

Green finance – opportunities for the Austrian financial sector

Andreas Breitenfellner, Susanne Hasenhüttl, Georg Lehmann, Andreas Tschulik¹

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Climate change and the internationally agreed decarbonization of the global economy not only pose risks to the financial sector and the economy but also open up opportunities. While focusing on the risks, mandate-driven central banks and financial supervisors also need to understand the dynamics and potential of green or sustainable finance markets. The investment needs at the global, European and national level to fund the transition to a climate-neutral economy are mind-blowing. Earmarked public funds alone will not suffice. In addition, financial markets will have to channel (excess) resources above all into sustainable projects. In other words, breaking out of its niche, green finance will have to scale up. Though dynamic, the development of Austria's green finance markets is still sobering. At the same time, customer surveys suggest that demand for sustainable finance products will grow. The absence of common definitions of sustainability may give rise to "greenwashing," i.e. making misleading claims about the environmental sustainability of a financial product. To prevent this, regulators and supervisors should help overcome market barriers and dysfunction on the supply and demand side. Noteworthy efforts in this respect are the European Commission's action plan on sustainable finance, the ECB's paying greater attention to climate change issues as well as the Austrian government's green finance agenda. Predefining a credible pathway for linking carbon pricing to greenhouse gas emission targets would be the most effective – and least distorting – way to foster green finance and a smooth transition.

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Finance is not an end in itself. It should serve the economy, which is part of the ecosystem. If ecology were just long-term economics, as indicated by the common Greek root of both terms, there would be no reason to get excited about "green" or "sustainable" finance. Yet, the effective neglect of environmental aspects in the real economy seems to leave green finance as a last resort. Amid subdued potential growth and an only slowly closing investment gap, green finance opens up opportunities for the economy. It clearly sparks hope for the financial sector in times of low real equilibrium interest rates, excess savings and high global uncertainty (Carney, 2016).

Climate change implies market failure (Stern, 2006) as prices do not reflect the negative externalities of greenhouse gas (GHG) emissions. Since the atmosphere is the biggest public good, the tragedy of the commons (Hardin, 1968) applies especially

¹ Oesterreichische Nationalbank, Foreign Research Division, andreas.breitenfellner@oenb.at; Österreichische Gesellschaft für Umwelt und Technik (ÖGUT), susanne.hasenhuettl@oegut.at; gglehmann@gmail.com; Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, andreas.tschulik@bmk.gv.at. Opinions expressed by the authors do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank or the Eurosystem.

² Aware of the lack of conceptual clarity, we use the terms green, sustainable or climate finance synonymously to refer to financial services that support an eco-friendly and sustainable economy taking also into account social and governance considerations. The reason for highlighting the environmental aspects is that climate change mitigation and adaptation are the most pervasive challenges and there might be important synergies between green, social and governance issues (IPCC, 2018).

to global warming. Moreover, climate change implies a tragedy of the horizon (Carney, 2015): it affects mainly future generations, while contemporaries have little interest in solving this issue. Warning against drawing over-simplistic conclusions from tragic parables, Ostrom (2009) proposed a polycentric approach to cope with the complex collective action problem that climate change poses. Building on strong commitment, various actors at multiple levels would learn from each other and align efforts to cut emissions. Here, the financial sector is certainly one, and probably powerful, actor. Guided by lawmakers' right signals, financial markets should channel funds into sustainable projects.

Since the global commons require global governance, the 2015 Paris Climate Conference agreed on a common path to decarbonization within the current century.³ The agreement called for “Making finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development” (UNFCCC, 2015). Completely replacing fossil energy in the economy clearly requires gigantic investment volumes. Given that public budgets are strained, much of the funding will have to be raised privately.

Climate change and decarbonization pose risks⁴ to financial stability, which is why central banks and financial supervisors are getting involved (Pointner and Ritzberger-Grünwald, 2019). Less focus has been put on the opportunities offered by green finance: companies may, for instance, benefit from resource efficiency, energy independence, product innovation, market positioning and increased resilience. Moreover, with adequate risk management and strategic planning, risks can be turned into gainful opportunities. Focusing on this angle, this article reviews green finance market trends in Austria and beyond.

The remainder of this article is structured as follows: section 1 sketches the financing needs worldwide, in Europe and in Austria. Section 2 takes stock, from the supply side, of the development of the green finance market in Austria, as compared to its peers. Section 3 examines the demand potential given limited public awareness of sustainable finance products. Section 4 discusses the role that regulators and central banks may have in scaling up the green finance market, and section 5 summarizes and concludes.

1 How much does the transition to a low-carbon economy cost?

Since climate change is a global phenomenon, any meaningful mitigation strategy must incorporate investment needs on a global scale. The figures circulating on various platforms are mind-blowing and hard to compare, as they reflect different scenarios, assumptions and metrics. The numbers represent costs which are not netted against the resulting huge savings in operational energy expenditures. To limit global warming to 1.5°C, the Intergovernmental Panel on Climate Change (IPCC, 2018) projects average annual investment needs in the energy system

³ *The Paris Agreement calls for stabilizing global warming at well below 2 °C (ideally 1.5°C) above pre-industrial levels and reducing net anthropogenic greenhouse gas emissions to (net) zero during the second half of this century. With respect to “climate justice,” advanced economies should take the lead by pursuing more ambitious emission reduction targets. The signatory states pledged to step up, and regularly report on, their efforts to reach the above targets.*

⁴ *A distinction is made between physical risks, such as extreme weather events, and transition risks, such as climate policies that make fossil fuel-dependent sectors unprofitable. Both types of risks might trigger financial turbulences – a concern of macro- and microprudential policies – and might impact the economy as a whole – a concern of monetary policy.*

Table 1

Estimated financing needs for the transition to a low-carbon economy

Region	Source	Currency	Billion p.a.	Sector	% of GDP	Horizon
Global	IPCC (2018)	USD	2,400	energy	2.5	2016–35
	IEA (2019)	USD	3,200	energy	3.7	by 2040
	OECD (2017)	USD	6,300	infrastructure	7.2	by 2030
Europe	European Commission (2020a)	EUR	350	infrastructure	2.5	by 2030
Austria	BMNT (2019)	EUR	17	infrastructure	3.8	by 2030

Source: IPCC, IEA, OECD, European Commission, BMK (Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology), authors' calculations.

(demand and supply) of USD 2.4 trillion between 2016 and 2035.⁵ The International Energy Agency (IEA, 2019) estimates that a sustainable development scenario would require annual investment in the energy sector of about USD 3.2 trillion until 2040. According to the OECD (2017), to comply with a 2°C scenario, global investment in climate-relevant infrastructure – including energy and transport – would require USD 6.3 trillion each year up to 2030. On a positive note, global sustainable finance flows already exceeded the half-trillion U.S. dollar mark in 2017, driven particularly by added renewable energy capacity (CPI, 2019). At close to USD 257 billion⁶ in 2019, rapidly growing green bond issuance alone accounts for roughly half of that sum (Climate Bond Initiative, 2020).

