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Sustainable Growth – Sustainable Financial Services in the European Union

SUMMARY: Members of the European Union (in accordance with their international obligations) have committed themselves to sustainable development. The EU extends the (environmental, social and governance) sustainability criteria step by step to the already existing legal regulations and applies them automatically to new measures. One of the latest developments of this process is the draft regulation for sustainable financial services. Based on this draft regulation, only financial services covering sustainable economic activities may qualify as sustainable financial services (or green services). One of the most important objectives of the new regulation is to reflect economic activities that support sustainability and economic activities that have a negative impact on the environment (positive and negative externalities) in the prices of financial services. Governments can orient market actors in the direction of sustainability with the help of regulations concerning the financing of economic activities. The article therefore starts with economic growth theories, defines the concept of sustainable growth, then goes on to introduce the draft regulation on a sustainable approach to financial services published by the EU in 2018, and provides guidelines about how to identify economic activities that may qualify sustainable in the future, based on the draft regulation. Based on the new regulation, areas to which it is worth reallocating resources can be identified: improving resource efficiency; more compact (smarter), connected city systems; optimisation of land use; low-carbon infrastructure and energy systems, and innovation that boosts the development of these areas.¹

KEYWORDS: sustainable growth, financial services, regulatory role of the government

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In 2015, the UN adopted 17 sustainable development goals to be achieved by 2030. Basic principle: Leave nobody behind. The global development plan defines broad goals from eliminating poverty and hunger, to sustainable consumption and production to peaceful and inclusive societies:

- no poverty;
- zero hunger;
- good health and well-being;
- quality education;

- gender equality;
- clean water and sanitation;
- affordable and clean energy;
- decent work and economic growth;
- industry, innovation and infrastructure;
- reduced inequalities;
- sustainable cities and communities;
- responsible production and consumption;
- climate action;
- life below water;
- life on land;
- peace, justice and strong institutions;
- partnership for the goals.²

The agreement that defines the new goals

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explicitly says that the goals can only be achieved if the business sector is involved: “... call upon all businesses to apply their creativity and innovation to solving sustainable development challenges.”³

The business sector can be involved basically in all 17 development goals, but goal 12 explicitly targets the business sector. The business sector can contribute to the achievement of development goals primarily in the following areas: ethical, inclusive and resource-efficient production, products and services; increasing investment in renewable energy resources and sustainable production/service systems.

As part of the EU’s initiative on sustainable development, which aims to implement the 2016 Paris Agreement⁴ and the UN’s sustainable development goals for 2030,⁵ a separate draft regulation has been devised⁶ for the financial sector. The financial sector has a special role, as it provides the resources necessary for the operation of the real economy to individuals, to small- and medium-sized enterprises, to the business sector in general, and to the governmental sector. It is no accident that the European Union pays special attention to this sector in the pursuit of its sustainable development goals.

The article therefore starts with economic growth, defines the concept of sustainable growth, then goes on to introduce the draft regulation on a sustainable approach to financial services published by the EU in 2018, and provides guidelines about how to identify economic activities that may qualify sustainable in the future, based on the draft regulation.

DETERMINANTS OF ECONOMIC GROWTH

It is difficult to identify the determinants of economic growth, because there is no single accepted growth theory (if one theory is val-

id, it doesn’t mean that the other is faulty). Over the years, several factors of growth have been identified by theoretical and empirical research (see for example Benczes, 2008, Erdős, 2006). It is a significant task in itself to review and organise these findings, so the present article focuses only on introducing the main features of the most important theoretical trends (*Table 1*).

In neoclassical growth models, growth results from supply-side factors (spatially uniform exogenous technology, as well as capital stock and workforce). Assuming capital and labour are mobile, the neoclassical model shows that there can be no systematic long-run differences in the growth rate of factors across regions (even though this is inconsistent with the assumptions underlying the approach). Neoclassical models assume constant return to scale (and diminishing returns to capital). Because of the assumption on diminishing returns to capital, the productivity growth rate of regions with relatively limited capital (low capital/labour ratio) is higher, while the productivity growth rate of regions with high capital/labour ratio is lower (the growth-enhancing effect of the accumulation of capital is limited). In the case of equilibrium, the productivity growth rate becomes uniform in the regions, and it will be equal to the exogenous rate of technological development.

