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Green Bonds and the Contradictions They Reveal

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Introduction: Green Bonds, Metabolism, and Financial Engines

During the Finance Day event of the latest global climate summit, COP26, powerful decision makers in government and industry gathered in Glasgow, Scotland to discuss how to pay for the coming transition from fossil fuels to renewable energy. In her opening remarks, US Treasury Secretary Janet Yellen claimed that “the gap between what governments have and what the world needs is large, and the private sector needs to play a bigger role. The old notions of why the private sector should decarbonize -- because planet must be put before profit -- are no longer universally true” (Yellen 2021). Specious claims of binding austerity aside, there are two striking features of this passage to consider for the trends they point to in the political economy of climate change. The first is that governments continue to rely on the private sector to lead the technical dimensions of the decarbonization effort, and that this deferral of responsibility, however infuriating to proponents of direct state intervention, can no longer be written off by critics as a pipedream. Renewables are becoming economically competitive in energy markets, and there is no shortage of investors eager to see their money put toward the development of such ends. Second and even more striking, is that Yellen goes so far as to claim that the opposition between the planet and profit is unraveling. These two developments -- the expanding role of private capital, and its potential capacity to meet the decarbonization challenge -- are exemplified by a financial instrument known as the ‘green bond,’ a debt instrument used to raise funds for a variety of climate projects. Demand for these green labeled bonds has seen explosive growth in recent years. Since their introduction in 2006, green bond issuance has rapidly

accelerated each year, with cumulative investments in them now toppling \$1.6 trillion¹.

Despite their staggering popularity among climate conscious elites, green bonds are but one example of a broader trend in finance of labeling asset portfolios that are thought to have auspicious Environmental, Social, and Governmental impacts as ‘ESG’ investments. Examples of highly rated ESG investments would include securities in companies that generate wind and solar power, ones that guarantee high wages for their employees, or firms governed by a diverse board of directors, respectively, but need not qualify for all three categories to be designated ESG. The question of corporate social responsibility that ESGs index has become a fundamental part of the investment banking world. These ratings have become a metric of perceived virtue. It is almost as if capitalism has developed a mechanism to correct the very social and environmental crises it has itself produced. Unsurprisingly, there is widespread skepticism expressed by everyone from the financial services industry to their clients, municipalities, regulators, and journalists over the legitimacy of the ESG labels and their subcategories like green bonds. This paper seeks to track debates over the green bond label specifically, deciphering what they can and cannot do, and how that question is negotiated through disputes over what they mean and how they are defined. I argue that these semiotic conflicts are sustained by a broader set of contradictions that capitalism is presently confronting as it seeks to address environmental crises, and that the discourse surrounding green bonds helps bring those contradictions into focus. Green bonds exemplify an emergent attempt to overcome the opposition Yellen identifies above between planet and profit. As she suggests, that conflict is no longer absolute -- but it remains more stubborn than she lets on. Green bonds have so far proved to be an inadequate means of accomplishing the transformation their proponents seek through them. Even so, this account of their shortcomings is at the same time sympathetic to certain

dimensions of their aspirational content, above all concerned with producing a better understanding of how a renewable energy transition might be funded.

As global leaders assembled for the climate conference, crowds frustrated with perduring climate inaction and false promises gathered outside to protest the theater of the summit. Pledges to curb emissions have piled up with little substantive follow through from governments. Protesters expressed outrage over what they saw as greenwashing – exaggerated claims of positive environmental change from those who stand to gain from environmental virtue signaling. Here attention was being called to the gap between what leaders say they will do and what actually gets done, which is a fundamentally semiotic question. If climate accountability turns on the continuity of talk and action, such a dilemma invites questions over the relation between words and things. We need semiotic theory to parse out what is being said from what is being done, and how they relate. How is it that all this climate chatter amounts to such a dearth of concrete action? When does talk amount to action, and when does it substitute for it? Why is the furtive sign of ‘fossil fuels’ uttered so infrequently at these events, and how does this oblique climate discourse work? Many protesters spoke more directly, calling out the failure of leaders to center the ever-expanding combustion of fossil fuels at the conference. An indirect address of ‘emissions’ was the preferred signifier for summit speakers, enabling an evasion of their seemingly ineffable source. More attention was given to the increasingly promising affordability of solar and wind, without enough focus on the need to leave fossil fuels in the ground. Similar critiques have been raised of green bonds, which are great for raising money for renewables, but utterly incapable of divesting from fossil fuels.

Bonds are one of the oldest and most straight forward financial instruments in existence. A bond is basically a loan made by an investor to an institution that needs to access funds in

exchange for interest payments. If we think of a bond simply as an obligation owed between a creditor and debtor, a relational ‘bind’ for which the debt instrument gets its name, credit arrangements resembling bonds precede even the existence of coin money itself (Graeber 2011, 38). Bond investors are attracted to them for their simplicity -- they are widely considered one of the safest bets one can make. When someone ‘buys’ or invests in a bond, what they own is both a future claim to the money they just lent to the issuer, as well as the rights to interest payments collected from the debtor in exchange for the loan, the details of which are formalized in a contract between the two parties called an indenture. Once that contract is ‘securitized,’ or ‘underwritten’ by an intermediary such as a bank, the bond can then be disembedded from the debtor and creditor and treated as a liquid asset that can be exchanged like any other commodity. Bonds can then be traded for other bonds, stocks, or any other revenue generating financial instruments on a capital market.

