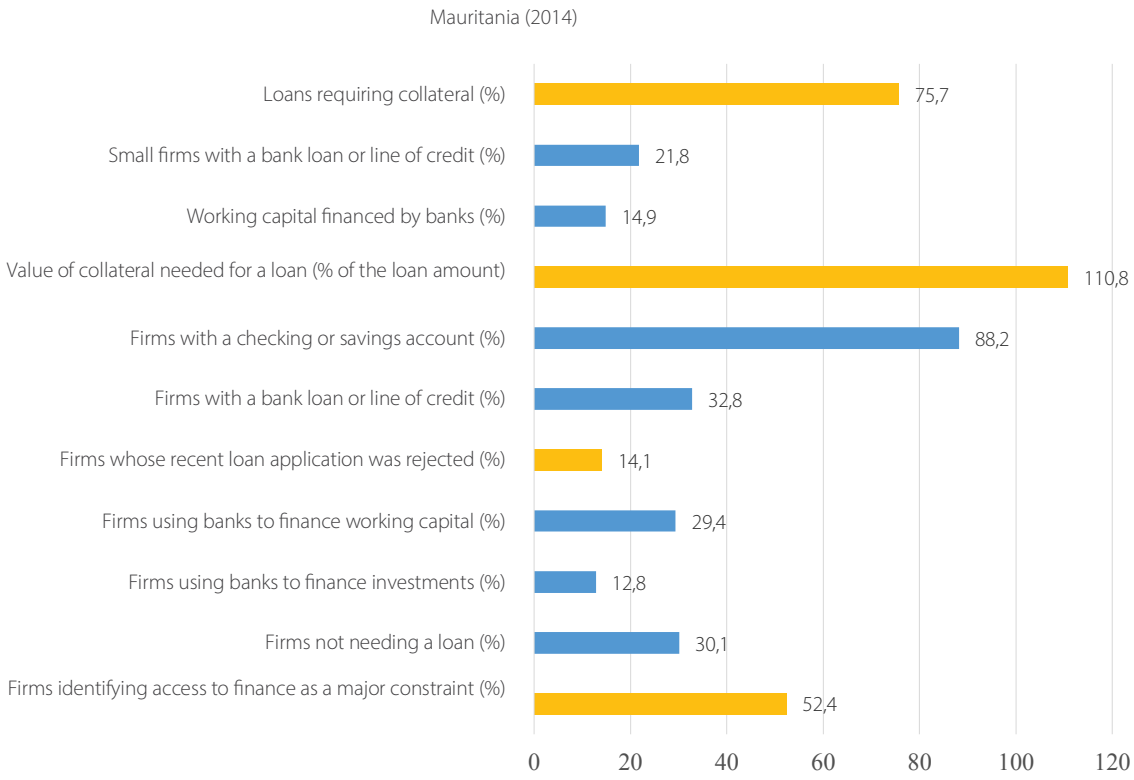
Data drawn from the World Bank enterprise surveys contain information regarding the qualitative perceptions of the major constraints affecting the business climate, centred on the managerial and financial characteristics of private enterprises in the countries of North Africa, together with qualitative response scores regarding their degrees of perception of business practice, according to whether or not enterprises in the region have benefited from private investments in the form of foreign participation in the capital. The surveys concern Algeria (2007), Egypt (2007, 2008, 2013, 2016), Morocco (2007, 2013), Mauritania (2006, 2014), the Sudan (2014) and Tunisia (2013, 2020). In 2015, the World Bank also conducted a survey of enterprises in Libya, the results of which will be set out separately in this study.

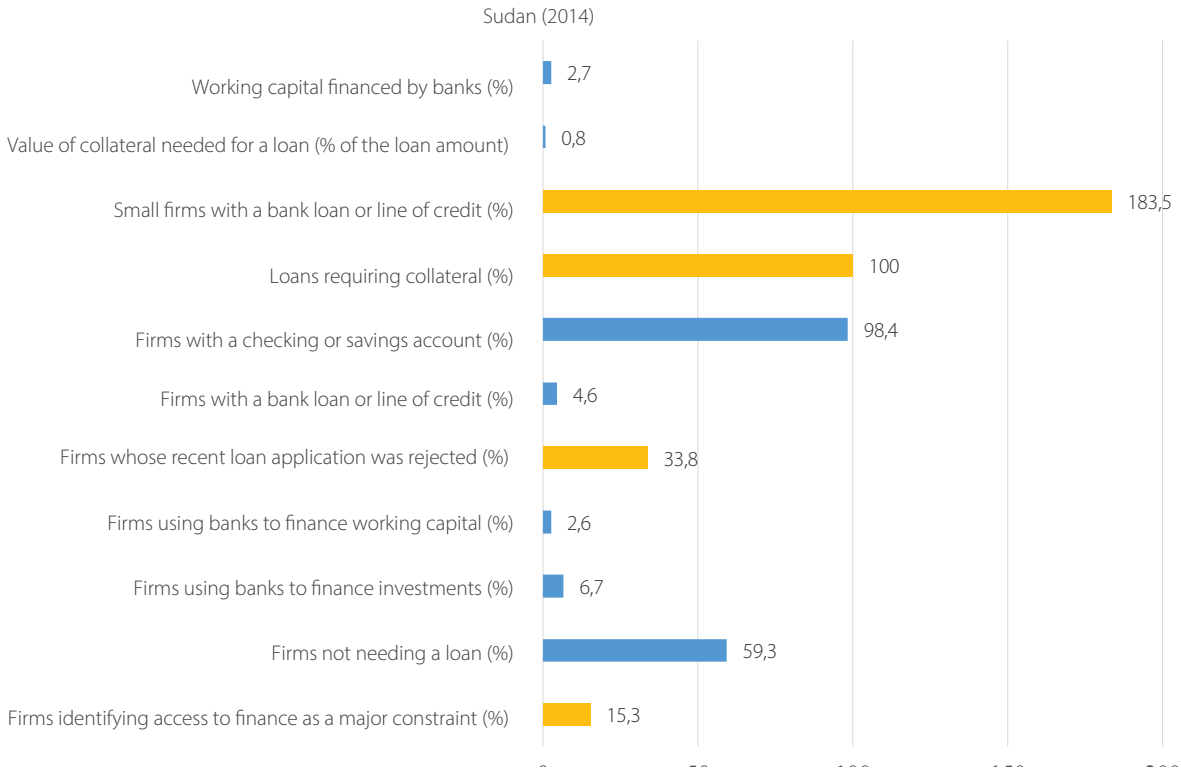
Overall, the surveys brought out: (i) a clear perception by enterprises of the major obstacle to business practice and to the business climate represented, albeit in varying degrees, by access to sources of bank financing; (ii) the perception by enterprises of the rationing of bank credit; and (iii) the question of the overcollateralization of bank loans.

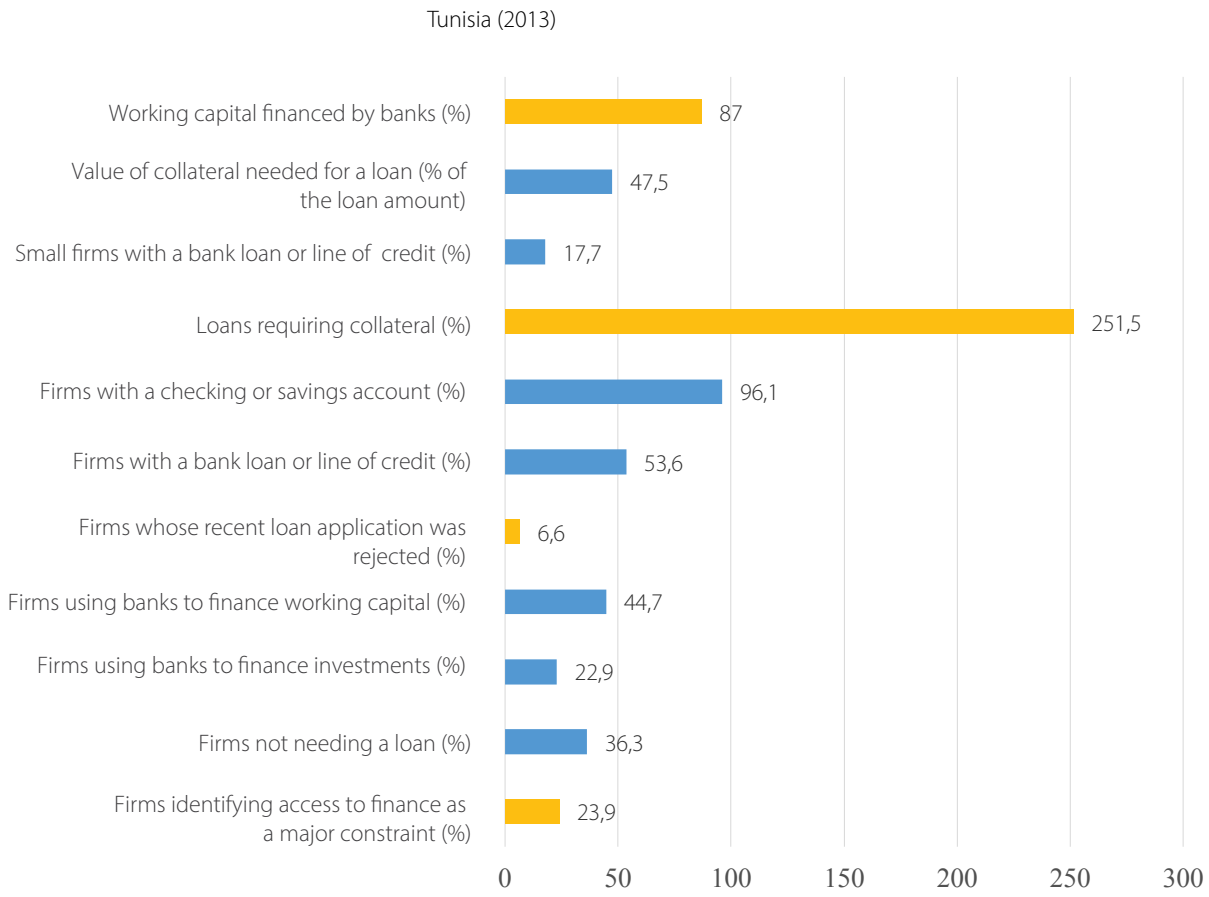
Figure 12 Enterprise survey results (percentage)






Mauritania (2014)
Loans requiring collateral (%)
75,7
Small firms with a bank loan or line of credit (%)
21,8
Working capital financed by banks (%)
14,9
Value of collateral needed for a loan (% of the loan amount)
110,8
Firms with a checking or savings account (%)
88,2
Firms with a bank loan or line of credit (%)
32,8
Firms whose recent loan application was rejected (%)
14,1
Firms using banks to finance working capital (%)
29,4
Firms using banks to finance investments (%)
12,8
Firms not needing a loan (%)
30,1
Firms identifying access to finance as a major constraint (%)
52,4
0
20
40
60
80
100
120