However, if technological change is at least partly determined by an endogenous process (e.g. it depends on levels of knowledge), then the ability of a region to benefit from technological change through diffusion may be much slower if there are interregional differences in knowledge stocks. (Harris, 2008). This realisation has led to the development of technology-gap models, where regions that lag furthest behind technologically experience the fastest rate of catch-up and thus the fastest rate of growth in TFP. These models suggest that differences in TFP are likely to be

Table 1

DETERMINANTS OF REGIONAL GROWTH				
Features Model	Competition	Return to scale	Convergence/growth	Source of growth
Neoclassical	Perfect	Constant	Single equilibrium	TFP1*
Kaldor	Imperfect	Increasing	Different growth paths	Exogenous growth in demand
New-neoclassical	Perfect	Constant	Several equilibrium values (clubs)	TFP
Endogenous growth	Monopolistic	Increasing	Different growth paths	TFP (the growth of physical capital intensity, human capital accumulation and productivity growth)
New economic geography	Monopolistic	Increasing	Different growth rates, different growth paths; Persistent centre-periphery difference in regional growth	Export base, agglomeration effects

Note: * TFP: total factor productivity.

Source: own edited

the main driver of persistent regional growth disparities.

According to the theory of β -convergence, which is based on neoclassical economics,⁷ (e.g. Barro and Sala-i-Martin, 1995) every region is converging to a single equilibrium value (or not). The model can only test for ‘catch-up’; it estimates whether the distance between regions at the end of a period is less than at the start. This theory, however, has significant limitations, namely the following:

- it doesn’t allow for different equilibrium rates;
- it cannot encompass regions that have achieved steady-state equilibrium whereby observations are moving together over time without any further narrowing (or broadening) of the gap between them;
- it ignores any spillovers between regions.

Advanced models try to deal with these issues (convergence clubs, conditional convergence, use of time series, etc.). The latest

neoclassical models also try to consider spatial variability, and thus the clubs or groups of the regions may converge to different growth rates. β -convergence models, however, only state the fact of convergence (or backwardness), they do not explain spatial variability in development.

Kaldorian regional growth-rate models devised in the 1970s operate under increasing returns to scale, with a feedback between output and productivity growth (the Verdoorn relationship⁸). Exogenous demand on the export base is the key driver of regional output (quality-based competitiveness of differentiated goods and services), and regions may have divergent growth paths.

According to the endogenous growth theory, technological development is not exogenous, and due to the externalities, increasing return to scale needs to be assumed. (See, for example Romer, 1986, Lucas, 1988; Aghion–Howitt, 1998 etc.) As *Krugman* (1991) point-

ed out: “*we live in an economy closer to Kaldor’s vision of a dynamic world driven by cumulative processes than to the standard constant returns model.*” Due to the increasing return to scale, per capita output growth is no longer limited, and per capita incomes do not necessarily converge on a regional or national level.

The second wave of endogenous growth models was triggered by articles by Romer (1990), Grossman–Helpman (1991) and Aghion–Howitt (1998). These models already take the microeconomic environment of the companies into account. The accumulation of knowledge through research and development is an expensive process, which is only worthwhile if companies have market power. As a result, these models break with the presumption of perfect competition, and assume monopolistic competition.⁹

Total factor productivity not only describes the level of technical efficiency in the economy, but also allocative efficiency (i.e. how effectively the resources available for the country are distributed among economic activities). (For more details, see Boulhol et al., 2008.) The growth of per capita output is thus basically determined by three factors: the growth of physical capital intensity, the accumulation of human capital and productivity growth. This is standard growth accounting (based on growth functions). There is, however, a need for caution, as accumulation and productivity growth are endogenous. Rodrik (2001) mentions the following secondary determinants of growth: integration and openness (trade), culture and institutions.

The determining role of the spatial dimension in economic growth has been more widely accepted after the emergence of the new trade theory (e.g. Krugman, 1980; Krugman and Venables, 1990), and the new economic geography models (e.g. Krugman, 1991; Krugman, Venables, 1995, and Baldwin et al., 2005).¹⁰ Even though the theory of economic

geography focuses mostly on the spatial distribution of production, it certainly has implications regarding growth.