Green bonds thus fit easily into narratives of the reliability of bond market growth, for they are safe in multiple senses. They are bonds that are not only stable, but are also earmarked for climate mitigation or adaptation projects. Common use of funds includes the construction of renewable energy production and distribution capacity, clean transportation, water and agricultural management, ecological conservation, and so on. Both governments and companies can issue them, and investors range from the privately wealthy, usually young people and the extremely wealthy who seek to invest fashionably as one interviewee told me, as well as institutional investors such as insurance companies, banks, and financial firms that want to see renewable energy development. Importantly, there is no set of legally binding qualifications for what constitutes a green bond. Any institution is free to issue a bond for any project and label it ‘green,’ regardless of its environmental impact. This lack of regulation has understandably

resulted in widespread skepticism over the legitimacy of green bonds. No one I spoke to was willing to endorse them unequivocally, and many expressed doubts about their efficacy given how capacious the green label is. Even so, because of the contractual nature of the bond form, certain limitations are built into the mutability of the ‘green’ sign. The indenture, which stipulates the maturity (the date at which the loan must be repaid), the coupon rate (the amount of interest payments periodically made), as well as a plan for how the funds will be used and other key details of the bond, is a legally binding contract that issuers must adhere to or else risk legal retribution. The use of proceeds must be accounted for, and a diligent investor could in principle hold an issuer accountable to those terms. Layers of intermediaries, however, more often than not prevent this kind of accounting. Rarely are the terms of a green bond settled between two persons like some kind of Smithian exchange between consenting equals. Discrete bonds are packaged into various groups with other assets and traded in amalgamated bundles, miring the indenture in a web of financial, institutional, and legal jargon that is in effect semiotically impenetrable from the standpoint of a lay investor. Without comprehensive regulation of the green bond label, its meaning must be deciphered in each individual case, and its impact is entirely dependent on the good faith of the institution which issues it. Unsurprisingly, then, that impact is widely variable. Many green bonds issued by governments do in fact result in the construction of solar fields and wind farms. Other institutional actors however, such as fossil fuel companies as I will show, are unimpeded from using the label more nefariously.

To understand what green bonds are and what they do, we need a metaphor for what financial engines do to green values and intentions. Critical terms like ‘green washing’ and ‘virtue signaling’ do not adequately capture the complexity of what is going on, for the ‘green’ is not entirely degraded, nor invoked deceptively in every instance. Instead, I will argue that

financial engines *metabolize* green thought. That is, finance can be seen as a regulative process that uses elements of green thought only insofar as it promotes the growth of the financial organism it feeds, but at the same time genuinely incorporates that thought into the financial body, to the extent that capitalism's survival will ultimately depend on the mitigation of climate change. Metabolism describes the sum total of chemical reactions that a cell, organism, or ecosystem undergoes to extend the life cycle in all of its complexity. Importantly for my purposes, it also describes the regulative use of energy, the ways and extent to which fuel, and what form of fuel, will be used to produce growth. I borrow this metaphor from Karl Marx, who used the concept of a metabolism to describe the relationship between humans and nature, mediated by the labor process, and the notion of a 'metabolic rift' to indicate contradictions in that process that would lead to environmental crises under capitalism (Foster 2000). I use metabolism somewhat differently from Marx. Rather than look for contradictions in production - in the labor process, commodity fetishism, and class relations, I look for them in the realm of finance – the activities, objects and modes of reason employed by financial institutions, because in financial capitalism, configurations of production are subordinated to financial logics. It is in these modes of reason where I have found the most potent contradictions of green capitalism, as finance attempts to reconcile these environmental tensions through financial products like the green bond, breaking down green thought into its constitutive elements, and reassembling them in a new form to fit its needs.

Literature Review and Methods

In her provocative account of finality, "A Brief History of the End," Alenka Zupancic (2021) playfully considers how grim figurations of 'the end' are being invoked left and right to

capture the sense of suspended disaster which haunts our times, and where those narratives are coming from. From the Coronavirus pandemic to the rise of Trump, and of course the looming threat of environmental catastrophe, the end only seems to be getting started. She revisits Fukuyama's (1992) End of History thesis, that following the collapse of the Soviet Union, utopian communism no longer appeared to be the telos of human history. Capitalist liberal democracy looked as though it would be the final form that human political economy would take, no longer containing within itself any contradictions serious enough to provoke a crisis that would usher in a radically different system. While I am hardly the first to object to this thesis, here I contend otherwise, that green bonds show us precisely where the contradictions of capitalism can still be found. Whether or not these contradictions will truly reach a breaking point, a crisis of such an order as to force a world historical turn toward what might necessarily be called something other than capitalism, remains a genuinely open historical question. Answering that question is of course beyond the scope of this paper, indeed it is probably yet unanswerable, but the contradictions indexed by green bonds do seem to indicate that such fissures are indeed possible, and where they are likely to be found as financial engines are forced to incorporate environmental concerns into their logics. Capitalism, perverse as it may be, does seem to be in some sense going green. We need a better understanding of what exactly that means, what a green capitalism (or its impossibility) might look like, in order to know where we are headed and where we might effectively intervene. Zupancic so too reminds us of Frederic Jameson's (1994) dictum, that it is easier to imagine the end of the world than it is to imagine the end of capitalism. But what if neither end comes? What if capitalism overcomes this crisis too, and Fukuyama's much disparaged thesis turns out to be more plausible than we thought? Green bonds suggest partial but incomplete truths to both Jameson and Fukuyama's claims, that an

