Conventions for Green Investments: Stock Indices and Bond Ratings in the Age of Sustainable Finance

Tom Duterme

Contents

Abstract

This chapter presents the work of economics and sociology of conventions that shed light on dynamics at the heart of contemporary capitalism. To act in situations of uncertainty, financial market participants do not base their investment decisions exclusively on the comments of opinion leaders. They also rely on indicators such as stock market indices and credit ratings. These indicators are supported by multiple measurement conventions (selection, weighting, revision techniques, etc.). Once stabilized, they generate conventions of interpretation that can be very powerful: through their influence on asset managers, the main stock market indices today determine the allocation of billions of dollars. The sustainable finance movement proposes to rethink the logic of financial decision-making. This implies, in particular, the emergence of new

T. Duterme (✉)
ICHEC Brussels Management School, Woluwe-Saint-Pierre, Belgium
e-mail: tom.duterme@ichec.be

R. Diaz-Bone and G. de Larquier (eds.), *Handbook of Economics and Sociology of Conventions*, https://doi.org/10.1007/978-3-030-52130-1_62-1

conventions of interpretation, based on new indicators, such as “ESG indices” and “green ratings”. The chapter first outlines the conventions governing decision-making in the stock market, then addresses the issues at stake in the bond market. In both cases, traditional indicators need to be adapted to the new criteria of sustainable finance.

Keywords

Conventions · Financial markets · Indicators · Stock index · Credit rating · Sustainable finance · Valuation

1 Introduction

Investment decisions represent a bet on future outcomes. In financial markets, a security is bought because it is considered promising. The decision is therefore made in a context of greater or lesser uncertainty. Economics and sociology of conventions (EC/SC) quickly identified two consequences of this state of affairs. On the one hand, the resolution of these situations of uncertainty grants *power* to the actors in a position to decide: the “power of finance” is the capacity to subject the orientation of capital flows to the opinion of a restricted community (Orléan 1999). On the other hand, the resolution of uncertainty requires that the members of this restricted community agree on conventions of interpretation: in the absence of such a consensus, no price can bring the financial actors into agreement and no exchange can therefore take place. This position of EC/SC thus runs counter to both the objectivism of neoclassical financial economics (whose fundamental value hypothesis denies the uncertainty of investment situations) and critical subjectivism (which identifies the “power of finance” with certain individuals, rather than with *inter*subjective dynamics).

This chapter focuses on the work of EC/SC that has studied these conventions of interpretation guiding the decisions of the financial community. Based on a historical overview, it shows that these conventions emanate less and less from classical financial actors (analysts, traders, asset managers) and more and more from actors defining the indicators mobilized by the financial community. There has been a shift in the “power of valorization”, that is in the authority to define the foundations of an asset’s value (Eymard-Duvernay 2012), from traditional opinion leaders to the manufacturers of metrics such as stock market indices and credit ratings. Consequently, it is also important to look at the studies that, in the wake of Alain Desrosières’ (2010) perspective, have shed light on the constitution and impact of these indicators. By the same token, this chapter builds on this work from the EC/SC to examine recent shifts in these conventions toward a “green logic”: the development of “ESG indices” and “green ratings” is sometimes presented as a promising way of redirecting capital flows toward more sustainable activities. It is structured in two main parts: the first is devoted to stocks, the second to bonds.

2 What Is a "Good" Stock?

A stock is a financial security entitling the holder to a share of a company's future distributed profits (dividends), as well as a voting right at shareholders' meetings. There is no contractual obligation for the listed company to pay a dividend. The value of a stock, understood as the price at which it is traded on the financial markets, is therefore highly contested. Consequently, defining a stock as a "good stock" is a perilous exercise. According to the EC/SC, this exercise is not a matter of revealing an objective essence (*the value* of the stock), but of establishing an agreement between members of the financial community. In this process, experts have long played a key role: these opinion leaders polarized the interpretations of the various operators. More recently, they have had to delegate some of this "power of valorization" (Eymard-Duvernay 2012) to other, less visible but no less influential actors: the engineers of stock market indices.

2.1 The Power of Experts

Selecting which stocks to buy and sell is like deciding in a context of uncertainty: no one is able to identify without a shadow of a doubt the stocks that will pay the highest dividend or whose price will rise on the stock market. For most of the twentieth century, investors entrusted this management of uncertainty to experts such as stockbrokers or analysts, who were paid precisely for this mission. Several authors have studied, applying the approach of EC/SC, the way in which these experts agreed on the value of stocks, that is how they collectively elected conventions allowing them to identify which stocks were "to buy" and which were "to sell" (the consensus never being total, given that the exchange implies, in addition to an agreement of principles on the right price, a certain disagreement on the future evolution). Inspired by John M. Keynes's seminal propositions (1936), they have highlighted the self-referential nature of these conventions of interpretation: in order to decide which stocks to buy and to sell, everyone tries to anticipate what everyone else will buy and sell (Brière, 2005; Chambost 2019; Charron 2013; Orléan 1999; Tadjeddine 2000; Walter 2006; cross reference: Tadjeddine, cross reference: Bourghelle).

This work has thus brought to the fore the intersubjective dimension of stock valuation. The stock market is represented by a closed community of professionals gauging each other; this image is fairly faithful to the historical stock exchanges where stockbrokers negotiate "face to face". But the evolution of financial markets, in particular their computerization, has reformatted the stock market situation in such a way that the trading process has become densely intermediated, notably through trading screens and the Bloomberg Terminal (Duterme 2023b; Knorr Cetina and Bruegger 2002). In other words, it has become necessary to grasp the valuation of stocks as a phenomenon that is no longer merely intersubjective, but "interobjective": "[...] this behavior [the stock market price] is the result of a material arrangement, and not of a purely intersubjective confluence. If this market

confluence is arranged and acting, it is because this confluence is equipped, distributed, situated at the crossroads of the devices that allow the market to be expressed" (Muniesa 2011: 189; *own translation*). Contrary to what this criticism might suggest, the approach of EC/SC has taken note of this evolution: it has demonstrated the fruitfulness of its framework for analyzing these devices on which market actors now rely, among which the stock market index is undoubtedly at the forefront.

