F. Muniesa, L. Doganova, H. Ortiz, A. Pina-Stranger, F. Paterson, A. Bourgoin, V. Ehrenstein, P-A. Juven, D. Pontille, B. Saraç-Lesavre and G. Yon, *Capitalization: A Cultural Guide* (Paris, Presses des Mines, 2017)

In their new book—the result of research spanning several years and several different countries and organizational settings—Fabian Muniesa and colleagues examine something they define as the "asset condition" [34]. This concept, at first difficult to understand, comes into sharper focus as one continues reading their book. As such, Muniesa *et al*. have made an important contribution to a growing analytical and empirical focus on "assets" or "assetization" across a range of social science disciplines—and some "undisciplines"— beyond the hallowed grounds staked out by neoclassical economics. Before I outline the arguments in the book, I would like to position it within these wider debates.

It is likely that many readers think of fairly everyday *things*—and I emphasize that word deliberately—as assets, for example, their house or car. However, the term is increasingly used, sometimes metaphorically and sometimes not, to refer to much more.[1] For reasons of space, I will limit my discussion to a few key examples. My own work,[2] which is situated at the interface of political economy and science and technology studies (STS), fits neatly alongside that of Muniesa *et al*. in *Capitalization*. I have been trying to unpick assets as a concept for some time in order to understand their role in contemporary, and specifically technoscientific, capitalism. The book also reflects a burgeoning interest in assets in the broader STS community, represented by the research of scholars such as Cooper

[1] Ève Chiapello, 2017, "La Financiarisation des politiques publiques", *Mondes en Developpement*, 178(2): 23-40.

[2] Kean Birch and D. Tyfield, 2013, "Theorizing The Bioeconomy: Biovalue, Biocapital, Bioeconomics or… what?", *Science, Technology and Human Values*, 38(3): 299-327; Kean Birch, 2015, *We Have Never Been Neoliberal: A Manifesto for a Doomed Youth* (Winchester, Zero Books); K. Birch, 2017a, "Rethinking Value in the Bio-Economy: Finance, Assetization and the Management of Value", *Science, Technology and Human Values*, 42(3): 460-490; K. Birch, 2017b, "Financing Technoscience: Finance, Assetization and Rentiership, *in* D. Tyfield, R. Lave, S. Randalls and C. Thorpe, eds, *The Routledge Handbook of the Political Economy of Science* (London, Routledge: 169-181).

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Kean Birch, York University [kean@yorku.ca]

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and Waldby,[3] Lezaun and Montgomery,[4] Martin,[5] Vezyridis and Timmons,[6] Hogarth,[7] Delvenne,[8] and Papadopoulos,[9] amongst many others. All of this STS scholarship is concerned with trying to unpack the way in which technoscience is turned into assets—whether tangible or, more likely, intangible—and then valued as such; that is, as a resource that generates future earnings. Similarly, there is a growing interest in such assetization processes in other fields including political science,[10] law,[11] human geography,[12] political ecology,[13] sociology,[14] and cultural studies,[15] although much of this research is more clearly centred on a "financialized" understanding of the asset condition.

Doing some disservice to the variety and depth of this work, I would suggest that all of it is, in one way or another, primarily concerned with how things are constructed and turned into assets underpinned by specific monetization techniques and valuation devices constituted by capitalization, or the discounting of future value in the present. Basically, it is an examination of how a stream of cash is

[3] M. Cooper and C. Waldby, 2014, *Clinical Labor: Tissue Donors and Research Subjects in the Global Bioeconomy* (Durham, Duke University Press).

[4] J. Lezaun and C. Montgomery, 2015, "The Pharmaceutical Commons: Sharing and Exclusion in Global Health Drug Development", *Science, Technology and Human Values*, 40(1): 3-29.

[5] P. Martin, 2015, "Commercialising Neurofutures: Promissory Economies, Value Creation and the Making of a New Industry," *BioSocieties*, 10(4): 422-443.

[6] P. Vezyridis and S. Timmons, 2017, "Understanding the care.data Conundrum: New Information Flows for Economic Growth", *Big Data & Society* [doi.org/10.1177/2053951716688490].