New trade theory models assume monopolistic competition, increasing return to scale and product differentiation. Companies locate where a large consumer market exists to minimise transportation costs and to have good access to product markets. This means that a region will export goods for which it has a relatively large domestic demand (the so-called home market effect). Note, increasing returns to scale are not necessarily technology-based here. Concentration is most likely because of externalities of location.

The new economic geography approach extends new trade theory to produce explanations for the geographic clustering of industries. In the new trade theory approach, the home-market size is exogenous (determined by the fact that labour is presumed to be immobile); while in the new economic geography approach it is endogenous, primarily through the mobility of labour, but also through allowing greater mobility of firms which have high levels of intermediate demand. As not only capital, but also workforce is mobile now, there is even greater reallocation of economic activities across regions (Harris, 2008).

The mobility of labour and the mobility of capital stimulate the home market-effect. The influx of labour increases the size of the home market with its consumption, and so does capital mobility, through strong input-output linkages (i.e. strong intermediate demand). The greater the proportion of intermediate goods in the production of final goods, the greater are these demand and cost linkages, and the greater the gains from geographical/spatial clustering. This means the new economic geography approach considers trade and agglomeration forces as the determinants of regional growth.

However, there are also centrifugal forces (such as housing costs) that will counterbalance the tendency for agglomeration. Consequently, new economic geography models actually have many possible equilibrium outcomes that are sensitive to centripetal and centrifugal forces. Some models predict a persistent core-periphery dichotomy (in output levels). Others result in differential growth rates and thus divergent paths. Some suggest that there can be initially divergence followed by convergence (as centrifugal forces overcome centripetal benefits).

Sustainable growth theories constitute a completely new category in growth theories.

SUSTAINABLE GROWTH

Sustainable development is development that *“meets the needs of the present without compromising the ability of future generations to meet their own needs”* (United Nations General Assembly, 1987). The overall goal of sustainable development is the long term stability of the economy and the environment, which can only be achieved if economic, environmental and social aspects are integrated and considered at all levels of the decision-making process. This means that sustainable growth is sustainable in economic, environmental and social terms.

According to the European Commission’s definition, sustainable growth means:

- creating a more competitive, low-carbon economy that exploits natural resources effectively and in a sustainable manner,
- protecting the environment, reducing emission and preserving biodiversity
- benefiting from the leadership role of Europe when new, environmentally friendly technologies and production methods are developed,
- developing effective and smart electricity grids,

- providing competitive advantages to enterprises (especially small processing enterprises) through exploiting EU networks,
- improving the business environment, especially for SMEs,
- supporting consumers to facilitate informed decision-making.

The question arises: are dynamic economic growth and sustainability compatible? A simple welfare analysis provides an answer. Sustainability and dynamic growth are surely compatible, if the sum of efficiency gain and social benefits from the switchover exceeds the cost of the switchover.

This is also substantiated by the WEF’s sustainability-adjusted global competitiveness index (WEF, 2014b). The sustainability-adjusted global competitiveness index (GCI) shows how sustainable growth is from an environmental and social aspect. Results so far have shown that one doesn’t have to choose between economic competitiveness and sustainability. Several countries are top-rated in terms of competitiveness and also when it comes to sustainability measures. Such countries are, for instance, Switzerland, Finland, Germany, Sweden and the Netherlands.

SUSTAINABLE FINANCIAL SERVICES

When it comes to sustainable development, the financial sector has a special role,¹¹ as it provides the resources necessary for the operation of the real economy to individuals, to small- and medium-sized enterprises, to the business sector in general, and to the governmental sector. It makes it possible, among other things, to deal with problems resulting from cash flow fluctuations, to advance consumption, and to finance debts, innovation and investments. Exactly because of their special financing quality, they can have a

multiplier effect. If environmental, social and governance objectives are considered in their pricing, credit and investment policies and strategies, those may have a positive spillover effect and help other sectors switch to sustainability.

This means that with sustainability schemes for financial services, governments can take significant steps towards their sustainability goals. This may, at the same time, mean the reallocation of resources, as social efficiency and socially desirable results may take priority in addition to, or sometimes over, business efficiency.

Even though the majority of companies are, in theory, committed to sustainability, practical implementation may be limited by expectations to make profit, which may seem more important in the short term. As investments in sustainability only produce results in the long term, companies may not move in that direction on their own. This means that from a social aspect, government intervention can be justified, for example through such regulation of the financial services market that provides financing for investments.