inability to imagine an alternative to capitalism will force it to accomplish the diffusion of Yellen's tension between planet and profit itself, and in the process produce a system at the other end of history which may or may not resemble what we now call capitalism.

In his chapter "Virtuous Language in Industry and the Academy," Stewart Kirsch (2015) argues that terms like 'sustainability' in corporate and scholarly discourses function as what linguistic anthropologists call 'strategically deployable shifters.' Ordinary shifters are words that do not have a fixed referential content because their meaning depends on the contexts in which they are used. Deictics like 'there,' 'that,' and 'she' are examples of shifters. Strategically deployable shifters are terms that allow speakers to communicate across social and political divides, words that enable interlocutors to understand themselves as 'saying the same thing,' when pragmatically they may not be. The denotational content of 'sustainability' may be shared between communicators who use it even in cases where one speaker is using it to index the need for tighter environmental regulation, while the other uses it to express a sentiment of concern which actually diffuses the pressure of change and defers that potentiality sought by their addressee. I would argue that the 'green' shifter of these bonds often functions similarly. They do not always oppose the transformation that their label names, but their meaning is capacious enough to be used in ways that sometimes advances while other times prevents a genuinely green effect. Catherine Liu's (2021) *Virtue Hoarders* raises similar concerns, suggesting that elites have developed a monopoly on virtuous environmental and social justice rhetoric which does more to alienate working class people and prevent otherwise popular and democratically feasible progressive policy from materializing than it does to advance those values that such language hollowly celebrates.

Constantine Nakassis' (2012) "Brand, Citationality, Performativity" takes up Austin's now famous concept of performativity in which the use of language in social life is recognized to do more than predicate and refer to a states of affairs, but given certain felicitous conditions actually accomplishes something more, performing a consequential act. He argues that the ontology of a brand is performative, and further, drawing on Derrida and Butler, that the performativity of the brand functions through citationality. That is, the social fact of a brand's existence depends not only on its semiotic elaboration in social life, but that each discrete token of an invoked brand implicitly refers to previous invocations and inscriptions of that brand, and it is thus constituted through that citational reiteration. If we think of the 'green' label of our bonds as a sort of quasi-brand, a testament to the ostensible quality and reliability of this financial product, we might say that the green bond is similarly constituted through performative citationality. The legitimacy of the green bond is dependent on the environmental discourses it implicates. The question then becomes whether and where this green quasi-brand actually accomplishes the things its name implies, or whether the green bond is instead what Sara Ahmed (2006) has called a 'nonperformative' and Lauren Berlant (2011) a 'cruel object' -- obstacles to the transformation that is sought through what they name.

Implicit in my analysis of green bonds then is a critique of the performativity of finance, which has captured much of the scholarly attention of anthropologists interested in finance ever since Mackenzie (2006) and Callon (2007) popularized the notion that finance is performative, that financial markets were not merely reflective, but constitutive of the economy. Finance was not merely a camera which represented things, but an engine that did things. This study does not stop there as Callon did, but instead goes further to ask what it is that those engines actually produce. The key to understanding the limits of the green bond is that their name does not

necessarily align with their pragmatic effects. This does not necessarily mean that they are not altogether performative, but rather that a strictly performative approach to them would risk mistaking their green name for green effects when such outcomes are not in fact demonstrable. The interesting and consequential part of green bonds is precisely when their performativity fails.

The methods I have employed to grapple with these questions have involved a combination of informational interviews, scouring the internet for a mix of publicly available documents, and consulting secondary historical sources. The data I use to support my argument includes quotations from the political speech Janet Yellen delivered at COP26 earlier, as well as forthcoming analysis of an advertisement and case studies produced by the World Bank for green bonds, a section of JP Morgan's 2021 Annual Report on ESG highlights, quotations from a panelist of a University of Chicago event at the Harris School of Public Policy on ESGs and green municipal bonds, as well as a document released by the energy company Repsol reporting on a green bond they controversially issued in 2017. Because of the global nature of green bond issuance, as well as the broader themes of planetary climate change, the Anthropocene, and globalized capitalist finance I am attempting to track, I refrain from confining myself to a specific regional focus, although this project could of course be improved by ethnographic data on specific site projects funded by a green bond, as well as more in-depth interviews with investors and employees of the firms, governments, and organizations involved in green bond issuance. Instead, given the unique constraints and opportunities of the MAPSS program, I have opted for a semiotic analysis of the green bond label and the discourse surrounding it as more of a center piece of interest rather than an actual site of ethnography. My hope is that the contradictions expressed through this object will bring greater clarity to the ways in which

dominant capitalist institutions are attempting to address climate change, and where they are falling short.