[7] S. Hogarth, 2017, "Valley of the unicorns: Consumer genomics, venture capital and digital disruption," *New Genetics & Society*, 36(3): 250-272.

[8] P. Delvenne, 2017, "Embedded Promissory Futures: The Rise of Networked Agribusiness in Argentina's Bioeconomy", *in* V. Pavone and J. Goven, eds, *Bioeconomies* (London, Palgrave: 227-249).

[9] D. Papadopoulos, 2018, *Experimental Practice* (Durham NC, Duke University Press).

[10] E.g. J. Nitzan and S. Bichler, 2009, *Capital as Power* (London, Routledge).

[11] E.g. R. Dreyfus and S. Frankel, 2015, "From Incentive to Commodity to Asset: How International Law is Reconceptualizing Intellectual Property", *Michigan Journal of International Law*, 36: 101-142.

[12] E.g. N. Larder, S.R. Sippel and N. Argent, 2018, "The Redefined Role of Finance in Australian Agriculture," *Australian Geographer*, 49: 397-418; C. Ward and E. Swyngedouw, 2018, "Neoliberalisation from the Ground Up: Insurgent Capital Regional Struggle, and the Assetisation of Land," *Antipode*, 50(4): 1077-1097.

[13] E.g. A. Ducastel and W. Anseeuw, 2017, "Agriculture as an Asset Class: Reshaping the South African Farming Sector," *Agriculture & Human Values*, 34(1): 199-209; S. Ouma, forthcoming, "This can ('t) be an Asset Class: The world of Money Management, 'Society', and the Contested Morality of Farmland Investments," *Environment and Planning A* [doi.org/10.1177/0308518X18790051].

[14] E.g. Chiapello 2017, cf. *supra*; D. Neyland, 2018, "On the Transformation of Children At-Risk into an Investment Proposition: A Study of Social Impact Bonds as an Anti-Market Device", *The Sociological Review*, 66(3): 492-510.

[15] E.g. E. Rosamond, 2018, "To Sort, To Match and to Share: Addressivity in Online Dating Platforms", *Journal of Aesthetics & Culture*, 10(3): 32-42.

constituted—whether as a steady stream, or a lumpy one, or something else altogether—and how it can be valued as such. As an example, consider the conversion of scientific knowledge into an asset: it first requires the construction of a thing that can be monetized and capitalized, such as a journal article or patent; then a technique to limit access (e.g. paywall); and finally an assessment of the value of that limited access based on its future earnings (e.g. discounted cash flow formula). In my view, and increasingly in the view of many others, understanding this assetization process is key to understanding contemporary capitalism, especially a capitalism dominated by technological platforms,[16] personal data,[17] quantification,[18] and so on. So, how do Muniesa *et al*. understand contemporary capitalism?

Capitalization begins with a brief outline of the authors' approach. As they note from the beginning, the book's namesake concept—that is, capitalization—entails "envisaging the value of something in terms of an investment" [11]. As such, it involves both "capital" and "discounting", and the examination of how things are turned into assets, as mentioned above [12]. According to Muniesa *et al*.—and others[19] —the focus on assets provides a useful counterpoint to more dominant—and "wrong" according to the authors—perspectives focused on commodities "as the crux of an analysis of capitalistic valuation" [13]. Taking a pragmatist approach, Muniesa *et al*. understand capitalization as an "activity" rather than a "form" [14], characterizing said activity as "collective, organized, meaningful and lived" rather than following particular logics [16]. As they note towards the end of this framing chapter, *Capitalization*'s authors are not providing a systematic approach to the study of assets or capitalization; instead, they are providing a starting point for others to take up the challenge of analysing how very diverse things, ranging from forests through start-up firms to hospital beds, are made into assets—that is, how they are understood and managed as monetary investments.