Such regulations can direct capital flow to investments that support the implementation of the new, sustainable European economic model, the integration of environmental, social and governance (ESG) aspects to financial decision-making, and the prioritisation of long-term considerations in addition to (over) short-term goals. When these aspects are strengthened, it may enhance the trust in the financial sector as well.

However, it should be noted that a regulation for the financial sector may only be effective if there are consistent regulations in other sectors concerned, including the agriculture, industry, transport, construction and energy sectors, as well as water and waste management.

The new draft regulation¹² aims to promote environmental, social and governance (ESG)

aspects in the regulation of the financial sector to contribute to a greener and more sustainable economic development. Under the draft regulation, ESG factors should be considered in the investment decision making process, such as greenhouse gas emissions, resource depletion, or working conditions. The draft regulation also aims to help investors compare the carbon footprint of investments. By clarifying what qualifies as environmentally sustainable investment, the regulation will stimulate the volume of environmentally sustainable investments on the international capital market.

Sustainable goals require considerable investments, for which private capital needs to be increasingly mobilised. To achieve the goals, private capital flows need to be oriented towards sustainable investments, which may call for the fundamental reconsideration of European financial framework conditions. The Commission created a high level expert group for this purpose in 2016, whose task is to develop a strategy for sustainable finances. The report by the expert group¹³ defined two imperatives for the European financial system: to improve the contribution of finance to sustainable and inclusive growth, and to strengthen financial stability by incorporating ESG factors into investment decision-making. The expert group identified 8 key elements of a sustainable European financial system:

- establishing an EU sustainability classification to clearly identify green, sustainable investment opportunities,
- extending the time horizons of investment decisions,
- bringing greater focus on ESG factors into investment decisions,
- upgrading disclosures to make sustainability opportunities and risks transparent,
- enabling retail investors to invest in sustainable finance opportunities,

- developing official European sustainability standards for some financial assets (e.g. green bonds),
- establishing ‘Sustainable Infrastructure Europe’,
- and integrating sustainability standards firmly in the governance of financial institutions as well as in financial supervision.

After the publication of the report by the expert group, the Commission published its action plan for financing sustainable growth.¹⁴ The draft regulation for the financial sector was devised to implement this plan.¹⁵ The key objective of the draft regulation is the classification of activities related to environmental and social sustainability. Classification and the creation of standards help Member States handle investment opportunities in a uniform way, i.e. the single market will not be distorted. Diverging national regulations hinder foreign investments, and compliance with different standards incurs extra costs for market operators. Diverse classification systems increase market fragmentation and raise competition problems. This report emphasises that it complies with the principle of subsidiarity, as this is an issue that can only be regulated effectively on EU level.

The draft regulation also provides for the establishment of a platform on sustainable finance. This platform will help the Commission in devising and updating the classification system, in the modification of the regulatory framework. The platform, managed by the Commission, will also monitor capital flows towards sustainable investments. The European Supervisory Authorities will play a key role as well: they need to ensure that sustainability standards are applied by financial institutions, in compliance with EU financial legislation. The European Environmental Agency (EEA) will also be closely involved in the sustainable finance work. In addition to its technical knowledge in various environmental areas, the EEA will also collect data on investment

needs, and provide advice to the governments of Member States in order to develop their low-carbon and sustainable investment strategies.

The draft regulation emphasises that it provides the basis to establish the environmental sustainability of economic activities, rather than that of companies or assets. However, the uniform criteria for environmentally sustainable activities will permit to determine the degree of environmental sustainability of a given company. If a company performs only environmentally sustainable activities, the investment in this company is deemed environmentally sustainable. Thus, a share of this company will be an environmentally sustainable asset. If only some of the activities of a company is environmentally sustainable, only assets that are used to finance the environmentally sustainable activities will be considered environmentally sustainable. This regulation applies to Member States and the Union in the context of marketing requirements for market actors and the offering of financial products or corporate bonds, in particular in the context of labelling.

It is worth noting that the regulation does not establish a product label (sign) for sustainable financial products. Instead, it sets out the criteria that need to be taken into account when setting up such labels at national or EU level. Thus, the regulation does not prevent Member States from keeping in place their labelling schemes, as long as they comply with the criteria set out in the regulation.