Signs of Change, or Business-as-usual? Green Bonds and Register Collision at the World

Bank

In what follows, I will do a semiotic analysis of a promotional video for green bonds uploaded by the World Bank, entitled “The World’s First Green Bond,” in which the origin story of this financial product is celebrated. Much like the interdisciplinary dialogue generated by the ‘Anthropocene’ term, the story of the green bond presented here extolls the unification of previously separated environmental and financial registers, now brought together through the indexical anchor of this green financial product. It is a tale in which experts from the scientific community form an alliance with the financial services industry, together participating in what they view as global transformation, specifically by coming together and learning to speak the same language. I will show how the green bond serves as what Gal and Irvine (2019) have called as site of institutional ‘encompassment,’ where climate scientists representing the International Panel on Climate Change and the employees of investment firms, who once held incongruous perspectives on the environmental challenges we face and what to do about them, can through the green bond come into an apparent alignment, dissolving the differences that once kept them apart through a shared language. This story of ostensible unification is, however, crucially told without the actual voices of climate scientists. In the video images of verdant forested landscapes, sublime glaciers, and sprawling windfarms seem to compensate for this lack of voices from environmentalists, as if the World Bank administrators and green investment firm

directors who tell the story have formed a dialogue with nature itself, absorbing the register of environmentalism and thus transcending the opposition between planet and profit.

The video opens with a montage of natural landscapes interspersed with visuals of what have become tropes of industrial pollution. A sprawling network of rivers flowing into a delta and a satellite view of that coastal zone is then followed by an iconically related mirror image of tangled concrete highway overpasses, a looping swirl burdened with the traffic of combustion engine vehicles. The narrator wastes no time in communicating an urgent sense of stakes, opening with audio overlaying these images proclaiming that “climate change poses the greatest threat to humanity” (0:00-0:03), followed by the voice of different speaker, reiterating that “the effects of climate change can set back decades of progress in the developing world” (0:04-0:07), for which the World Bank implicitly takes credit. These lines are spoken over more views of fuming smokestacks, succeeded by a clip of poor looking women traversing an unpaved road presumable in ‘the developing world,’ carrying large nylon sacks atop of their heads. Another flash is shown capturing a row of what appear to be refugee tents secured by a web of taught guywires, a group of non-Europeans waiting outside, ominously portentous of an escalating climate refugee crisis. “Just the scale of the problem is unsettling” (0:08-0:11). More satellite imagery looking into the eye of a spiraling hurricane, paired with a flooded urban environment presumed to be its aftermath, victims of the disaster wading through the wreckage, and so on.

With the grave consequences of climate change quickly conveyed and out of the way, the video cuts to text reading, “In 2006, a group of Swedish investors were looking to incorporate environmental projects into their portfolios,” and a posh European woman speaking from a cold sleek-surfaced office. “At that time, to make a sustainable portfolio was to *exclude* companies, not to invest in green projects. And that strategy, we didn’t believe in that strategy. We wanted to

have inclusion of good companies, and also investment in green projects” (0:37-0:56, emphasis spoken). This differentiation between positive investment in institutions, infrastructures and technologies that we actually need, and the negativity of divestment from the those that drive climate change that we also very much need, is key to understanding the contours of the green bond. The genuine potential it has and where its limits lie, largely hinge upon this difference. Green bonds cannot be used to facilitate divestment from fossil fuel companies. As the investment director describes above, sustainable investment portfolios used to involve the *exclusion* of fossil fuel companies and other harmful industries. The green bond’s elision of this necessary exclusion is how it can become not only insufficient, but actually antithetical to any effect that might be conceivably called ‘green.’

The video continues with an account of how the green bond began to first take shape. The ‘Chief Executive Officer’ of the World Bank tells us how it all started from an office window looking high over an anonymous city scape. “What happened was a combination of us coming up with our environmental strategy, the Intergovernmental Panel on Climate Change with a very strong warning *that we have to change the way we live*, and Mother Nature, through catastrophic disasters, telling us, ‘it is time to act.’ That mobilized the Bank to provide to the investor community a product that they can use to vote green” (2:13 –2:44, emphasis added). Lots to unpack here. First, notice how ‘catastrophic disasters’ of extreme weather, increased frequency of drought, wildfire, storms and so on are taken up not only as signs of climate change, but as signs through which nature itself *speaks* of climate change. Disasters tell us something, they tell us that ‘it is time to act.’ Of course, nature does not actually speak, but rather is *heard*. The uptake projects a messenger onto the message. This opens onto interesting questions of mediation and ideology. The effects of climate change can only be read as signs through which it

is mediated provided one has a working of knowledge of what to look for. It is not always clear whether a discrete instance of weather, like a downpour of particularly heavy rain for example, is necessarily a sign of climate change or not. Heavy rain is not exactly a novel feature of the Anthropocene. Disputes over whether or not an event of extreme weather is taken up as a sign of climate change can fracture along ideological lines. Many of those concerned take the latest California wildfire season and smoke pollution as signs of disaster, even as a call to action, but doubts as to whether or not a particular fire may have happened anyway, can always be raised. The indexicality of climate events is always uncertain, making consensus formation on climate response difficult to achieve.

