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ARTICLE

Climate futures in the time of the unbroken asset

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Abstract

The crisis that now grips the 'living earth' establishes an intersection of climate and finance which entails questions of time: what does temporality mean in the context of both climate emergency and the processes of financialisation? In this paper, I intervene in these debates by reflecting on the reconstruction of time as a concrete legal object in the space of international investor-state arbitration. Over the past decade, international arbitration settlements, often using the accounting technique of discounted cash flow (DCF) analysis, have increasingly relied on a conception of investor-oriented time that offers an expansive future, a time of long-term unbroken integrity. I trace the complex but often uneven shifts in arbitration practices through which the future is reconfigured not as a proximate and conditional object but as a category, encoded in DCF, which is endlessly expansive. The time of the unbroken asset, I argue, is in urgent disjuncture with the time of transition.

Keywords: investor-state arbitration; political economy; financialisation; climate change; damages

The crisis that now grips the living earth is increasingly addressed by forms of 'climate finance' (Langley *et al.* 2021), all variety of attempts to manage climate change as a financialised set of risks. This climate financialisation, however, provokes important questions of time. What is the temporality of climate? How does it relate to the transformation and abstraction of time associated with financialisation? What does temporality mean in the context of both climate emergency and the injunction that we are now also living in 'financial times'?

These questions have sparked important theoretical discussion across the social sciences, humanities and climate sciences. In this paper, I reflect on the reconstruction of time as a concrete legal object in the space of international investor-state arbitration. Over the past fifteen years, international arbitration settlements, often using the accounting technique of discounted cash flow analysis (DCF), have increasingly relied on a conception of investor-oriented time that offers an expansive future, a time of long-term unbroken integrity.

Operating at an inductive level of analysis, I argue that because the time of the asset invokes a stabilised long-term horizon, it has important implications for the way we understand climate emergency. The notion of time increasingly encoded in investor-state arbitration decisions assumes and protects the value of the very objects – oil reserves – that are both implicated in climate-related harms in the first place and are pivotal to discussions of transition. The time of the unbroken asset, to put it differently, is often in urgent disjuncture with the time of transition. This temporality, in practical terms, threatens to lock in fossil fuels, and to maintain the continuing value of, and reliance on, hydrocarbons over the long term.

To make this kind of argument, this paper is divided into four sections. The first section establishes the conceptual framing for the paper by reviewing debates around time in the context of both climate and finance. These debates often rely on general and sometimes abstract notions of time. To begin moving in a more concrete direction, Section 2 considers the construction of time as a legal object in certain strands of international investor-state arbitration. In this section, I trace some of the complex ways in which arbitration practices throughout the twentieth century conceived the future as a proximate and conditional object. This proximate future, I argue in the third section of the paper, is refracted and supplanted by the recent emergence of an expansive temporality that secures the long-term integrity for assets – indeed, invokes a kind of time of the unbroken asset – even for those forms of 'value' most deeply implicated in climate-related harms. A conclusion argues that the time of the unbroken asset entrenches – locks in – the value and continued use of fossil fuels even as that value undermines (ecologically) the very future it derives from.

1 Time, climate, finance

Climate and finance are increasingly implicated in complicated ways, including proliferating attempts designed to convert climate uncertainty into financialised risks such as catastrophe and green bonds, climate insurance products, public and private investments. This also includes efforts to render carbon calculative via carbon pricing mechanisms, emissions trading schemes and internal proxy prices for carbon (Aitken 2023; Bryant 2019). These operate in a context in which the pressures of financialisation – 'the increasing importance of financial markets, financial motives, financial institutions, and financial elites in the operation of the economy' (Epstein 2001, 3) – have facilitated the very economic practices which fuel 'climate changing capitalism' in the first place.

Both finance and climate entail intense debate regarding time. The pressures associated with climate exigency, for example, have provoked questions about what future temporality means in the context of enormous uncertainty. Agathangelous and Killan (2021, 828) note that the key concepts associated with climate emergency, 'crisis, progress, reason, equilibrium, and metabolic rifts are as temporal as they are scientific'. These temporal elements, however, are complex, throwing into question any easy sense of what time is in the context of climate. Climate has been understood as evoking an unprecedented but somewhat indistinct pace of time, both a sense of incremental change *and* dramatic transformation. Even though climate change has frequently been 'understood through the forms that rupture take', it can also be marked 'more by a slow tearing' (Tavory and Wagner-Pacifici 2022, 2–9). Although much of the political discourse around climate emphasises discontinuity, some policy frameworks nonetheless offer a continuing temporal integrity in which a manageable future remains intact: 'a notion of seamless continuity from the present into the future' (Kverndokk and Eriksen, 2021, 8).

At the broadest level, climate exigency has provoked debate about how 'the very long term is entangled with our political present' (Nordblad 2021, 347). Climate change suggests both a rupture in the present that carries long-term implications and a deviation in the very periodisation of long-term geological time. This entails what Charkrabarty (2009, 2021), in a well-cited formulation, has described as a collapse of human and planetary history. For Charkrabarty, the dramatic human-centred transformations of a changed climate implicate the decidedly human scale of historical understanding in the beyond-human rhythms of 'deep history'. He suggests that 'we presently live in two different kinds of "now-time" [. . .] the "now" of human history has become entangled with the long "now" of geological and biological timescales' (Charkrabarty 2021, 7). A climate-changed world implies a radical new

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temporality which reframes the timescales of the human-historical and the planetary-geological.[1]

This reframing includes notions of the 'anthropocene', a temporality of the deepest time, conjuring long-term shifts legible in the geology of the earth. 'Climate change', by contrast, gestures at the work of climate scientists, emblematic in the Intergovernmental Panel on Climate Change (IPCC), around models of climate-changed futures that range over a closer temporality (Nordblad 2021). The modelling of the future by the IPCC is notable in its invocation of a diverse range of possible future pathways, each of which is linked to practices and policies in the present. The temporality of the anthropocene, by contrast, invokes a kind of closed future, a deep future imagined as the product of inevitable and destructive human influence on the very geological face of the earth.

Time as an open or closed condition is significant to recent discussions of transition. For some, transition away from existing political-economic arrangements, and from the fossil fuel extraction that underpins those arrangements, is a requirement folded into the Paris Agreement and a practical condition attached to any meaningful attempt to mitigate climate change (see Hailes 2022). The language of transition invokes an ambitious temporality, a transformed time not yet possible. The transition away from fossil fuels is a temporal ambition for a transformed future delinked from the structural conditions of the present:

> 'Transformative change renders real what appears *im*possible – what emerges as unworkable, impracticable, unrealistic under the status quo [. . .] to render real what could logically be brought into being under a radically changed state of affairs.' (Mai 2024, 5, emphasis in original)

Taken most fully, transformation suggests a reworking of a global climate system rooted, over the longest term, in the history of global racialised capitalism. The practice of transformation, as opposed to some manoeuvre within the climate status quo, is a *longue durée*, a rupture with the legacies of colonialism and genocide. The gaze towards a transformed future is linked to the longest-possible temporality of capitalism, a need 'to foreground racial capitalism as the structure (or set of structures) that must be fundamentally transformed to ensure a decarbonized future that does not replicate the genocidal racism of the last 400 years' (Fitz-Henry and Klein 2024, 3).