At this point I think it is useful and important to provide a quick rundown of each chapter, although perhaps with limited details on the contents and more focus on the key insights that each provides. In Chapter 2, for example, the authors are concerned with the valuation moment between investors and entrepreneurs. As they discuss this

[16] E.g. P. Langley and A. Leyshon, 2017, "Platform Capitalism: The Intermediation and Capitalisation of Digital Economic Circulation," *Finance and Society*, 3(1): 11-31; N. Srnicek, 2016, *Platform Capitalism* (Cambridge, Polity Press).

[17] E.g. Vezyridis and Timmons 2017, cf. *infra* n. 6.

[18] E.g. M. Fourcade and K. Healey, 2016, "Seeing like a market," *Socio-Economic Review*, 15(1): 9-29.

[19] E.g. Birch 2017a, cf. *infra* n. 2.

meeting and the dance of valuation, they highlight how value has relatively little to do with market price; this is a surprise to anyone raised, intellectually, on a diet of neoliberalism critique.[20] Rather, they argue that value reflects expected future returns, or earning power, reinforcing the argument made by Jens Beckert[21] and others about the importance of expectations in political economy. As such, Muniesa *et al*. emphasize that value evolves: it mutates, it shape-shifts, and it involves active management.[22]

Similar concerns emerge in Chapter 3, which focuses on the (opportunity cost) logic of "discounting"—namely, the fact that there is always something else to do with your money. As this would suggest, asset values are, therefore, an achievement of the use of money, of investment, which they ably illustrate with a discussion of Edmund Franz von Gehren's 19th century work on forestry valuation. Next, in Chapter 4, the authors consider how entrepreneurship is usually framed in "asset terms" today by considering carbon offsetting in the Democratic Republic of the Congo. As they note, turning something into an asset—like converting a forest into carbon offsets—represents "what you do in order to protect something from the vagaries of commodification" [51]. Reinforcing the arguments of people like Romain Felli,[23] they thereby highlight the extent to which an analysis of the "commodity condition" no longer provides the analytical tools needed to unpack contemporary capitalism. We need something else, and *Capitalization* provides an important and timely resource—although perhaps not an asset—in this regard.

Coming to Chapter 5, the authors consider the "stories" and narrative scripts that underpin capitalization, using the example of the US biotechnology sector to illustrate the extent to which investors (e.g. venture capitalists, or VC) and scientists talk a different language. These social actors need to be brought together, which means creating narratives of success and failure. Personally, this chapter reinforced what venture investors have told me in research interviews as well as my own sense that "finance"—namely, capital, investment, asset values, and suchlike—is constituted as a collective ecosystem.[24] It

[20] E.g. D. Harvey, 2005, *A Brief History of Neoliberalism* (Oxford, Oxford University Press); J. Peck, 2010, *Constructions of Neoliberal Reason* (Oxford, Oxford University Press); P. Mirowski, 2013, *Never Let a Serious Crisis Go to Waste* (London, Verso).

[21] Jens Beckert, 2016, *Imagined Futures* (Cambridge MA, Harvard University Press).

[22] Birch 2017a, cf. *infra* n. 2.

[23] R. Felli, 2014, "On climate rent", *Historical Materialism*, 22(3-4): 251-280.

[24] Kean Birch, 2016, *Innovation, Regional Development and the Life Sciences: Beyond Clusters* (London, Routledge).

depends on analysts, brokers, corporate lawyers, and so on, as much as on investors and investable assets. As Chapter 6 illustrates, capitalization (and/or finance) is constituted as collective activity through particular political-economic "devices",[25] such as business plans. These help to reframe and retrain the thinking of entrepreneurs, as much as they help investors compare across almost indistinguishable sectors. Much of this, as discussed in Chapter 7, is framed by the discourses of "value creation", which go beyond simply making money.[26] As Muniesa and colleagues note, capitalization is a metaphor as much as a set of practices or devices; as such, the daily workings of management consultants (e.g. PowerPoint slides), for example, can be converted "into an asset that creates 'value'" [79].