2.2 The Power of Stock Market Indices

During the 1960s and 1970s, the process of selecting stocks to buy and sell was fundamentally transformed by the "passive management" movement. This movement had a theoretical origin: based on the aggregation of data made possible by the progressive computerization of the markets, several academics argued that the most optimal way to invest in stocks was to acquire the "market portfolio". It would thus no longer be worth paying an expert to make investment decisions because, on average, he or she cannot beat "the market". This position has found justification in the main theories of modern financial economics, such as the hypothesis of informational efficiency and the random walk of prices or the capital asset pricing model. Indeed, one conclusion of these theories is that, given the Brownian motion of prices, no investor can systematically outperform the market. Other publications then gave weight to this position by providing empirical evidence that the vast majority of financial experts' recommendations offered a return lower than the "market return".

In order to make the notions of market portfolio and market return operational, the main stock market indices were set up as official representatives of the "market". Formally, these indices are constructed from the price of a sample of stocks: the larger the sample, the more representative the index is of the market as a whole. But the involvement of indices in this "passive management" movement transforms their role: they are no longer passive reflections of stock price trends. They influence stock prices. This is because, from the 1970s onward, the proponents of "passive management" built investment portfolios using the stocks included in major stock market indices and according to the weightings of these indices. As for their opponents who continue to argue the importance of expertise, they have to prove their point by doing better than . . . the market. As a result, they typically invest in a portfolio that deviates little from the index. This movement has continued to deepen to the point that in the US market, more stocks are now bought by "passive managers" than by their "active" rivals. A large part of the "power of finance" is thus now delegated to the actors who construct these stock market indices (Petry et al. 2021). EC/SC has shed light on this phenomenon through two lines of inquiry.

First, some work has focused on the emergence and stabilization of the stock market index as a financial convention. Inspired by Alain Desrosières' sociology of quantification (cross reference: Henneguelle), they have identified the plurality of meanings – cognitive and political – that stock market indices have covered in the

course of history. More precisely, it appears that the methodology of these indices is not self-evident, but rather depends on the audience targeted by the producers of the index. Thus, in France and the United States, the indices of the first half of the twentieth century were intended for macroeconomists as sectoral indicators of the state of the economy (Hautcoeur 2006). The situation is similar in Belgium where, until the Second World War, the stock market index was constructed by the Central Bank and was hardly followed by market professionals (Duterme 2021). The shift to "passive management" has given new importance to the methodology of these indices: actors with different interests now try to influence the revision and weighting decisions made by stock market index engineers. In particular, firms close to the cut-off point would like to see more stocks included in the index, while traders who follow the index want to minimize the number of purchases to be made and thus the number of stocks included (Duterme 2023a). For example, in the case of the French market's main stock index (the CAC 40), companies that are close to being included in the index are lobbying for a more inclusive index (which would become the CAC 45), while traders are calling for a reduction in the number of stocks to be covered (rather a CAC 35). Thus, these applications of EC/SC demonstrate that the shape of indices is not natural, but is impacted by power relations.

As Rainer Diaz-Bone and Guillemette de Larquier (cross reference: Diaz-Bone/Larquier) point out, these measurement conventions, once stabilized, have ontological repercussions: they produce a state of affairs, a "facticity" (MacKenzie 2009). Quantification does more than simply put a pre-existing reality into numerical form; it also generates new states of the world. Several authors have thus argued that the stock market index, through its current omnipresence, gives consistency to the "market"; without this objectification, the market would remain a vague and disembodied concept (Cook 2017; De Goede 2005). More specifically, the shape of contemporary indices establishes a certain logic of action: as its evolution reflects the performance of a stock portfolio, it associates a well-functioning market with the enrichment of shareholders. This has not always been the case: some indices formerly intended to represent the health of listed companies adopted different methodologies – less frequent revision, fixed denominator, etc. – and thus embodied a different normative reality (Duterme 2021). And this may not be the case forever, as evidenced by the alternative logic of action crystallized by ESG indices (section "A Convention for Green Stocks?").

Second, EC/SC authors have studied the stock market index as a benchmark enabling financial professionals to agree on the "good" stocks. In these studies, the index is no longer captured through the emergence and stabilization of measurement conventions, but through its insertion in the markets as the "bearer" of a convention of interpretation. This issue emerged from the fieldwork carried out by Donald MacKenzie, a sociologist of finance belonging to the interdisciplinary field of "science and technology studies" (STS) – which is epistemologically close to EC/SC. His research reveals that, since the 1970s, the stock market index has been an essential reference, not only for the supporters of passive management, but also for "active managers": "[...] if, as was increasingly the

case, a manager's performance was judged relative to an index such as the S&P 500, then there was some safety in selecting a portfolio that closely resembled the makeup of the index. [. . .] It greatly lessened the chances of a career-killing relative underperformance: if one's portfolio did badly, those of other managers would most likely be doing badly too, so the fault would be seen to lie with the market, not the manager" (MacKenzie 2006: 86). In other words, financial actors now evaluate a manager's performance according to the index that defines the "normal performance". Yamina Tadjeddine, for her part, has highlighted the implications of this convention for the relationship between the manager and his or her client, which tends to become standardized: "[. . .] the index provides a public referent that makes it possible to compare the performance of the portfolio constructed by the manager with that of the reference portfolio" (Tadjeddine 2016: 378; *own translation*).

While asset managers, both active and passive, are undoubtedly the most directly impacted by indices, other studies have shown that traders – understood here as professionals executing buy and sell orders, in charge of a "book" of positions – also refer to them to take positions. Depending on the stock market context in which they operate, indices can be interpreted in different ways by traders. For example, when an index approaches a round number (such as 30,000 for the Dow Jones), its movements refer to a certain convention of interpretation, known as "roundophobia", according to which price growth stops just before certain symbolically strong thresholds (Duterme 2023c). Conversely, when used in the context of the equity derivatives market, indices can refer for traders to option prices, via an even more stabilized measurement convention: the Black-Scholes model (Chiapello and Walter 2016). This work highlights the pragmatic dimension of the EC/SC methodology: the role of a convention in market coordination cannot be conceived independently of the *situation* at stake (Diaz-Bone 2011). In parallel, using a different methodological approach, Matthieu Wyart and Jean-Philippe Bouchaud (2007) have been able to provide empirical evidence of the role of indices in the constitution of traders' strategies.