Whichever way one calculates the remaining investment gap, the bulk of outlays must target emerging and developing economies, which leaves a relatively small share for Europe.⁷ Still, Europe captures almost half of the global market in sustainably invested assets (USD 14.1 trillion), however vaguely defined (GSIA, 2018). The EU is broadly on track to reach its climate and energy policy goal of reducing its GHG emissions by 40% by 2030 (baseline 1990).⁸ Furthermore, the European Commission (2020a) intends to raise the 2030 target to 55%, as is evident from its proposed *European Green Deal* that aims at climate neutrality by 2050. Earlier, the *EU Action Plan on Financing Sustainable Growth* (European Commission, 2018) set the stage for activities to strengthen sustainable finance. The European Commission (2020a) currently estimates that an additional EUR 350 billion of investment, or 2.5% of the EU's GDP in 2019, will be necessary each year to reach the current 2030 targets.

Given a regular EU budget of just about 1.1% of the EU's GDP and national debt sustainability concerns, these targets seem to be achievable only by also mobilizing private capital. Over the next decade, the new EU budget and associated instruments will mobilize at least EUR 1 trillion of private and public sustainable investments (European Commission, 2020b). At least one-quarter of the EU budget

⁵ This represents about 2.5% of global GDP but just 0.6% of the global stock of financial capital totaling USD 378.9 trillion in 2018 according to the Financial Stability Board (FSB, 2020).

⁶ This is just 0.25% of the outstanding global bond market (SIFMA, 2020).

⁷ The share of the EU-27 in global GHG emissions is about 8.1% (Crippa et al., 2019).

⁸ Other key EU targets by 2030 are increasing the share of renewable energy to at least 32% and improving energy efficiency by at least 32.5%.

is earmarked for climate investment, partly crowding in co-financing by Member States and private funding via guarantees through the *InvestEU Programme* operated by the European Investment Bank (EIB). Transforming itself into a climate bank, the EIB has also announced to invest EUR 1 trillion; there will, however, be a one-quarter trillion euro overlap with investment under the EU mandate. In response to the COVID-19 health crisis, the European Council (2020) decided to complement the EU budget with a debt-financed recovery fund of EUR 750 billion called *Next Generation EU*. Until 2024, 37% of the fund are meant to flow into climate investment and 30% should be raised by green bonds (Von der Leyen, 2020). To meet the above EU targets, EU funding will still have to be complemented at the national level.

In its climate and energy strategy *#mission2030* (BMNT and BMVIT, 2019), the Austrian government plans to increase the share of renewable energy up to between 45% and 50% until 2030. Complying with EU reporting legislation, the *national energy and climate plan* (NECP; BMNT, 2019) defines pathways to reach these goals, while only partly underpinned by a policy mix of specific measures (Austrian Fiscal Advisory Council, 2020). According to the NECP, total investment needs for the period until 2030 will come to roughly EUR 170 billion. Annual expenses would represent 4.3% of Austria's 2019 GDP. Without any explicitly mentioned allocations, these sums will have to be sourced from (sub)national budgets, European funds as well as private finance. Aiming for climate neutrality by 2040, the ambitious work program of Austria's current federal government (Austrian Federal Chancellery, 2020) refers to the NECP without specifying the composition of funding sources.⁹

Taken together, all these impressive numbers give an idea of the enormous challenge ahead. However, as it is unclear how big a contribution general government will make, it is hard to identify the funding gaps to be filled by the private sector. In the longer term, carbon neutrality targets would even imply that virtually all finance must be green by 2050 at the latest – clearly a daunting task.

2 The development of green finance markets in Austria¹⁰

In Austria, sustainable finance has its roots in cooperative banks and savings associations that were founded in the mid-19th century and served social objectives.¹¹ Mortgage-backed covered bonds (or *Pfandbriefe* in German) were a political instrument to cushion urbanization and, after World War II, to support reconstruction. Ecological investment funds emerged in 1980. Since 2003, staff provision funds (*Mitarbeiter-Vorsorgekassen*) have been voluntarily following sustainability criteria, driven by employee representatives and having been certified by the Austrian Society for Environment and Technology ÖGUT, an independent nonprofit organization.¹² Moreover, almost all Austrian insurers have divested from coal and increasingly avoid environmental risks on both sides of their balance sheets.

⁹ The program mentions EUR 1 billion per year for renewable energy and EUR 2 billion for rail transport. Later, in response to the COVID-19 crisis, the government added some climate-relevant measures, e.g. an investment premium with an ecological component, budgeted at a total of EUR 1 billion.

¹⁰ We would like to thank Finn Strickert, who helped us draft this section.

¹¹ The origins of ethical investment date back to Anglo-Saxon Protestantism in the 18th century, excluding slave trade or “sin stocks.”

¹² Transformed by law, these former severance payment funds effectively became the small second mandatory pillar in the Austrian pension system. In contrast, voluntary pension funds are generally less sustainability oriented, despite being required to disclose their investment strategies.

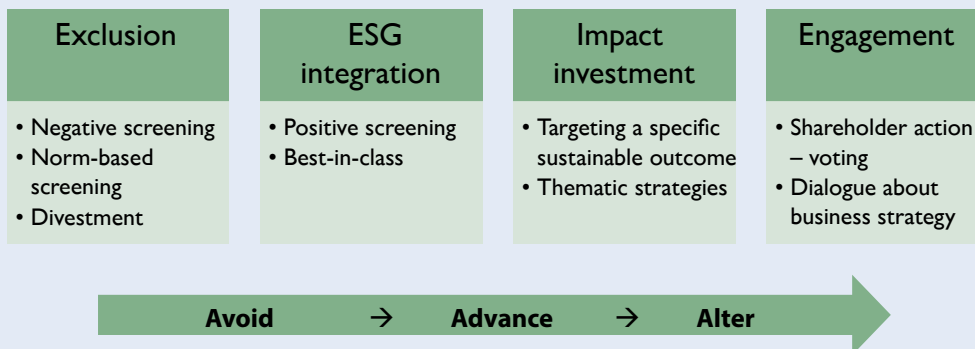
Box 1

Definitions of sustainable investment approaches

Various terms are used to describe sustainable investment: e.g. green finance, sustainable and responsible or socially responsible investment (SRI), or ethical investment. The most common market-driven strategies can be grouped into four categories, with somewhat blurring boundaries.

