Introduction

Kajetan Czyż and Paul G. Fisher

I.1 UNSUSTAINABLE ECONOMICS

The aim of sustainable finance has been to introduce into the financial practitioners' world view the awareness of two fundamental concepts which are notably absent from applications of traditional economic theory.[1] First, the value of a balanced and productive ecosystem, which forms the foundation of any society, and second, the societal values and norms which in turn form the basis of societal aspirations and goals.

Fundamental economics nearly always begins with the concept of 'utility' – which should mean the welfare of the individual in a very broad and personal sense. In contrast, the application of economic theory generally makes simplifying assumptions that have significant consequences. Economic models often use aggregate output (goods and services, including leisure time) as a proxy for societal utility.[2] The usual outcome of economic analysis is seemingly focussed solely on the hard-headed business of allocating resources optimally, so as to maximise output, having as little 'values interference' as possible. Concern for environmental damage in some political debates has been branded as ideological rather than taken as empirical fact and as such has been dismissed as potentially obstructing the economic system from achieving its optimally efficient allocation of resources.

Macroeconomics developed over time to focus on short-term resource allocation, in particular to smoothing out the boom and bust

[1] We distinguish between the tools of economic theory and the uses to which they have generally been put.

[2] Accepting that at the macro level value-added output equals total income equals final expenditure.

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of the business cycle so as to get closer to the frontier of production possibilities. In such analysis, the potential growth rate is often treated as a fundamental which cannot be affected much by policy, as it depends on the combination of population growth and technological progress[3]. That has led to a model of growth which implicitly assumes the possibility of ever-increasing material and energy throughput ad infinitum. The consequences of such an economic system operating on a finite planet will lead to a depletion of resources and a distortion of the environment beyond that which nature is able to rebalance (Jackson, 2009).

Economics also assumes a time discount factor to reflect the assumption that people care less about future utility than they do about current utility. The chosen size of the discount factor is empirically important as small differences can shorten or extend the time horizon for policy quite markedly and makes accounting for long-term costs a challenge. For example, a social planner who cares about individuals not yet born would have a much lower discount factor than the average economic model.

The subsequent chapters of this book will discuss these and related issues. For this introduction it suffices to say that empirical facts about the state of our biosphere and natural resources are just that – well-documented facts,[4] and if the design of a system which aims to efficiently allocate scarce resources is incapable of incorporating empirical facts that have the potential to undermine the long-term viability of the system as a whole, then such a design needs updating.

1.2 THE RISE OF SUSTAINABLE FINANCE

The financial sector has long embraced a free-market economic world view built on classical assumptions. The Great Financial Crisis (GFC)

[3] More sophisticated analysis does, of course, make these endogenous, but seldom involving natural capital.

[4] See the many works of the International Panel on Climate Change cited throughout this volume.

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of 2007–2009 undermined somewhat the confidence and belief in efficient financial markets which were supposed to operate in everyone's best interests. This book is primarily about how to challenge the underlying assumptions in the existing model, so as to refashion the financial system to be sustainable (i.e. viable in the long-term). Broadly, the financial system should embrace a wider view of societal utility which we take to be represented by the seventeen United Nations Sustainable Development Goals.[5] Particular attention is paid to the threat to the planetary system from climate change. Upgrading current financial models and regulatory approaches has been the focus of sustainable finance efforts to date – it remains to be seen whether this is feasible to a sufficient extent in the time we have left.

Sustainable finance professionals have primarily focussed thus far on improving quantified methods of risk analysis related to environmental, social and governance (ESG) issues, as this proved to have the greatest uptake with mainstream financial companies and their regulators. These efforts succeeded where concepts around 'ethical' finance had failed, because it was speaking the language of finance about a new emerging risk, which if properly understood, could be a source of competitive advantage and improved resilience. Within the climate theme, forecasts relating to future costs of compliance with climate regulations (e.g. emission trading schemes), transition risk frameworks and stranded assets identification were all work programmes within this vein. The primary objective was to increase the financial system's appreciation and integration of these risks, so as to ultimately improve its resilience and protect assets. To a lesser degree, efforts have been made to create financial products to direct capital towards ESG-related opportunities or solution providers, most notably green bonds and impact funds. Indeed, these two goals (ESG risk management and new channels of investment towards

[5] See United Nations website: www.un.org/sustainabledevelopment/sustainable-development-goals.