The second thing to note of the passage quoted above is of course the confluence of clashing international institutions, the IPCC and the World Bank, along with consideration of what nature has to say about the matter. Together, despite ideological differences, their dialogue results in the emergence of the first green bond. This enables further connections between these groups and ‘the investor community,’ i.e. holders of capital, who can now align themselves through the mediating figure of the green bond. It literally forms a bond between these vested interests. The executive speaking likens this encompassment to a democratic process, the green bond as an object investors ‘can use to vote green.’ Perhaps a plutocracy would be a more apt metaphor, for it is exclusively the investor managerial class which does the voting. While the green bond may be presented as the result of a shared vision and compromise between environmentalists and financiers, its institutionalization is finalized by the World Bank in the last instance, not the IPCC. It is designed above all with the priorities of investors in mind, namely the bottom line of profitable returns. The more radical proposition of the IPCC, relayed here through the World Bank executive, that “we have to change the way we live,” is functionally

backgrounded through lip service. Speaking of change substitutes for its actual enactment, preventing the kind of fundamental economic transformation called for by the foremost climate scientists of the world.

Once the origin story of the green bond is laid out, the video continues with an account of what it has achieved. Emphasis is not stressed on the actual effects green bonds have had on material change. Instead, the focus is on the opposing discourses it has brought together. The closest voice we get to an actual scientist is a private ‘Research Director’ at a consultant firm called Cicero. As she tells us, “The financial community and the scientific community tend to operate in two different spheres, and this was from my understanding the first connection between these two worlds. And so we had to learn how to communicate with each other using two different languages; in financial vocabulary and research-oriented vocabulary, and try to understand what the other party needed” (4:48-5:09). Here we have the most explicit claim of register collision. The languages spoken by financiers, once incommensurable with that of environmental scientists, were brought together through the green bond, allowing them to finally *communicate* through collaborative design. The green bond serves as an indexical anchor for the formation of a newly hybridized speech community, an encompassment of two value systems previously divided. The connection between finance and climate science is articulated by the consultant as a bridge between different lexical ‘vocabularies,’ but the division in fact went deeper. It was not merely a difference in vocabulary that kept the financial and scientific worlds apart, but was instead a more fundamental conflict. The inability to communicate was unlikely to be a mere matter of jargon, a failure to understand the denotational content of specific words used by fellow interlocutor. Rather, the division had more to do with the ideological regimes of value which organize each respective discourse, and the pragmatics of what speakers from each

group intended to achieve with their words. One language is dedicated to understanding the planetary emergency we face, the other with how to profit from it.

As Cristopher Flensburg, the ‘Head of Sustainable Products’ at the Swedish investment bank SEB explains in the video, the real achievement of the green bond was to unify these disparate speakers. He was perhaps the one most responsible for the green bond’s development. He recognized in 2006 that many of his clients really did want to put their money toward a good cause, and with their support, drafted the idea of the green bond and brought it to the World Bank to formalize its implementation across the financial services sector. His goal was to bring the monetary power of investors and the political demands for climate action into congruence. “Before that we all worked in silos. The environmental officers knew everything about the environment, the financial officers knew everything about finance. But the *interaction*, which allowed the financial officers to give their input to how our environments should be [managed], and the environmental officers, they understood the financial [management], probably, is the big achievement of this interaction, with this product” (8:04-8:30, emphasis spoken). The formation of the green bond enabled communication across discursive silos. But was this novel connectivity a symmetric exchange, a symbiotic transcendence of differences as portrayed by the video? What would the environmentalists ostensibly consulted say of green bonds I wonder? We cannot know because the video omits their voices, but the asymmetric representation speaks volumes. After all, in the end it is the financiers who dictate where the money flows. Their appropriation of the environmental register into their own, like a corporate merger, is less of a coordinated reciprocal interaction than it is an absorption of a profitable brand under a new green name.

One further example of how the environmental and financial registers have merged is a mutual fixation with ‘risk.’ At first glance ‘risk’ appears to be a point of common concern, a site of agreement, orienting both discourses toward an assessment of some threat. Climate scientists write extensively on the manifold risks climate change poses to the earth system, how exactly those risks increase as temperatures rise, and what we can do mitigate such damage. The financial services industry so too are experts in risk assessment. The ‘service’ they provide, even more so than advise on where to direct funds profitably, is to provide expertise in how to insure against the risk of asset devaluation. Diversification of asset portfolios is one straightforward example of this – the principle of not to put all your eggs in one basket. But beyond this, their jargon is not just marketing fluff. They use mathematical techniques and advanced statistical modeling to hedge against the threat of capital destruction. This is how hedge funds make a profit whether the market goes up or down. It is one reason why more and more wealth is now being stored in increasingly abstract forms of financial products like securitized derivatives and tech companies like Facebook, despite the fact that they don’t actually produce anything – intangible assets pose less of a threat of being suddenly made obsolete, or even physically destroyed, like by extreme weather for example. The value that financial services add, and are enabled to charge outrageous premiums for, is prevention against the risk of asset devaluation. As it turns out, they are in one of the most lucrative businesses of all – namely that of preserving capital value itself (Meister 2020). Much of the jargon of financial language, from liquidity to fungibility, liability, equity and diversification – it all revolves around the central concern of financial risk, namely the balance of earning capacity measured against potential decline of asset value. Indeed, this is precisely how the stock price of a firm is measured.