Figure 1

Sustainable investment strategies



Source: Authors' compilation.

Exclusionary approaches reject investments (e.g. in weapons, fossil fuels) that conflict with investors' values. Norm-based screening is used to select investments according to their compliance with international standards and norms. Divestment would involve selling securities considered unethical.

ESG integration means that asset managers explicitly include environmental, social and governance, i.e. ESG, factors in their financial analysis and that their investment decisions are based on research by (specialized) rating agencies or consulting firms. The similar best-in-class approach selects top ESG-performing investments within a universe, category or class of assets.

Impact investments are meant to directly generate social and ecological outcomes while seeking a financial return. Examples are microcredit funds or investment in renewable energy. In a similar vein, themed investments promote sustainability with a specific ESG focus.

Engagement strategies pursue active ownership through voting of shares and engaging in a dialogue with corporate management to promote sustainable behavior and/or increase disclosure.

Even though banks play a dominant role in the Austrian financial system, little is known about their sustainability targets. Partly filling the gap, WWF Austria undertook a rating of the ten largest Austrian retail banks, whose consolidated total assets amount to around EUR 600 billion (Leutgeb et al., 2019).¹³ None of the ten banks met the three top (out of seven) assessment categories; the highest rating scored by two banks was “high average.” Five other banks were rated “low

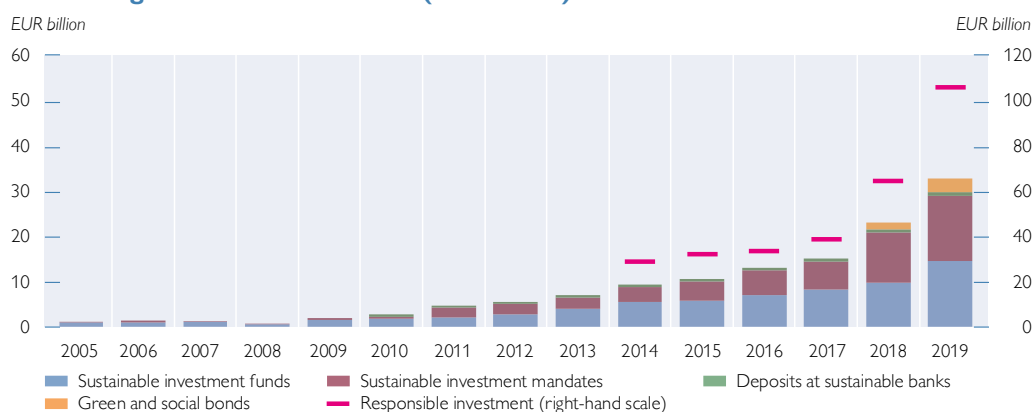
¹³ The rating evaluates said retail banks based on 25 weighted criteria that relate to corporate governance and the sustainability impact of a bank's core business (savings and investments as well as loans and financing). Special emphasis is placed on both the direct and indirect environmental impact. The data are based on a survey and on publicly available information.

average,” one “below average” and two as “non-disclosing.” Although environmental and sustainability aspects are relatively well anchored in banks’ management, most examined banks focus purely on their environmental policy (e.g. facility management), ignoring the fact that the sustainability of their core business is far more relevant.¹⁴ After all, banks decide whether or not funds flow into eco-friendly sectors, activities or projects. A few banks have anchored sustainability in their corporate management (corporate social responsibility) but not yet systematically in their savings and investment strategies. Only one bank offered a “trend-setting” savings product. Leutgeb et al. (2019) conclude that the Austrian retail banking sector does not consistently include environmental aspects in loans and financing, except perhaps for corporate loans.

In terms of financial products, Austria’s green finance markets have grown rapidly after the global financial crisis (see chart 1). Taken together, the (unconsolidated) volume of sustainably invested assets has grown seventeenfold in a decade to an amount of EUR 33.1 billion in 2019, corresponding to just about 1.4% of all financial assets in Austria. Since 2005, the bulk of the 35% average annual growth (including price effects) has mainly come from sustainable investment funds (total stock of EUR 14.7 billion) and sustainable investment mandates from customers (EUR 14.6 billion). Together, the two subsegments amount to about 15.9% of the entire Austrian investment market as defined by FNG (2020).¹⁵ Green bonds issued by banks and corporates represent a mere EUR 3.0 billion (Codagnone et al., 2020), yet this new market segment has grown fast¹⁶. The two small banks in Austria with fairly strict ethical and sustainable standards increased their deposits to just over EUR 0.8 billion.

Chart 1

Austria’s green finance markets (2005–2019)



Source: Forum Nachhaltige Geldanlagen (FNG), Wiener Börse.

Note: The figures are not consolidated.

¹⁴ Comprehensive reporting includes all three scopes of emissions: Scope 1 refers to direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from purchased energy. Scope 3 includes all other indirect emissions that occur in a company’s value chain.

¹⁵ FNG (2020) distinguishes between sustainable investment products and mandates, with both explicitly including ESG criteria. Mandates are tailor-made mutual funds for institutional investors or high-net-worth individuals.

¹⁶ See Wiener Börse, the Vienna Stock Exchange, at <https://www.wienerborse.at/marktdaten/anleihen/suche/?c7928%5B%5D=1013>.

The by far biggest category shown in chart 1 is “responsible investment,” where, in contrast to sustainable investment (which is defined at the product level), sustainability criteria and strategies are defined at the corporate or institutional level (FNG, 2020). When we take this less stringent category into account, the size of the Austrian sustainable finance market would more than double to EUR 106.8 billion. This notwithstanding, Austria’s responsible market is dwarfed by that of Germany with a market volume of EUR 1.6 trillion.¹⁷ Even in terms of narrowly defined sustainable investment, the German and Swiss markets are still approximately ten times bigger than the Austrian market. However, in terms of relative market shares as defined by FNG, sustainable investment in Austria (15.9%) is ahead of Germany (5.4%) but behind Switzerland (38%). The three markets differ in various ways. For instance, the share of institutional investors is significantly lower in Switzerland. In Germany, churches and charity organizations are the biggest group of asset owners. Also, the amount of German deposits in sustainable banks is, proportionately speaking, several times larger than the comparable figure in Austria. Unlike its German and Swiss counterparts, Austrian green bonds have not yet reached a critical mass (FNG, 2020).

Of the 113 Austrian sustainable funds, FNG (2020) reports that 71 have undergone certification and obtained a sustainability label. Codagnone et al. (2020) only look at those 67 funds that had been certified by the Austrian Ecolabel (Umweltzeichen) at end-2019. Their volume amounted to EUR 7.4 billion or 7.3% of all Austrian investment funds (EUR 94 billion). Still, also these narrowly defined investment volumes imply that this segment has seen significant growth, with 43 funds accounting for EUR 4.4 billion last year.