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sustainable solutions) are a common definition of sustainable finance (European Commission, 2018).

From a systemic perspective, what has ultimately happened within the world of sustainable finance is an improved ability not to lose money due to ESG issues, hitherto known as 'non-financial'. This does not mean that all the risks can be hedged (Cambridge Institute for Sustainability Leadership, 2015). What it does mean is that, as of today, no financial company can justifiably claim that (a) they did not know ESG issues were a source of financial risk or (b) that they did not know how to integrate them into financial decision making – since much of the work in this area has been built by the third sector and is freely available. What then about the ability of the finance sector to 'finance' the transformation of the economy towards long-term viability? At present, the financial system's contribution to this goal has been somewhere between marginal and negligible as its flagship programme – the green bond market – still constitutes less than 1 per cent of all bonds outstanding (Climate Bonds Initiative, 2019).

Why is this? First, a practical reason: financiers rarely proactively create new assets – they typically provide finance to those that demand it or that are brought before them by the private or public sector and meet certain typological and qualitative criteria. These assets in turn are, or are not as the case may be, financially viable based on the policy environment in which the project is due to be executed (including the state subsidy and tax context). Although the finance sector lobbyists (sustainable finance lobbyists included) do have some sway over what policies get adopted, ultimately it is the policymakers and regulators that determine them. As of the recent past, with a few exceptions, policies have continued to effectively favour the incumbent vested interests of our high-carbon infrastructure configuration.

Second, there remains an open question as to who has the mandate to implement structural changes to the economy and indeed to society as a whole. Sustainable finance has been trying to demonstrate the higher risk profile of unsustainable enterprises, thus aiming

to increase their costs of financing and to some extent promote financial products channelling capital towards solutions. In doing so, however, it can be argued that they have to take on the role of the policymakers. It is the various democratically elected and other authorities who actually hold the societal mandate to plan and determine which modes of production and sectors are allowed to flourish and which should be pruned. Sustainable finance professionals are trying to make it easier for policymakers to make the difficult decisions around transitioning their economies, but they do not have the authority to make the decisions for them.

Today, the question seems to remain unanswered as to who should be leading in this dance towards change – policymakers, financiers, their regulators, the public or perhaps corporates who directly manage physical assets? Great care must be taken when approaching this question and one must be mindful where power sits – the economy is a great servant but a poor master (Schumacher, 1973). Should we be educating the economic system or strengthening the institutions and social systems that were supposed to guide it? Convincing the servant of the master's perspective may be a futile exercise.

1.3 THE CONTEXT FOR SUSTAINABLE FINANCE

When trying to answer questions about possible futures, it is valuable to understand where the field of sustainable finance grew. Early 'ethical funds' in the 1980s, and the first dedicated ESG data providers[6] which were established to service them, were typically aligned with ethical, moral or religious concerns and mostly followed a negative screening model with exclusion lists of 'sin stocks'. The market profoundly changed with the development of carbon accounting standards and the first emission trading schemes in the early 2000s which effectively gave the market a way of putting a value on

[6] Vigeo-Eiris (2020).

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the cost of carbon. For example the cost of emitting one tonne of carbon is around €24 per tCO_2e[7] at the beginning of 2020.