At this point in *Capitalization*, the book turns its capitalization gaze towards areas that we might think sit outside of the asset condition; for example, academic research, public utilities, hospital management, and nuclear waste. As they argue in Chapter 8, where they discuss academic research, what "the traveler should not miss here is the performative breadth of a cultural template, rather than the nuts and bolts of a balance sheet" [86]. As such, the "asset condition" can alter the activity of academic research not simply through the balance sheet, but through the way that researchers come to frame and reframe their activity—for example, in terms of "investment", "return", "value", etc. Up next, Chapter 9 addresses the mathematics of capitalization and, in so doing, presents the analytical, normative, and political implications of discounting. The book would probably have benefited from including this chapter earlier on, as it outlines much that the reader needs to understand the asset condition. In particular, the underlying assumption of capitalization being that the "investor"—itself an ambiguous figure[27]—owns the future, in a very real sense (e.g. property rights) as well as politically and normatively. According to Dreyfus and Frankel,[28] for example, the implications of assetization for international trade and investment law mean that

[25] See L. Doganova and F. Muniesa, 2015, "Capitalization Devices: Business Models and the Renewal of Markets," *in* M. Kornberger, L. Justesen, J. Mouritsen and A. Koed Madsen, eds, *Making Things Valuable* (Oxford, Oxford University Press: 109-215).

[26] See also D. Glabau, 2017, "Conflicting Assumptions: The Meaning of Price in the Pharmaceutical Economy," *Science as Culture*, 26(4): 455-467; F. Muniesa, 2017, "On the Political Vernaculars of Value Creation," *Science as Culture*, 26(4): 445-454.

[27] H. Ortiz, 2013, "The Limits of Financial Imagination: Free Investors, Efficient Markets, and Crisis," *American Anthropologist*, 116(1): 38-50.

[28] R. Dreyfuss and S. Frankel, 2015, "From Incentive to Commodity to Asset: How International Law is Reconceptualizing Intellectual Property," *Michigan Journal of International Law*, 36(4): 557-602.

political decisions and choices are necessarily considered secondary to ensuring the *expected* returns of investors—that is, the real "owners" of the future.[29] As such, all other social actors—and social values—end up treated as costs to the investor and their realization of future cash flows.

The final three chapters—Chapters 10, 11, and 12—return to areas that we might think sit outside of this investor logic. However, *Capitalization* shows that the extent to which public utilities, hospital management, and nuclear waste planning are distinct from venture capital, discounting models, or similar is only a matter of semiotics. Although these chapters are, in my view, less interesting than the preceding, they do illustrate the extent to which assets are constructed through an active preparation of things, terrains, stories, and so on.

So, what is the asset condition that occupies the authors of *Capitalization*? In their Conclusion, they spell out their answer to this question; namely, it is how things are turned into investments, into earnings, and into "capital". As Muniesa *et al*. and, increasingly, many others argue, analysing the array of knowledges, practices, and devices involved in this process is critical for understanding contemporary capitalism, especially in terms of the "becoming asset" of social life [128]. It is this "condition" that we must understand. According to Muniesa *et al*., assets are more than simple (political-economic) objects of investment: they need to be "neatly delineated" with their socio-technical boundaries configured by legal ownership rights, physical materialities, and "attributable scope" [129]; and they need to represent an economic value that is not only defined in terms of future revenues, but also entails the insinuation of this asset logic as common sense thinking throughout diverse social activities. Assets are made, and this entails the deployment of techno-economic knowledges (e.g. accounting), practices (e.g. discounting), and organization (e.g. the firm), reflecting the overlapping boundaries which both constitute things as assets and set them apart as analytical objects of concern.[30]

As I end this review essay, I wrack my brain—once again—to try and remember where and when I first became interested in assets, but—once again—my memory fails me. Suffice to say, I find assets

[29] See Kean Birch and Fabian Muniesa, forthcoming, *Turning Things into Assets* (Cambridge MA, MIT Press).

[30] Kean Birch, 2018, "Assets, Commodities, and their Boundaries," Paper presented at the *European Association for the Study of Science and Technology Conference* (Lancaster, UK).

fascinating, and it is a pleasure to read the work of others who share that fascination.

KEAN BIRCH

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