The most widely used sustainable investment strategy in Austria is exclusion (98%; FNG, 2020), with weapons, coal and nuclear power figuring most prominently. Other popular strategies are norm-based screening and best-in-class. Only around one-quarter of the capital comes from individual private investors, the rest from institutional investors. The latter are dominated by staff provision funds (56.4% of all sustainable investment assets held by institutional investors) and insurance companies (23.5%). These investors combine different strategies, such as best-in-class approaches, exclusion and international sustainability standards of uncertain stringency (e.g. UN Principles for Responsible Investments – PRI, or UN Global Compact).

Overall, investment funds dominate the universe of green finance products in Austria even though banks dominate the financial system, while Austria’s pension system and housing markets are more publicly organized than elsewhere.

As to the environmental friendliness of sustainable funds, there are some caveats in qualitative terms. Many of these funds use the rather broadly defined ESG criteria. Investment funds could cherry-pick the most convenient of the three ESG categories, with the climate impact remaining ambiguous. Financial firms committing themselves to the UN Sustainable Development Goals (SDGs) may even choose from 17 target areas. Surely there is a trade-off between comprehensiveness and arbitrariness.

To get an idea of the carbon reduction impact of sustainable funds available in Austria (including those issued abroad), we assessed data from CLEANVEST, an

¹⁷ Compared with 11 EU countries, the Austrian sustainable finance market segments are smallest (Eurosif, 2018).

online platform providing sustainability ratings¹⁸. According to these data, only 20%, i.e. 269 funds (with a volume of EUR 92.8 billion), of a total of 1,355 listed funds (EUR 585.2 billion) are considered sustainable (rated 7 or above on a scale up to 10). Of those 20%, only 186 funds (or 14% of total funds) exclude coal, oil and gas completely, as do 48 funds of the total rated below the threshold of 7.¹⁹ Dörig et al. (2020) analyze a sample of the complete universe of equity and bond funds managed by Austrian asset managers, whose disclosed carbon risks exceed benchmarks in neighboring countries. In comparison, Austrian funds provide the least information on underlying companies' emissions, whereas both their total emission intensity and their exposure to fossil fuel reserves are highest.

3 The potential for green finance products in Austria

In Austria, demand for green finance products is driven by institutional investors. The fact that households hold financial assets worth more than EUR 700 billion, however, also implies huge demand potential yet to be unlocked by bringing environmentally conscious private investors into the equation.

A survey of a representative household sample commissioned by Umweltzeichen (UZ; Austrian Ecolabel) in 2018 revealed a general lack of knowledge about sustainable financial products.²⁰ Only 23% of the respondents had heard of sustainable financial products, with the percentages for men and middle-aged persons being somewhat higher (see chart 2). Only 8% found it very important, and another 32% rather important, that social and/or ecological aspects are considered in investments. For 55% (and particularly older respondents), however, this is of no importance. 30% would opt for a sustainable savings book if available, with women and young people more interested in such a product. In terms of actual ownership, however, savings books are more popular with older respondents. Checking accounts are the most common banking product among respondents (90%), followed by savings books (61%), pension insurance policies (26%) and mutual fund shares (15%). Only one-fifth of respondents had already been informed about and offered sustainable investment products by their banks.

Fessler, Jelovsek and Silgoner (2020) observed similar results in a more recent survey that was coordinated by the OECD.²¹ More than two-thirds of respondents “prefer to use financial companies that have a strong ethical stance” (see chart 3). This preference increases with age, which contradicts the results of the above-mentioned study and other financial research (MSCI, 2020) confirming the cliché of environmentally and socially conscious millennials, i.e. persons born after 1980.²²

¹⁸ We received the information by e-mail on September 8, 2020, from ESG Plus GmbH, the company which designed www.cleanvest.org.

¹⁹ Apart from three different fossil fuels, CLEANVEST allows to check funds for investment in nuclear energy, child labor, weapons, indigenous rights, biodiversity risk, education and health services as well as green technologies. All these factors are given equal weights in the sustainability rating.

²⁰ The multi-topic survey was carried out by Gallup and consisted of interviews of 1,000 households of the Austrian resident population aged 16 and over.

²¹ The results of the second wave of the Austrian Survey of Financial Literacy fed into the OECD/INFE survey on adults' financial literacy.

²² Skepticism about such research (of financial firms) seems warranted for various reasons: (1) response biases in survey settings favor predefined options and socially accepted statements; (2) cohort effects tend to create generation myths that disappear in longitudinal studies over time; (3) millennials are still short of spare capital, which suggests discrepancies between declared preferences and actual behavior.

Chart 2

How relevant are sustainable finance products to Austrians?