This ability to precisely quantify and price the climate externality allowed for the development of the concept of the carbon bubble in the early 2010s and with it the concept of stranded assets (McKibben, 2012). Simply put, there is a finite amount of greenhouse gases we can emit if we wish to keep global warming to a certain level, for example 1.5°C above preindustrial times.[8] That finite 'budget' is (much) lower than the emissions which would result from burning all the fossil fuel assets which are accounted for on the balance sheets of listed fossil fuel companies. We cannot burn all the coal, oil and gas that form the basis of stock valuations of fossil fuel companies and not go over the 'safe' warming threshold of 1.5°C or even 2°C. The planet must choose. As of 12 December 2015, in Paris (United Nations, 2015), world governments have explicitly committed to stopping global warming at 'safe' levels, which implies that fossil fuel producing companies' stock prices are overvalued since the assets forming the basis of those prices cannot be utilised in full.

The two concepts mentioned above-carbon accounting and the carbon bubble-together gave rise to climate risk factors which have a very concrete financial dimension. There are other ESG aspects outside of climate change which also have a distinct financial impact (positive or negative). This ability to translate ESG factors into financial terms has led to a clear distinction between responsible investment, as it pertains to 'ethical values' and those that have a financial dimension, that is 'ESG risks'. The distinction may be subtle; however, it is of critical importance because, if indeed ESG factors can have material financial impacts, then a prudent fiduciary or indeed any financier, should have assessed them through their normal due diligence process and if they have not, then this constitutes a breach

[7] Sandbag (2020).

[8] The Paris Agreement (2015) reference point is the change from the average global temperature from 1850 to 1900.

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of fiduciary duty (Principles for Responsible Investment, 2015). If the whole market is guilty of this omission of practice, then this constitutes a market failure and requires regulatory involvement which is exactly what we are observing at the moment.

The wheels of regulation typically move slowly; however, as of 2020 they are in full swing. Momentum has been gathering since the 2015 report of the Prudential Regulation Authority of the Bank of England (Prudential Regulation Authority, 2015) which highlighted the insurance sector's exposure to climate change risk. Subsequently the Bank's governor, Mark Carney, who coincidently was also the chairperson of the Financial Stability Board (FSB), established the Task Force of Climate-Related Financial Disclosures (TCFD). Since then a number of other intergovernmental organisations, for example the World Bank, the Bank for International Settlements (BIS), the European Insurance and Occupational Pensions Authority (EIOPA) and the European Central Bank (ECB) have become engaged. In fact, so many regulators are now working on developing climate regulation that there are now multiple member organisations established for the sole purpose of helping to coordinate and share best practice between them. Of note are the Network for Greening the Financial System[9] (NGFS) and the UN Sustainable Insurance Forum (SIF).

The above efforts are moving in the same direction as other initiatives aimed at aligning the *structure* of the financial system with sustainability objectives such as the UN Sustainable Stock Exchanges Initiative (SSE) and the Financial Centres for Sustainability network (FC4S). The momentum over the past few years generated between multilateral organisations, the private sector and regulators has been truly inspiring and has given policymakers the confidence that the finance sector will support them and be open to finance efforts to decarbonise the economy and align it with the UN's Sustainable Development Goals (SDG).

[9] Fifty-four members representing central banks and regulators globally, at the start of 2020.

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1.4 CONVERGENCE

Many think that, at the start of 2020, we are at a tipping point of several trends relating to sustainability which are converging and amplifying one another. There is an upswell of activity from a wide range of sources currently supporting this momentum. In addition to the broad financial sector increasingly seeing sustainability as a source of competitive advantage and regulators moving to set down basic compliance standards, the world at large is also moving. From increased pressure from civil society groups (Extinction Rebellion) to religious leaders (Pope Francis) and shifting consumer preferences and societal attitudes (e.g. 93 per cent of Europeans now believe climate to be a serious problem (European Commission, 2019[10])), through an increasing number of court cases against corporate negligence, the increasing costs of physical damage to infrastructure (e.g. California and Australian wildfires) to rapidly falling costs of technological solutions (e.g. renewables, electric vehicles and batteries) and availability of information, society at large does indeed seem to be at an intersection of trends which have the potential to create great change.