To conclude this section, a few other works – belonging either to the EC/SC or to closely related fields – which have addressed similar issues should be mentioned. The role of other indices in certain segments of financial markets has been the subject of fruitful work, such as the Libor in the money market. This index is calculated on the basis of statements made by various financial actors; in 2008, it appeared that some of these actors had lied about their statements in order to steer the index in a direction that suited them. Using the EC/SC framework, Guillaume Dupéret (2022) has shown that the manipulation of Libor was grounded in a convention: "[. . .] the group of traders comes to take the manipulation so much for granted that it forgets the precautions that usually apply to this type of illegal collusive agreement" (Dupéret 2022: 32; *own translation*). Finally, the success of stock indices has allowed the emergence of index-based derivatives (index options and futures); from a theoretical framing very close to EC/SC (Çalışkan and Callon 2010), Yuval Millo (2007) explored the conditions of emergence of these new index products.

2.3 A Convention for Green Stocks?

From the point of view of EC/SC, the constitution of a sustainable stock market is conditional on the emergence of a convention guiding investors toward the stocks issued by companies that are less destructive of the environment. This is what Christian Walter (2020) argues when he stresses that sustainable finance implies dethroning established risk assessment models. In accordance with the distinction made in the previous two sections, this change of convention can result either from the self-referential dynamics governing the choices of the financial community or from the information mobilized by this community to decide which stocks to buy and sell. While the former is often trumpeted by financial firms celebrating the "growing awareness" of investors, it hardly translates into a collectively binding convention. Moreover, since this chapter is primarily concerned with indicators, this section is devoted to the work of EC/SC which has focused on the second path. In the case of the stock market, the latter has mainly manifested itself in the appearance and dissemination of "ESG indices" (ESG for "environmental, social, and governance"). These indices differ from traditional stock market indices in their methodology: the environmental, social, and governance impact of companies becomes a stock selection criterion. More and more asset managers are proposing an investment policy based on an ESG index: the amounts invested in exchange-traded funds (ETFs) based on an ESG index have risen from 5 billion dollars in 2006 to 391 billion in 2021, which represents 3.9% of the assets managed by ETFs (Statista figures).

Several EC/SC studies have shed light on the issues surrounding the emergence and gradual stabilization of these new stock market indices. In the wake of André Orléan's theory and François Eymard-Duvernay's conceptualization, some authors have uncovered the power of valorization involved in defining the "ESG" perimeter. At present, despite the importance of the capital flows that depend on this definition, there is no authoritative reference. Given this instability of conventions, many actors aspire to become "standard-setters": specialized rating agencies, companies producing traditional indices, European regulators ... (Benchemam and Chambost 2010; Escrig-Olmedo et al. 2019). The work of Elise Penalva Icher (2008, 2016) on the French case suggests two causes of this instability of conventions. On the one hand, the difficulty for ESG financial analysts to build their professional legitimacy, which must be both close enough and distant enough from traditional analysts. On the other hand, the hesitation of the definition of ESG between two conventions of qualification: the convention of "niche investment" (implying restrictive criteria) and that of the "future mainstream" (implying more flexible and evolving criteria). Although the second convention does not enjoy unanimous support in the academic literature, it does benefit from the endorsement of a large proportion of industry professionals and could therefore become the norm (Penalva Icher 2009a, 2010). In the meantime, as long as these two sources of instability remain unresolved, ESG indices will hardly assert themselves as a credible vehicle for redirecting investments toward sustainable activities.

Then, with regard to the impacts of these new indices on the social world, Thierry Theurillat et al. (2017) have shown how these indices can be mobilized more as a rhetorical resource than as a guideline for investment policies. Indeed, many companies rely on ESG indices to claim to represent the compromise between the "market convention" (based on the principle of competition) and the "civic convention" (based on the interests of the community). In practice, however, the vast majority of their investment funds use traditional indices as benchmarks, so as not to exclude the largest capitalizations from their portfolios. One of the reasons for this is the lack of a "common definition of sustainability criteria" (Theurillat et al. 2017: 553; *own translation*).

Thus, as most authors point out, this new indicator does not yet have a stable meaning and can therefore give rise to multiple interpretations: different actors, sometimes with antagonistic interests, can thus support their interpretation of ESG. For example, in the case of French investment funds, four definitions of sustainable investment are held by different types of actors (Penalva Icher 2009b). Firstly, the *activist convention*: the ESG index is a moral code that makes it possible to exclude from the investment perimeter companies that are judged, according to a normativity external to the financial world, to be harmful. Secondly, the *emulation convention*: the ESG index establishes a new, more responsible and less short-termist, performance criterion for professionals in the sector, thus constituting a barrier to financial excesses. Thirdly, the *competition convention*: the ESG index is a competitive advantage by which the most proactive actors, who go so far as to engage in shareholder activism, stand out from less ambitious sustainable practices. Fourthly, the *marketing convention*: the ESG index is no more than a sales argument, potentially lucrative, but devoid of any particular moral content. This typology provides a glimpse of the normative plurality that currently permeates these new "green quantifications". The result is also a plurality of investment practices, between ESG investment funds that simply aim to reduce the portfolio's exposure to climate-related risks, and those that aspire to steer investment toward more sustainable ends. This attention to the plurality of "orders of worth" is characteristic of EC/SC and is also evident in its work on sustainable finance.

These original studies have shed light on this recent phenomenon based on EC/SC. Other avenues of research could usefully complement them. As a measurement convention, ESG indices deserve to be explored in their statistical technique: given the plurality of quantifications currently in competition, it is important to uncover the cognitive and political consequences of adopting one option rather than another. To use Jan Fichtner et al.'s (2023) nice expression, it is a matter of opening the "green box". Then, as a convention of interpretation, these new indices raise questions about their impact on the decisions of asset managers and traders: do they exert as much influence as traditional indices? And in the same way? These avenues of research would allow EC/SC to strengthen its contribution to the contemporary discussion on the conditions for making the stock market more sustainable.