The logic of transition presupposes a displacement of fossil fuels, an explicit retreat from what Folkers (2021, 227) refers to as an economy of 'fossil materials' (see Langley *et al.* 2021). The relationship between past, present and future encoded in fossil extraction, however, is complicated. Extraction is not a singular moment, but entails a bringing into the present of carbon fossilised over the very long term of geological time. This involves accessing, in the present, 'inert seams of accumulated time [. . .] the stored time of fossil fuels' (Folkers 2021, 228). 'Fossil modernity' also exerts a unique pressure on the future in the form not only of carbon in the atmosphere but also of 'resources' converted into 'waste' and, especially, long-term toxins and plastics that sustain afterlives long into the future, 'ghostly traces of the past' (Folkers 2021, 232).

The weight of these various temporal configurations on the present is enormous, what Folkers (2021, 223) calls 'a persistent and threatening temporality'. Nonetheless, formal policy responses to climate change often disavow the transformation of time required of a meaningful shift from fossil fuels. In contrast, global climate policy often remains indebted to finance and to financialised temporalities of risk – the fantasy of managing future uncertainty as something calculable and governable in the present (Elliott 2021, 174).

[1]As pivotal as Charkrabarty's discussion has been, it fails to recognise that 'there is a variety of [. . .] temporal strategies [. . .] many of them relatively far removed from chronological timescales such as the historical and the geological' (Bjaerke 2021, 181; see also Szczurek 2021, 1005–1106).

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1.1 Hedging calculative futures: what is the time of finance?

Some discussions of climate exigency imply a rupture so severe that time as an open object is eviscerated, a future determined by waves of self-amplifying chains of climate effects. This variant of climate temporality offers a closed future which removes 'the possibilities and alternatives available to future generations [. . .] closing their future' (Nordblad 2021, 343). Conceptions of time associated with finance, however, offer different mediations of open and closed futures. On one hand, risk, the ultimate form of financialised temporality, is a particular kind of open future, a future rendered manageable in human terms. This temporality relates to Knight's foundational distinction (1921) between abject 'uncertainty' – futures which cannot be predicted from past patterns – and 'risk' – futures which are knowable statistically and, by extension, are calculable and manageable. Entailing a 'probabilistic orientation to the future', risk involves the conversion of uncertainty into calculable predictability (Elliott 2021, 177).

On the other hand, however, financialised risk invokes certain kinds of closure. The manageable future that risk enables is available only to the 'risk-capable', futures made accessible only to those with the power to abstract uncertainties and assert ownership over newly calculable futures. As Martin (2006) argues, financialisation is

> 'played out along the lines of risk [. . .] those capable of embracing it, investors all [. . . become] managers if not the masters of their own lives. Those who could not [. . . are] cast as populations "at risk" [. . .] For those able to take the risk rather than be taken by it, the future comes crashing into the present.'

Risk is differential, an enormous set of opportunities and openings of the future for some (risk-capable investors), a set of confining pressures and collapsing time for others (the 'at-risk').

Much of the global policy orientation to climate now takes the form of risk constituted in climate insurance products, in catastrophe and green bonds and in derivative offerings designed to hedge the enormous uncertainties associated with climate upheaval. Like all forms of abstraction, climate risk is reductive, enclosing complex futures within calculative parameters. These enclosures entail a kind of impossibility, a mediation of the present and future in ways that both separate and connect them. The 'distinction between "current" and "future" risk elides the fact that risk always implies an orientation toward the future [. . .] pulling apart the climate-changed present and future is simultaneously impossible and necessary' (Elliott 2021, 191). This suggests that financial risk comprises complex mediations of openness and closure: requiring attention to which particular 'risk-capable' agents have the capacity to open and close, over what timeframe those enclosures operate and through what mundane mechanisms access or closure is made possible.

Risk, and the complex temporality it requires, is at the heart of the places where climate and finance intersect. 'At stake,' notes Elliott (2021, 175), 'is the fundamental question of what it means to "take a risk" in relation to future climate change.' The temporality of climate risk, as Martin's formulation suggests, is positional. For the risk-capable, climate uncertainty can often present profitable opportunities to manage climate-change futures. For the at-risk, however, uncertain climate futures orbit around their vulnerability, often subjecting them to climate harms they had little role, historically, in creating. For Adkins (2018, 2) the temporality of finance, for the at-risk, entails the evisceration of any 'chronological' flow of time:

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> 'The unique rendering of time in our "financialized imagination" is as an indeterminate [. . .] flow of a time where pasts, futures and presents do not stand in a predetermined or pre-set relation to each other but are in a continuous state of movement, transformation and unfolding.' (Adkins 2018), 2; see also Aitken 2023; Martin 2006)[2]

Financialised time, for the at-risk, involves futures confined by uncertain access to stable income and various other forms of precarity which result in the long-term debt entanglements which become, in turn, the raw material for assets held by risk-capable investors. Vulnerability to future climate uncertainty among the at-risk, in other words, can be the condition of possibility for assets held by investors. This unevenness of time is imposed on the 'at-risk' who 'become embedded in the indefinite, eventful and elastic time of [. . .] the relentless punctuality of debt payments and [. . .] uneven, unpredictable flows of wages, credit and state benefits' (Elliott 2022, 157). In the context of these entanglements – made in the present, but spread over the future of the 'at-risk' life course – the present is conceived as a kind of 'threat' to the future entailing a disappearance of 'linearity' (Samman 2019, 4–5; Doganova and Kornberger 2021, 1).[3]

Taken at their broadest, and although climate and finance are increasingly articulated to each other as a key global policy matrix designed to address long-term climate uncertainty, they nonetheless invoke discordant temporal frames. Climate change disrupts our conventional conceptions of time and sequence as it ushers in new demands for transition and rupture (Mai 2024, 12). This 'transformative temporal dimension', however, stands in discordance with the logic of climate as risk. The financialised temporality of risk conceives a future that can (for some) be calculated, known and packaged – sold to those with the capacity to manage it profitably. There is a dissonance between a logic of transition with a future horizon beyond the status quo, and a logic of risk in which the future can be governed as a calculable object in the present.

This dissonance is a crucible in which the ways in which the future might be subjected to political intervention is now shaped. In our moment in time, are the kind of futures we are now enfolded within 'open' or 'closed'? The answers to this question, however, are often abstract in tone and intention. In contrast, I want to explore financialised temporalities, and the dissonance they evoke with the time required of transition, as they are made real in mundane and practical settings. As two recent commentators have put it, 'we [. . .] question [. . .] the utility of using very large and broad concepts of time, temporality, and history to understand climate change' (Kverndokk and Eriksen, 2021, 3). There is important analytical value, I contend, in understanding conceptions of temporality as they are constructed in 'practical locales' (Rose 1990). If the temporal frames of 'transition' and the 'climate as risk' are dissonant, but entangled, impulses, where are the concrete locations where those tensions are visible and made real? As Nordblad notes (2021, 347), 'the precise mechanics of that entanglement have received far too little attention' (Nordblad 2021, 347). In an effort to think more concretely about the multiple ways in which the climate present and financialised future are entangled, I pay attention to one long and complex practical process in time where those entanglements are actually made – the space and time of international investment arbitration.[4]

[2]Martin (2006) argues that 'when wealth is stripped of any specific application and aggregated as a great disposable mass and population is abandoned to be an end in itself, liberated from an obligatory history, very different futures are brought into the present. The regimes of finance profit from the volatility they create and are too vertiginous to provide a stable picture of what the future might look like'.

[3]See, for example, Doganova and Kornberger (2021, 1) who describe this evisceration of the future in this way: 'Gone is the linearity in which yesterday flows smoothly into tomorrow. The future becomes a powerful force in its own right, as it threatens the present with its disruptive potential.'

[4]This is an attempt to 'investigate how law participates in the creation of temporal ontologies just as much as reflecting on how law itself is shaped by dominant temporal assumptions' (Grabham and Benyon-Jones 2019, 2). Muniesa and Doganova (2020, 107) offer a related analysis noting that temporal concepts associated with financialisation are 'vernacular categories'.