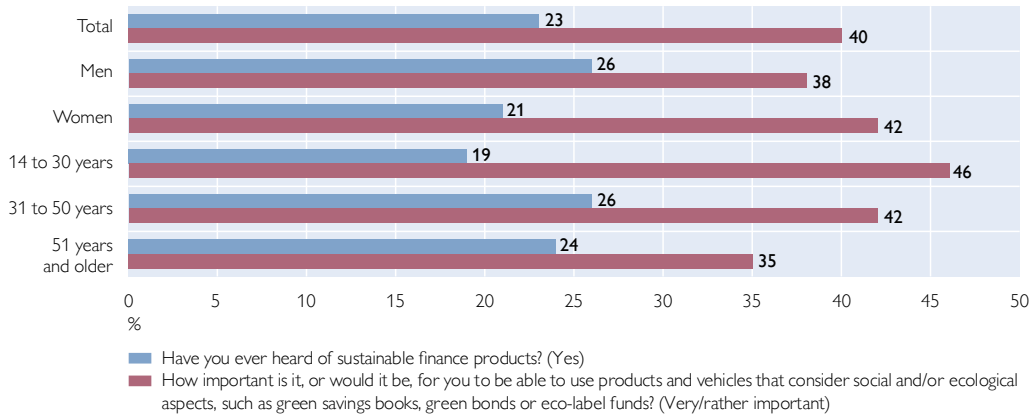
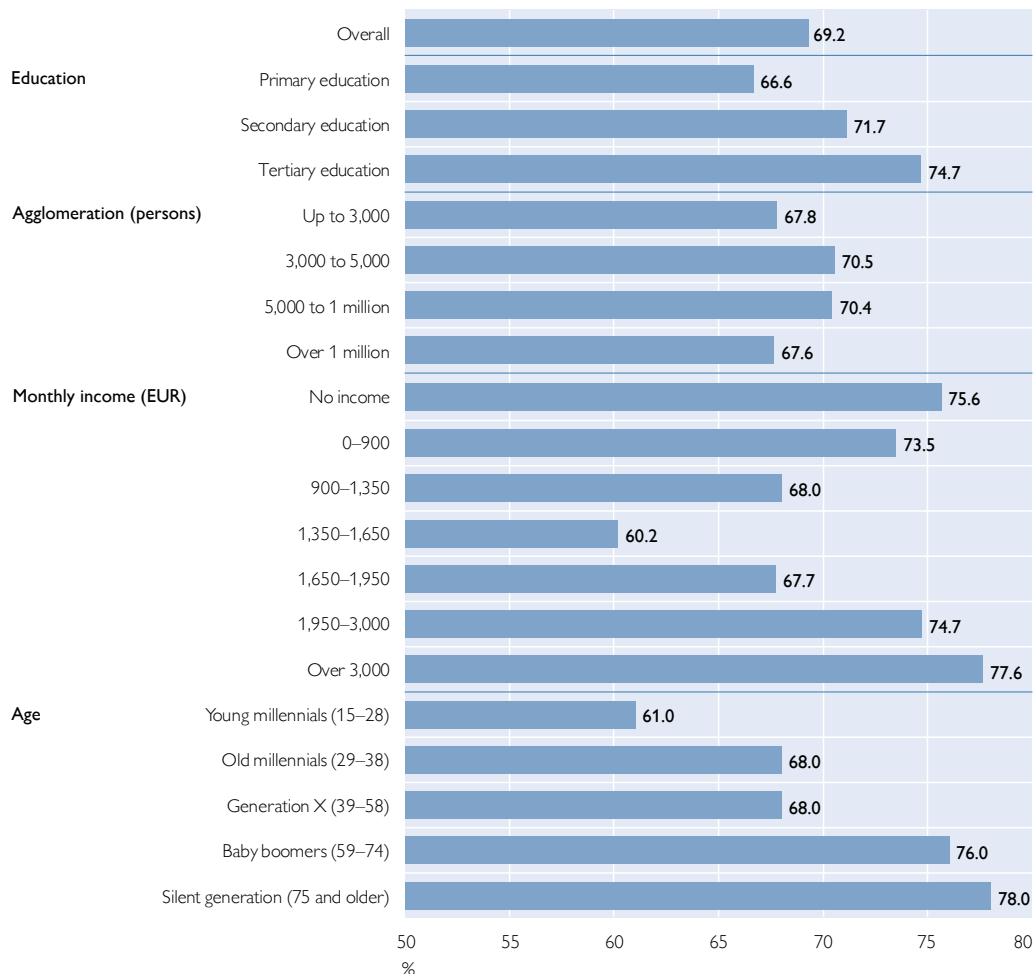


Chart 3

Socioeconomic preferences for ethical finance in Austria

Yes, I prefer to use financial companies that have a strong ethical stance



Women and people with higher education seem to be more interested in the ethical stance of financial companies. Regarding income and agglomeration, the answers follow a U-shaped pattern: both high- and low-income earners, as well as people living in mid-sized urban areas, are more likely to endorse features of sustainable finance.

The outcome of a survey conducted by Germany's Federal Financial Supervisory Authority (BaFin, 2019) suggests that awareness of green finance in Germany is higher than in Austria. Roughly 65% of the German respondents can imagine making a sustainable investment, although for 60% it is not exactly clear what the term sustainable finance stands for. Considering all (i.e. ecological, social and ethical) aspects of sustainable investments, a majority thinks that promoting climate protection is most important.

The most recent data on consumer awareness about green finance in the Eurobarometer 501 (European Commission, 2020c) paint a less encouraging picture. Only 5% of respondents think that making the banking and insurance systems eco-friendlier is an effective way to tackle environmental problems. In Austria, while still low, this percentage is nearly twice as high (9%). As with the Austrian UZ survey, the data indicate that younger people are more aware of green finance, whereas older generations (aged 50+) have yet to recognize its importance. On a positive note, the high approval for “changing the way we consume” might also include the “consumption” of financial products.

All in all, people's awareness of sustainability issues seems to be growing, and so is their readiness to make a contribution, even if in terms of saving decisions. This notwithstanding, people tend to underrate the responsibility and significance that banks and other financial institutions have to bring about change in this respect. At present, the awareness/action gap is still substantial.

4 The role of regulation in scaling up green finance

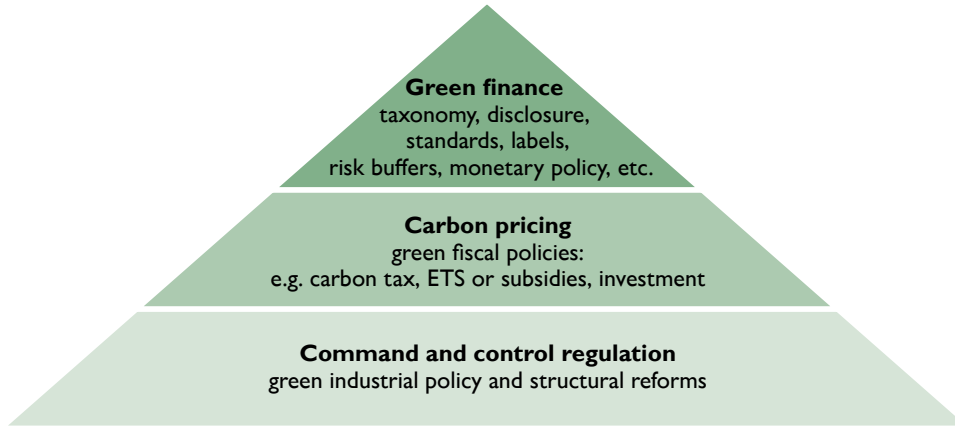
Greening the financial system must be seen in context with other levels of environmental policies (see figure 2). The most direct approach to preventing emissions is command and control regulation at the level of material production or consumption, i.e. standard-setting and enforcement. Going beyond this, green industrial policy shapes structural change paving the way to a carbon-neutral economy (Altenburg and Rodrik, 2017). Many economists, however, prefer the less distortive fiscal policy approach of carbon pricing, either via a carbon tax (fixed price) or a cap-and-trade scheme (fixed quantity). Alternatively, relative prices can be adjusted by means of subsidies or public investment in green industries. At the highest level of abstraction, regulatory policies are used to incentivize green finance in the financial sector.

Importantly, green finance is not only fostered by financial regulation. Policies that price or ban pollution send also more immediate price signals to financial markets. The interplay between the three policy layers is riddled with political economy issues, since every instrument creates winners and losers. As we are running out of time on climate change, all three levels are indispensable, however, by offering complementarities and synergies.