3 What Is a "Good" Bond?

Unlike a stock, which is a security entitling the holder to a share of future dividends, a bond is a debt security entitling the holder to a fixed repayment at a predetermined date. At first glance, this difference reduces the importance of conventions on the bond market. Indeed, the contractual constraint of repayment of a predetermined amount at a predetermined date limits uncertainty about the value of the security: the bond is worth the sum of the predetermined cash flows. However, this observation needs to be qualified. While it's true that uncertainty about the security's value is lower than in the stock market, there are still a number of parameters that sow doubt: at what rate should future cash flows be discounted? How can the probability of default be taken into account when computing the price of the bond? There are no clear-cut solutions to these problems. In order to make buying and selling decisions – which is often the main part of their job – bond market participants must once again agree on ways to reduce this uncertainty. They must rely on conventions.

3.1 The Power of Experts, Again?

For the classical analysis of EC/SC, these distinctions of nature between the stock and the bond do not matter because, in a context of perfect liquidity, the only thing that counts for the investor is the evolution of the price – the "speculation" logic overshadows any other motive for action (for a development of this perspective, see cross reference: Tadjeddine; cross reference: Bourghelle). In other words, the issue of debt repayment at the heart of the bond is irrelevant, as the investor is obsessed with the potential for short-term capital gains. As a result, the self-referential dynamics identified by André Orléan apply indiscriminately to stocks and bonds: his few examples of conventions of interpretation include the stocks of the dot-com bubble, but also the Mexican government bonds traded during the peso crisis. In the mid-1990s, these sovereign bonds were massively purchased by Western investors, who were convinced by the "emerging market convention": "[This convention] provides a global interpretive framework for individual decision-making. It is this convention that is leading institutional funds to open up to an increasing share of emerging securities" (Orléan 1999: 154; *own translation*). This analysis is of course relevant, but it does not take into account the specificity of bonds. The framework used to analyze the stock market is therefore equally valid for the bond market: the power to establish a convention of interpretation – the "power of valorization" (Eymard-Duvernay 2012) – lies above all with the opinion leaders of the financial community.

When one looks at the information used by financial actors, the differences between stocks and bonds become more apparent. Indeed, they put up certain *resistance* to the emergence of certain indicators. In particular, the more limited commensurability of bonds makes it very costly to "index" them: while there is nothing to distinguish two Apple stocks (with the exception of the rare stocks that "stand out", such as those with double voting rights), Apple bonds do not all share

the same maturity or the same interest rate – which bond should therefore be included in the index? This largely explains why "bond indices" are less powerful than their stock market counterparts. On the other hand, since bonds are debt instruments, the bond market is willing to be influenced by an assessment of the creditworthiness of issuers, such as that offered by the famous rating agencies.

3.2 The Power of Ratings

The selection of bonds to buy and sell has always depended on confidence in the issuer's ability to honor repayment. But the sources of this confidence have varied over time. When the US bond market was still local, other conventions set the pace: interpersonal relationships played the main role. The emergence of a broader bond market, that is one in which participants did not know each other, was a prerequisite for the introduction of credit ratings. In functional terms, credit ratings are the equivalent of interpersonal proximity: instead of knowing the issuer personally, one simply relies on the rating. Their success, however, depends on the support of both sides of the market: investors must rely on them to decide which bonds to buy, and issuers must care enough about their rating to conform their behavior to the agencies' quality criteria. These conditions were quickly met on the US bond market and then worldwide: as early as the 1920s, ratings had become a benchmark in the financial world, to the point of being used in US courts (Flandreau and Sławatyniec 2013). But it was the regulator who made them inescapable by basing certain laws on them from the 1930s onward: in 1933, in particular, the *Banking Act* prohibited banks from investing in "speculative securities" as defined by the rating agencies. Since then, the boundary between "speculative grade" and "investment grade" – symbolized by the change from BB+ to BBB- in the scale of Standard & Poor's – has stabilized and become very important for the financial community.

Today, the three main rating agencies – Standard & Poor's, Moody's, and Fitch – distribute the vast majority of ratings (estimates range from 80% to 95%). Based on an assessment of the probability of default by the issuer – and the loss incurred in the event of default – they rate the bond using a system of letters ranging from AAA to D (or C for Moody's). No asset manager or trader can afford to ignore these letters when examining a bond. This centrality in the financial landscape has led some authors to regard rating agencies as the "new masters of capital" (Sinclair 2005). However, their power has been more criticized than analyzed. The EC/SC's insight on this subject is therefore most welcome. Similar to its treatment of stock market indices, the EC/SC has approached the ratings phenomenon from two angles: a historical perspective on the conditions of emergence and stabilization of this reference and a socio-economic approach to the effects of this quantification on the social world.

On the historical level, the form of credit ratings – this letter system – has been explained by the research of Bruce Carruthers and Barry Cohen (2010). Without explicitly positioning themselves within the EC/SC movement, these authors trace the evolution of measurement conventions by following controversies, along the

lines of Alain Desrosières' sociology of quantification. In order to identify the factors that favored the measurement convention of the letter system, they analyzed the practices of the ancestors of credit ratings who sold "reports" in a highly competitive information market, so that when in the middle of the nineteenth century, one of the competitors had some success in publishing a rating in the form of a letter rather than a report, the others aligned themselves with this practice, which became the norm. In the spirit of Thévenot's analysis of the "investment in form" (cross reference: Thévenot), they also emphasize the "cost" involved in manufacturing of a credit rating: "rating was both revealing and concealing information. Providing accurate information to subscribers was only one of the constraints of the exercise" (Carruthers and Cohen 2010: 68; *own translation*).