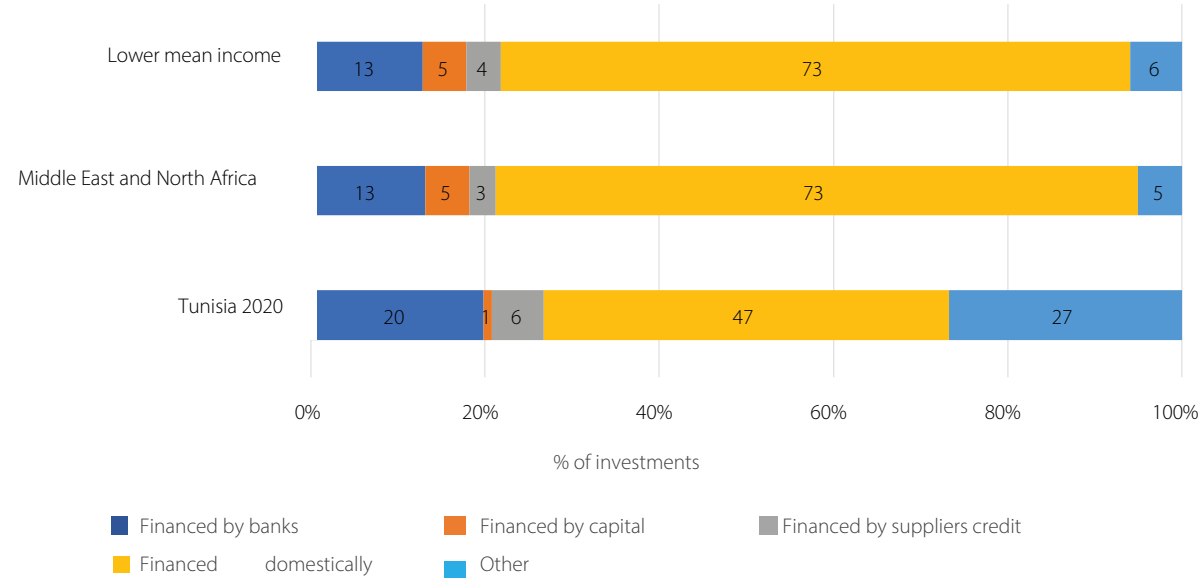

Sudan (2014)
Working capital financed by banks (%)
2,7
Value of collateral needed for a loan (% of the loan amount)
0,8
Small firms with a bank loan or line of credit (%)
183,5
Loans requiring collateral (%)
100
Firms with a checking or savings account (%)
98,4
Firms with a bank loan or line of credit (%)
4,6
Firms whose recent loan application was rejected (%)
33,8
Firms using banks to finance working capital (%)
2,6
Firms using banks to finance investments (%)
6,7
Firms not needing a loan (%)
59,3
Firms identifying access to finance as a major constraint (%)
15,3



Source: *Based on data from the World Bank (Enterprise Survey).*

A final enterprise survey was conducted in Tunisia in 2020 (World Bank, 2020), in particular to evaluate the impacts of the COVID-19 pandemic. It again confirms latent delays in the matter of bank and financial inclusion. In Tunisia, besides individuals, financial exclusion affects firms, including very small enterprises, which could offer a potential for growth and job creation. The following figures show the position of Tunisia in relation to a benchmark of regional comparators. Figure 13, which compares the different sources used to finance fixed assets (investments), shows that bank financing represents only 20 per cent. The excessive dependency of firms on their own funds points to the potential ineffectiveness of financial intermediation.

Figure 13 Sources of fixed asset financing (percentage)



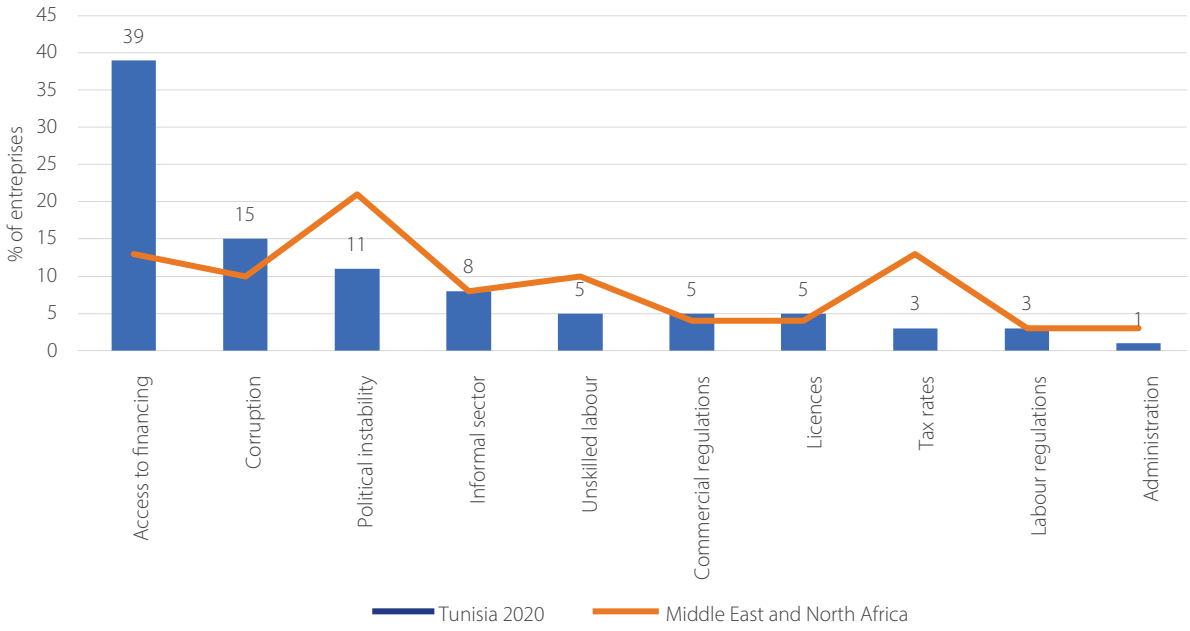
Source: *Based on World Bank data (Enterprise Survey, 2020).*

Access to sources of bank financing seems far more rationed in 2020 for small enterprises. Figure 14 shows two indicators of financial service use by enterprises: the percentage of enterprises with a deposit or savings account and the percentage of enterprises having contracted a bank loan. The first indicator measures the use of deposit mobilization services, which help enterprises to manage their liquidities and their payments. The second measures the use of financial services.

Figure 14 Use of financial services by enterprises (percentage)

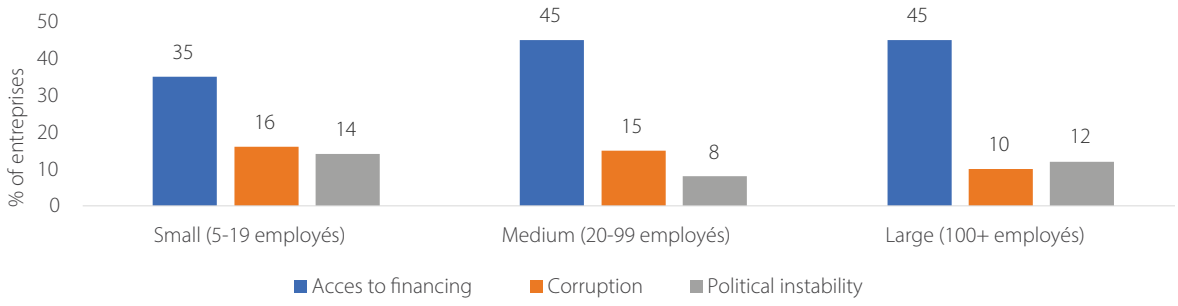
While access to financing sources appears as the first major obstacle in the business climate in Tunisia in 2020 (figure 15), it remains generally so in this position, regardless of the size of the enterprise (figure 16).

Figure 15 Ten major obstacles in the business climate



Source: *Based on World Bank data (Enterprise Survey, 2020).*

Figure 16 Three major obstacles by size of enterprise



Source: *Based on World Bank data (Enterprise Survey, 2020).*

In addition, the regulatory framework of bank financing mechanisms has led to a phenomenon of overcollateralization of credit, which mainly penalizes micro, small and medium-sized enterprises. Accordingly, in the Middle East and North Africa region, the Tunisian banks are those that practise the highest rate of overcollateralization, which entails a rationing of credit. The value of the collateral that can be required as a percentage of the loans granted (for a loan of 100) thus rose from 169.2 per cent in 2013 to 251.5 per cent in 2020. Moreover, the absence

of an effective credit information system is also a limiting factor for the development of micro, small and medium-sized enterprise financing.

Lastly, for Libya, an ad hoc report on an enterprise survey was drawn up by the World Bank in 2015, but it remains centred on the impact of the 2014 political crisis. The missing information was provided by national surveys on the size, geographical location and areas of activity of the entrepreneurial fabric, and by the identification by enterprises of obstacles to their development. The survey concerned a sample of 427 enterprises so as to understand the impact of the crisis affecting the country since 2011 in the business world. The report concluded that the impact of the shock is probably underestimated owing to a failure to take into account enterprises that ceased to exist, but that the business world showed signs of resilience (box 1).

Box 1: Signs of the resilience of entrepreneurship in Libya

In 2014, Libya experienced a deep-seated political crisis that left two different governments in power. Comparison between the sample of enterprises surveyed in 2014 and 2011 reveals two major differences. First, the Benghazi region was less represented, dropping from 26 per cent of the sample in 2011 to 6 per cent in 2014 with increased representation of the Tripoli region. The second difference is the significant decline, by 10 percentage points, in the representation of medium-sized enterprises (between 20 and 99 employees). However, micro-enterprises with fewer than five employees had a representation of 13 per cent in 2014 but did not appear in the 2011 sample.

The average turnover of enterprises in Libya was estimated at around $400,000 a year, ranging between $200,000 a year for micro-enterprises and $17 million a year for large enterprises. In the manufacturing industry and trade, turnover is higher than in other fields of activity like building and other services. Only 8 per cent of enterprises export. Generally, exporting enterprises are located in Tripoli or Misrata: they employ at least 20 persons and operate in the chemistry sector or in the food and beverage industry.

As regards financing, only 2 per cent of enterprises recently had a bank credit, particularly in the regions of Tripoli and the centre and south of the country, whereas no enterprise surveyed in the regions of Benghazi, the East and the West had a bank credit. For circulating capital, three fourths of enterprises say they use their internal resources, the remaining fourth having recourse to loans from clients and suppliers, government agencies and family and friends.

For investments, 86 per cent of enterprises surveyed use only internal resources. A minority of large enterprises (1 per cent) has access to international or domestic banking institution financing and, for 8 per cent of them, investment is financed by friends or family. Among those that applied for a credit, 14 per cent had their applications rejected, waiting for reply or do not know what the situation is.

As for the impact of the summer 2014 crisis, enterprises were asked to compare their situation in the last quarters of 2014 and the first two quarters of 2013. The direct impact of the crisis on activities is confirmed by 77 per cent of entrepreneurs with a slightly higher rate in Tripoli (86 per cent) and Benghazi (81 per cent). Responses show that 66 per cent of enterprises saw a drop in turnover, estimated at 50 per cent on average. However, the magnitude of the crisis is relative since 50 per cent of enterprises declared that investments increased or remained stable and that 60 per cent of them increased or maintained employment levels.