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The form that this dissonance takes in investment dispute settlement is a long arbitral conversation related to what I call the 'time of the asset', a way of understanding and governing financial assets as objects with unimpeachable long-term futures. 'It is time that the asset condition [. . .] sets centre stage' (Gilbert 2017, 6; Golka 2021, 89). This temporality of the asset, now set centre stage, is a kind of ultimate form of knowable long-term risk which marks certain objects – including the very fossil fuel reserves deeply implicated in climate pressures in the first place – as lives with uninterrupted and inviolable long-term integrity. This long-term unbroken integrity, I argue, stands in contrast to the logic of transition/transformation and, crucially, entrenches fossil fuel extraction for the very long term, contributing to 'patterns of carbon lock-in across economic and political systems' (Mai 2024, 8). But what is the genealogy of this time of the unbroken asset? I argue, in the following two sections respectively, that this conception of time has both its own long-term past, and, critically, a quite recent provenance. Built across these two temporal levels, the 'time of the asset' is a product both of a long-standing treatment of assets in investment arbitration as objects with a future – as objects that carry a future with them – and a much more recent history in which that future has been redefined, in the very shadow of climate exigency, as something dangerously expansive. This expansive conception, codified in recent investment arbitrations, invokes a future for assets in question, but renders that future well beyond the local – *proximate* – form it had taken throughout most of the twentieth century.

2 Time as a legal object: constructing the 'proximate' future

If the temporality most closely associated with finance is calculable risk, the figure which animates this concept of time is the 'investor-subject', an agent intrinsically oriented to the future. The investor is a unique legal subject with the capacity 'to project itself a future, and seek to shape itself in order to become that which it wishes to be' (Rose 1999, 154; see also Aitken 2017, 220). The 'time of the asset' entails 'a novel vision of the future as a range of alternative scenarios encompassed by the gaze of the investor' (Doganova 2018, 295). But what it means to be an investor, and the capacity over time it is said to possess, has been historically malleable. The fully fledged 'time of the asset', as I argue below in Section 3, entails a wide and expansive future in which risk-capable investors are entitled to the full long-term future of the assets they hold, even if those assets threaten climate futures. This long term of the (unbroken) asset is, however, a recent and novel understanding of temporality. In this and the next section of the paper, I develop part of the genealogy of this concept of an investor future – the 'time of the asset' in its fullest sense – by noting the ways in which it has been built in two broad, if contentious, steps. The first step, explicated in this section, entails the recognition, built up through twentieth-century investment-state arbitration, of the rights of investors to claim a future for impaired assets, especially in the calculation of damages/compensation. This future, however, was a limited temporality – *proximate* and local in scope. In the past fifteen years, as Section 3 details, the future afforded to investors has been redefined in expansive ways, through the increasing adoption of DCF. The expansive future, in these terms, both draws upon and dramatically refracts the proximate future of twentieth-century arbitration.

2.1 A future, proximate and direct

In her magisterial analysis *Damages in International Law*, written in 1943, Marjorie Whiteman argues (1836–47) that investors are entitled to value that stretches into the future in the form of prospective profits. Future profits, however, are strictly limited to, and imminently possible within, the context of the investment in question. Using metaphors of adjacent space, Whiteman characterises existing arbitral precedents as entailing a future that is close, 'direct, proximate, or immediate' (Whiteman 1943, 1836–47). The future Whiteman sketches for investors is not the

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unseeable parameters of 'deep time' but the conditional future actually observable in – proximate to – the present.

The future, in the form of future prospects/profits, has long been a component of international arbitrations. *The Factory at Chorzow*, a 1928 landmark decision that established full restitution as a benchmark for expropriation compensation, centres 'future prospects' as a legitimate factor in the calculation of damages. Those damages, the decision notes, include 'the lands, buildings, equipment, stocks, and processes at its disposal, supply and delivery contacts, goodwill and future prospects' (165).

The future inscribed in *Chorzow* actually has a longer provenance, dating from arbitral practice of the late nineteenth century. An early reference is articulated in *Delagoa Bay*, a dispute relating to the interests of an Anglo-American venture operating a railroad in Portuguese-controlled Delagoa Bay (McIlwraith 1900, 410). After a series of disputes between the investor and colonial administrators, the Portuguese state revoked a railway concession and seized a railroad that had been mostly completed (see also Aitken forthcoming). A panel of international arbitrators spent nine years assessing the case before imposing on Portugal compensation of £950,000. Importantly, this settlement applied not only to the 'value of the objects taken' (the initial position of Portuguese representatives) but also to profits lost over the future course of the contract. 'Portugal was thus ordered to pay for the damages sustained [. . .] as well as for the loss of profit incurred'; an amount strictly limited, however, to a narrow calculation of possible future revenue schedules (Hernandez 2017).

This proximate future is given further shape in *Poggioli,* a case resolved in 1903 involving two Italian citizens living as settlers in Venezuela. The Poggiolis established a range of plantation enterprises and encountered what they described as persistent interferences by the Venezuelan state. These interferences include the 'requisition of animals', 'arbitrary closure of the port of Buena Vista', 'personal insults, threats and imprisonments', 'forcible separation from property', and 'other expenses' (672). The decision noted, on one hand, the sanctity of the future, and the value of that future that the Poggiolis ('exemplary settlers') were entitled to extract. On the other hand, however, the arbitrator imposed important qualifications on the future. In contrast to the expansive claim made by the Poggiolis, the arbitrator awarded damages for losses that were 'the direct result of the actions of the agents of the Government, joined with those of unpunished malefactors and for which the Government was responsible' (691).[5] In doing so, *Poggioli* determined compensation as a function only of a direct future, a future close enough to be visible in scope and shape.

As it evolved, the proximate future became a substantive feature of arbitration practice, a future limited by and within the present. *Norwegian Shipbuilders*, for example, stems from the American entry into World War I. In the context of national geopolitical and economic emergency, the American state expropriated fifteen contracts placed by Norwegian citizens with American shipyards for the construction of vessels. The arbitration panel, however, noted 'the national peril was not such as to free them from the obligation of making the necessary inventory and valuation of all the property taken [. . .] and paying "just compensation"' (32). Although justified in the context of wartime emergency, the tribunal acknowledged the American failure to offer fair compensation. Simply put, the tribunal noted that 'the United States have had the use and profits of the claimants' property since the requisition of five years ago' (37); a condition of unfair appropriation. In making this judgment, the tribunal acknowledged a certain kind of expropriated future (now past) between the moment of requisition and the point of ruling and compensation. This is a tightly confined future, 'proximate' in ways related only to the future dispossessed in the five years between expropriation and judgment; a determination 'based upon a careful investigation of the circumstances of the possible compensation' (33). This formulation entails a calculation of future value in ways that are tangible. 'As a rule, abnormal circumstances,

[5]'In the opinion of the umpire,' the decision succinctly noted, 'this claim is greatly exaggerated.' (691).

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speculative prices, etc., cannot form the legal basis of compensation in [. . .] awards' (35). In doing so, *Norwegian Shipbuilders* both echoes and strengthens an arbitral conversation emphasising a legitimate financial future for investors, but one that is proximate and local.