A fundamental difference between these rating pioneers and contemporary agencies is that the latter are paid by the issuers of the bonds they rate, rather than by the consumers of the information (Olegario 2006). Although this situation, which is conducive to conflicts of interest, has frequently been criticized, particularly in the aftermath of the 2008 crisis, the rating market has been able to overcome these *tests* and its functioning remains virtually intact (for an analysis of the role of *tests* in another context, see cross reference Remillon). To account for this resilience, Benjamin Taupin (2012) studies the opinions given in response to the consultation on rating agencies organized by the US regulator (the SEC), using the analytical framework of the "orders of worth" (cross reference: Buclet; cross reference: Carnoye). It appears that these opinions mobilize an argumentative repertoire that is both limited and largely consistent with the existing order: "[...] the debate on conflict of interests in credit rating is addressed via tests belonging to the market, industrial and fame worlds rather than, for example, tests related to the civic world (integrity) or the inspired world (innovation). This is how actors avoid critiques placing the debate in a different world from the compromise" (Taupin 2012: 547). This research paves the way for a contextual assessment of the change potential of "tests": in some cases, such as the consultation on rating agencies, these tests are framed in such a way as to contain radical transformations.

Then, from the second angle, EC/SC has highlighted some of the effects of this quantification, on the financial world and beyond. Indeed, the extent of the popularity of ratings is such that the "facticity" they produce (Montagne 2009) does not limit its sphere of influence to financial markets. Thus, from a Foucauldian perspective – whose connections with EC/SC have already been raised (Diaz-Bone 2017) – Diego Giannone (2017) has studied the disciplinary effect that this rating implies, particularly for states. By embracing the desire for a good credit rating, governments relay and amplify the power of rating agencies: "[...] in order to conform their behavior to the hegemonic values and possibly improve their rating, the states become evaluative states: through a myriad of agencies and the diffusion of a culture of evaluation, they constantly monitor and assess public action and policies, as well as the conduct of individuals and organizations, based on quantifiable and allegedly objective measures" (Giannone 2017: 478–479). These indicators also generate in its users a conception of risk as a fully quantifiable object, as opposed to a more

conservative conception that recognizes an incalculable part to risk (Besedovsky 2018).

With regard more closely to the investor decision-making process, the influence of ratings as a convention of interpretation is major, as André Orléan had already noted: "[. . .] rating agencies appear as a link in the chain of mimetic dynamics: they are part of the collective dynamic that produces and spreads financial instability, because they often react late and then spread mistrust on a massive scale. They are institutional salient points on which markets rely" (Orléan 1999: 167; *own translation*). In the wake of this seminal work, other authors from the EC/SC have pointed to the central role of agencies in the investor decision-making process and the effect of this centrality on the value of bonds. Thus, Martin Kornberger notes that "[. . .] in financial markets, rating agencies provide valuations that function as critical mediating devices, constituting the value of investment objects and hence facilitating strategic investment decision" (Kornberger 2017: 1754). Their quality as a "coordination mechanism" would even constitute one of their main reasons for existence (Boot et al. 2006). In this context, can a "greening" of this convention of interpretation encourage a redirection of capital flows in the bond market?

3.3 The World of Sustainable Bonds

In recent years, the bond market has also been impacted by the sustainable finance movement, but in a different way than the stock market. This is because, as it has been mentioned earlier, the form of the bond has certain specificities that matter: in particular, its provisional dimension – the bond has a maturity – makes it possible to associate certain bonds with certain investment projects (which is not possible for stocks, which always relate to the entire company). This is the case for "green bonds", which devote the money borrowed by the issue of the security to a sustainable investment. Non-existent before 2007, they have experienced tremendous growth: the annual issue volume has risen from 50 billion dollars in 2014 to 160 in 2017 and 522 in 2021 (figures from the Climate Bonds Initiative). From the outset, similarly to the case of ESG indices, the definition of the conditions for obtaining the "green" label was debated, with several institutions proposing their certification (Ehlers and Packer 2017). A new step was taken in 2016 when Moody's proposed refining the binary assessment (green or not) by *rating* the "greenness" of bonds on a scale ranging from GB1 to GB5. The next year, Standard & Poor's followed suit with a similar system ranging from E1 to E4. Is this the future convention for a sustainable bond market? Even if these developments are very recent and have therefore been the subject of few publications, several EC/SC research projects shed light on them, either directly or via their study of a related issue (social impact bonds).

The green bond market has been studied by several researchers via the "investment in form" involved in transforming an ecological project into a financial security (cross reference: Thévenot). This concept is used to capture the plurality of "efforts" required to qualify a reality, that is to give it the form of a rating (section "The Power

of Ratings"), an index, a commodity, or a financial asset. In the case of green bonds, "[...] the qualification of economic objects requires both collective socio-technical and metrological work and social conventions and moral justifications" (Langley et al. 2021: 497). The role of indicators in this shaping effort has been pinpointed. In addition to the aforementioned Moody's and S&P green ratings, "green bond market indices" have also emerged. How is this possible, given the multi-dimensionality of bonds that has been identified as a resistance to the emergence of a bond market index? This is because the green bond market is narrower and therefore reduces this resistance: it allows for the constitution of these "green bond market indices" by relaxing the constraint of arbitrarily choosing an Apple bond to represent the firm in the index – only bonds labeled "green" matter. These green indices have played a key role in the stabilization of the new market by generating distinctions that unite the various market participants: "[...] the green credentials of green bonds, as well as other bond characteristics, allows green bond market indices to differentiate from one another as well as determine the difference between green and standard bonds. These market data enter into reports that bring together stakeholders from all sections of the market" (Tripathy 2017: 248). Once again, this work from the EC/SC reveals the active role of measurement conventions in the establishment of a financial market.

Moreover, just as is the case for the green *stock* market, these metrological devices of the green bond market remain unstable because they carry plural logics. According to Paul Langley et al. (2021), they are torn between a classic financial convention that values green bonds as diversification vehicles and a more environmentalist convention that values them in their decarbonization role: "[...] as our fieldwork underscored, standardization remains the focus for contestation between and within the mainstream and ethical modalities of qualification" (Langley et al. 2021: 505). Other case studies have testified to this tension in certain segments of the green bond market, such as "forest bonds", which claim to both combat deforestation and offer a growing return from the carbon credits acquired (Sullivan 2018). As in the case of ESG indices, these different meanings of the new bond market metrics are supported by a plurality of actors with divergent perspectives and interests. The convention that will prevail is therefore uncertain and will depend on the debates currently underway, but also on the balance of power that structures this new market. In the wake of Alain Desrosières' sociology of quantification, this research reveals the political stakes involved in establishing market standards.