Source: *World Bank (2016), Simplified Enterprise Survey and Private Sector Mapping: Libya 2015.*

II.3.2. Focus on central bank initiatives in support of financial inclusion

The central banks of some countries in the region, aware of the importance of having access to financing, have stepped up their efforts to promote financial inclusion. Thus, the Central Bank of Egypt launched an initiative in 2016 aimed at encouraging banks to reserve a 20 per cent share of their loan portfolio for small and medium-sized enterprises, with an interest

rate not exceeding 5 per cent yearly. Egypt also launched several other initiatives to promote financial inclusion, for example by improving the bankruptcy law.

In Morocco, a new mechanism to promote the inclusion of micro, small and medium-sized enterprises has been introduced by the Al-Maghrib Bank to help them more with gaining access to bank financing. Accordingly, in 2012, the decision was taken to increase the collateral eligible for monetary policy operations producing effects representative of credit claims on micro, small and medium-sized enterprises through a new longer-term refinancing instrument, known as "guaranteed loans". In response to the persistence of a difficult environment and the continued slackening of credit growth, a second support programme was put in place at the end of 2013 that enables banks to obtain advances each year from the Al-Maghrib Bank for an amount equal to the volume of credits (exclusive of real estate promotion and the self-employed professions) that they are intending to grant to micro, small and medium-sized enterprises. In addition, they may benefit from additional refinancing equivalents to the volume of credit granted to such enterprises operating in the industrial sector and whose production is for export. These advances are made quarterly for a period of one year. In the same line of thinking, the Central Guarantee Fund has made it easier to have access to financial services by standing surety for micro, small and medium-sized enterprises and low-income individuals. Over the period 2013-2018, Central Guarantee Fund surety benefited nearly 18,000 micro, small and medium-sized enterprises.

In Tunisia, Act No. 2016-35 of 25 April 2016 approving the statutes, prerogatives and organization of the Central Bank of Tunisia established a financial inclusion observatory to analyse, evaluate and monitor conditions of access to financing sources. The observatory is responsible in particular for:

i. *Collecting and processing data and information relating to access to financial services and setting up a database for that purpose;*

ii. *Monitoring the quality of the services provided by establishments active in the financial sector, particularly in terms of customer satisfaction;*

iii. *Providing information in respect of financial services and products and their cost;*

iv. *Establishing qualitative and quantitative indicators to measure the cost of financial services and how far they contribute to customer satisfaction and financial inclusion;*

v. *Making recommendations to establishments active in the financial sector and to mediators;*

vi. *Reviewing the reports of bank mediators and establishing an annual report on bank mediation;*

vii. *Conducting studies on financial services and their quality and organizing sectoral consultations for that purpose;*

viii. *Assisting the Government in the framing of policies and programmes to promote financial inclusion.*

The observatory was set up as part of a strategy to foster financial inclusion so that the financial sector might help to ensure better economic and social inclusion of the population and promote the development of enterprises that create value and employment. While financial

inclusion may be a major mechanism for promoting economic growth, short-term structural obstacles will have to be overcome to increase bank account penetration, offer individuals wider access to bank and financial services, benefit from and modernize the use of payment tools and services and lift the major constraints preventing enterprises from having access to financing sources.

II.3.3. Digital finance

The COVID-19 crisis heightened the effectiveness of mobile payments and the desirability of using solutions based on artificial intelligence, which may speed up digital change. Financial services and digital finance thus offer a real potential for financial inclusion. In this context, the modernization and development of payment systems and technological platforms should help to give a fresh impetus to the new tools of technological finance (fintech) and central bank digital currency.

Such a digital transition hinges on the lifting of constraints linked to the payment system infrastructure, in particular at the level of mobile payment service interoperability. The establishment of a regulatory and technical framework to promote the development of digital payments will be a catalyst for the rapid advance of technological innovation and digital change in the financial field.

This expected evolution is indissociable from ICT for the necessary development of digital finance, cloud computing and web-based products and services by: (i) narrowing the digital gap for better access to information and knowledge through the democratization of Internet access facilities, wide availability of broadband access and the introduction of high-speed services; (ii) enhancing digital culture through universalized use of ICT; and (iii) upgrading digital and offshoring facilities and services.

According to OECD (2021), advances in digital change are a prerequisite for the development of the finance service and digital finance sector in the North Africa region. With 67.1 per cent access to mobile telephones (in 2018) and 48.3 per cent to the Internet (in 2020), the mobile system in the region employs 390,000 persons directly and generates 650,000 indirect jobs (table 5).

Table 5 Target indicators of digital change in North Africa

	Pillars	Key indicators	North Africa (5 years before)	North Africa (most recent year)	Most recent year
Digital sector	Communication infrastructures	Percentage of the population owning a mobile telephone	29.9	67,1	2018
		Percentage of the population with 4G coverage	35	83,4	2020
		International bandwidths for Internet connection per user (kilobits/second)	12 535.3	37 764	2018
	Telecommunications sector	Total investments (as a percentage of total turnover)	19.7	19,3	2018-20
		Profit before interest, tax, depreciation and amortization (as a percentage of total turnover	42.6	41,1	2018-20
		Total salaried staff in enterprises in this sector (full-time equivalent)	103 731	125 764	2016-17
Digital economy	Development of start-ups	Number of start-ups in operation having raised at least $100.000	30	116	2011-20
	Digital services	Sales from e-commerce (in millions of United States dollars)	1 812.6	1 944,5	2014-18
		Exports of professional and computer services provided electronically (in millions of United States dollars)	7 061.6	7 222	2014-18
Digitalized economy	Use of the Internet by individuals	Percentage of the population regularly using a mobile telephone	85.2	81,7	2018
		Percentage of women with access to the Internet	36.2	41,9	2018
		Percentage of the population with access to the Internet among the poorest 40%	33.1	32,6	2018
		Percentage of the rural population with access to the Internet	29	35,7	2018
	Enterprises mastering digital tools	Percentage of enterprises having their own Website	10.1	57	2018
		Percentage of enterprises using electronic mail in their customers/ suppliers relations	38.8	82,2	2018
		Percentage of automatable goods exported to the OECD countries	n. a.	23	2020
	Access to financing	Percentage of the population holding a mobile payment account	3	14	2017

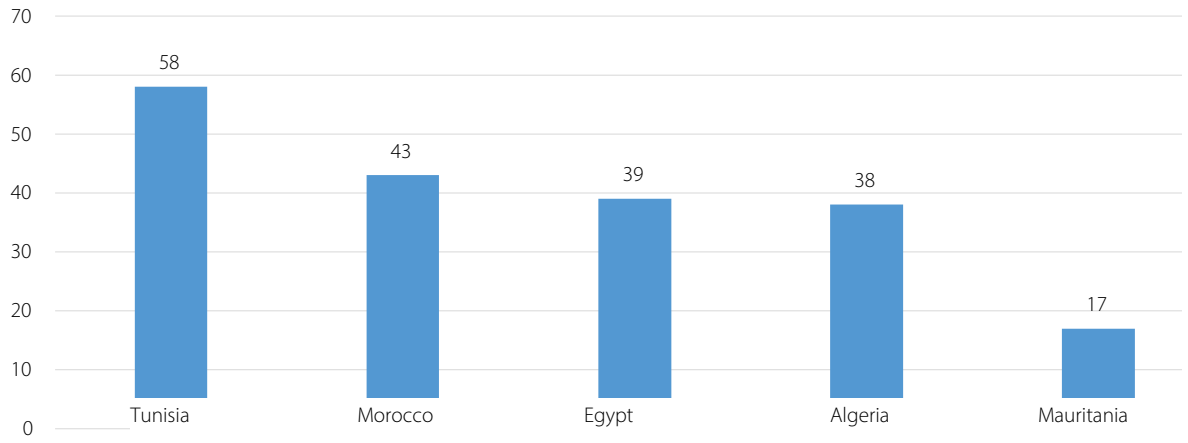
Source: *OECD (2021).*

Nevertheless, OECD (2021) notes disparities in digitalization by country. Egypt and Mauritania record lower degrees of digitalization than other countries. The telephone penetration rate is

higher in Algeria and Tunisia, whereas 4G coverage is better in Morocco and Tunisia, which are service economies. Lastly, Internet coverage seems better in Algeria and Libya.

The digital potential of the region has also allowed improvements in the communication of enterprises through Internet sites, with Morocco and Tunisia being further ahead in the use of digital tools for economic purposes (figure 17).

Figure 17 Business-to-consumer index (B2C: 0-100), 2019



Source: *OECD (2021).*
Note: *The B2C index (online enterprise to consumer) consists of four indicators strongly linked to online purchases: (i) ownership of an account in a financial institution or with a mobile payment service provider (percentage of the population aged 15 years and over); (ii) private use of the Internet (percentage of the population); (iii) postal reliability index; and (iv) Internet server security (for 1 million persons).*

Faced with the challenge of the unemployment crisis in countries of the region, and particularly the unemployment and precarious employment of young graduates (Mouley, 2021), the digital sector can act as a source of jobs and potential jobs for skilled youth. For digitalization to be able to serve as a lever for job creation through its various applications, communication infrastructures are a necessity. According to OECD (2021), the digital potential is not fully turned to account, in so far as the countries of North Africa are still lacking in infrastructure, human resources, deregulation of the digital environment and innovation capacity. The region could focus on three major policy options to speed up digital change and create jobs: first, boost the emergence of digital or technological finance (fintech); second, develop digital skills; and, third, support entrepreneurship and innovation. There is a need in particular to loosen regulatory constraints, reduce the infrastructure divide with developed countries, modernize education and training systems, support public-private partnerships, encourage incentives and, lastly, improve governance in the region.

II.3.4. Fintech: vector of digital change in North Africa

The harnessing of digital potential facilitates the development of digital finance. With broadband connections and modern tailor-made payment systems, the development of digital financial services may be a vector of economic change, fostering financial inclusion and offering households and micro, small and medium-sized enterprises suitable financing and insurance solutions. In North Africa, Egypt, Morocco and, to a lesser extent, Tunisia are three countries where start-ups specializing in fintech are most present (ECA, 2018), owing

to a favourable system characterized by significant government support, good private sector involvement and satisfactory educational levels.

In Tunisia, for example, the Central Bank of Tunisia adopted in 2020 a regulatory sandbox that allows innovative solutions proposed by fintech companies to be monitored on a small scale with voluntary clients. A sandbox was also put in place in June 2019 by the Central Bank of Egypt in order to monitor the regulatory dynamic of fintech companies, ensure financial inclusion, improve access by small and medium-sized enterprises to bank and financial services and support the transition towards a digital economy lending itself to decashing. However, the obstacles often mentioned in the countries of the region are the rigidity of regulations or slowness in updating them (crowdfunding, blockchain and other modalities), issues of digital security and reliability and market fragmentation (Wamda Research Lab, 2017).