The resolution in *Norwegian Shipbuilders* inscribing a localised future is extended in *Shufeldt*, a case rendered in 1930. This case involved an American citizen, PW Shufeldt, who secured a contract to extract a variety of plantation commodities in Guatemala destined for American and Mexican markets. The contract, which was initially specified as a ten-year obligation, was terminated by the Assembly of Guatemala after six years of operation. For the arbitrator, future value was an object with standing and legitimacy in the calculation of damages as long as that future value was direct. 'This is essentially a case', the arbitrators wrote (1099), 'where such [future] profits are the direct fruit of the contract and may reasonably be supposed to have been in the contemplation of both parties as the probable result.' The decision is cautious in placing boundaries around the duration of future time that could be expected to carry value. Compensable future profits are based on a strict projection of existing streams of revenue, a temporality in which the future is the function of the present:

> 'The contract at the date of its cancellation [. . .] was producing substantial profits, and there is nothing to show that these profits would not have continued to the expiration of the contract [. . . although] I can not see my way to extend the amount of the profits beyond those based on the profits actually obtained during the period of six years.' (Shufeldt, 1099)

2.2 The proximate future as a projection of the immediate past

Throughout the second half of the twentieth century, in the context of the emergence of the contemporary international investor-state dispute settlement system (Bonnitcha *et al*., 2017), the 'proximate' future becomes linked to a certain rendering of the past. As the proximate future becomes more formalised, it takes on a complex temporality: an object not only defined by its relation to the present, but rationalised by a certain kind of past. If 'proximate' is a spatial condition – 'closest in relationship' or 'immediate' – the proximate future is eventually framed as an object made possible by a close and transparent past.

One moment of particular visibility of this variant of the proximate future is *Metalclad v. The United Mexican States*, a case associated with the investor-state provisions of the North American Free Trade Agreement. *Metalclad* orbits around the construction of a waste management facility, and the refusal of municipal authorities to issue approval. The decision offers an unequivocal logic of a proximate future by making the consideration of any investable future a function of past results:

> 'Normally, the fair market value of a going concern which has a history of profitable operation may be based on an estimate of future profits [. . .] However, where the enterprise has not operated for a sufficiently long time to establish a performance record or where it has failed to make a profit, future profits cannot be used to determine going concern or fair market value.' (*Metalclad,* para. 119)

Metalclad clearly recognises the legitimacy of future value – 'the valuation criteria shall include going concern value' (para. 118) – but it frames the proximate future as an object that can only be extended from the projectable past. Using this logic, the 'Tribunal agrees with Mexico that [. . .] the landfill was never operative and any award based on future profits would be wholly speculative' (para. 121). Where there is no calculable past, there can be no realisable future.

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Even as it stands as a notable ruling, *Metalclad* systematically builds on earlier arbitration practices.[6] *Metalclad* builds explicitly on *Asian American Products v. Sri Lanka*, and notes the ways in which that decision 'requires prior presence [of profitable performance] for at least two or three years [. . .] in order to establish continuing business connections', and to make a case for future value (para. 121). Beyond the reference in *Metalclad*, *Asian Agricultural* stands on its own as a kind of transposition of the past into the future:

> '[I]nternational arbitral tribunals are bound to project the future on the basis of the past [. . . this case] offers no sound basis for projecting any future profitability [. . .] a standard of "profitability" that renders a prospective purchaser prepared to pay a certain premium over the value of tangible assets for the benefit of the Company's "intangible" assets.' *Asian Agricultural Products Ltd. v. Republic of Sri Lanka* (case no. ARb/87.3, para. 101, p. 22)

Metalclad also builds on cases clustered around the Iran-US Claims Tribunal. The decision issued in *Phelps Dodge* (1986), for example, involves an American manufacturing subsidiary that was expropriated in 1980 in the context of the Iranian Revolution. In referencing the case, *Metalclad* notes the reasoning that links compensation to 'actual' fair market value in concrete terms, that is, a calculation consistent with the firm's 'actual investment' (*Metalclad*, para. 122). The arbitrators in *Metalclad* (at 132–33) argue that future profits could not be awarded because no concrete past could reasonably be projected into that future: 'any prediction of them would be entirely speculative'. The actual text of the decision in *Phelps Dodge* offers only a narrow set of conditions in which future value could be realised as a tangible possibility:

> 'The Tribunal cannot agree that SICAB had become a "going concern" prior to November 1980 so that such elements of value as future profits [. . .] could confidently be valued [. . .] any conclusion on these matters would be highly speculative [. . .] SICAB's short-term prospects would certainly have been seen in November 1980 as sufficiently uncertain.' (*Phelps Dodge*, para. 30, pp. 17–18)

Metalclad, and the notable rejection of the speculative future it enacts, is also an important benchmark in subsequent arbitral conversations. *Wena Hotels v. Arab Republic of Egypt* (4 ILM 896 2002), for example, argues that *Metalclad* establishes future value as an echo of the past. For *Wena Hotels*, the weight of *Metalclad* is clear, 'where it has failed to make a profit, future profits cannot be used to determine going concern or fair market value' (*Wena Hotels* ruling). This echoes an earlier decision, *SPP v. Egypt*, relating to the construction of the Pyramids Oasis George V Hotel and a cluster of various villas (Ripinksy and Williams 2008). Although construction began in 1975, only 386 units were initiated by the time that political opposition targeted the project (*SPP v. Egypt*, para. 62). By 1978, approvals for the projects at various levels were rescinded. Although SPP invested $5 million in the project, it argued for damages which included eighteen years of future value (Ripinksy and Williams 2008). The 'tribunal concluded that' awarding future profits for a project unfinished in the present 'would result in awarding "possible but contingent and indeterminate damage" and "speculative or uncertain damage"' (*SPP v. Egypt*, para. 6). Future value, the tribunal argued:

> 'is not appropriate for determining the fair compensation in this case because the project was not in existence for a sufficient period of time to generate the data necessary [. . .] only 386 units – or about 6 percent of the total – had been sold. All of the other lot sales underlying the

[6]Among many other cases, it references *Biloune* to stand in for a series of rulings which separate the legitimacy of future profits from speculative or 'unrealistic' assessments of those future prospects (*Metalclad*, para. 122).

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> revenue projections [. . .] are hypothetical. The project was in its infancy and there is very little history on which to base projected values' (*SPP v. Egypt*, para. 188).

The temporality established in *Metalclad* both prefigures and punctuates a longer arbitral practice. *American Manufacturing and Trading v. Zaire* (RB case 93/1) notes, for example, that future value is rooted in the 'striking realities of the current situation'. The logic used in this case returns us to the spatial metaphors often associated with the conditional future – metaphors of proximity and locality – to emphasise the future as an immediate object, not 'far removed' from the present:

> 'The Tribunal does not find it possible to accede to the [view that] *lucrum cessans* or the loss of profits is [. . .] measurable without a solid base on which to found any profit to take or to predict the growth or expansion of the investment made [. . .] in a way so far removed from the striking realities of the current situation.' (*American Manufacturing*, para. 199)

As the arbitrations related to *Metalclad* suggest, the proximate future took on a unique shape by the end of the twentieth century. *Lemire v. Ukraine* punctuates this shape by emphasising (at 170) that 'proximity and foreseeability are related concepts'. One test of the proximate future is its visibility, the ways in which it can be foreseen. This suggests a temporality in which present and future (via past) are linked in direct and observable ways: 'a foreseeable and proximate chain of events' (*Lemire*, para. 252).[7] That which is close in proximity is that which can be seen from here.

The proximate and foreseeable future is given form by two broad sets of antimonies. On one hand, the proximate future is shaped by the relationship between future and past. The proximate future – close in distance to the present – is legible to the present only because it allows a projection soundly grounded in the tangible and immediate past. On the other hand, the proximate future is also shaped by an antimony of openness and closure. The proximate future is open – accessible – but only to risk-capable agents. In this context, the proximate future enacts a certain kind of enclosure, partitioning access to the future only to those with ownership claims over it. This enclosure of future time, albeit bounded and conditional, is nonetheless the purview of a particular agent, exclusively available to the figure of the investor and the unique capacity that figure is endowed to exert.