Other applications of EC/SC deserve to be mentioned in this section because they inform the world of sustainable bonds from a related object: social impact bonds. The latter are not bonds in the strict sense (not tradable and their repayment is conditional on the success of the program). At the heart of the movement of "social finance and impact investing" (Chiapello and Knoll 2020a), they are more like public-private partnerships in which investors finance a project – integration through employment, health, childcare, environmental protection – and, if the project succeeds, are reimbursed at maturity by the government (theoretically thanks to the savings in public spending made possible by the project). Invented in 2010 in the United Kingdom, social impact bonds have experienced strong growth since then,

albeit concentrated in the United Kingdom (93 of the 276 bonds) and involving much smaller amounts than green bonds (25 million dollars collected in 2021 compared to 522 billion for green bonds). What has intrigued several researchers from EC/SC is that, like green bonds, they rely on novel metrics that are subject to debate between different normative orders (Studer 2022). Depending on how "social returns", avoided public expenditures, and interest rates, among others, are quantified, one normative order is favored over another (Barman 2015).

As a result, normative plurality is at the heart of these alternative bonds. In a similar vein to Élise Penalva Icher's work on the ESG market, Eve Chiapello and Lisa Knoll have shed light on this plurality from the perspective of the EC/SC framework, by identifying a typology of conventions used to qualify these social impact bonds: "[. . .] social impact bonds are usually planned as projects (entrepreneurial convention), they tend to address the behavioral/psychological patterns of individuals (behavioral convention), they are designed to attract investors (financial conventions), and they often require philanthropists to back up the private investments (philanthropic convention)" (Chiapello and Knoll 2020b: 107). But these bonds, the authors argue, don't arise in a blank universe. They are part of an institutional setting, that of the welfare state, which is itself caught between four conventions: the *communitarian convention*, which values organic reciprocity; the *civic convention*, which relies on redistribution mechanisms; the *full-employment convention*, which activates macroeconomic levers; and the *market convention*, which relies on the efficiency of free competition. Despite the affinities between social impact bonds and the market convention (Knoll 2019), the coexistence of these eight conventions results in tensions and compromises at the heart of contemporary social impact bonds. Using the same theoretical framework, Alec Fraser et al. (2023) document some contestations to which this plurality gives rise through four case studies from the British, Dutch, German, and Swiss markets.

These publications have shed light on the role – cognitive *and* political – of indicators in the emergence and stabilization of green and social impact bonds. They have highlighted the importance of paying close attention to the development of new standards when sustainable financial products emerge. These standards are not self-evident and give considerable "power of valorization" (Eymard-Duvernay 2012) to those in a position to define or influence them (for another use of this concept, see cross reference: Batifoulier). What is more, the "sustainability" potential of these innovations is greatly impacted by the measurement convention that will prevail. However, as the subject is still in its infancy, the two areas of analysis identified in the previous sections remain to be developed. On the one hand, the key indicators of this new bond market, such as green ratings or green bond indices, need to be explored in greater depth. Such an approach would make it possible to identify the actors capable of setting tomorrow's standards and the determinants of their methodological choices. On the other hand, the impact of these indicators on the decision-making process of the various market participants – retail investors, asset managers, traders, etc. – deserves to be addressed using the tools of EC/SC, as has been done for traditional stock market indices. As Jan Fichtner et al. (2023) have shown, the

current redefinition of the conventions of interpretation is probably the most promising channel for effectively redirecting capital toward more sustainable investments.

4 Conclusion

What role can – and do – conventions play in the decision-making process of traders and asset managers in the age of sustainable finance? Three facets of this problem make the work of EC/SC presented in this chapter particularly relevant. First, in financial markets, the information influencing investment decisions usually takes a *quantified* form, such as indices and ratings. And yet, since the pioneering work of Alain Desrosières, EC/SC offers a fruitful approach for capturing the quantification "in the making", in all its cognitive and normative dimensions. Second, the sustainable finance movement represents a challenge – more or less consequential – to the *moral norms* underpinning the conventions of classical finance. Therefore, it leads market actors to argue for the validity of their position vis-à-vis this "challenge". Since its inception, EC/SC has been attentive to the way market participants deal with the question of values, and it allows such situations to be taken seriously. Third, the financial world has not been instantly and unanimously converted to environmental concerns and is today an arena of *debate*; traditional norms are no longer self-evident, but new ones have not become the norm. In this climate of instability, where conventions are contested, EC/SC helps to clarify things, notably through the framework of the "orders of worth" (cross reference: Buclet; cross reference: Carnoye). It also brings to light the power dynamics that underpin this struggle between financial conventions (Eymard-Duvernay 2012).

In the course of the chapter, some under-documented issues that could usefully be clarified by EC/SC-inspired research also appeared. This evolving and urgent research topic indeed needs to be informed by careful studies of financial devices. As the socio-economist Benjamin Braun (2016) has argued, drawing incidentally on the case of exchange-traded funds (ETFs), macroscopic analyses of capitalism must be informed by more localized insights into the underpinnings of the contemporary economic system. Through its examination of financial indicators, both traditional and sustainable, EC/SC thus contributes to the understanding of global economic dynamics. Certainly, in a discrete way, but offering grips on reality.

5 Cross-References

- ▶ Convention Theory as an Approach to Financial Bubbles and Crashes
- ▶ Conventions: Meanings and Applications of a Core Concept in Economics and Sociology of Conventions
- ▶ Health, Conventions, and Society
- ▶ Investments in Forms
- ▶ Orders of Worth and Analysis of Controversies

- ▶ Socio-economics of Quantification and Value: The Perspective of Convention Theory
- ▶ The Economies of Worth Model. Operating Principles and Ways to Apply it
- ▶ Understanding Finance Through Convention Theory
- ▶ Unemployment and Evaluation Tests in the Labor Market – Conventions of Unemployment

References

Barman, Emily. 2015. Of principle and principal. Value plurality in the market of impact investing. *Valuation Studies* 3 (1): 9–44. https://doi.org/10.3384/VS.2001-5592.15319.