Thus, the ‘risk’ that finance speaks of is a very different ‘risk’ from that invoked by environmentalists. The risk of ecological destruction, biodiversity loss, and human suffering induced by variable degrees of climate change is of an entirely different order than that of financial risk. Even so, I think the way in which each discourse is indexically anchored by the concept of risk, tethered by the centripetal force of a potential threat, however different in quality, is part of why the two registers are able to blend so seamlessly. They fit together because they orbit a related concern. This is of course not entirely coincidental – climate risk and financial risk are not unrelated. Indeed, another consultant at Cicero outright collapses the two, contending that “climate risk is now a financial risk” (6:13-6:16), explaining that third party green certifications can help investors “to better understand the climate risk exposure to their investments” (6:20-6:24). Although green bonds are to my knowledge rarely advertised as such, this suggests that the green label designates not only where an investor’s money is going, but that investments in climate mitigation are becoming inherently safer than other assets as we begin to enter an increasingly unstable world. Green bonds play on the anxieties investors feel over the precarity of capitalism as we know it. The implication seems to be that ultimately, green bonds are investments that go toward the long-term preservation of capitalism itself, as climate change threatens the continuity of never-ending accumulation.

Since their implementation, other financial products have fractally reiterated what the green label set in motion. ‘Blue bonds’ have emerged to fund projects that positively impact ocean ecologies. ‘Social bonds,’ even ‘racial-equity bonds’ and ‘gender bonds,’ products advertised to fund corporations committed to equality in the workplace and representation by people of color and women on boards of directors, are becoming widespread labels in financial markets as firms are compelled to promote ESG guidelines. Ethical investing is having a

moment. Heike Reichelt, ‘Head of Investor Relations’ at the World Bank, says that “what we see has happened in the market is that green bonds have catalyzed a change in investor behaviors. They want to know where their money is going, but not only for labeled bonds that they’re buying. So not only for green bonds or social bonds or sustainable bonds, but they’re asking questions about everything they invest in. And I think that’s going to be the capital markets of the future” (8:31-8:54). As she says this, Reichelt almost seems to feign enthusiasm over this new trend. Although a supposedly welcome departure from business-as-usual performed behind closed doors, it’s almost as if investors, some no longer willing to look the other way as their wealth grows atop a sea of oil, present a problem for investment firms now tasked with meeting demands for ‘transparency.’ If the veil is lifted, investors may not like what they see.

Fossil Fuels, “Energy Realities,” and Not-So-Green Bonds

What is beneath the veil of finance, after all? So far I have shown how proponents of green bonds talk about them, and that this discourse accomplishes a blending of environmentalism with financial registers. Green thought is metabolized by finance – it is not wholly destroyed, but broken down into digestible elements and repurposed to fit the needs of financial institutions and sustain their bottom line. But this not to say that green values and intentions are entirely destroyed through this metabolic transformation. What is it that grows from this process? What do green bonds actually accomplish? Where does the money go, how is it used, and who benefits? If the previous section can be read as an analysis of what green bonds say, this section will discuss the consequences of that talk, answering what it is that green bonds do, and whether or not that speech is in performative alignment with its pragmatic effects. One of my interlocutors, who is responsible for municipal green bonds issued by the city of Chicago,

expressed doubts as to whether green bonds and ESG investment more broadly could really do what they say without more stringent policy. Currently, any bond issuer can self-designate their products ‘green’ without the need for regulatory approval. Because of this, he said that “this is why we need more requirements on regulation and requirements on disclosure and an actual framework to work off of, because again right now if you’re self-designating, it’s all just a lot of hand waving... and so I think that kind of stronger more transparent framework would actually make something like ESG a lot more meaningful than it is right now because it is pretty much... sometimes smoke and mirrors” (40:06- 40:40 of personal recording²). Given this lack of regulation and resulting skepticism of self-designation, many issuers of green bonds have gone to third party certifiers to add a layer of credibility to attract discerning investors, but a consensus has yet to form regarding how to qualify a credible green bond. As I will show in this section, some particularly audacious companies have not hesitated to exploit this ambiguity.