Metalclad is the sturdiest and yet, in some ways, a kind of *final* statement of the proximate future delivered without equivocation. *Metalclad* was forged at a moment when the proximate future was already ceding ground to a related but vastly reworked temporal formulation. Shaped (and limited) by its own unique location in time, the proximate future given clarity in *Metalclad* would itself quickly become supplanted to make way for the expansive future which has now come to pervade our own financialised time.

3 The unbounded future and the time of the asset

In 2015, arbitrators issued a decision in *Khan Resources v. Mongolia* that restates the key elements of the proximate future that had been established over the course of the twentieth century. Arbitrators noted that 'international tribunals have repeatedly rejected [. . . claims where] there is no record of profitability and there is insufficient certainty regarding future profitability [. . .] the Claimants had not begun mining [. . .] hurdles to production render any future profits "highly speculative"' (para. 272). The language in *Khan Resources*, however, stands in stark contrast with the decision issued in 2012, three years earlier, in *Tethyan Copper v. Pakistan*, in which $4 billion (USD) in damages was awarded to a Canadian corporation for an investment in Pakistan relating to a mining project that had yet to be developed in any tangible sense. The difference marked in

[7]Although this reference in *Lemire* is to the causal chain between damage and state action, it nonetheless provides conceptual clarity on the deeply implicated connections between foreseeability and proximity.

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these two decisions suggests a shifting conception of future temporality, a contrast between a future conditioned by its concrete legibility and an emergent sense of a future that is, for investors, seemingly without obvious or tangible horizons.

I argue in this section that at the very heart of this expansive temporality is the technique of discounting/DCF. Discounting is a technology of valuation, a now dominant method for determining the value of investments. Unique in the temporality it frames, discounting establishes the value of an object by both calculating the future flows of income associated with it and determining the value of those future streams *in the present*. This focus places emphasis, in particular, on the time value of money: the notion that money, in present terms, is worth less in the future because of the costs and uncertainty associated with that distance in time:

'The value of things [. . .] comes from the flows of costs and revenues or benefits that they are likely to generate in the future. As future flows are brought into the present, they are devalued due to their distance in time and their uncertainty.' (Doganova 2024a, 8)

A discount rate is established to adjust the value of future flows in relation to this cost associated with the future. Discounting renders temporality, quite literally, calculable, conceiving the future 'as a cost, understood in terms of the amount of earnings foregone' (Miller 1991, 742). As Doganova argues:

'[F]uture flows are [. . .] translated into present value by "discounting" them – that is, reducing their value according to a factor called the "discount rate". Just as one would apply an interest rate to determine the *future value* of a present sum of money, the discount rate is meant to determine the *present value* of a future sum of money, based on the assumption that a dollar today is worth more than a dollar tomorrow.' (Doganova 2024b, emphasis in original)

A mediation of present and future, discounting is a representation of the costs that accrue to financial value over time.

DCF analyses are calculated in a fairly straightforward manner. Net present value is determined, first, by establishing the full value of future income streams, revenue or benefits generated by the asset in question for each year of its future expected economic life. This value is then subjected to a discount rate, determined to take into account both the 'time value of money' and the various risks those streams of income might face over time. Overall asset value is determined as a sum of the net present value, properly discounted, of each year for the foreseeable life of the asset.

Determined in this manner, discounting entails a unique temporal structure that relates the future to the present. On one hand, discounting places particular emphasis on the future as an object at the very centre of valuation (Doganova 2024a). There is no value via discounting without the future and the streams of latent income or benefits that make that future meaningful. Discounting is a device, in other words, that can 'transform "things" into income-generating assets whose value in the present is calculated on the basis of yet-to-be-actualized future income streams' (Adkins *et al.* 2020, 16). Like all financialised relationships, discounting renders the future an object of calculable intervention and a source of value (Birch and Ward 2024, 3).

On the other hand, echoing the time value of money, discounting entails a temporal structure that literally devalues the future, subjects future streams of value to a discount based on the cost their distance in time imposes on the present. Discounting asserts that the future is worth less than the present, that the future needs to be devalued when brought back into the present (Doganova and Kornberger 2021, 6).

Although they are not coterminous, there is a key link between discounting and the idea (and time) of the asset. If assets are claims on future income streams, discounting is a now dominant way of determining the value of those claims. Constructing assets 'creates fictitious capital by pulling future value (rent) into present circulation' (McArthur 2023; Ouma 2020, 69). Financial assets presuppose the logic of discounting, a key importance placed on the value, in the present, of future streams of income. As Tellmann *et al.* (2024, 3–5) note, the asset entails 'a novel problematization of temporality and politics in the making and claiming of (future) value'. If we

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live in the 'time of the asset', discounting, and the mediation of present and future value it enacts, is an emblem of that time, the technique by which the time of the asset is established.

As Doganova has argued (2024a), discounting has a long and complex genealogy that dates to the nineteenth century. Despite this longer history, and despite the ways in which DCF has become an important way of understanding asset valuation and investment allocation since the 1970s, it has only recently been incorporated into investment arbitration. Although arbitration tribunals have routinely adopted DCF in the past fifteen years, they previously relied more fully on traditional valuation techniques such as book value.

I argue in this section of the paper that a pivotal period in the genealogy of discounting in investor-state arbitration occurs in the period after 2010, a period which begins to constitute an open and expansive future for assets placed in question. Although I lay emphasis on this recent period, the untethered future has a longer genealogy as taken up in international investor-state cases. The arbitration in *Sapphire v. NIOC* (1963), for example, relates to the confiscation of a contract by an Iranian state agency for the extraction of crude oil. Arbitrators acknowledge the legitimacy and importance of lost future profits in the determination of compensation. In doing so, however, *Sapphire* eclipses the certain future as a privileged object of protection, the very benchmark for long-standing conceptions of a proximate future. In contrast, *Sapphire* invokes a long term not constrained by any requirement for *certainty*:

> 'The award for lost profit [. . .] has been frequently allowed by international arbitral tribunals [. . .] Since the question concerns the concession of an area which has not yet been prospected [. . .] the existence of damage is uncertain, it nevertheless is clear that the plaintiff had an opportunity to discover oil [. . .] It is not necessary to prove the exact damage suffered in order to award damages [. . .] it is enough for the judge to admit with sufficient probability the existence and extent of the damage [. . .] when the victim had lost the opportunity of making a profit [. . .] there is a very strong chance, *but not a certainty*, that deposits of commercially workable oil exist in the concession area [. . .] the plaintiff has satisfied the legal requirement of proof by showing a sufficient probability of the success of the prospecting undertaken [. . .] The plaintiff can therefore claim compensation for "loss of profit".' (*Sapphire* para. 15, emphasis added)

Sapphire gives legal weight to a long-term future (the full twenty-five years envisioned as the original investment) not constrained by any conditions placed on that timeframe. The proximate future is a timeframe built around the certainty of a near-term. In contrast, *Sapphire* allows a long term even as that long term may not be certain, a future acknowledged even as it is difficult to see.