Benchemam, Faycel, and Isabelle Chambost. 2010. Quand l'analyse ISR devient financière. Une analyse des dispositifs cognitifs et organisationnels de légitimation. *Economies et Societes* 44 (11): 65–81.

Besedovsky, Natalia. 2018. Uncertain meanings of risk. Calculative practices and risk conceptions in credit rating agencies. In *Uncertain futures. Imaginaries, narratives, and calculation in the economy*, ed. Jens Beckert and Richard Bronk, 236–256. Oxford: Oxford University Press.

Boot, Arnoud, Todd Milbourn, and Anjolein Schmeits. 2006. Credit ratings as coordination mechanisms. *Review of Financial Studies* 19 (1): 81–118. https://doi.org/10.1093/rfs/hhj009.

Braun, Benjamin. 2016. From performativity to political economy: Index investing, ETFs and asset manager capitalism. *New Political Economy* 21 (3): 257–273. https://doi.org/10.1080/13563467.2016.1094045.

Brière, Marie. 2005. *Formation des taux d'intérêt: Anomalies et croyances collectives*. Paris: Economica.

Çalışkan, Koray, and Michel Callon. 2010. Economization, part 2. A research programme for the study of markets. *Economy and Society* 39 (1): 1–32. https://doi.org/10.1080/03085140903424519.

Carruthers, Bruce, and Barry Cohen. 2010. Noter le crédit. Classification et cognition aux États-Unis. *Genèses* 79 (2): 48–73. https://doi.org/10.3917/gen.079.0048.

Chambost, Isabelle. 2019. The role of financial analysts in the social construction of financial value. In *The making of finance. Perspectives from the social sciences*, ed. Isabelle Chambost, Marc Lenglet, and Yamina Tadjeddine, 37–43. London: Routledge.

Charron, Jacques-Olivier. 2013. Transacting without pricing, pricing without transacting. *World* 1 (2): 48–53.

Chiapello, Eve, and Lisa Knoll. 2020a. Social finance and impact investing. Governing welfare in the era of financialization. *Historical Social Research* 45 (3): 7–30.

———. 2020b. The welfare conventions approach. A comparative perspective on social impact bonds. *Journal of Comparative Policy Analysis: Research and Practice* 22 (2): 100–115. https://doi.org/10.1080/13876988.2019.1695965.

Chiapello, Eve, and Christian Walter. 2016. The three ages of financial quantification. A conventionalist approach to the financiers' metrology. *Historical Social Research* 41 (2): 155–177. https://doi.org/10.12759/hsr.41.2016.2.155-177.

Cook, Eli. 2017. *The pricing of progress. Economic indicators and the capitalization of American life*. Harvard: Harvard University Press.

De Goede, Marieke. 2005. *Virtue, fortune and faith. A genealogy of finance*. Minneapolis: University of Minnesota Press.

Desrosières, Alain. 2010. *The politics of large numbers. A history of statistical reasoning*. Cambridge: Harvard University Press.

Diaz-Bone, Rainer. 2011. The methodological standpoint of the "économie des conventions". *Historical Social Research* 36 (4): 43–63.

———. 2017. Discourses, conventions, and critique – Perspectives of the institutionalist approach of the economics of convention. *Historical Social Research* 42 (3): 79–96. https://doi.org/10.12759/hsr.42.2017.3.79-96.

Dupéret, Guillaume. 2022. *Surveiller... et punir ? Trois paradigmes de sciences économiques et sociales dans la manipulation du Libor*. Thèse en économie et finances, Université Paris sciences et lettres, Paris.

Duterme, Tom. 2021. Comment émerge un indice boursier? Histoire du BEL 20. *Revue française de socio-économie* 27 (2): 157–174.

———. 2023a. The engineering of stock market indices. Winners and losers. *Journal of Cultural Economy* 16 (1): 17–31. https://doi.org/10.1080/17530350.2022.2098513.

———. 2023b. Bloomberg and the GameStop saga. The fear of stock market democracy. *Economy and Society* 52 (3): 373–398. https://doi.org/10.1080/03085147.2023.2189819.

———. 2023c. The semiosis of stock market indices. Taking Charles Sanders Peirce to a trading room. *Valuation Studies* 10 (1): 10–31.

Ehlers, Torsten, and Franck Packer. 2017. Green bond finance and certification. *BIS Quarterly Review* 2017 (September): 89–104.

Escrig-Olmedo, Elena, María Fernández-Izquierdo, Idoya Ferrero-Ferrero, Juana Rivera-Lirio, and María Muñoz-Torres. 2019. Rating the raters. Evaluating how ESG rating agencies integrate sustainability principles. *Sustainability* 11 (3). https://doi.org/10.3390/su11030915.

Eymard-Duvernay, François. 2012. Le travail dans l'entreprise: pour une démocratisation des pouvoirs de valorisation. In *L'entreprise, formes de la propriété et responsabilités sociales*, ed. Baudoin Roger, 227–278. Paris: Éditions Lethielleux.

Fichtner, Jan, Robin Jaspert, and Johannes Petry. 2023. Mind the ESG capital allocation gap: The role of index providers, standard-setting, and "green" indices for the creation of sustainability impact. *Regulation and Governance* 17 (3). https://doi.org/10.1111/rego.12530.

Flandreau, Marc, and Joanna Sławatyniec. 2013. Understanding rating addiction. US courts and the origins of rating agencies' regulatory license (1900–1940). *Financial History Review* 20 (3): 237–257. https://doi.org/10.1017/S096856501300022X.

Fraser, Alec, Lisa Knoll, and Debra Hevenstone. 2023. Contested social impact bonds. Welfare conventions, conflicts and compromises in five European active-labor market programs. *International Public Management Journal* 26 (3): 339–356. https://doi.org/10.1080/10967494.2022.2089792.

Giannone, Diego. 2017. The politics of global indicators in designing, promoting and legitimating the competition state. *Partecipazione e Conflitto* 10 (2): 472–491.