The Paris Agreement sets the pace in multilevel governance of climate action. It combines top-down provisions, i.e. global emission goals as well as accountability procedures, with bottom-up emission targets recognizing different national circumstances. The sum of all nationally determined contributions does not yet

Figure 2

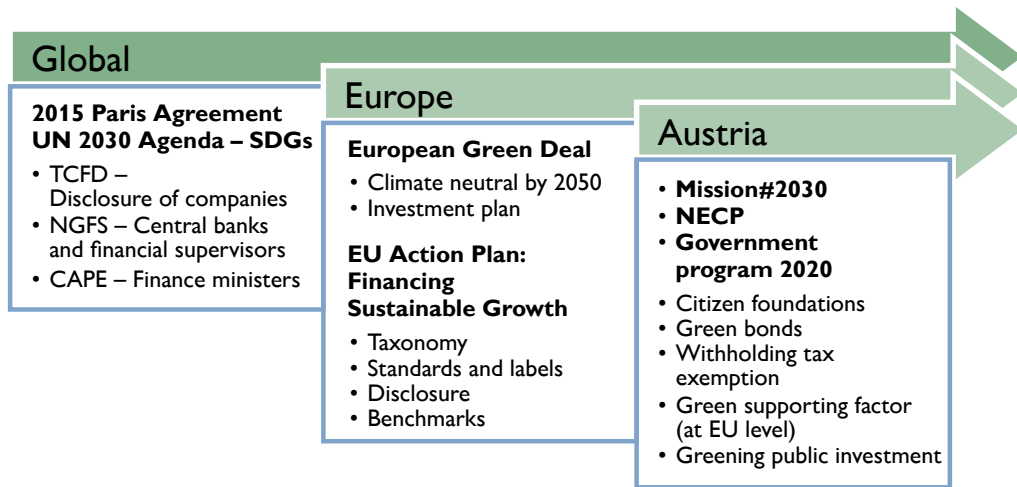
Levels of policies to address climate change



Source: Authors' compilation.

Figure 3

Regulatory initiatives for green finance



Source: Authors' compilation.

add up to the global goal, however.²³ Several efforts are underway to substantiate these commitments. For instance, a *Coalition of Finance Ministers for Climate Action* (CAPE, over 50 countries, including Austria) has announced to align fiscal policies with the Paris Agreement, in particular, via effective carbon pricing.²⁴ Similarly, more than 70 central banks and financial supervisors (including the OeNB) have to date joined a *Network for Greening the Financial System* (NGFS, 2019) and intend

²³ According to climateactiontracker.org, the current pledges and targets would lead to global temperature increases of 2.8°C (mean value) above pre-industrial levels, and actual policy commitments might lead to an even higher average of +3°C.

²⁴ See <https://www.financeministersforclimate.org/sites/cape/files/inline-files/Helsinki%20Principles%20-%20final.pdf>

to scale up green finance through supervision, portfolio management, data collection and raising awareness. Another initiative is the *Task Force on Climate-related Financial Disclosures* (TCFD, 2017) of the global Financial Stability Board that is supported by more than 1,400 firms (and some governments) that have committed themselves to higher transparency standards. No more than six Austrian companies currently support this initiative, two of which are included in the Austrian Traded Index (ATX).²⁵

The EU's action plan on sustainable finance is meant to help channel capital flows into a low-carbon economy, manage climate-related financial risks and foster transparency in finance (European Commission, 2018). One key project is the so-called taxonomy, an EU system for classifying sustainable activities to combat both market fragmentation and “greenwashing,” i.e. the practice of making unsubstantiated or misleading claims about the environmental sustainability of financial products. The European Commission's delegated acts on the taxonomy for climate action should be fully applied from 2022 onward.

Another aspect of the European Commission's action plan, the option to relax prudential rules for banks and insurers by a green supporting factor, has sparked criticism (Pointner and Ritzberger-Grünwald, 2019): Lowering capital reserve requirements would undermine the crisis lesson for financial market resilience; capital buffers have only a marginal impact on sustainable investments; and there is no clear evidence that green investment is generally less risky than gray (i.e. carbon-intensive) one. Only energy-efficiency mortgages seem to be safer than benchmark mortgages (Guin and Korhonen, 2020). Based on this hypothesis, the Hungarian central bank has introduced a supporting factor for green housing loans (MNB, 2020). In contrast, a penalty factor on high-carbon investments would have a larger effect due to the much bigger universe of gray assets. However, a gray penalizing factor may propel destabilizing divestment reactions while a green supporting factor could boost longer-term scaling-up of green finance. Moreover, the lack of a “gray taxonomy” impedes meaningful differentiation between various shades of gray, which would be a prerequisite for a penalty factor.²⁶

As for the ECB, a consensus seems to be emerging that dealing with climate issues is compatible with its mandate, which reflects a hierarchy of objectives: price stability, financial stability and other policy goals including sustainable development (Article 3 of the EU Treaty). While the ECB's consideration of climate-related financial and monetary risks is undisputed, its providing active support for the transition to low-carbon economies is still under debate (Breitenfellner et al., 2019). Here, the ECB can use its current strategy review to determine to what extent carbon neutrality of its monetary policy operations could be limited by required but hard-to-define market neutrality (Dafermos et al., 2020). Given that green finance does not yet face a level playing field for lack of a transparent market infrastructure and information, there may well be room for central banks to support green finance in a non-distortive manner.

Apparently, EU fiscal policy has hampered the well-established system of covered bonds by interrupting the underlying financing chain because the Maastricht criteria

²⁵ Research (Dörig et al., 2020) suggests that the ATX was geared toward a 6°C scenario, mostly due to the high exposure to emission-intensive sectors.

²⁶ Complementing the green taxonomy by a gray one would help shift the burden of proof away from those parts of the economy one wishes to promote.

disincentivize public guarantees for infrastructure financing. As a result, we have seen only little issuance of public-sector covered bonds in recent years, even though their demand potential is buoyed by low risk and higher yields (compared with sovereign bonds). Covered bonds would be ideal for financing the low-carbon transition as governments can define investment guidelines requiring compliance with eco-friendly principles, e.g. renewable energy sources for municipalities. It may therefore be worth considering exempting climate-related investments from the Stability and Growth Pact (in line with a “green golden investment rule”).

Climate-related risk awareness is also the starting point for opportunity strategies. The Austrian Financial Market Authority (FMA, 2020) has addressed this by issuing guidelines. This first step of soft regulation will certainly be complemented by various Europe-wide coordinated supervisory measures, which will eventually lead to climate stress tests, something the Dutch and the Romanian authorities have already experimented with.