Box 2: **Regulatory sandbox: example of a tool for trying out fintech in Tunisia**

The regulatory sandbox is a test environment launched in 2020 by the Central Bank of Tunisia that makes tools available for innovators. It is thus a space placed at the disposal of start-ups and other companies to enable them to develop their own financial products or services, particularly in matters of payment. It also offers them technical and legal support. At the same time, it enables the authorities to understand the fintech system better and to adapt the regulatory framework. Through the sandbox, e-label financial products and services (or new permutations of existing technologies) may be tested without complying with the different regulatory requirements. At the end of the test period, all those who meet the criteria for experimentation predefined by the regulatory authorities may request the corresponding authorization or agreement. The test period lasts nine months from the date of notification of admission to the sandbox, renewable for a further three months on request. This mechanism enables fintech operators to understand and observe the regulatory conditions in force in order to promote supply adapted to the market. It also enables the Central Bank to take stock of the complexity of technological innovations in order, where appropriate, to make adjustments to regulations and to the monitoring and oversight processes.

Source: *Central Bank of Tunisia and OECD (2021).*

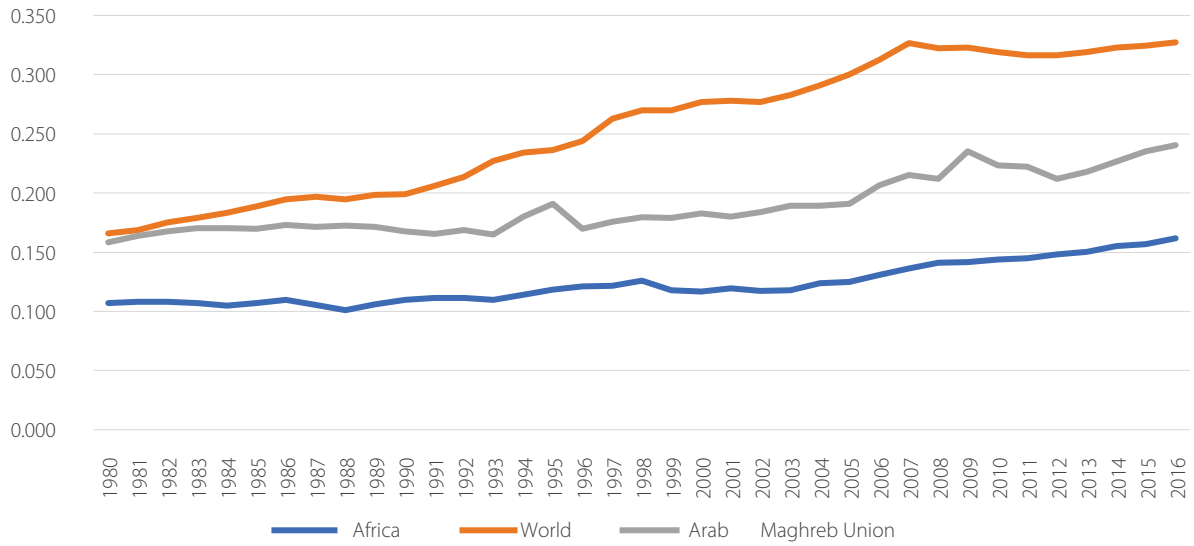
II.4. Limited financial integration in North Africa: focus on the Maghreb subregion

A study focusing on the inadequacy of financial integration was prepared by Mouley and Zekri (2019) for the Maghreb subregion. The authors show that financial integration and the development of the financial sector in this regional economic community embody a many-sided strategic challenge. Unlike other sectors, the financial sector accelerates economic growth through its function of mobilizing savings and allocating credit in time and space, thereby contributing to the optimal assignment of capital to productive sectors capable of generating inclusive growth and employment. At the same time, the stimulation of capital markets is of crucial importance because it allows the diversification of non-bank sources of financing economies. The development dynamic of the financial system in the Maghreb subregion shows different degrees of advancement according to the country. In particular, a number of recent studies show that, in the Maghreb countries, financial sectors do not fully play the role of drivers of growth and still carry recurrent short- and medium-term risks of instability.

Similarly, the development of the financial system of the Arab Maghreb Union space is lower than that of the world average. The consolidated financial development index (Svirydzenka, 2016; Sahay and others, 2015), as a whole and for some of its components like the development

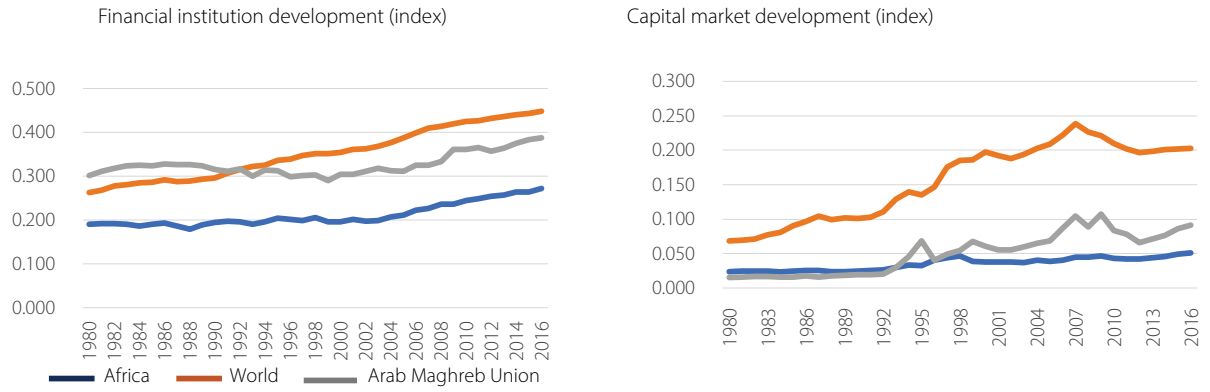
of the bank system and capital markets, shows the degree of development of the Maghreb financial system and makes it possible to compare its evolution with the rest of the world. Figure 19 clearly reveals how far the Arab Maghreb Union is lagging behind Africa and the world. Observation of index trends by component (figure 20) shows that, in terms of the two compartments (financial institutions and financial market), the Arab Maghreb Union has become uncoupled from global trends. This situation is the result first of its having fallen behind in the development of capital markets, with the gap becoming wider over the past two decades. In relation to the African average, the Arab Maghreb Union split off from the path followed by the continent after 1998. For the development of financial institutions, its position deteriorated in relation to the global average after it lost the slight advantage it enjoyed in the early 1990s.

Figure 18 Progression of the financial development index by region



Source: *Mouley and Zekri (2019) based on data from Katsiaryna Svirydzenka (2016).*
Note: *The Arab Maghreb Union indices are calculated by weighting country indices with the GDP of each of them in the region.*

Figure 19 Financial development by main components



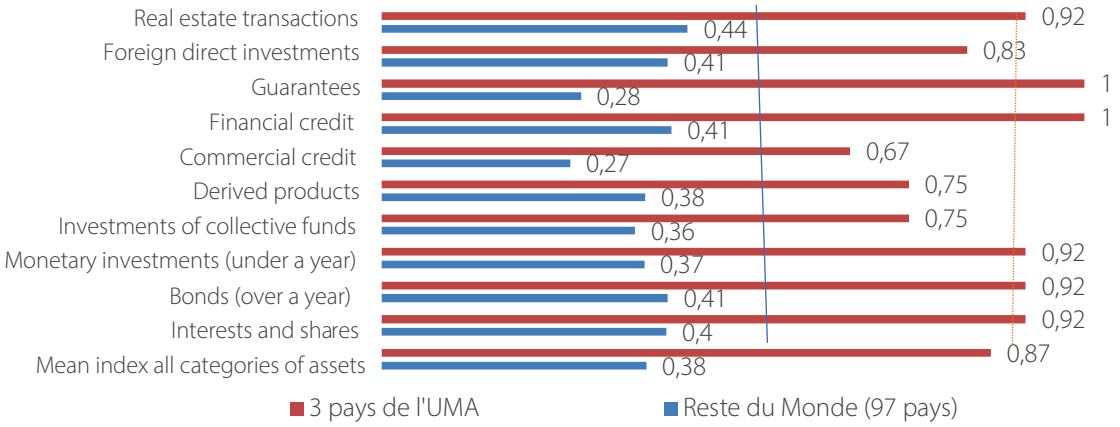
Source: *Mouley and Zekri (2019) based on data from Svirydzenka (2016).*
Note: *The Arab Maghreb Union indices are calculated by weighting country indices with the GDP of each of them in the region.*

In addition and notwithstanding the efforts made by the countries, the financial sectors of the Maghreb subregion still have significant room for improvement in comparison with those of other regional economic communities in Africa or elsewhere, which show better indicators of solidity and resilience and lesser factors of structural vulnerability.

This may be seen in terms of the considerable weight of bank sectors and the strong concentration of bank activity, which contrasts with an average credit level, delays in the monitoring of risks and shortcomings in systems of governance. Moreover, the challenges facing banks (matching of equity capital, level of assets, risk management, profitability, more demanding prudential standards in respect of equity capital and refinancing) are indissociable from their structural difficulties in mobilizing stable resources. Non-bank financial sectors (leasing, microfinance, insurance, Islamic finance windows, private equity investments and others) have a relatively small presence in the financial intermediation process. Lastly, at the level of capital markets and despite positive developments in some stock exchanges, bond markets play a relatively limited role in financing the economies of the region.

Underperformance of financial integration in the region is also inherent in the restrictions on capital and financial operations and in the constraints of the exchange regulations governing capital movements in the countries. Measurement of the severity of exchange restrictions in the countries of the Maghreb, in accordance with the methodology developed by Fernandez and others (2015) in respect of capital controls, shows that exchange controls and restrictions affected on average 70 per cent of transactions. The gaps between restrictions in the rest of the world and in the countries of the Maghreb are particularly high in respect of guarantees and financial credit.

Figure 20 Index of restrictions on financial operations in the Arab Maghreb Union and in the world by category of financial operation



Source: *Based on Fernandez and others (2015).*

II.4.1. International initiatives in support of financial integration in the region

Within the framework of its Maghreb Initiative, IMF undertook a series of studies with a view to the stimulation of Maghreb integration. The purpose of this initiative, launched in 2005, was to accelerate efforts towards the regional integration of the Arab Maghreb Union countries. Three major lines of approach were accordingly mapped out to advance integration and develop prospects for growth in the Maghreb countries: (i) trade facilitation; (ii) financial sector reform and financial integration; and (iii) promotion of the role of the private sector. Five high-level regional conferences were subsequently organized by the national monetary authorities, in collaboration with IMF, to review and adopt action plans for progress in each of these key areas. Operational measures decided in the light of these five regional conferences have been implemented to that effect.