Before getting to that, however, we must recognize the genuine good that some green bond funds are going toward, supporting not insignificant renewable energy developments, including some that have already been successfully implemented. Take the following example, of a \$120 million loan made to the Peoples Republic of China by the World Bank to develop a large-scale rooftop solar cell installation project spanning across 800 schools in Beijing that now provides clean renewable power to more than half a million people³. Planning for the project began in 2011, following a period of unprecedented economic growth in China which has made it the new global leader in carbon emissions, as most of the energy which supported that growth came from coal. Even so, China’s wind and solar capacities at the time were the third largest in the world. Most of their renewable energy generation remained utility-scale sites that supplied power to the grid, with no coordinated project of this scale yet undertaken. In 2013 the plan was

approved, and by 2019 it was completed with loan repayments by the PRC still ongoing. While renewable energy technologies can themselves have significant environmental costs due to the extraction of rare earth metals like lithium and copper required for electrification, it virtually impossible to conceive of an energy transition which does not confront these drawbacks (Riofrancos 2020), and this solar project represents one of the better outcomes that can be expected from financial tools like green bonds.

Not all green bond issuance is this encouraging, however. Because of the lack of binding qualifications required to issue a green bond, some institutions have utilized the capacious label to attract investors to projects with a stunningly loose interpretation of what the term ‘green’ can be used to indicate. Take Repsol, a Spanish oil and gas company which in the spring of 2017 boldly announced that they too would be issuing a green bond⁴. In fairness, Repsol did not use green bond funds to directly increase fossil fuel output, because extraction is not all that Repsol does as a vertically integrated multinational. They do everything from exploration and drilling to refining, processing, marketing and distribution of oil, gas, plastics, asphalt, and other petroleum-based materials. Like so many of these energy companies who are being placed under increasing scrutiny (BP being a particularly interesting case), they too are scrambling to present themselves not as villains, but progressive path breakers of the renewable transition. They make a lot of noise about their developments in wind and solar even when the bulk of their business remains bound to fossil fuels, of which they are compelled to extract and burn as much as they possibly can in order to stay competitive in global energy markets. For Repsol, many of the chemical processes involved in their refining activities themselves require large amounts of heat and therefore energy expenditure. Through equipment upgrades, they have been able to improve their energy efficiency and burn less of their own fossil fuels, technically reducing their own

emissions while at the same time extracting greater profits from their own petrochemical refineries. These equipment upgrades are what their so-called green bond funds were used for at their chemical plants in Tarragona and Bilbao⁵ -- making their fossil fuel processing sites more 'efficient.' Of course, it does not take a radical to spot the irony. Interestingly, Repsol widely came under fire for misuse of the green label not only from popular media, but also from the financial industry itself, with major banks criticizing Repsol and excluding them from their green bond indices, presumably so as not to stain the reputation of the label. If strategies like the green bond lose not only their perceived integrity but also their material efficacy, financial powers would be forced to confront their limited capacities to manage the climate crisis, and so relinquish their metabolic control of these processes. Rather perversely, it is in their own interests as stewards of capitalism to become stewards of the earth.

Here the green bond reveals the double bind that financial institutions are confronted with – on the one hand, the entrenched need to continue investing in energy expansion wherever it can be profitably found, which includes growth in renewable markets but remains predominantly fossil fuel based, while at the same time preventing emissions from reaching catastrophic levels of climate change that would threaten the viability of continued accumulation. JP Morgan Chase & Co., who claim to be the largest underwriters of green bonds in the world, make this contradiction clear in their 2021 Complete Annual Report⁶, embracing their role as metabolic regulators of both energetic and financial flows in their section on 'Energy Realities' and ESGs: "Disruptions to the global energy system are again highlighting our urgent global need to provide energy resources securely, reliably and affordably and, at the same time, address long-term clean energy solutions and strategies to reduce our carbon footprint. These objectives are not mutually exclusive. We can — and must — do both" (37). Surely we as a human collectivity must do

both, but can JP Morgan? Can they respond to geopolitical disruptions and the instability of global energy regimes with more fossil fuels, so long as they so too invest in renewables, when the intensification of climate change is only going to exacerbate these tensions? Time will tell. I have my doubts, but will refrain from outright predictions as a solid answer to this enormously consequential question is beyond the scope of this paper. Only through a broader study of these contradictions could a conclusion as to the role of green finance be reached. In the meantime, JP Morgan goes on to suggest support for more easily accomplished, commonsense goals like “minimizing fugitive methane emissions and virtually eliminating wasteful flaring of natural gas. Immediately actionable opportunities like these might require *more financing*, not less, to reduce the short-term rate of climate change and prepare companies to thrive in a lower-carbon future” (38, emphasis original). Through this kind of investment logic, in which increases of funding to anything that might profitably benefit the planet is supported, while divestment from and devaluation of the fossil fuel industry remains unspoken, apparently beyond the purview of finance, we can see clearly that green finance alone cannot resolve these oppositions.

Even so, we can also see that green finance is going to play a significant role in these challenges whether we like it or not. As much as we might alternatively support a complete transferal of fiscal power to states, with democratically accountable public ownership of renewable energy production and distribution networks, for the moment, it appears green finance is here to stay. How did this situation arise? Why do financial powers seem to play such an intractably dominant role? Thorstein Veblen (1924), offers a partial answer to these questions, although a broader historical study of financialization would be needed to fully answer them. He attributes the shift in part to pioneering investment bankers, like “the late J. Peirpont Morgan” (334), who at the turn of the century helped engineer the passage of power from the industrial

managers of business to the creditors they depended on. “As the event has taught, the executive use of the country’s credit resources in a large way and on a reasoned plan was the appointed means by which the due reconstruction of the business was to be worked out... The holding company and the merger, together with the interlocking directorates, and the present voting trust, were the ways and means by which the banking community took over the strategic regulation of the key industries, and by way of that avenue also the control of the industrial system at large” (338). Veblen understood long ago that the dynamics of industrial capitalism were being reshaped by the growing importance of credit arrangements, the flexibility they enabled, and the capacity it afforded capital to circumvent almost any crisis industrial production would be faced with. As finance incorporates green concerns into its logic, the question has become whether or not the climate crisis represents a barrier to capital accumulation of such an extent as to prevent finance from overcoming it.