Based on the planned regulation, those market participants that are subject to the disclosure obligation shall make a declaration on the degree of environmental sustainability of all of their products which they have marked as environmentally sustainable. For example, if a fund manager advertises a fund as a green fund, it shall be able to explain how and to what extent the underlying economic activity fulfils the uniform criteria of environmental

sustainability. This obligation will make it easier for investors to compare different financial products. The draft emphasises in several places that the regulation is planned to be gradually introduced, leaving enough time for the system of criteria to become completely well-established and stable.

Article 3 of the draft regulation contains the criteria on the basis of which economic activities qualify as environmentally sustainable (further information on this can be found below). As a basic principle, the activity shall contribute significantly to the achievement of at least one environmental objective, while not particularly infringing others. With regard to the European Pillar of Social Rights, the activities concerned shall comply with certain international minimum standards on social issues and labour. The draft specifies activities which have a negative effect on the environment and sustainability (Article 4). By listing such negative activities, the Commission intends to include the positive as well as the negative externalities in the price of financial products/services.

Article 5 defines the term ‘environmental objective’ in terms of this regulation. Environmental objectives are the following:

- prevention of climate change,
- adaptation to climate change,
- sustainable utilisation and protection of waters and marine resources,
- transition to circular economy, waste reduction, recycling; prevention and control of pollution; protection of healthy ecosystems.

While defining and applying the criteria, the Commission has to consider the potential effects of the criteria on asset value. In the course of screening, the value of assets qualified as sustainable may increase, while the value of certain products previously qualified as “green” may decrease if the Parties fail to meet the stricter new criteria.

KEY ELEMENTS OF THE SUSTAINABLE GROWTH PATH – SUSTAINABLE FINANCIAL SERVICES

The draft specifies activities which are considered to be significant contributions to environmental sustainability related to the environmental objectives laid down in Article 5.

Regarding [THE PREVENTION OF CLIMATE CHANGE](#), the following activities are considered to be significant contributions:

- production, storage or utilisation of renewable or climate-neutral energy, including those innovative technological solutions which can contribute to potentially considerable energy savings,
- improvement of energy efficiency,
- increasing clean (green) or climate-neutral mobility,
- transition to renewable materials,
- increasing carbon sequestration and the use of stocks,
- termination of the anthropogenic emission of greenhouse gases (including fossil fuels),
- establishment of energy infrastructure for the decarbonisation of energy systems,
- production of clean and efficient fuels from renewable or neutral energy sources.

Regarding [ADAPTATION TO THE CHANGED CLIMATE](#), the following activities qualify as significant contribution:

- any activity that prevents or reduces the place- and environment-specific negative effects of climate change (assessed on the basis of the climate forecast related to the economic activity concerned),
- any activity that prevents or reduces the negative effects of climate change in the natural or built environment of the economic activity (assessed on the basis of the climate forecast related to the economic activity concerned).

Based on the draft, regarding [THE SUSTAINABILITY](#)

AND PROTECTION OF WATER AND MARINE RESOURCES, the following economic activities qualify as significant contribution:

- any activity that protects the aquatic environment from urban and industrial wastewater, by treating wastewater in accordance with the relevant articles of Council Directive 91/271/EEC,
- any activity that protects health against the adverse effects of the pollution of drinking water, i.e. that ensures drinking water free from microorganisms, parasites and all other materials which are harmful to human health (in accordance with the relevant parts of Council Directive 98/83/EC), or improves the possibility of access to drinking water,
- any activity that ensures high quality water extraction,
- any activity that improves the efficient use of water, water recycling or any other activity that protects or improves the quality of the water resources of the European Union,
- any activity that uses marine ecosystems in a sustainable way, protects or improves the environmental status or marine waters.

Regarding THE CIRCULAR ECONOMY, the following activities qualify as significant contribution:

- any activity that ensures the more efficient use of raw materials, including the decreasing proportion of primary raw material used, as well as the utilisation of by-products and waste,
- any activity that aims to increase the durability, reparability, updatability or reusability of the products,
- any activity that ensures the rate of recycling, including the recycling of materials used in the products, by replacement or decreasing the proportion of non-recyclable materials used in products,

- any activity that reduces the amount of dangerous materials used in products,
- any activity that extends the lifetime of the product, for example, by recycling, processing, updating, repairing or sharing the product by consumers,
- any activity that increases the use and quality of secondary raw materials, for example, by the high-quality recycling of waste,
- any activity that prevents waste,
- any activity that prepares waste for reuse or recycling,
- any activity that prevents the incineration or destruction of waste,
- prevention of pollution arising from non-adequate waste treatment,
- efficient use of natural energy resources.