An initial conference on trade facilitation was organized in Algiers in October 2005. A second, which took place in Rabat in December 2006, focused on financial sector reform and financial integration in the Maghreb. A template for an action plan proposed by IMF was adopted relating to the following five main pillars: (i) trade facilitation within the Maghreb; (ii) financial sector reform and financial integration; (iii) tracking monetary convergence; (iv) harmonization of prudential regulations; and (v) promotion of the role of the private sector (table 6). A third conference was held in 2007 in Tunis, centring on progress in the introduction of reforms to promote the role of the private sector and its contribution to economic development and regional integration in the Maghreb. A fourth conference was organized in Tripoli in 2008 to evaluate progress made since the first conference in Algiers, and also to discuss the promotion of joint projects among countries of the region. A fifth conference took place in January 2013 in Nouakchott to study financial reform and prospects for relaunching the process of regional financial integration. That conference was also the occasion for launching the Mauritanian initiative focusing on issues of intra-Maghreb and foreign direct investments and their impact on employment.

Table 6 Pillars of the action plan

Trade facilitation within the Maghreb	Financial sector reform and financial integration	Tracking of monetary convergence	Harmonization of prudential regulations	Promotion of the role of the private sector
Action plan stakeholders				
Joint technical commission for intra-Maghreb foreign trade	Technical commission for intra-Maghreb financial integration	Specialized committee for monetary convergence	Committee of banking supervisors of central banks	Central bank/ private sector joint committees
Lifting of obstacles to trade and liberalization of foreign trade	Harmonization of payment systems and technical platforms (clearing, netting, LVTS, etc.)	Harmonization of exchange regulations and hedging instruments for foreign currency risk	Harmonization of regulations governing bank and financial supervision	Improvement of the business climate and business practices

Establishment of a joint platform of origin rules for intra-Maghreb trade	Reform of instruments for financing foreign trade and investments in the Maghreb	Coordination of monetary policies	Monitoring of joint FSAP assessments (World Bank-IMF) to ensure international standards convergence: (i) Conformity with Basel standards (BCPs) for effective bank monitoring; (ii) capital markets (IOSCO); and (iii) accounting (IAS-IFRS) and audit (ISA) standards	Lifting of obstacles to access to financing sources
Lowering of tariff levels and elimination of non-tariff obstacles	Strengthening of cooperation and coordination among bank and financial sector institutions and stakeholders	Strengthening of financial stability	Corporation among supervisory authorities through technical assistance and information exchange	Harmonization of accounting standards with international standards
Action plan stakeholders				
Joint technical commission for intra-Maghreb foreign trade	Technical commission for intra-Maghreb financial integration	Specialized committee for monetary convergence	Committee of banking supervisors	Central bank/ private sector joint committees
Modernization of customs administration and simplification of customs formalities (single regional desk, portal dedicated to foreign trade)	Promotion of intra-Maghreb and foreign direct investments		Building of an information portal (window) on financial sector regulations and information	Harmonization of investment frameworks with a view to eliminating obstacles to intra-Maghreb investment
Establishment of a mechanism for mutual recognition of quality standards and monitoring bodies	Development of cross-border investment		Joint strengthening of AML/ CFT frameworks	Introduction of innovative financial products to facilitate access by small and medium-sized enterprises to financing
Building of an information portal (window) on trade regulations and information				Monitoring of projects of joint interest among countries of the region
Development of cross-border trade				

Source: *IMF and national monetary authorities.*
Note: *FSAP – Financial Sector Assessment Program*
LVTS *– large value transfer system*
BCPs *– business continuity plans*
IOSCO *– International Organization of Securities Commissions*
IAS *– International Accounting Standards*
IFRS *– International Financial Reporting Standards*
AML *– anti-money-laundering*
CFT *–combating the financing of terrorism*

Other work has focused on several aspects of financial integration including, in particular and by way of illustration, that done by the African Development Bank in 2010, the Arab Maghreb Union secretariat in 2010 and ECA in 2008 and 2012. Despite a subsequent period of inaction, advocacy work for the resumption and consolidation of this process has been undertaken by the World Trade Organization in 2015 and the World Economic Forum in 2017.

II.4.2. Pathway towards an improved settlement mechanism for foreign trade operations: revision of the unified payment convention among the States of the Arab Maghreb Union

To encourage intra-Maghreb trade, a convention on unified settlements (foreign payments) among the States of the Arab Maghreb Union was adopted by the Council of Governors of Maghreb Central Banks at its third regular session, held in Tripoli in June 1991, then ratified at its fourth regular session, held in Rabat in December 1991. It aims to put in place a clearing and netting mechanism whereby foreign trade operations may be settled in the currency of the exporting country (even if the commercial contract refers to foreign currency), so as to neutralize exchange risks and thus enable exporters to be paid in their local (non-convertible) currency and importers to pay for their imports in their own local currency.

The central bank subsequently applied this mechanism bilaterally while making it more flexible. The convention was revised at the seventh regular session of the Council of Governors held in Tripoli in February 2008 so as to make the unified settlement procedure optional and to allow Maghreb foreign trade operators the freedom to also have recourse to foreign currency payments by using the customary means of payment between countries.

A remodelling of the 1991 agreement on payment systems entered into by the five central banks should have a positive impact on financial integration and make the systems operational in the Maghreb countries. Financial integration should inevitably have a beneficial effect on growth, even though the risks bound up with a possible increase in financial volatility would require wise management.

Accordingly, the Council of Governors, which had not met since 2008, approved a four-pronged action plan (table 7) at its last meeting, held in November 2018 in Tunis.

Table 7 Central bank action plan template

Pillars of the action plan	Measures	Components	Recommendations
Fintech and cryptocurrency	Fintech, cryptocurrency and cybersecurity	Cryptocurrencies E-payments and mobile banking Blockchains Mobile/digital financial services Digital finance Microfinance Microcredit Micro-insurance	Establishment of a new technical commission on fintech and mobile payments

Financial inclusion	Facilitation of access by Maghreb enterprises to financing sources	Exchange of experience and sharing of expertise in the field of financial education	Organization of exchange seminars by financial education experts of the region
		Lifting of legal and regulatory obstacles to access to financing by Maghreb enterprises	Expert committee for the preparation of dedicated thematic studies
	Reform of instruments of foreign trade and investment financing in the Maghreb	Promotion of intra-Maghreb and foreign direct investment and development of cross-border investment	
		Facilitation of intra-Maghreb trade	
		Reform of foreign exchange regulations (current, capital and financial transactions)	
		Hedging of foreign exchange risks in intra-Maghreb financing	
		Facilitation of legal procedures in regard to collateral and guarantees due	
		Lifting of obstacles to the business and investment climate	
Islamic finance	Harmonization of financing instruments	Exchange of expertise on regulatory aspects of Islamic finance	Organization of a committee or establishment of a platform on legal and regulatory aspects
	Establishment of a refinancing mechanism	Windows and media of Islamic finance	
		Harmonization of legal frameworks governing Islamic finance activities	

AML/CFT	Joint strengthening of AML/CFT frameworks	Cooperation, data exchange and technical assistance among banking supervision authorities	Establishment of a new AML/CFT technical commission
		Reform, harmonization and consolidation of the legal, regulatory and contextual framework around AML/CFT procedures	
		Establishment of a centre for capacity-building and the development of AML/CFT strategies in the Maghreb. The centre will have the following main tasks: (i) ensure training and skills development to fight financial crime, in particular money-laundering, financing of terrorism, underlying crimes and particularly smuggling, corruption and the criminal economy in general; (ii) enable FIUs in the region to benefit from available expertise; (iii) assess shared threats and vulnerabilities of national mechanisms to fight BA/FT and propose appropriate policies for ML/FT risk mitigation; (iv) create conditions conducive to counter-BA/FT policy convergence and better effectiveness of national mechanisms; (v) conduct studies and share their typology and develop information exchanges among members; (vi) establish conditions conducive to the eventual establishment of the "Maghreb FIU net" network; (vii) organize joint consultations on the various issues and topics on the agenda of plenary meetings of the Middle East and North Africa financial action group against money-laundering with a view to reaching a joint position in the interest of member countries and preparing to propose that the Arab Maghreb Union becomes an observer member of the Middle action group in the same way as the Cooperation Council for the Arab States of the Gulf	

Source: *Council of Central Bank Governors of the countries of the Maghreb – document of the Central Bank of Tunisia (2018).*
Note: *AML/CFT – anti-money-laundering/combating the financing of terrorism*
ML/FT *– money laundering/financing of terrorism*
FIUs *– financial intelligence units*

III. Prospects for building regional value chains in the financial service and digital finance sector

Financial systems are at the heart of economic development. The financial value chain should change. The emergence of technologies of every kind and the relative ease with which they have been able to be used, the availability of secured, coherent networks at the regional level, combined with a rich catalogue of modules, together these factors constitute a powerful base for the development of fintech as a fast way forward. In 2019, in the early days of the pandemic, each part of the sector was faced with the challenge whose magnitude became clearer than ever at the beginning of the global lockdown, making it possible to measure the importance assumed by fintech since the crisis.

Buoyed by advances in the fintech movement and drawing on the power of big data and analytics, fintech is becoming a specific means of satisfying customers, by offering them a distinctly superior experience. The advantages are not confined to the customer, since they may increase brand loyalty, reduce costs and, at the end of the day, increase value. Just like financial technology, regulatory technology (regtech) started to emerge as an organized think tank focusing on the challenge of standardizing regulatory frameworks, relying again on technological advances to automate regulation.

III.1. nnovation system: essential factor for the development of digital finance

III.1.1. Start-ups, catalysts of a new sustainable approach to innovative business and management models

Current business models are being called into question by the growing demand for more sustainable products and services. This shift offers a completely different way of creating value for the future. Enterprises have to think about the entire life cycle of their products, which will make it necessary for them to take up many of the main challenges of their long-term value strategy. Start-ups, with their innovative management model, are one of the main factors for the integration of a long-term perspective and change. In a landscape of complex and responsive actors within multiple organizations, numerous essential roles must be assumed in order to make headway. Efforts could be made to double regional impact and to diversify in respect of the traditional business model through co-creation with stakeholders and a changeover to prototypes that may be taken over and launched by innovation programmes that would offer a series of new business ideas and help to build a culture of innovation throughout the financial system.

Start-up support structures in the African continent are becoming increasingly numerous and are present in almost every country. In 2018, the Ecosystem Accelerator programme of the Groupe Speciale Mobile Association (GSMA) (which represents nearly 800 mobile telephone operators and constructors in 220 countries worldwide) counted 442 in the African continent, mostly incubator and accelerator type structures (47 per cent) and co-working spaces (26 per cent). A study of the programme listed a number of physical spaces that encourage and support technological start-ups, namely, incubators, accelerators, co-working spaces, such as fabrication libraries or "fab labs", makerspaces and hackerspaces, and other innovation centres.

Successful digital change in the North African countries requires them to support the development of a new economy that encourages entrepreneurship and generates greater opportunities for the young. Incentive and entrepreneurial skill-building measures, underpinned by digital hubs and appropriate education programmes, exist and should be strengthened.

A favourable entrepreneurial system in North Africa cannot be ensured unless, first, decision-makers concentrate on factors enabling multidimensional digital platforms to develop and, second, they put in place the conditions for fair competition. The need is for cloud-based computer services, geo-tracking, security and other procedures that make it possible to develop such platforms. The North African Governments must continue to help entrepreneurs and enable them to acquire new technologies to define long-term development solutions and new business models. For example, triangular cooperation policies between universities, States and the private sector could facilitate the establishment of technological hubs and incubation centres in North Africa. Such cooperation should promote innovation in the region, as witness the various technology parks installed in North African countries.