3.1 Calculating the expansive future: taking up DCF in investment arbitration

The untethered future anticipated in *Sapphire* has materialised more systematically in a cluster of arbitration cases since 2010 which have taken up DCF as an expansive technology of valuation in the calculation of damages. *Tidewater v. Venezuela*, for example, considers the 2015 expropriation by Venezuela of an American marine support services firm attached to state-owned oil companies (Tomuschat 2016, 139). The case hinges on a dispute between the claimant, advocating for a DCF analysis in the determination of value of expropriated property, and the respondent, wedded to an analysis of book value. Ultimately, *Tidewater* notes a distinction 'to be drawn between "a going concern with a provided record of profitability" and other enterprises and assets not having this characteristic' (para. 155), a distinction that helped the tribunal endorse a DCF analysis for Tidewater, a firm with a fifty-three-year history. While this decision echoes a long-standing view that future profits are legitimate, the axiomatic use of DCF grounds value in a projected future that is fully 'forward looking'.

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Even as it restores the economic life of the asset in question, *Tidewater* also limits DCF only to enterprises with an established record of profitability. Although future value is not determined by past results, it is still enabled by them, the past as a prerequisite for a future with intact integrity. Because Tidewater was 'a going concern with a proven track record of profitability', the tribunal concluded 'it is appropriate to determine fair market value [. . .] by reference to a discounted cash flow analysis' (165). In doing so, *Tidewater* constitutes DCF as an emergent convention that surpasses the proximate future. Although the recorded past is still vital – as a kind of precondition for the use of DCF – it is not the source of that valuation, rather its condition of possibility: a future made possible by the past even as it exceeds it.

The restoration of a full future via DCF is also accomplished, with enormous compensation, in *ConocoPhillips v. Venezuela*. This case relates to the 'nationalization of [. . .] three projects' resulting in an award of $8.4 billion in March 2019.[8] *ConocoPhillips* is notable in two ways. First, the decision offers the integration of future profits (expressed in terms of present value) into the calculation of damages as self-evident. Like *Tidewater*, *ConocoPhillips* restores a future long term – assets lived to their maturity – as a kind of basic groundwork for the valuation of damages. In cases where 'a "going concern" is involved, future income that could be expected with reasonable certainty over the course of its economic life is to be included in the calculation' (para. 249). This entails the full term specified in each of the contracts – a thirty-five-year term for the Petrozuata upgrader which extends until April 2036 (282), a life for the Hamaca Association Agreement which expires on 8 July 2037 (284), and a thirty-nine-year lifespan for the Corocoro Association Agreement (para. 286). Moreover, the use of discounting as a technique for the calculation of value throughout those extended long terms is, unlike *Tidewater*, an undisputed assumption by all parties.

A second notable element of *ConocoPhillips* is the way in which the long term becomes bound up in a reconciliation of the unknown and the actual. On one hand, the ruling emphasises the construction of future profits as an imaginary practice. Discovering the present value of future profits entails a hypothetical exercise in which a potential sale of assets is imagined as a way to determine value:

> 'The hypothetical that has often been used is that of a reasonable buyer [. . .] their estimation of the assets and their projections of the future [. . .] serves as a most useful working tool to reach a result close to what would become the conclusion of a hypothetical reasonable buyer [. . .] Such a position and method does not operate in actual terms. It does not include production costs and taxes as they accrue [. . .] nor does it determine the future economics of the Projects [. . .].' (paras 191–92)

On the other hand, the decision in *ConocoPhillips* rethreads that hypothetical to a future it assumes as a kind of actual certainty:

> 'When it comes to the valuation of future profits and costs, the Tribunal will focus on the existence of a stream of occurrences demonstrating that such future events will become actual facts with *sufficient certainty*, and will not award compensation for inherently speculative claims.' (273, emphasis added)

The future – 'a stream of occurrences' – is not speculative but actual, a rendering of events that although interrupted is nonetheless real in its actual certainty. This mediation attempts to untether time from the past but not from some sense of actuality, from the sense it might stand in for a kind of substance. The decision in *ConocoPhillips*, to put it differently, protects the long-term

[8]See UNCTAD case summary: https://investmentpolicy.unctad.org/investment-dispute-settlement/cases/245/conocophillips-v-venezuela (accessed 14 April 2023).

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lifespan of assets rooted in a lingering reference to the 'actual', a repudiation of the 'speculative' even as it offers the hypothetical.

3.2 The imaginative future: 'modern' DCF in *Tethyan*

The language of the hypothetical is also relevant to a signature statement of the expansive future – *Tethyan v. Pakistan* – but in ways that abandon the grounding of *ConocoPhillips* in the 'actual'. If *Tidewater* and *ConocoPhillips* offer important steps towards an expansive future, *Tethyan* exceeds both of them in a more unequivocal manner. If *Tidewater* and *ConocoPhillips* use discounting as a way to restore the longest future available to the assets in question, *Tethyan*, by contrast, imaginatively constitutes a future economic life where it does not exist.

Tethyan orbits around the claims of a Canadian-Australian joint venture related to a gold and copper mining development in Pakistan – the Reko Diq project. The venture was denied a mining licence in 2011 and, after a series of complicated arbitration decisions, was awarded compensation of (USD) $5.9 billion. Because the project had not yet been initiated beyond a feasibility study, the tribunal had to determine how to assess future prospects for a project that had neither any operational past performance nor any tangible present. This issue was sharpened by the respondent which made a recurring claim that the consideration of future profits is inappropriate 'where the facts show no proof of profitability or sufficient certainty of the viability of the project in the future' (para. 263).

The decision in *Tethyan* shows a tribunal keen to move beyond the fixed conditions of the proximate and projectable future. Key to this move is an argument that establishes separate standards, respectively, for the 'fact' and 'amount' of future profitability. In short, the tribunal distinguishes between the certain existence of future profits and the uncertain amount of those profits over time. The arbitrators accept the feasibility study produced by the investor as a marker of 'decades of [future] profitability' (para. 217). It extends this discussion, however, by referencing the decision in *Crystallex* which allows for less certainty in the calculation of profits: 'once the fact of future profitability is established [. . .] the amount of such profits do not need to be proven with the same degree of certainty' (quoted in *Tethyan* ruling, para. 212). Future earnings can be ascertained 'even without a record of past production', an explicit repudiation of the proximate future (para. 218). This entails not a carefully scripted future grounded in the tangible past, but an exercise in imagining a possible future without proximate conditions. As the decision suggests, 'the Tribunal is not convinced that a standard of "*absolute certainty*" could or should be applied to the quantification of [. . .] damages [. . .] There can hardly be proof for a hypothetical situation' (para. 290). The temporality gestured at here suggests that the financial future is hypothetical, an object in need of imaginative construction.

In navigating this uncertain future, the tribunal used a novel valuation method, the 'modern' or 'certainty equivalent' form of DCF. In contrast to the 'traditional DCF' method used in *Tidewater* and *ConocoPhillips*, which estimates the present value of future cash flows by applying a uniform risk-adjusted discount rate, the 'certainty equivalent' method directly adjusts specific expected cash flows 'for systematic risks' and discounts those 'risk-adjusted cash flows at a risk free rate that reflects only the time value of money' (Amor *et al.* 2022, 303). This approach replaces expected cash flows with 'certainty equivalents': values at which 'the certainty (that is risk-free) pay-off that would make a risk-averse investor indifferent about opting for ether a certain pay-off or a higher expected pay-off that is subject to risk' (Amor *et al.* 2022, 303). Instead of projections of actual future cash flows, the modern DCF substitutes measures of 'certainty equivalence', an abstract financial accounting device. One key mechanism used to determine certainty equivalents is future prices used in financial markets, that is, contracts which specify the exchange of commodities in the future at a specified (risk-free) price. 'The use of such contracts eliminates the uncertainty in

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the price at which the determined units can be sold at the future date' (Amor *et al.* 2022, 306). This method, although not nearly as common as traditional DCF valuation, allows for a more variegated calculation of risk.[9]

Most importantly, modern DCF uses a conception of time in which value is allowed to maintain itself fully over the long term. Because this version of DCF does not allow risk to compound over time, the present value of the long term does not reduce to zero over the final portions of the projected contract but continues to bear value into maturity. As the tribunal noted, the modern DCF avoids 'a discount rate that results in almost no net present value for cash flows that would be generated in the second half of the mine's life' (para. 356). In invoking this logic, the tribunal opted to protect investment as an object that could be carried with fullness over the very long term.