Conclusion: The Contradictions of Financial Capitalism

In the following passage, Veblen offers yet another striking way for us to think about the contradictions of financial capitalism as they pertain to environmental constraints. “The pivotal factor in the business enterprise of this new era is the larger use of credit which has come into action during the last few decades; larger in absolute scale and volume as well as in the ratio which it bears to those underlying tangible assets on which it is conceived to rest. This volume of credit is more widely detached from all material objects and operations, and increasingly so” (326). To be clear, the ‘material objects’ that he means are the physical forms of industry -- the machinery, equipment, and means of production that ‘capital stock’ traditionally denoted before undergoing its semiotic transformation into a financial object. He is concerned with the

consequences of loosening credit from these material forms which underlie it -- but might we extend his observations of this process, of credit's separation from its assets, to the separation of finance from more planetary objects more generally? Might we extend it to a broader understanding of financial capitalism's growing estrangement from material limits, earthly constraints included? In this context, the green bond would be a site of reparative works, resolving this rift when successful, and exacerbating it when not. It seems to me that this separation that financialization describes, between the distension of credit accounts, signs, financial forms, green virtues, and monetary wealth on the one hand, and the underlying material processes of industrial production (renewables and fossil fuels included), extraction, emissions, and their interactions with the biosphere and earth system as a whole, on the other, would be as good a place as any to begin to understand the growing contradictions between financial capitalism and the range of green concerns it is apparently striving to assuage. It is not entirely clear to me yet, but something about this set of oppositions, and a semiotic theory of the relationship between the realm of signs and the world of things required to grapple with their connections, would be crucial to any thorough-going understanding of green finance.

One consequence of this opposition between credit and materiality which Veblen warns us of has been the tendency of financialized capitalism toward the pursuit of rent-seeking, rather than the production of commodities for a sale in a competitive market. Rent-seeking occurs when monopoly rights to extract wealth are granted through a social or political manipulation of economic activities, enabling one to appropriate wealth rather than produce it (Hart, 2021). Some examples include interest payments made on debt, fees collected for the use of proprietary information technologies, and literal rents collected by virtue of property ownership. As credit arrangements become estranged from the material production process, and because profits are

more easily and prodigiously gained through these kinds of mechanisms, financial capitalism has taken on an increasingly rentier character. Obviously, this is not a desirable system from an ethical standpoint as it exacerbates wealth inequalities, nor does it appear particularly stable, for it is prone to producing speculative bubbles, driving up prices of assets without actually adding value. But interestingly, from an environmental standpoint, as the debt instrument of green bonds show, financialized rentier capitalism might actually be taking some of the pressure off the planet that industrial capitalism would otherwise be exerting. Fees collected for the use of Microsoft software, or interest collected on green debt, enable financial capitalization in real accounting terms without actually requiring material throughput or energy expenditure as an M-C-M' production circuit would. This is the second contradiction of finance that green bonds, as semiotically constituted debt, reveal.

Further contradictions abound. I have already shown the strange ways in which the green virtues of environmental rhetoric are absorbed into and betrayed by financial registers, metabolized by them insofar as green thought facilitates asset appreciation. This osmotic incorporation is smoothed over by the indexical anchor of 'risk,' around which both discourses orbit, subordinating the grave threat of risk to the earth system to the risk of a devalued financial system, two forms of risk opposed and distinct but at the same time ensnared by a shared planetary fate. Then there is, of course, the final and most obvious contradiction – that between environment and capitalism, sustainability and growth, planet and profit – however one wishes to put it, that contradiction is refractory as ever. It is also nothing new, the conflict of capitalism and the environment is about as self-evident as it gets. What I have tried to show that is new, however, is how green bonds bring the specificities of that opposition into focus, and clarify what it is that capitalism is attempting to do about it. I have argued that financial engines and

their mechanics, well aware of their adversarial relationship with the planet and its defenders, have begun to metabolize green thoughts, values, and intentions, imbibing them in so far as they defer the inevitable confrontation of capital accumulation with planetary limits. How much longer this can go on remains to be seen. For now, attention to green bonds, as well the adjacent objects, activities, and histories of financial institutions they are bound to, offer valuable insights into the changing structural dynamics of capitalism as we know it, and the strange but fascinating ways in which it is attempting to ‘go green,’ as it were. With further study and greater understanding, these dynamics are only going to become more interesting as climate change intensifies. My hope is that this analysis of green bonds has achieved a small contribution to, and with any luck an opening toward, the task of scholarship to better understand these processes.

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