Regarding THE PREVENTION AND CONTROL OF ENVIRONMENTAL POLLUTION, the following activities qualify as significant contribution:

- reduction of air, water and soil pollution, with the exception of greenhouse gases,
- improvement of the quality of air, water or soil at the site of the economic activity, minimisation of negative effects on human health and the environment and the minimisation of the risk of such effects,
- minimisation of harmful effects on health and the environment arising from the production of chemicals.

Regarding THE HEALTHY ECOSYSTEM, the following activities qualify as significant contribution:

- conservation of the natural environment (habitat, species),
- sustainable earth management, including the protection of soil biodiversity and the restoration of contaminated soil,
- sustainable agricultural practices, including halting and preventing deforestation and the loss of habitats,
- sustainable forest management.

The activities listed above can be classified

into five important areas of the environmentally sustainable growth path on which the WEF (2014a) classification is based: improvement of resource efficiency; more compact, connected (smarter) urban systems; optimisation of land use; low-carbon infrastructure and energy system; innovation.

The policies¹⁶ supporting energy efficiency may release resources which can be used in areas of higher productivity. The establishment of more compact and connected urban systems refers to the shift towards sustainability. Urban infrastructure is meant to be long-term. The way we establish, renew or maintain it will not only affect economic performance and the quality of life of those who live in cities, but it will also determine the global emission of greenhouse gases. One of the key elements of planning is car dependency and the reduction of the related pollution. Planning that prioritises environmental sustainability prefers high-quality public transport systems.

The draft gives high priority to the topic of sustainable agriculture and forest management. In this respect, activities aiming to optimise land use and adapt sustainable production methods are of great significance.

The establishment of low-carbon infrastructure and energy systems is considered to be an activity that significantly promotes sustainable development. Giving priority to this area is justified by the fact that modern economic growth is based on manufacturing infrastructure. Regarding the reduction of greenhouse gas emission, low-carbon infrastructure is crucial, in particular in the areas of energy supply, buildings and transportation. By increasing energy efficiency investments, energy demand can be significantly reduced and better managed, which brings about benefits related to the economy as well as harmful emissions.

Innovation should be emphasised in several respects. Innovation is one of the most important drivers of economic growth. In the

world of limited natural resources, it is key to continuous growth. Regarding sustainability, digital technologies, materials sciences and innovative business models are especially promising, and their effect can already be felt.

On the one hand, innovation is of vital importance in the field of sustainable financial systems. On the other hand, it is of great significance in qualifying financial services as sustainable. Financial innovations, such as green bonds, risk-sharing instruments of special instruments which adjust the risk profile of low-carbon assets to the needs of institutional investors, may reduce financing costs. National development banks, wealth funds and other institutions may also be involved in financing transition.

Sustainability criteria constitute a significant new challenge for the financial sector, despite the fact that banks and market participants which provide financial services in general have had to adapt to a lot of changes recently. The financial sector has to adapt to three very important challenges at the same time: regulatory reform, digitalisation and sustainability. The sector was forced to carry out significant structural changes due to the global financial crisis and the subsequent regulatory reforms of the banking sector. Mergers, acquisitions, efforts to improve operational and cost efficiency and regulations on data protection have led to the need for fundamental changes. Banks have to face another major challenge of global financial markets: the possibilities and challenges of digitalisation. Fintech and digital solutions such as block chain, smart (learning) machines, cross-border community funding (person-to-person – P2P – financing), digital payment solutions and transactions may bring about revolutionary changes in financial markets, boost cross-border transactions and fundamentally change the character of financial relations. The latest challenge is the sustainability regulation described above. However,

the latter two challenges are closely connected to each other, as digitalisation and the related transition also serve the achievement of sustainability goals (replacement of paper-based administration, reduction of environmental load related to transportation, improvement of resource efficiency, etc.)

As regards financial services, three digital solutions should be emphasised: digital platforms which serve as the new place for financial transactions; block chain (also called distributed ledger technology), which means significant progress towards the efficiency and security of transactions; as well as smart machines and artificial intelligence, which extend the limits of decision-making and human activity.