The temporality enabled in *Tethyan* is one that allows the reconstruction of time without any proximate bearings, a kind of time anchored in imaginary equivalencies. The referent for the 'certainty equivalencies' is future prices in global financial markets. However, because actual future contracts do not exist in any depth beyond three-year time windows, equivalencies are calculated via forward curves. To determine equivalencies for the fifty-six-year future of Reko Diq, the tribunal 'relied on the forward curve for commodity prices and extrapolated prices beyond this [...] for years extended into the future' (Amor *et al.* 2022, 309). This reconstruction of the future is an imaginative act – the creation of a very long term detached from any foreseeable object. As the ruling in *Tethyan* notes, 'the term "certainty-equivalent" cash flows does not mean that cash flows have to be proven with "*absolute certainty*" but rather that existing uncertainties have been quantified' (para. 292). This quantification, however, is done in conjectural terms, an imaginative reconstruction of the future without concrete touchstones. The financial value of the investment in *Tethyan* is constituted not as an 'actual' future as specified in *ConocoPhilips* but as an engineered long term detached from any proximate condition and calculated via an abstract mathematical manoeuvre.

The future specified in *Tethyan*, and made possible via the 'certainty equivalent' DCF model, inscribes a temporality intimately related to financialisation. The use of futures and forward contracts is a direct financialisation of valuation drawing on a key financial technology – derivatives contracts, an approach the ruling (at 350) acknowledges 'is comparable to derivative valuation methods used to value many financial assets'. 'Living in financial times' entails an open horizon for the risk-capable. *Tethyan* offers, quite literally, a distillation of that financialised temporality: abstract, unbounded and investor-oriented.

The cluster of cases reviewed here – *Tethyan*, *Tidewater* and *ConocoPhillips* – all help sediment a future that is (for the risk-capable) expansive. This entails a future, discovered via discounting, that is expansive and intact, not proximate or conditional. The proximate future and the imaginative (discounted) future of *Tethyan* are both related to *and* stand in contrast with each other. The expansive future enabled via DCF, like the proximate future of twentieth-century arbitration, acknowledges future prospects as legitimate legal claims available to risk-capable investors. The open temporality constituted in *Tethyan*, however, *refracts* that future, transforming future prospects into something unbounded and imaginative. Refraction is a complex transition – not the passage of particles untouched by their movement through time and space; rather, refraction involves a change in direction of a radio or light wave when crossing the threshold between mediums. Put in these terms, both the proximate and the expansive future invoke prospective future profits as a legitimate component in the calculation of damages. That future, as understood in *Tethyan*, however, is bent and altered as it is pulled through the calculative logic of discounting. The imaginative future of *Tethyan* is refracted in

[9]"The use of forward markets to assess project cash flow risk,' noted the claimant's expert witness, 'is the most profound change, doing away with the overall, exogenously imposed and often highly contentious project level discount rate.' (Quoted at 342).

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ways that detach it from its proximate conditionality and thread it, instead, to an open horizon. Moreover, when understood at the intersection of climate and finance, the imaginative future is a temporality that places that future in question (ecologically) as it simultaneously secures it as a legal object. This doing and undoing of the future foregrounds a deep tension when the time of the asset – value with intact integrity over the very long term – is set against the time of transition – an urgent need in the present to circumscribe the very future of those assets as sources of climate exigency. This is a deep tension most apparent in the ways in which the expansive future maintains and locks in the long-term value of fossil fuels even as they undermine the very future from which their value derives.

4 Conclusion: fossil fuel entrenchment in the time of the unbroken asset

> 'To be able to imagine the futures we want [. . .] We need to be reminded that time is not a stable movement from the past via the present to the future [. . . the] black hole climate change might look like [. . .] must be met [. . .] with different approaches and different understandings.' (Bjaerke 2021, 183)

Claims on future temporality entail what the judgment in *ConocoPhillips* (at 260) describes as 'mere projections towards a not yet known future'. This not yet known future, however, is caught in the tension between contending temporal frames relating to 'climate' and 'finance' respectively. Conceptually, the 'time of the asset' and the future required of transformative transition contrast, entailing contending assumptions about who directs the future, how the future is known and who it is for. The temporality of transition consists of the transformations required to eclipse carbon extraction and construct climate futures open to the possibilities of sustainability and justice. I want to conclude by arguing that this time of transition is undermined by the time of the unbroken asset: a temporal frame that locks in and entrenches fossil fuel extraction and value, even as that value undermines the future from which it comes.[10]

This tension materialises in the projections for oil prices calculated in *ConocoPhillips*. The enormous settlement imposed in *ConocoPhillips* is built on projections of steadily increasing prices for oil stretching to 2036 and 2037. The decision is premised on 'the oil price forecast from 2017 until the date of expiration of the production of each of the Projects' (680). In forecasting the long-term price of oil, the tribunal ultimately uses a base price of (USD) $58.02 for Petrozuata and $57.02 for Hamaca and then calculates 'an average increase per year of 1.20% for each Project' (para. 708). The respondent, by contrast, suggested that the tribunal:

> 'conduct their price forecast until 2020 only, and then assume that oil prices will remain flat in nominal terms [. . .] certainty is available as from year 2020 and that therefore a flat rate should be used until the end of each Project's lifetime' (para. 684–703).

The tribunal ruled against this suggestion, noting that it is 'highly artificial to suddenly stop the counting in 2020 [. . .] keeping prices flat when costs are increasing is disturbing' (para. 703). Ultimately, the tribunal projected a linear growth in the price of oil without interruption into 2037.

Even as the decision in *ConocoPhillips* imagines a 'not yet known future', it nonetheless intervenes into that future in politically important ways. The decision is performative in the ways in which it brings into being the object – stable long-term returns for oil reserves – it purports merely to describe. In doing so, the settlement opens a long term now made available to

[10]Put a bit differently by Doganova (2024a, 31), discounting has 'produced a new kind of future: a certain [. . .] future entirely dominated by investors' expectations, which were granted the rare privilege to be met, no matter what the future might turn out to be'.

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risk-capable investors. The future performed in oil price forecasts is one in which today's conditions are projected, without interruption, into the future, a kind of closing of that future to alteration. *ConocoPhillips* frames reserves as 'volumes that are commercially recoverable under existing economic and operational conditions' (para. 317). Because these reserves are projected into the late 2030s, they are imagined as part of a future world in which today's 'existing conditions' – political, commercial, ecological – remain intact for the long term, a closed future of locked-in fossil fuel persistence not malleable to political or social intervention. Although the tribunal in *ConocoPhillips* judged the respondent's suggestion of a flat price for oil into the long term as an 'excessively artificial approach' (para. 715), it nonetheless invokes its own future abstracted from and unchanged by real climate pressures; a future where the long-term price of oil, indeed the long-term extraction of carbon, remains unencumbered by mitigation measures into the long term. In these terms, the decision in *ConocoPhillips* is itself a kind of price mechanism designed not so much to discover but to invent a price for oil in an imagined and 'artificial' future.