Addressing opportunities rather than risks is probably more popular and educative, as reflected in the green finance agenda Austria’s federal government has incorporated in its current work program (Austrian Federal Chancellery, 2020). The main goals are (1) promoting citizen foundations for climate action, (2) issuing sovereign green bonds, (3) making sustainable investments exempt from capital gains tax and (4) promoting a green supporting factor in capital requirements at the European level. Apart from various dirigiste policies, the program, more importantly, announces an eco-social tax reform, albeit in vague terms. While ambitious, the program could have advanced further elements, such as ecofinancial education²⁷ to raise awareness.

Since 2004, investment funds in Austria may be awarded an Austrian ecolabel for sustainable financial products (abbreviated as UZ 49; Österreichisches Umweltzeichen, 2020). The eligibility criteria have been tightened in 2020, and the product range has been extended. To date, 140 mutual funds, 2 savings books, 2 checking accounts, 6 insurance products and 2 green bonds have been certified. While awareness of the UZ 49 ecolabel is still low (one in ten), its impact should not be underestimated given synergies with similar ecolabels for the real economy.

Austrian authorities could also endorse independent information platforms, such as [cleanvest.org](https://www.cleanvest.org) or [gruenesgeld.at](https://www.gruenesgeld.at), which provide reliable, systematic and easily accessible information about green finance products. Similarly, supporting independent and publicly available sustainability ratings, such as those of the WWF for banks, may help improve relevant intelligence about all financial firms. Finally, in view of future regulation at the European and international level, efforts should be stepped up to fill existing data gaps. Only if the environmental impact of all direct and indirect GHG emissions (scope 1 to 3) is adequately measured and the additionality²⁸ of investment is disclosed, will we be able to assess the contribution green finance is truly making to the transition to a low-carbon economy.

²⁷ This could, *inter alia*, help expose the widespread assumption of a trade-off between investment-related performance and sustainability (Friede et al., 2015). Cañón-de-Francia and Garcés-Ayerbe (2019), however, put the “it pays to be green hypothesis” into perspective. Political volatility regarding framework conditions reduces investment security and increases risks, while environmentally harmful subsidies distort markets.

²⁸ This means providing evidence that shows that a given investment leads to GHG reductions in addition to those which would have occurred at any rate.

5 Summary and concluding remarks

Against the backdrop of topical climate change debates, green finance is gaining traction, with people increasingly seeking to align their savings and investments with environmental, social and governance (ESG) factors. While dynamic, the Austrian green finance market is still underdeveloped; it is dominated by mutual funds and driven by institutional investors. It has huge potential for growth, given private investors' as yet low awareness of sustainable financial products. Transparency should go hand in hand with this because even if it is getting easier to find supposedly green investment products, it is almost impossible for a layperson to discern how green they really are. Work is underway to address this deficit: as a case in point, the EU action plan on sustainable finance is set to spur growth of sustainable investments in the coming years. Meanwhile, independent ecolabels and platforms, such as Umweltzeichen, Grünes Geld or CLEANVEST, help alleviate the information gap.

Finance can act as a catalyst for greening the economy, but it can never be greener than the economy, except in the presence of a “green bubble.” Eventually, green finance must and will be measured by its contribution to decoupling greenhouse gas (GHG) emissions from economic growth. Finance will, however, have to be supported by legislation that reflects a broad consensus among all stakeholders as well as guidance and disclosure to help investors make informed decisions and thus contribute to decarbonization. If incentives are misdirected, investment restraint is only rational. Investors are aware of the political dilemma arising from the shrinking window of opportunity to act and the time needed to balance different interests. In addition, the financial sector continues to pay little attention to climate risks in its balance sheets. All the encouraging signs of takeoff notwithstanding, green finance markets therefore still have a long way to go from niche to mainstream.

As a rule, central banks and financial supervisors focus on the risks of the climate-finance nexus. They, too, can contribute to scaling up sustainable finance markets, however. First, by urging for proper risk disclosure and management, they help the sector seize new profitable opportunities. Second, by providing transparency, visibility and a level playing field, they help develop the green finance industry, which is still in its infancy. Third, they may lead by example by adopting sustainability policies and by greening their own portfolios and monetary policy, while putting market neutrality aspects into perspective. Constrained by their mandates, central banks and financial supervisors can only contribute to tasks that are a prerogative of elected governments, namely setting objectives, taking initiative and following through on commitments made.

The green finance aspects of the Austrian government program are ambitious by international standards. This is positive from a financial stability perspective provided implementation of these aspects is based on evidence. There is one key driver for green finance that is comparatively risk-free: a predictable carbon price path that meets the targets set in the Paris Agreement. Just like most countries, Austria must live up to its commitments and come through with adequate policy measures. Greater certainty about policy direction and resolute action will unlock the potential of sustainable and productive investment.