In 2019 alone, a study conducted by Ventureburn estimated that 15 North African start-ups had received a financial contribution of $64.1 million from venture capital funds. The Egyptian start-up Swvl, for example, was thereby given the opportunity to raise $42 million and the Tunisian company InstaDeep active in artificial intelligence to receive $7 million in investments from "series A" financing.

By virtue of particular historical and cultural links, start-ups in the North African region were able to have easier access to a wide range of funds and support intended mainly for the Middle East and North Africa region. The release of $250 million by Mubadal – a sovereign investment fund in the United Arab Emirates – and the launching of a $100 million fund by a capital venture company based near Dubai are examples of this. Such initiatives as the Algerian Centre for Science, Technology, Engineering and Mathematics, the Egyptian project to establish a school dedicated to the same fields of knowledge and programmes run by Flat6labs and Endeavor, which are in addition to the efforts of the public authorities, contribute actively to the development of a dynamic entrepreneurial technology-linked system. According to the platform Github, Morocco and Egypt are among the five countries with the strongest growth in the number of project designers in Africa.

Egypt

Through the establishment of specialized financing projects, the Egyptian Government has long supported local start-ups. For example, in 2010, the public authorities inaugurated the Technology Innovation and Entrepreneurship Centre in order to encourage entrepreneurship and innovation in the local information and communications technology (ICT) sector.

In 2017, the centre launched Fekratek Sherkatek, from which 42 local start-ups were created, each endowed with between $5,620 and $28,100. In 2018, the centre also established the Falak Start-ups Accelerator, which is a four-month acceleration programme proposed to budding start-ups. The programme comes with financing for as much as about $63,000, provision of a workspace and mentoring.

Egypt is also one of the first African countries to have put in place technology parks. In 2001, the Government put into motion the Smart Village project in Cairo. This is a technology park that highlights partnerships between public and private sectors and opens its doors to multinational IT companies (such as IBM, Cisco and Microsoft), government offices, research centres and other establishments. Angel investors and accelerators (Algebra Ventures, Cairo Angels, Ebni, EdVentures, Flat6Labs) bring their support in the form of mentoring, networks and financing ranging from $2,800 to about $8,000.

In 2019, there were more than 400 dynamic start-ups in Cairo, mostly in the service of the country's consumers, like Yaoota (an online price comparator) and Vezeeta (medical appointment scheduler). Cairo thus represents the biggest start-up system in North Africa.

Tunisia

The Start-up Act in Tunisia is a solution to the problems of start-up financing. It offers a legal framework, launched on 5 April 2019 and dedicated to start-ups in Tunisia, whose purpose is to facilitate the launching and development of start-ups. This legal framework incorporates numerous advantages that might be classified by intended beneficiary as follows:

For entrepreneurs: One of the advantages accruing to them is the start-up grant, which is an allocation given to the co-founders and shareholders of a new start-up to cover one year's living costs. The State also takes care of the patent registration procedures and expenses of start-ups at the national and international levels.

For start-ups: One of the advantages enjoyed by start-ups is the start-up portal. This portal is intended to serve, in particular, as the start-up's interaction point to apply for the Start-up Label and benefit from the associated advantages.

The State also takes care of the start-up's salary charges and employer costs and grants it an exemption from corporate tax.

For investors: One of the advantages enjoyed by investors is exemption from capital gains tax. Profits from the sale of shares in start-ups are exempted from capital gains tax. Moreover, investors also benefit from start-up guarantee funds. This is a mechanism for guaranteeing

shares in start-ups of investment funds and other regulated investment bodies, which can be activated in the event of the voluntary liquidation of the start-up covered by the guarantee.

From the 2019-2020 annual report on the Tunisian Start-up Act several key figures emerge.

First, all the 248 accredited start-ups generated a combined turnover of 66 million dinars in 2019, 72 per cent of which was earned on the Tunisian market. Of these start-ups, 23 per cent generated turnover between 100,000 and 1 million dinars and more than 7 per cent of them have a business volume higher than 1 million dinars. Second, three quarters of the export turnover was earned on the European markets, the Middle East and North Africa region and Africa.

Furthermore, the ANAVA fund of funds, launched officially on 23 March 2021, is the first such fund in Tunisia and in Africa. Denominated in foreign currency (euro), ANAVA offers the underlying funds the opportunity to invest in Tunisia and abroad. This is a solution to the financing and internationalization problems of Tunisian start-ups. The aim is to set up several funds dedicated to start-ups, which will invest at each stage in their development. We thus see the dynamism injected into the Tunisian industry of innovation, which dynamism could be a true source of inspiration for other North African countries.

III.1.2. Fintech

As is shown in the following table, the most attractive sector in the African start-up system is the fintech sector, which therefore deserves to be explored (ECA, 2018). In the North Africa region, the main fintech systems are in Morocco and Tunisia (emerging countries). In Africa, leaders in this domain are Nigeria, Ghana, South Africa and Kenya. Other countries are promising in this system, namely Côte d'Ivoire and Senegal.

Table 8 Panorama of fintech professions worldwide

Payment	Financing	Tech Insurance	Middle Office & Back Office
• Payment terminals • Mobile payment • Payment flows •Cash and foreign-exchange transfers	• Crowdfunding and alternative funding • Digital brokering • Online factoring • Online prize funds • Online credit	• Online insurance • Affinity insurance • Insurance brokers and comparators • Services to traditional actors	• Help for decision-making/ strategy • Automation (accounting, cash management) • Other market-tracking and support services (middle and back office) to financial actors

Digital banks	Block chain and crypto as sets	Invest in ment	Reg Tech	Services to financial actors
• Neo banks • Core banking • Cash-back solution • Account aggregators	• Block chain designed for the financial sector • Crypto as sets	• Online savings and portfolio management • Robo-advisors / Algorithms • Innovative investment services for traditional actors	• KYC • Data management and protection • Risk Management • Legal Tech	• Cybersecurity • Front office and customer relations • AI • anti-fraud tools • Services to financial actors

Source: *Study compilation.*

At the regional level, particularly in Morocco and Tunisia, fintech companies are oriented towards the payments sector. Several factors account for this choice, notably the following:

Desire to meet market demand and promote financial inclusion

The proportion of bank accounts is often used to measure the extent of the financial system. In the case of North Africa, particularly in respect of the proportion of adult bank account holders, Algeria leads, followed by Tunisia, Morocco and then Egypt. However, this regional proportion remains below average in the lower range of middle-income countries. Furthermore, in Algeria, as in Egypt or Morocco, the proportions of persons aged 15 years and over who have taken a loan to start, operate or expand a farm or business is also lower than the average in the lower range of middle-income countries.

Light regulation and booming technological innovation

The payments sector is very attractive as financial services are subject to light regulation and are among the most widely used in the world. Because of considerable standardization of operations and sizable fixed costs, retail banks and, through them, their associated payment services, are an ideal target for small-size digital actors operating with low structural and personnel costs. In addition, technological innovation in respect of payment methods and the development of cyber commerce are also key factors that encourage fintech companies to choose the payments sector.

III.2. Prospects for building regional value chains

Our work on RVC prospects in North Africa has drawn on successful experiments in some Asian countries where e-wallets (digital portfolios) have been massively adopted by users of the sector where they originated (e-commerce, carpooling, gaming and others) and have moved to the field of finance on account of the availability of the technology, venture capital financing, the higher profile of financial inclusion and new licensing rules. Indonesia has recorded the second highest number of electronic currency transactions and the fastest growth rate from one year to the next. In Singapore, Malaysia, Thailand and Indonesia, e-money instruments have been used more than twice as often as in France.

Table 9 Principal actors in the main Asian countries and countries of the Association of Southeast Asian Nations

	Principal e-wallets	Number of e-wallets
Indonesia	GoPay, Ovo-Grab, Dana, LinkAja	651 (Source: Daily Social)
Malaysia	GrabPay, RazerPay/MOL, Axiata/SingtelVIA	44 authorized e-wallets (5 banks and 39 non-banks) (Source: Bank Negara)
Thailand	Rabbit-Line, True Money,	25 authorized e-wallets (Source: BOT)
Philippines	GCash, Singtel-VIA, BanKo (BPI), Pay Maya	More than 17 known e-wallets (Source : Fintechnews)
Viet Nam	Momo, Viettel Pay, eMonkey, ZaloPayMoca-Grab (30 others)	32 authorized non-banks (Source : Fintechnews)
Singapore	Grab-Fave, Google Pay, Apple Pay, Wechat Pay, Alipay	More than 27 payment systems
India	GooglePay, Mobikwik, Paytm, PhonePe, Amazon Pay	42 licensed prepaid payment instruments (Source: RBI)
China	Alipay, Wechat Pay, CUP	3 main e-wallets

Source: *SmartKarma.*

III.2.1. Regional e-wallet RVC: platform for the financing of start-ups

Aware that bank systems should improve, that the sector should be more diversified and the greater competition is needed, regulators have encouraged start-ups to be more innovative and to challenge the status quo. To help them, central banks, Governments, regulators and some traditional banks have provided these saplings with a platform, a vehicle and means of action. Investing in a regional digital portfolio, a platform for start-ups, could be a source and medium of fintech acceleration. These accelerators will incubate ideas aimed at overthrowing traditional trade models. They would benefit from access to resources, a network of advisers and capital, and a space would be reserved for them within the system to be able to conquer new territories.

Solutions are possible. The current lack of any international consensus as to the regulation of cryptocurrencies (or crypto assets) perpetuates the problem of possible gaps and loopholes in regulations and runs counter to the Standard for Automatic Exchange of Financial Account Information in Tax Matters (or Common Reporting Standard), the Foreign Account Tax

Compliance Act of the United States and the intergovernmental sharing of data. What is needed is a unified, regional approach to the regulation of cryptocurrencies, drawing on new methods adapted to this very new financial instrument. In March 2020, the Managing Director of IMF put forward a number of possibilities. She said that IMF was keen to encourage countries to develop policies that would guarantee financial integrity and protect cryptocurrency users in the same way as it had done for the traditional financial sector. She also stated that the crypto asset technology could be used to "fight fire with fire", for example by using distributed ledger technology to accelerate information sharing among market actors and regulators. This technology could be used to establish standardized verified information ledgers on customers and help to fight cross-border tax evasion.

Another way of bringing cryptocurrencies into the open, albeit somewhat more radical at this stage, would be for a country to create a central bank digital currency. This is essentially the current currency in digital form. A positive feature is that a central bank digital currency would be far superior to alternative digital currencies such as bitcoin. Alternative digital currencies do not serve well as a reserve value, as prices are too volatile, anti-piracy measures are too weak and they have non-existent support. On the other hand, central bank currency is a quintessential value reserve. Distributed ledger technology is the main current competitive advantage of alternative digital currencies, and this is something that central banks can and will acquire. A study conducted by the company Ernst and Young and Cambridge University shows that 63 per cent of central banks and 69 per cent of other public sector institutions are experimenting with distributed ledger technology protocols.