The future enacted in *ConocoPhillips* is inconsistent with Paris climate goals and, by extension, with any sense of 'just transition.' If transition requires moving beyond the extraction and burning of fossil fuels, projecting the uninterrupted value of those fuels into the future locks in fossil fuels in ways that deepen reliance on them. This suggests an intractable political contradiction as 'tribunals too readily defer to market valuations that assume the legitimacy of future income from stranded fossil fuel assets' (Hailes 2022, 12). Any future transcribed as long-term asset integrity for fossil fuels stands in tension with a future characterised by transition or decarbonisation. The frame of transition requires the interruption of fossil fuel assets which are a source, simultaneously, of *both* financial value *and* climate pressure (Vona 2023; Bratspies 2022). In the context of widening international legal recognition of climate exigency, 'DCF methods could well be legally inappropriate to assess the financial value of stranded fossil fuel assets' (Hailes 2022, 11). The Paris Agreement does not invoke a future oriented around the maintenance of long-term financial value for oil reserves but a future in transition away from fossil fuels:

> '[T]he Paris Agreement contemplates wealth transfers that are consistent with a pathway towards low greenhouse gas emissions [...] An investment tribunal's valuation of compensation based on forward-looking, income-based methods such as DCF could undermine the distributive scheme of the Paris Agreement by assuming the legitimacy of future income from fossil fuels.' (Hailes 2022, 11)

Fossil fuel lock-in is echoed in the recent decision in *Rockhopper v. Italy*, a case that involves an investment made by a British firm in exploration offshore the Italian coast in 2005. Rockhopper intended, but never actually began, exploration when it was subjected to political pressure opposed to offshore extraction. The project was ultimately rejected by state authorities in 2016 in response to concerns regarding the climate costs of further exploration as well as the direct environmental harms of offshore development. In 2020, a decision rendered under the auspices of the Energy Charter Treaty concluded that 'Italy had expropriated Rockhopper's investment without compensation' (Mazotti 2022). Although exploration had not yet been initiated, the tribunal awarded Rockhopper (EUR) 184 million in compensation.

There are two key elements of *Rockhopper* that are revealing. First, because Rockhopper had not initiated any exploration, the tribunal struggled with the ways in which it might consider future revenues. The arbitrators acknowledge that Rockhopper 'was not, technically, a going concern at the time of expropriation, which does make the use of a DCF model more complicated' (*Rockhopper*, para. 274). To sort its way through this problem, the tribunal explicitly draws on the logic developed in *Al-Bahloul* (2010) which affirms that as 'a general rule assets need to qualify as a *going concern* and have a proven track record of profitability in order to be valued in accordance

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with the DCF method' (para. 71). Nonetheless, it acknowledges that the 'determination of the future cash flow from the exploitation of hydrocarbon reserves need not be dependent on the past record of profitability', and establishes a test for the use of DCF in cases without past profits (75).[11] The tribunal in *Rockhopper* clings to the exceptions established in *Al-Bahloul* to determine the value of an investment without a tangible past or present.[12] The decision concludes that there is 'no doubt that the reserves exist and could have been exploited' (277), even as it acknowledges that those reserves do not constitute a 'going concern':

> '[To] create a useful valuation from a DCF model for an investment that is not a going concern [is] somewhat more speculative in nature [. . .] when applied in a situation such as this case, where the expropriated asset has never had any cash flows of its own.' (*Rockhopper*, para. 283)

Rockhopper nonetheless invokes an expansive future for oil reserves, and a long-term stability for oil prices, in a case where those reserves have not been explored or catalogued; a long-term future for assets lacking any substantive mark of that future. The decision extends the life of fossil fuel assets and, by extension, locks in reliance on those fuels by imaginatively restoring their value.

Second, *Rockhopper* offers a revealing glimpse into the ways in which investor-state arbitrators separate 'climate' and 'investment' and, by extension, sever the time of the asset from the time of transition. Like *ConocoPhillips*, *Rockhopper* renders environmental and climate costs external to its frame of reference and calculation. This involves a careful move to place climate to the side of what the tribunal could formally consider, even as it invokes climate as a point of departure (Mazzotti 2022).[13] The tribunal argues that it 'has not [. . .] pronounced upon anything other than the substantive rights promised to foreign investors [. . .] The Tribunal has sought to assiduously refrain from any form of "legislating"' (*Rockhopper*, para. 11). This entails a careful demarcation that sets climate (and political) concerns apart from legal questions, placing 'the political' and 'the legal', 'the civic' and 'the legal' on opposite sides of a divide:

> '[T]here are strongly-held environmental, civic and political views about offshore production [. . .] However, the outcome of this case passes *no judgement whatsoever* on the legitimacy or validity of those views [. . .] this award is not a "victory" for one side or the other in that environmental debate, which is of a civic or political character, but rather addresses the legal issue at hand, namely whether compensation is due to a foreign investor.' (*Rockhopper* para 10, emphasis added)

Although it claims to avoid 'legislating', the decision in *Rockhopper* is an active intervention that secures and locks in the long-term lives of hydrocarbon assets that have yet to gestate against a climate future rendered vulnerable by those very objects. Moreover, it secures this long term even as it acknowledges the thinness of the assets it seeks to protect. As the decision acknowledges (para. 279), 'there was no guarantee of what the future might hold for an entity which has been in "exploratory" mode for several years'. *Rockhopper* secures this future before (and as a kind of substitute for) the stranded future it might well have reached on its own. The secured asset also stands in contrast to the future of climate emergency – a future placed outside of, external to, the logic of arbitral decision-making.

[11]The test established in *Al-Bahloul* allows the use of DCF in cases with no record of profitability if the investor can demonstrate (1) that it can secure financing for exploration; (2) that exploration has a reasonable chance of success; (3) it could secure financing for extraction; and (4) it has the capacity to market and sell hydrocarbons. (*Al-Bahloul* settlement, 77).

[12]The ruling in *Rockhopper* notes: 'The determination of the future cash flow from the exploitation of hydrocarbon reserves need not depend on a past record of profitability.' (275).

[13]'Whereas the Italian ban ostensibly had a climate policy dimension, this aspect of the case was left unaddressed by the Tribunal and (most surprising) by the Respondent itself.' (Mazzotti 2022).

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What, politically and conceptually, is at stake when investor-state mechanisms privilege the unbroken time of the asset? Politically, securing assets undermines the possibilities of transition by locking in the value and use of fossil fuels. Maintaining asset integrity also often enables perverse outcomes that deepen this kind of lock-in. Rockhopper, for example, has noted it will use the proceeds of its arbitral settlement to finance exploration off the coast of the Falkland Islands (Hailes 2022, 10). Moreover, the logic of investor-state compensation may impose perverse incentives on states who have found themselves in possession of oil and gas assets they have effectively paid for. 'A government that has to pay an investor the value of future years' profits may also feel strong pressure to develop or use the assets' (Tienhaara, Johnson and Burger 2020). Will states in this position leverage payments made (in the form of damages) to continue to protect ecological assets or to recover those damages via economic development?

Conceptually, privileging the unbroken time of assets raises questions about how the future should be governed. This is partly a concrete question about under what conditions DCF is and is not appropriate; in what conditions is the future something that should be made available to risk-capable investors? This question also has larger theoretical implications, however, related to ways in which temporalities mediate openness and closure. If the time of the asset is a future pried open for investors but closed to questions of climate or to discussions regarding alternatives to fossil fuels, could we think time and the future otherwise? Doganova and Kornberger (2021, 7) put it succinctly by asking if we could transform our sense of 'the future [. . .] into an object of care [. . .] to care for futures by making them part of our present'. Although discounting makes the future visible in present value, it does so in a way that closes that future off from many of us but extends the value of that future for those with exclusive rights to it. Enacting new temporalities of care is the task of, but also a great obstacle to, climate justice and transition.

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