References

- Altenburg, T. and D. Rodrik. 2017.** Green industrial policy: Accelerating structural change towards wealthy green economies. In: Altenburg, T. and C. Assmann (eds.). *Green Industrial Policy. Concept, Policies, Country Experiences*. Geneva, Bonn: UN Environment; German Development Institute / Deutsches Institut für Entwicklungspolitik.
- Austrian Federal Chancellery. 2020.** Aus Verantwortung für Österreich. Regierungsprogramm 2020–2024. <https://www.bundeskanzleramt.gv.at/bundeskanzleramt/die-bundesregierung/regierungsdokumente.html>
- Austrian Fiscal Advisory Council. 2020.** Fiskalpolitische Dimension der CO₂-Ziele und Handlungsoptionen für Österreich. Information by the Office of the Austrian Fiscal Advisory Council dated August 27. <https://www.fiskalrat.at/Publikationen/Sonstige/sonstige-ausarbeitungen-des-bueros.html>
- BaFin. 2019.** How safe are sustainable investments. https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Fachartikel/2019/fa_bj_1906_nachhaltige_Geldanlage_en.html.
- Breitenfellner, A., W. Pointner and H. Schuberth. 2019.** The potential contribution of central banks to green finance. In: *Vierteljahrshefte zur Wirtschaftsforschung*. 88(2), 55–71.
- BMNT. 2019.** Integrierter nationaler Energie- und Klimaplan für Österreich, 2021–2030. https://www.bmk.gv.at/themen/klima_umwelt/klimaschutz/nat_klimapolitik/energie_klimaplan.html
- BMNT and BMVIT. 2019.** #mission2030: Die österreichische Klima- und Energiestrategie.
- Brundtland, G. H. 1987.** Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document. <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>
- Cañón-de-Francia, J. and C. Garcés-Ayerbe. 2019.** Factors and Contingencies for the “It Pays to Be Green Hypothesis”. The European Union’s Emissions Trading System (EU ETS) and Financial Crisis as Contexts. In: *International Journal of Environmental Research and Public Health* 16(16). August. 2988.
- Carney, M. 2015.** Breaking the Tragedy of the Horizon – climate change and financial stability. Speech at Lloyd’s of London. September 29.
- Carney, M. 2016.** Resolving the climate paradox. Speech at Arthur Burns Memorial Lecture in Berlin. September 22.
- Climate Bond Initiative. 2020.** 2019 Green Bond Market Summary. <https://www.climatebonds.net/resources/reports>
- Codagnone, R., J. Wagner and J.C. Zhan. 2020.** Nachhaltige Investmentzertifikate und Anleihen in Österreich. In: *Statistiken – Daten und Analysen Q2/20*. OeNB. 47–55.
- CPI. 2019.** *Global Landscape of Climate Finance 2019*. <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/>.
- Crippa, M., G. Oreggioni, D. Guizzardi, M. Muntean, E. Schaaf, E. Lo Vullo, E. Solazzo, F. Monforti-Ferrario, J.G.J. Olivier and E. Vignati. 2019.** Fossil CO₂ and GHG emissions of all world countries. Luxembourg: Publications Office of the European Union.
- Dafermos, Y., D. Gabor, M. Nikolaidi, A. Pawloff and F. van Lerven. 2020.** Decarbonising is easy – beyond market neutrality in the ECB’s corporate QE. The New Economics Foundation.
- Deml, M. and H. Blisse. 2017.** *Grünes Geld. Handbuch für nachhaltige Geldanlage*. 8. aktualisierte Auflage. Vienna: Medianet Verlag.
- Dörig, P., V. Lutz, W. Rattay, M. Stadelmann, D. Jorisch, S. Kunesch and N. Glas. 2020.** Kohlenstoffrisiken für den österreichischen Kapitalmarkt (Carbon exposure. The Austrian state of the market). RiskFinPorto – Working Paper 4. <https://docs.umweltbundesamt.at/s/NBrHDDP7SXAATnY>.
- European Commission. 2018.** Action Plan: Financing Sustainable Growth COM(2018) 97.
- European Commission. 2020a.** Stepping up Europe’s 2030 climate ambition. COM(2020) 562 final.

- European Commission. 2020b.** Sustainable Europe Investment Plan. European Green Deal Investment Plan. COM(2020) 21.
- European Commission. 2020c.** Special Eurobarometer 501 survey on Attitudes of European citizens towards the Environment. March.
- European Council. 2020.** Special meeting of the European Council (17, 18, 19, 20 and 21 July 2020) – Conclusions. EUCO 10/20.
- Eurosif. 2018.** European SRI study. <http://www.eurosif.org/wp-content/uploads/2018/11/Europepan-SRI-2018-Study.pdf>.
- Fessler, P., M. Jelovsek and M. Silgoner. 2020.** Financial literacy in Austria – focus on millennials. In: Monetary Policy & the Economy Q3/20. OeNB. Forthcoming.
- FMA. 2020.** Leitfaden Nachhaltigkeitsrisiken. Konsultationspapier.
- FNG. 2020.** Marktbericht Nachhaltige Geldanlagen 2020 – Deutschland, Österreich und die Schweiz.
- Friede, G., T. Busch and A. Bassen. 2015.** ESG and financial performance: aggregated evidence from more than 2000 empirical studies. In: Journal of Sustainable Finance & Investment 5(4). 210–233.
- FSB. 2020.** Global Monitoring Report on Non-Bank Financial Intermediation 2019.
- GSIA. 2018.** Global Sustainable Investment Review. http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf
- Günsberg, G. and J. Fucik. 2019.** Faktencheck Green Finance. Vienna: Klima und Energiefonds.
- Guin, B. and P. Korhonen. 2020.** Does energy efficiency predict mortgage performance? Bank of England Staff Working Paper 852.
- Hardin, G. 1968.** The Tragedy of the Commons. In: Science 162. 1243–48.
- IEA. 2019.** World Energy Outlook 2019.
- IPCC. 2018.** Global warming of 1.5°C: An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. SR 15. Geneva: Intergovernmental Panel on Climate Change.
- Leutgeb, N., A. Colard, M. Ambacher, G. Klaushofer, C. Amstutz and R. Schwegler. 2019.** Nachhaltigkeit im österreichischen Retailbanking: WWF-Rating des österreichischen Retailbankings 2018/2019. WWF Österreich und ESG Plus GmbH.
- MNB. 2020.** Energy-efficient mortgage initiative: the MNB welcomes the first Hungarian bank. <https://www.mnb.hu/en/pressroom/press-releases/press-releases-2020/energy-efficient-mortgage-initiative-the-mnb-welcomes-the-first-hungarian-bank>.
- MSCI. 2020.** Swipe to invest: The story behind millennials and ESG investing. January. <https://www.msci.com/documents/10199/07e7a7d3-59c3-4d0b-b0b5-029e8fd3974b>
- NGFS. 2019.** Comprehensive Report. <https://www.ngfs.net/en/liste-chronologique/ngfs-publications>
- OECD. 2017.** Investing in Climate, Investing in Growth.
- Österreichisches Umweltzeichen. 2020.** Richtlinie UZ 49 – Nachhaltige Finanzprodukte. Version 5.0. January 1.
- Ostrom, E. 2009.** A Polycentric Approach for Coping with Climate Change. World Bank Policy Research Working Paper 5095.
- Pöchel, T., A. Schober-Rhomberg, A. Trachta and M. Wicho. 2019.** Nonbank financial intermediation in Austria – developments since 2008. In: Financial Stability Report 38. OeNB. 74–86.
- Pointner, W. and D. Ritzberger-Grünwald. 2019.** Climate change as a risk to financial stability. In: Financial Stability Report 38. OeNB. 30–45.
- SIFMA. 2020.** Capital Markets Fact Book 2019. <https://www.sifma.org/resources/research/fact-book/>

- Stern, N. 2006.** Stern Review on The Economics of Climate Change (pre-publication edition). Executive Summary. London: HM Treasury.
- TCFD. 2017.** Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures. June.
- UNFCCC. 2015.** Paris Agreement. United Nations Framework Convention on Climate Change, Bonn. https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf
- Von der Leyen, Ursula. 2020.** State of the Union Address 2020.
- Wiener Börse. 2020.** Green und Social Bonds. www.wienerbourse.at/marktdaten/anleihen/suche/?c7928%5BWFBAG__ID_BOND_TYPE%5D=1013
- World Bank. 2019.** The Coalition of Finance Ministers for Climate Action. World Bank-IMF Spring Meetings 2019. April 13. <http://pubdocs.worldbank.org/en/646831555088732759/FM-Coalition-Brochure-final-v3.pdf>