It is true that a single currency facilitates intraregional integration by wiping out foreign exchange risk and the related hedging costs, but it acts like a subvention for bilateral exchanges between the countries that have adopted it. Nevertheless, while it has been shown empirically that there is a correlation between intensification of trade and the sharing of a single currency, there still remains a doubt as to whether there exists such a link for the creation of a monetary union. For some, the decision to create or to form part of a monetary union hinges on the expected positive externalities. The continued rise of regionalism in the world, combined with the projected adoption of a single African currency since the establishment of the African Union, makes it necessary to consider the potential effects of such a currency in the African regional economic communities. It should be noted that, while the integration issue is not a new one, it has long been hibernating.

III.2.2. Block chain and central bank digital currency RVCs

The advantages stemming from the use of block chain as a technological medium for a single central bank digital currency are significant in that it enhances flow transparency and offers the possibility of configuring confidentiality characteristics or again of increasing interoperability. In addition, block chain can be used for smart contracts, these being programmes that are executed automatically in accordance with predefined conditions. It would thus make it possible to release payments automatically in the case of central bank digital currencies.

Currently, 81 countries (representing more than 90 per cent of global GDP) are envisaging a central bank digital currency. In May 2020, only 35 countries were envisaging a central bank

digital currency. Five countries have now launched a digital currency. The Bahamas Sand dollar was the first central bank digital currency to become widely available. Central banks throughout the world are envisaging the development of digital currencies to modernize their financial systems, counter the threat of cryptocurrencies like bitcoin and accelerate national and international payments.

In South Africa, the Khokha project is a collaborative project spearheaded by the central bank, namely the South African Reserve Bank, and bringing together a consortium of South African settlement banks (Absa Bank, Capitec, Discovery Bank, FirstRand, Investec, Nedbank and Standard Bank), together with a technical partner (ConsenSys) and a supporting partner (PricewaterhouseCoopers). This is the first project initiated by the Fintech Unit recently set up within the South African Reserve Bank. The aim of the project, which started up in January 2018, is to build a wholesale payment system of the "proof-of-concept" type for interbank settlement using a South African token. The project sought to devalue the performances, upgradability, confidentiality, resilience and end purpose of a distributed leger technology solution under the most realistic possible conditions. In early 2021, South Africa announced a second phase of the project, aimed at exploring the use of a central bank digital currency and a wholesale settlement token, in other words, for interbank use. Bank cash is thus tokenized, a payment is made and the token is converted back into cash on another bank account. Tokenization allows settlement or instantaneous delivery on the chain in relation to the payment.

Admittedly, the disadvantages of a central bank digital currency outweigh the advantages. A freely accessible central bank digital currency raises significant issues of technology, security, confidentiality and law. Moreover, the creation of a central bank digital currency would bring about a divergence between so-called "fiat" and "non-fiat" digital currencies. Consumers are generally conservative and would be naturally drawn to the former, which would push non-fiat digital currencies even further into the experimental sidelines where criminal activity could persist.

a. China and the eurozone, leaders in central bank digital currency

Having begun its first explorations in 2014, China is today one of the most advanced countries in the field of central bank digital currency. The Chinese central bank, the People's Bank of China, justifies the establishment of a digital yuan by the fact that cash cannot be used easily, it can easily be forged and, because of its anonymity, can be used for illicit purposes. The issuing of a digital yuan will allow Chinese transactions to be more closely monitored and thereby limit the domination of two payment giants, Alipay (Ant Group) and WeChatPay (Tencent). In 2020, China began testing its digital yuan with such companies as the e-trader JD.com in several cities. To encourage Chinese citizens to use this new currency, local governments chose to distribute digital yuans via a lottery.

The People's Bank of China noted that commercial banks already had established infrastructures to distribute this currency, implying that they would probably be the ones to take on that responsibility, and not the People's Bank. However, possession and use of the currency still remain unclear. Similarly, the form is not indicated even though the quick response (QR) code has every chance of being kept in view of its popularity in China. The next stage consists in testing, on the one hand, cross-border transactions with other central banks, namely those

of Thailand, the United Arab Emirates and Hong Kong, China, and, on the other, use of the currency at the winter 2022 Olympic Games by Chinese and foreign athletes.

The eurozone countries, for their part, have for several months been looking into the subject of central bank digital currencies. In this context, the European Central Bank initiated in late 2020 a public consultation on the creation of a digital euro. More than 8,200 responses were received, which is a record for a public consultation by the Bank. The Bank noted that its analysis of the replies confirmed overall its first findings regarding a digital euro: privacy protection is the main concern of the public and of professionals (43 per cent), followed by security (18 per cent) and the possibility of paying throughout the eurozone (11 per cent) without extra cost (9 per cent) and offline (8 per cent). This public consultation is serving as input for ongoing work which, once completed, allow a decision to be reached on the need to create a digital euro. According to the President of the European Central Bank, Christine Lagarde, if at the end of the work the project is fully affirmed, it could be effectively launched in four years. Outside the eurozone, Sweden is well ahead. The Governor of its central bank, Stefán Ingves, stated last April that the Nordic country could have a central bank digital currency by 2026.

b. Prospects for launching a regional central bank digital currency in North Africa

For the countries of North Africa looking to find a better place in regional value chains, regional integration is an essential stage. Trade facilitation among countries in the region and support for the start-up system business environment are among the prerequisites and represent a catalyst to make integration a reality for the economies and the populations.

Accordingly, the removal of trade barriers is one of the main goals of the regional economic communities in their efforts to ensure deeper integration. However, this process is not automatic. It requires, at the national and regional levels, meticulous planning, sequencing and investments in both tangible and intangible infrastructure in order for the initiatives taken in this context to be sustainable and to produce a profound effect.

The World Bank, for its part, has described the North Africa region as the least economically integrated region in the world, even though the countries concerned trade with one another in euros or dollars. In addition, Maghreb currencies are not convertible. Consequently, allowing young start-up entrepreneurs to create their own cryptocurrency on blockchain would be a wide-open door for them to internationalize their activities. Such an approach would also solve the problem of access to foreign currency since cryptocurrencies are convertible by default, notwithstanding the considerable advantage offered by financial tools. The ongoing exchanges, discussions and studies on banking laws reflect the determination of some countries in the region to move towards a more digital and inclusive digital system, for the laws cover both payment processors and fintech.

Morocco looks into the subject of digital currency

The majority of central banks worldwide have already begun investigating the subject of a sovereign digital currency, and such is also the case of Morocco in North Africa, although in that country the use and exchange of crypto assets are prohibited. Unlike decentralized and

highly speculative crypto assets such as bitcoin, a central bank digital currency is centralized and regulated by a country's monetary authority, which holds the reins of government.

Moreover, the Al-Maghrib Bank has set up an institutional committee to identify and analyse the advantages and risks bound up with the launching of its digital currency for the Moroccan economy. It has emphasized agility and proactivity by putting in place this committee and three working groups to track central bank digital currency developments as well as crypto assets. Discussions are also under way with the Bank of England, the Bank of Canada and the Swiss National Bank to define a representation and framework ahead of the possible launching of such a currency. The launch is not planned for the near future, but Morocco is already providing itself with a legislative framework to prepare for a potential launch and not to fall behind other countries that are also interested in the subject.

Cryptocurrency in Egypt

Egypt is one of the main recipients of remittances worldwide. On 28 May 2019, the Central Bank of Egypt announced a new bill that would allow greater regulation for cryptocurrency suppliers. The proposed law would be a first step towards greater regulation for block chain technologies in Egypt.

The proposed law would prohibit the creation, promotion or operation of platforms designed for the exchange of encrypted currency, or cryptocurrency, without obtaining the necessary licences. It would, however, only be the first step: according to the paper *Egypt Independent,* it would then give the Central Bank the right to establish rules governing exchanges and transactions in this type of currency. The paper reports that Central Bank has given itself the authority to regulate and possibly establish an Egyptian stable currency, or essentially a currency issued by the Central Bank. This initiative would be the first genuine regulation of cryptography in the country.

In Tunisia, the launch of a cryptocurrency would contribute to the development of financial inclusion

Tunisian institutions have become an engine in the use of this new technology known as block chain. Since 2017, the Central Bank of Tunisia has thus been seeking innovative so-called "decashing" solutions to eradicate the culture of cash transactions. It was in Tunis, in May 2018, that the first African block chain summit was held and the biggest African block chain hackathon. Co-organized by the Bank, this meeting brought together the governors of 54 African central banks, who discussed the opportunities offered by this new technology. In fact, costs are reduced, wait times are shortened and financial transactions are simplified.

It should be noted that in Tunisia the banking rate remains below 40 per cent, according to the World Bank, because of the high pre-requirements for the opening of a bank account. Today, block chain makes it possible to create a digital portfolio in a few clicks from one's telephone and to ensure an almost instantaneous trade in securities at very reduced cost (around 0.02 per cent). The mere fact of reducing the cost of financial transactions serves to support economic growth and financial inclusion.

In July 2021, the Central Bank of Tunisia, in cooperation with the Bank of France, conducted a seventh experiment with central bank digital currency. The experiment allowed a transfer of funds operation in trading currency to be carried out between two persons situated respectively in France and Tunisia, using this wholesale digital currency between the Bank of France and the Central Bank of Tunisia. The transfer was effected through the Instaclear interbanking transaction mechanism of the private distributed ledger platform operated by Prosperus, and the two central banks exchanged central bank digital currency tokens in secured conditions.

Promoting intra-North Africa trade

This reasoning is also valid outside of borders. Maghreb currencies are not convertible. Today, trading means going through the dollar or the euro, entailing a loss of time, money and sovereignty. At the hackathon organized in Tunis on the sidelines of the Africa Block chain Summit, the innovative approach of the American company ConsenSys, world leader in block chain technology, aroused strong interest.

ConsenSys demonstrated that it was possible to make a financial transaction between a Moroccan and Tunisian in a few seconds, rather than 72 hours, by creating a token on block chain for each country, the equivalent of an artificial currency which is convertible and tradable at the real rate at the moment of the transaction.

III.2.3. Regional platform for the integration of innovation systems

The establishment of a North African platform in the form of a regional wallet aimed at developing innovation systems in the region and boosting the financing of start-ups, particularly fintech companies, could enable the region to make up for lost time in the matter of financial exchanges and ensure better inclusion of its population, on the side lines of today's economic channels. This will help speed up the adoption of mobile payments, promote regional visibility of fintech breakaway solutions, stimulate financial inclusion and offer those without bank accounts easier access to financial services.

The strategy underpinning this model consists, first, in creating a broad customer base of portfolios and accounts for start-ups by leaning heavily on the regional network and, second, providing support services for start-ups in the region. The payment platform will at the same time increase the network of e-wallet investors and will acquire new customers during the first few years as follows:

- In the launch phase, the platform will concentrate on the deployment of basic services, the development of the start-up network and support structures and setting up the necessary regulatory infrastructure and the investment committee.

- In the growth phase, the platform will concentrate on the growth of its investor base, increasing its level of activity and promoting start-up accounts and portfolios.