Hautcoeur, Pierre-Cyrille. 2006. *Why and how to measure stock market fluctuations? The early history of stock market indices, with special reference to the French case*. PSE working paper 10.

Keynes, John Maynard. 1936. *The general theory of employment, interest and money*. London: Macmillan.

Knoll, Lisa. 2019. Sustainable markets and the state. Taxation, cap-and-trade, pay-for-success, and nudging. *Historical Social Research* 44 (1): 231–257.

Knorr Cetina, Karin, and Urs Bruegger. 2002. Global microstructures. The virtual societies of financial markets. *American Journal of Sociology* 107 (4): 905–950. https://doi.org/10.1086/341045.

Kornberger, Martin. 2017. The values of strategy. Valuation practices, rivalry and strategic agency. *Organization Studies* 38 (12): 1753–1773. https://doi.org/10.1177/0170840616685365.

Langley, Paul, Gavin Bridge, Harriet Bulkeley, and Bregje van Veelen. 2021. Decarbonizing capital. investment, divestment and the qualification of carbon assets. *Economy and Society* 50 (3): 494–516. https://doi.org/10.1080/03085147.2021.1860335.

MacKenzie, Donald. 2006. *An engine, not a camera. How financial models shape markets*. Cambridge, MA: MIT Press.

———. 2009. *Material markets. How economic agents are constructed*. Oxford: Oxford University Press.

Millo, Yuval. 2007. Making things deliverable. The origins of index-based derivatives. *The Sociological Review* 55 (2_suppl): 196–214. https://doi.org/10.1111/j.1467-954X.2007.00736.x.

Montagne, Sabine. 2009. Des évaluateurs financiers indépendants? Un impératif de la théorie économique soumis à l'enquête sociologique. *Cahiers Internationaux de Sociologie* 126: 131–148.

Muniesa, Fabian. 2011. 15. Comment la Bourse fait ses prix. Ethnographie d'un cours d'action boursière. In *Humains, non-humains*, ed. Sophie Houdart and Olivier Thiery, 176–190. Paris: La Découverte.

Olegario, Rowena. 2006. *A culture of credit: Embedding trust and transparency in American business*. Cambridge: Harvard University Press.

Orléan, André. 1999. *Le pouvoir de la finance*. Paris: Odile Jacob.

Penalva Icher, Élise. 2008. Comment devenir légitimes ? Le double rôle des syndicats dans le marché de l'investissement socialement responsable. *La revue de l'ires* 57 (2): 111–140. https://doi.org/10.3917/rdli.057.0111.

———. 2009a. Construire une qualité pour le "socialement responsable"? *Revue Française de Socio-Économie* 4 (2): 59–81. https://doi.org/10.3917/rfse.004.0059.

———. 2009b. Le rôle des réseaux sociaux dans la création d'une activité financière. *Management et avenir* 27 (7): 106–118. https://doi.org/10.3917/mav.027.0106.

———. 2010. Amitié et régulation par les normes. Le cas de l'investissement socialement responsable. *Revue Française de Sociologie* 51 (3): 519–544. https://doi.org/10.3917/rfs.513.0519.

———. 2016. La professionnalisation dans l'investissement socialement responsable. Le cas des analystes extra-financiers. *Revue française de socio-économie* 16 (1): 141–159. https://doi.org/10.3917/rfse.016.0141.

Petry, Johannes, Jan Fichtner, and Eelke Heemskerk. 2021. Steering capital. The growing private authority of index providers in the age of passive asset management. *Review of International Political Economy* 28 (1): 152–176. https://doi.org/10.1080/09692290.2019.1699147.

Sinclair, Timothy J. 2005. *The new masters of capital. American bond rating agencies and the politics of creditworthiness*. Ithaca: Cornell University Press.

Studer, Marion. 2022. Social impact measurement. An interpretive framework based on the economics of conventions and two French case studies. *Annals of Public and Cooperative Economics* 93 (2): 293–312. https://doi.org/10.1111/apce.12366.

Sullivan, Sian. 2018. Bonding nature(s)? Funds, financiers and values at the impact investing edge in environmental conservation. In *Valuing development, environment and conservation*, ed. Sarah Bracking, Aurora Fredriksen, Sian Sullivan, and Philip Woodhouse, 101–121. London: Routledge.

Tadjeddine, Yamina. 2000. Les prises cognitives de la rationalité. *Une typologie des décisions spéculatives. Politix.* 13 (52): 57–71. https://doi.org/10.3406/polix.2000.1119.

———. 2016. Service financier. In *Dictionnaire des conventions. Autour des travaux d'Olivier Favereau*, ed. Philippe Batifoulier, Franck Bessis, Ariane Ghirardello, Guillemette de Larquier, and Delphine Remillon, 375–380. Villeneuve-d'Ascq: Presses Universitaires du Septentrion.

Taupin, Benjamin. 2012. The more things change . . . Institutional maintenance as justification work in the credit rating industry. *Management* 15 (5): 529–562. https://doi.org/10.3917/mana.155.0529.

Theurillat, Thierry, Olivier Crevoisier, and Victorya Salomon. 2017. Finance de marché et fonds d'investissement durables. La coupure au territoire. *Géographie, économie, société* 19 (4): 537–560. https://doi.org/10.3166/ges.19.2017.0024.

Tripathy, Aneil. 2017. Translating to risk. The legibility of climate change and nature in the green bond market. *Economic Anthropology* 4 (2): 239–250. https://doi.org/10.1002/sea2.12091.

Walter, Christian. 2006. Les martingales sur les marchés financiers. Une convention stochastique ? *Revue de Synthèse* 127 (2): 379–391. https://doi.org/10.1007/BF02972107.

———. 2020. Sustainable financial risk modelling fitting the SDGs. Some reflections. *Sustainability* 12 (18). https://doi.org/10.3390/su12187789.

Wyart, Matthieu, and Jean-Philippe Bouchaud. 2007. Self-referential behaviour, overreaction and conventions in financial markets. *Journal of Economic Behavior and Organization* 63 (1): 1–24. https://doi.org/10.1016/j.jebo.2004.11.016.