Digital platforms available via mobile phone or the Internet create markets with two market players regarding transactions. Although lending through digital platforms is still not too significant compared to the whole global financial turnover, it has enormous potential. Digital platforms, such as Kickstarter, are more and more frequently used for raising funds for a new idea, product or initiative. This form of community funding refers to financial transaction of relatively low value between people who have never met and often live at a distance of thousands of kilometres from each other.

The importance of digital platforms has already been recognised by several banks, therefore they seek to cooperate with alternative financing platforms. When standard financial solutions are not available to certain clients, the advisors of the bank automatically offer the services of alternative financing platforms involved in the cooperation. The significance of this type of financing is increasing in the area of financing fast-growing small and medium-sized enterprises.

Digital payments and transfers give rise to increasingly serious competition for banks in

the market. Cross-border payment is typically expensive and slow. At the same time, clients are increasingly looking for real-time digital and considerably cheaper solutions. Digital service providers offer solutions which perform better than banking relationships relying on traditional correspondence in terms of price, speed and efficiency. Similarly to digital financing, signs of cooperation can be discovered in the field of digital payments, as well.

In economic terms, one of the major activities of banks is the financing of international trade. However, there is still some backlog in this area. As far as developments in digital financing of trade are concerned, this area is lagging behind other areas of the financial system. In line with the development of the technical background and the increasing acceptance of IT-based solutions, more and more fintech companies provide trade financing services. Such services are increasingly based on blockchain technology, eliminating the problems of traditional systems, over-administered, non-efficient processes which favour abuse. Major banks have already recognised the possibilities the potential of crypto technology in this field. For example, IBM is developing a blockchain-based platform for the seven largest European banks (Digital Trade Chain), by means of which they seek to facilitate the financing of international trade for small- and medium-sized enterprises.

Blockchain technology (distributed ledger) enables cheaper and more secure cross-border transactions. All transactions conducted through public or private networks can be traced back in the distributed ledger. It is suitable for the secure trading of anything of value without an intermediary, irrespective of whether the things are tangible products or virtual payments. Technology can play a major role not only in document management (e.g. it can replace traditional transport documents, allow the tracking of goods between

ports or even payment in certain ports) and trade financing, but also in cash management, including cross-border payments and remittances. As blockchain technology is becoming more widespread, the cooperation of decision makes, regulatory authorities and developers is becoming necessary, as well.

Smart machines and artificial intelligence extend human decision-making. Smart machines, artificial intelligence and automation may significantly improve the efficiency of the financial sector and ease problems arising from asymmetric information. Nowadays, such technologies already generate serious added value.

Machine learning algorithms, which can learn from data even without rule-based programming, may extract meaning from unstructured information. Such programs operated by artificial intelligence “work their way through” a huge amount of data. Based on tax returns, social media posts and other online information, they prepare the detailed profile of companies, present their relationship with consumers and their position compared to their competitors. More and more banks replace or complement traditional statistical modelling with the above-mentioned machine learning technologies. Although the use of robo-advisors is still in its initial phase, its role in giving investment advice is continuously increasing both in Hungary and abroad.

Fintech companies typically enter the most profitable parts of the value chain, those areas which provide a significant percentage of the banks’ profit. Therefore, the market entry of new digital market participants may decrease the profit margin and efficiency of banks, which again draws attention to the fact that restructuring is inevitable in the financial sector in order to preserve competitiveness. Digital transition is a complex task for banks even in a single market, while it is an enormous chal-

lenge in multiple markets. The fact that only those banks which treat this problem as a high priority issue have made significant progress in the area of digital transformation supports the above-mentioned statement very well.

The experience gained from previous and ongoing processes of adaptation and change shows that the adaptation of the banking sector is a very time-consuming, costly and resource-intensive process. Larger banks and financial institutions play a systematic role in the global financial system, therefore it is crucial that they should work without errors, should not threaten financial stability and should satisfy the needs of clients, regulators and other market participants. Most banks and financial service providers operate in a highly regulated environment, managing highly sensitive client and financial data. Any considerable change requires the approval of regulatory authorities. The presentation of the appropriate information and securities etc. related to the operation of the system to the regulatory authorities is a time-consuming and resource-intensive process. The secure management of data may require new security protocols, which may further complicate the management of change. Moreover, large banks and financial service providers usually work in multiple regulatory environments simultaneously, therefore they have to comply with all the regulatory environments when implementing the changes. Due to their very complex technological background, banks conduct a large number of highly valuable transactions, mainly in real time, almost immediately. In the light of this, change management programs should not ignore the coordinated management of the above-mentioned technological background, taking into account interdependencies, as well. The planning and testing of new systems, as well as their application in a complex environment requires a lot of time.