- The long-term goal is to create an integrated regional system in which transactions between start-ups in North African countries can attract investments and be managed through

predominantly digital interaction and make it possible to achieve a high number of active investors.

As the customer base gets bigger, options for transactions will also develop, resulting in an increase in the volume of digital transactions.

A targeted strategy can develop sustainable relations with start-ups, gradually increase the value of these relations as the innovation investment culture evolves and make it possible to develop the system and offer additional services to populations.

IV. Conclusion and recommendations

In our time, the global value chain concept is to be understood against the background of a number of concepts whose emergence has offered developing countries opportunities for integration into the global economy. This integration has had a significant impact, first, on employment and, second, on supply chains 4.0, which are moving from a bilateral linear model to a more integrated and complex model involving the use of digital technologies. This boom in the digital economy could offer small and medium-sized enterprises new opportunities for development, allowing them to play a more active role in GVCs. Moreover, analysis of the link between global value chains and global innovation networks, resulting from open-ended innovations, reveals strong interdependencies which deserve to be studied.

The regional value chain of North Africa, like those of other developing regions, has been badly hit by the COVID-19 pandemic and the ensuing health and economic crisis. It will therefore be advisable to think about not only the changes that will affect the region over the coming decade but also about the importance of intra-regional free trade ensured through the African Continental Free Trade Area project.

North Africa is one of the regions whose economic integration into global value chains is growing. This situation reflects the importance of factors benefiting countries in the region as compared with other African developing countries, namely, growing investments in infrastructure, the development of manufacturing, managerial and organizational capacity, and a major geographical advantage linked to its proximity to European markets. Nevertheless, this strong development potential is not being fully tapped, resulting in small diversification of the export and import structure (with the exception of Egypt) and a low volume of intra-regional trade.

Financial integration in the North African region remains limited in comparison with that of Europe, a pioneer in the field representing for the countries of the region an inspiration and a model to follow with due regard for existing capacity. This limited integration varies with the six countries in the region: Morocco, Egypt and Tunisia being well ahead of Algeria, Libya and Mauritania. Integration is stymied mainly by narrow access to financing and the absence of a cross-border financial institution. International experience shows that consolidation of macroeconomic stability, harmonization of market infrastructure and the loosening of restrictions on cross-border flows may be useful in promoting successful financial integration.

Start-ups, as flexible entities with an innovative operating model, may be regarded as a catalyst of regional integration in North Africa that has the ability to boost the innovation system. Assisted by incubators and support structures in the different countries of the region, fintech start-ups are proving to be the most attractive and promising part of the African financial system.

Investing in a regional e-wallet, a platform for start-ups, could act as an accelerator for these fintech companies. Having easy access to effective financial services is essential for those contributing to a rich and diversified economy. Central banks have thus understood that greater diversity and greater competition are needed to help reinvent banking models and call traditional models into question. Consumers are also looking for something faster, simpler and easier to use, after growing accustomed to experiences of transferring and buying in a single click, to the possibility of communicating simply with their friends everywhere in the world and to accessing every kind of information they need. At the same time, the launching of a regional cryptocurrency should help to develop financial inclusion in the region. To that end, such countries as Egypt, Morocco and Tunisia are looking into the matter and have begun studying the question of a single digital currency.

The North African countries have no choice but to seek decisive, concrete ways of stimulating regional integration and building a North African block capable of confronting and overcoming the challenges arising, which have been exacerbated by the COVID-19 health crisis. They need to consult and coordinate better with each other and upgrade their trade agreements. It is crucial at this stage to aim at global harmonization of tariff barriers and regulations and to seek productive integration offering a fertile ground for RVC coproduction and creation as well as financial integration that will effectively supplement economic integration throughout the region (ECA, 2018; OECD, 2021). Action is required at various levels:

IV.1. Cross-cutting recommendations

← Support financial integration

The financial flows recorded from and towards North African countries are very low, highlighting the small degree of their financial integration as compared with the levels achieved by other emerging regions. The trade restrictions imposed by North African countries are the same as those imposed by developed countries, and even China, which affects the level of their capital and financial account openness. Countries considered to be the most advanced in the integration process are Morocco, Tunisia and Egypt, which have managed to achieve and maintain a level of macroeconomic stability capable of offering fertile ground for financial integration.

← Improve the business climate and access to financing

While Tunisia, Egypt and Morocco are moving ahead, significant efforts still need to be made in Libya, Algeria and, especially, Mauritania, in terms of resolving insolvency problems and enterprise creation. In North Africa, enterprises have to contend with problems of corruption and unpaid debts, transfer of ownership and difficult access to financing, which affect their competitiveness.

← Improve trade integration

The slowing down of change in the productive system is due mainly to the low level of trade integration, which is not conducive to the establishment of RVCs. This is compounded by competition between countries in the region to attract foreign direct investment and the lack of a real effort to achieve a regional export platform, joint production hubs and RVCs. Intraregional trade also comes up against other constraints. First, tariff policies are a primary obstacle linked to a lack of cohesion and the non-existence of a joint policy among the countries of North Africa to enhance trade integration. Morocco, for example, applies rather high tariffs to imports from Tunisia. Similarly, in the early years of the century, Algeria, the main importer in the region, which has to some extent taken down customs barriers in comparison with Morocco and Tunisia, applied relatively high tariffs to imports from the rest of the region, mainly Morocco. These high tariffs applied reciprocally between Morocco and Tunisia show that the countries are guided more by competitive strategies than by regional partnership strategies.

← Diversify exports

Some North African countries such as Algeria and Libya have low levels of economic diversification and exports strongly dominated by oil and gas, which account for more than 90 per cent of sales on emerging markets. This is also true for Mauritania, which relies strongly on its exports of food products, minerals and metals. Nevertheless, Egypt, Morocco and Tunisia show a relatively higher level of export diversification. That being said, the three countries' exports come from a very limited number of sectors (clothing, textiles, leather and chemical products) and often depend on imported factors of production.

← Harness regional infrastructures and reduce infrastructure deficit

The North Africa region is one of those that have fallen behind in terms of trade-related infrastructure quality as compared with international standards. Thus, all countries in the region show rather low levels of development in comparison with other emerging countries in terms of the logistic performance index and the trade facilitation index. North Africa should improve inter-country maritime connectivity and make good use of their seaboards instead of using the European port network to trade among themselves. A start should be made in this context by tapping the wealth of Morocco which, according to the World Economic Forum, is the highest-ranked country in respect of maritime transport connectivity.

In addition, digital technology dissemination should be an opportunity to develop payment infrastructures in North Africa. In this context, Governments of the region should first make up for existing underinvestment in the communication infrastructure by strengthening optical fibre networks that lend themselves to the use of 4G and 5G technologies. Efforts should also be focus on the development and upgrading of payment infrastructure and on opening up the market to financial service providers.

The development of physical infrastructure in countries of the region should also make it possible to set up data centres designed to house computer servers and storage systems and promote the development of national digital systems. Egypt is the country in the region where

there are the highest number of data centres and where the State, through partnerships with historical operators in the country, encourages the establishment of such centres in order to make use of smart technologies and provide various services (in particular, Internet of things solutions, cloud computing and artificial intelligence platforms). Egypt has twelve data centres as against five in Morocco, two in Tunisia and only one in Algeria (Kende, 2020).

← Promote technological innovation

The countries of North African have fallen behind in terms of human capital, innovation and technology as compared with the OECD countries. Notwithstanding advances in school enrolments and training, the average human capital index in most of the countries (except for Tunisia) does not exceed half the level of OECD countries. The region allocates only 0.7 per cent of its GDP to research and development, as against 2.4 per cent in the OECD area. The competitiveness deficit persists and there continue to be significant disparities in knowledge accumulation and ICT: Algeria is in a less favourable position than Egypt, Morocco and Tunisia. Morocco announces developments in the area of ICT and knowledge accumulation.

Triangular cooperation policies between States, universities and the private sector should facilitate the establishment of technology hubs and incubation centres in North Africa. Such cooperation produces an environment of cross-pollination of ideas and co-creation of projects, thus promoting innovation in the region (OECD, 2021). The development and extension of technology parks could be achieved through so-called "clusterization" policies making it possible to support the digital economy and achieve successful digital change in the region.

← Give multilateral scope to bilateral agreements

The current integration strategy adopted by the North African countries is based on a plurality of bilateral agreements resulting in an overlapping of differently designed customs systems. The six countries are therefore invited to square off this bilateral dynamic by giving multilateral scope to bilateral agreements, consolidating rules of origin, harmonizing regulations and developing transport and communication infrastructure.

IV.2. Specific recommendations for the development of financial services and digital financing

← Ease the major constraints to fintech development

- Loosening of regulatory frameworks relating to enabling infrastructure like open applicative programming interfaces, cloud computing and data sharing.

- Gradual deregulation of telecommunications and finance to encourage the emergence of non-bank operators who offer appropriate solutions to small and medium-sized enterprises and industries and support the process of development of digital solutions. In Morocco, for example, the Bank Al-Maghrib Act No. 103-12 enabled non-bank actors to offer electronic

payment solutions and gave actors present on the market the freedom to position their digital portfolios and to adapt their bids (OECD, 2021).

- Ensuring the integrity and security of digital finance on the market through the establishment of regulatory frameworks for data protection and confidentiality and digital security governance, IT security certification and risk management in respect of computer networks.

- Launching strategies to develop digital infrastructure and connectivity in support of fintech and establishing connectivity hubs in the region by improving broadband accessibility and connectivity, accelerating the installation of optical fibre networks, ensuring the interoperability of virtual platforms and multiplying Internet exchange points.[3]

- Establishing active partnerships between microfinance institutions and mobile telephone operators, on the one hand, but also between financial institutions and digital financial service providers, on the other. According to OECD (2021), such partnerships help to promote savings and digital credit services, mobile-electronic portfolio interoperability, the development of solutions linked to customer credit scoring and the use of blockchain technologies.

← Consolidate digital change through skills development

The modernization of education systems and the upgrading of technical and vocational training should be aligned with the technological advances brought by the digital revolution.

The new digital technologies offer an opportunity to innovate and modernize the education system in the region by integrating soft skills. Within the same framework, it is necessary to adopt new e-learning and practical self-learning tools and to develop courses in digital culture. The Egyptian Knowledge Bank, a digital learning platform launched in 2016, provided access to learning resources and tools for teachers, researchers, students and the public at large. Bridging the technological skills gap will help to ensure that technologies complement the labour factor and will improve the skills of young people wishing to take advantages of the opportunities offered by 4.0 industries in general, and by digital industries in particular (African Development Bank, 2019).

← Promote public-private partnerships and create an entrepreneurial environment conducive to digital change

Human capital enhancement policies aimed at upskilling or reskilling are required to address expected disruptions in the job market in North Africa (OECD, 2021). A favourable entrepreneurial system in North Africa can only be ensured if decision-makers focus on factors allowing the development of multidimensional digital platforms and on putting in place the conditions for fair competition. The need is to ensure services based on cloud storage, geo-tracking, security and other systems that enable multidimensional digital platforms to be developed.

3 In Morocco, interoperability between banks and payment institutions was launched in 2018.

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