All of this is encouraging and bodes well for future action; however, this is the end of the beginning only and as such puts us about three decades behind schedule, if not more. The 2019 greenhouse gas emissions were at business-as-usual levels as estimated in 2009 (UNEP, 2019), that makes it clear that despite momentum building, and some countries making progress, little has been achieved in the global economy as a whole. After several decades of sustainable finance work, one can only say that the finance sector is ready to withstand *some* of the shocks coming from climate change and/or society's response to it. Unfortunately, the sector is only beginning to create and scale financing towards solutions that match the scale of the problems. This may be caused to a large extent by the finance sector being a 'policy-taker' rather than a 'policymaker' and

[10] European Commission (2019).

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because of sluggish policymaking by governments to stimulate innovation by companies, too few opportunities in the green space have been forthcoming for financiers to finance. Indeed, one could argue that all this effort from the responsible investment industry has been a desperate, and often impotent, effort to do politicians' jobs for them. Ultimately if politicians could simply agree to set a universally applicable carbon price, most of the uncertainty surrounding the economic impact of climate adaptation or mitigation efforts would simply disappear and we could get on with solving the problem.

At the beginning of the Anthropocene, it is perhaps important to remind ourselves of a few basic truths. First, for better or worse, we are not going back to the Holocene. Since that is the case, we as a community of interdependent societies need to take on the responsibilities of shaping this next epoch. As of now, it is very likely to be worse than the previous one. That does not necessarily have to be the case. We could decide to work together, take the knowledge and ingenuity we have developed to enhance nature, rather than exploit it; care for one another rather than use each other. Second, the rules of economic conduct and economics as a field of inquiry are not immutable natural laws. They are a set of tools which generate a shared, imagined mental construct which changes over time, and indeed can be changed if we so please. Third, adjustments to economic activity and its associated financing need to focus as much on reducing and restricting the negative externalities as enhancing and growing the positive ones. Without a sufficiently large pipeline of opportunities, little will change in aggregate. Fourth, at this stage of technology the true costs of averting climate change are close to zero – an assessment for the whole of the United Kingdom indicates costs of 1–2 per cent of GDP in 2050 (much less than the measurement error in GDP itself) to achieve carbon neutrality (Committee on Climate Change, 2019). Similarly, as far back as 2014, the International Energy Agency (IEA) indicated that transitioning the global energy sector would

be a positive investment if energy efficiency savings are fully taken into account (IEA, 2014). Furthermore, retooling the global energy, building, agriculture and transport sectors may possibly be the largest growth opportunity humanity has ever had, worth some US$26trn (New Climate Economy, 2018). Solving climate change seems like a good investment.

Ultimately, any change requires only two ingredients: decision and action. It seems that we have as a society, with minor exceptions, decided to act and it is quite clear the direction and scale of what that action has to be. What is left now is only to not be afraid of our own courage and add the final ingredient: action.

We hope that the chapters of this book will not only spell out the need for action but also detail practical ways forward for the financial sector.

1.5 THIS BOOK

The chapters in this book each stand by themselves but form a natural sequence. The first chapters, by Arber and Waygood, and Holmes, further the discussion of how the financial system as a whole needs to change in its broad aspect. The regulatory meat of the book is in the ensuing three chapters by Alexander and Fisher, Kivisaari, and Micilotta (and later by Dupré). Thereafter there are five chapters relating to the actions and behaviour of financial firms and investors: Seega and Voysey consider financial risk analysis; Kruse and Schmidt tackle governance; Martindale, Elodie and Sullivan consider fiduciary duty; Billing and Silberg discuss how an active pension fund can practically implement sustainable principles, and Harris looks at the development of benchmark indexes. Last but not least, we have four chapters which widen out to consider the people aspects: Robins considers the Just Transition whilst Husson-Traore and Vander Stichele look at how citizens and the social dimension could be better recognised in current policy. Dupré looks at the non-engagement of, and new regulations governing, personal financial advice.

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