CONCLUSION

The countries of the European Union (in line with their international obligations) are committed to sustainable development. The strategy of sustainable development requires adaptation on the part of all participants of the market (consumers, companies as well as the government). The EU extends the (environmental, social and governance) sustainability criteria step by step to the already existing legal regulations and applies them automatically to new measures. One of the latest developments of this process is the draft regulation for sustainable financial services. The regulation is based on the specification of sustainable economic activities which significantly contribute to environmental sustainability, inferred from sustainable growth. Based on this draft regulation, only financial services covering sustainable economic activities may qualify as sustainable financial ser-

vices (or green services). The standardisation of sustainability requirements helps to put an end to the possible distrust of consumers/clients/investors in sustainability and facilitates the comparison of different investment opportunities. The explicit objective of the new regulation is to reflect economic activities that support sustainability and economic activities that have a negative impact on the environment (positive and negative externalities) in the prices of different financial services. Governments can orient market actors in the direction of sustainability with the help of regulations concerning the financing of economic activities. In addition, based on the new regulation, areas to which it is worth reallocating resources can be identified: improving resource efficiency; more compact (smarter), connected city systems; optimisation of land use; low-carbon infrastructure and energy systems, and innovation that boosts the development of these areas.

NOTES

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² For more details, see: United Nations General Assembly (2015): Transforming our world: the 2030 Agenda for Sustainable Development. A/RES/70/1 http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

³ United Nations General Assembly, 2015

⁴ For more details, see: United Nations, Climate Change (2015): Paris Agreement. [https://unfccc.](https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf)

[int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf](https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf)

⁵ For more details, see: United Nations General Assembly (2015): Transforming our world: the 2030 Agenda for Sustainable Development. A/RES/70/1 http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

⁶ European Commission (EC) (2018): Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a framework to facilitate sustainable investment. Brussels, COM(2018) 353 final, 2018/0178 (COD)

⁷ β -convergence shows the connection between starting income and growth rate.

- ⁸ Verdoorn assumes that there is a linear relationship between labour productivity and output. The ratio of productivity and output growth suggests increasing return to scale.
- ⁹ For the new growth models, see for example Meyer, 1995.
- ¹⁰ For the role of the spatial dimension see also: Csaba, 2006; Lengyel-Rechnitzer, 2004.
- ¹¹ For more details on this topic see: Kerekes S. (ed.) 2016
- ¹² European Commission (EC) (2018): Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a framework to facilitate sustainable investment. Brussels, COM(2018) 353 final, 2018/0178 (COD)
- ¹³ EU High-Level Expert Group on Sustainable Finance, 2018
- ¹⁴ European Commission (2018): Communication From the Commission to the European Parliament, The European Council, The Council, The European Central Bank, The European Economic And Social Committee and the Committee of the Regions. Action Plan: Financing Sustainable Growth. Brussels, 8.3.2018, COM(2018) 97 final.
- ¹⁵ European Commission (EC) (2018): Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the establishment of a framework to facilitate sustainable investment. Brussels, COM(2018) 353 final, 2018/0178 (COD)
- ¹⁶ Several countries have already successfully introduced energy or fuel efficiency standards in the transportation, construction and equipment manufacturing industries. For example, fuel standards in the car industry are expected to improve fleet efficiency by 50% in the next 10 years. Pursuant to the agreement reached in Brussels, CO2 emission per km shall not exceed 95 gr by 2021. The 95 gr value limit refers to the fleet of a given car manufacturer. Consequently, company groups which traditionally manufacture vehicles with higher performance and consumption will be able to reach the prescribed value limit by increasing the number of alternatively-powered cars. Regulatory incentives may reward those power supply companies which can encourage consumers to improve their energy efficiency. For more details, see: Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO2 emissions from light-duty vehicles.

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