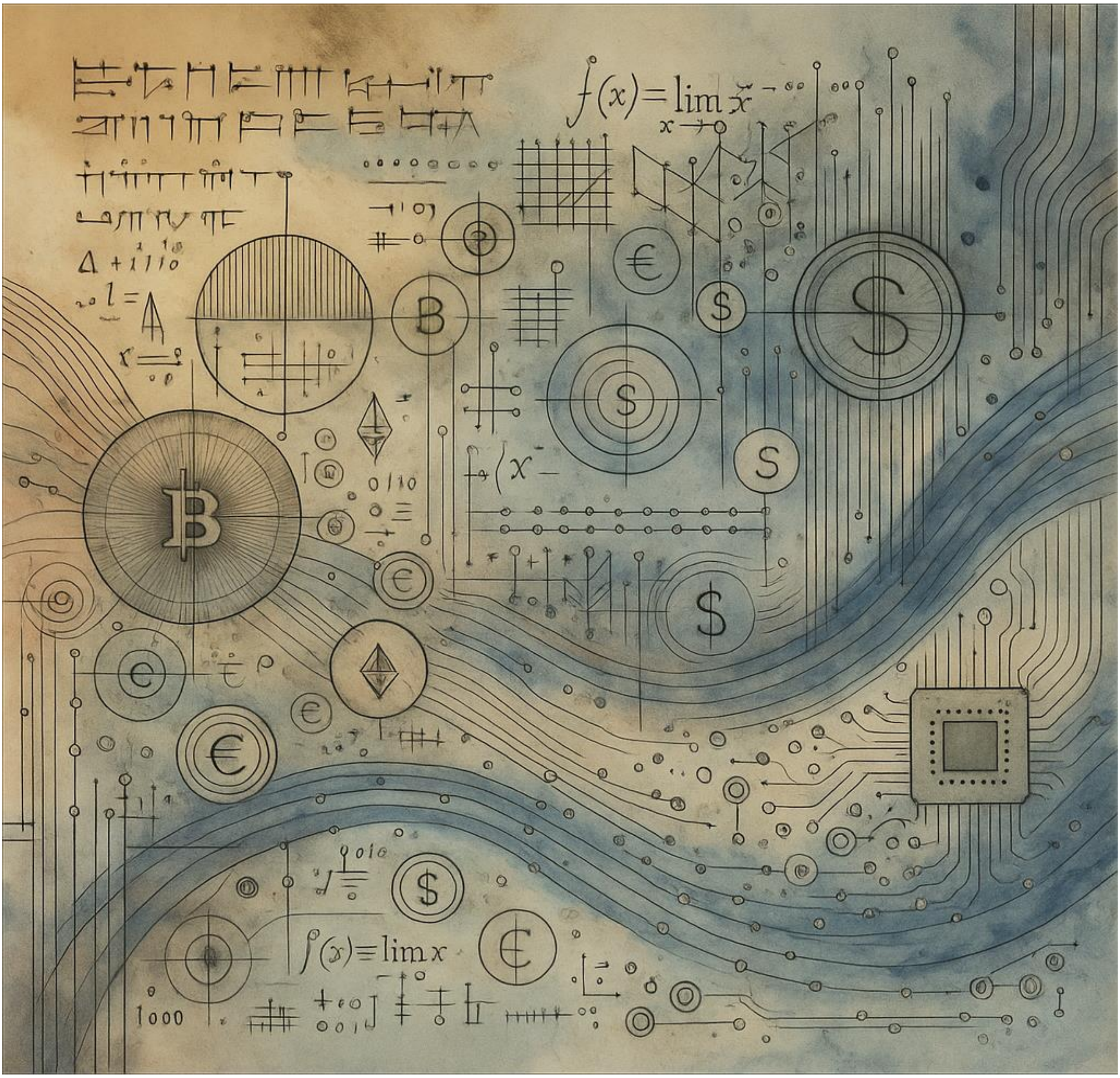
Financial Pharmacology and Financialization:
A Stieglerian Perspective on Financial Rationality and Proletarianization



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List of Abbreviations

TT1: Bernard Stiegler – Technics and Time 1
TT2: Bernard Stiegler – Technics and Time 2
DOID: Bernard Stiegler - The Decadence of Industrial Democracies
CPE: Bernard Stiegler - For a New Critique of Political Economy
WMLWL: Bernard Stiegler – What Makes Life Worth Living: On Pharmacology
PTF: Bernard Stiegler – Per Toeval Filosoferen
POD: Bernard Stiegler- Pharmacology of Desire
SOS: Bernard Stiegler - States of Shock
AS: Bernard Stiegler – Automatic Society
NA: Bernard Stiegler- Neganthropocene

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Introduction

Bernard Stiegler laments the 'philosophical abdication in relation to economics' and states that this detachment is 'masked by an obsessive relation to philosophical texts devoted to economics of the past' (CPE, 18). This fierce diagnosis of contemporary philosophy underpins Stiegler's project titled *"For A New Critique of Political Economy"*. Stiegler's work thus seeks to re-engage philosophy with the urgent economic realities of our time, moving beyond past-time economics. Stiegler is well aware of the importance of thinkers like Max Weber, Joseph Schumpeter and Georges Bataille for a philosophical understanding of economics, this comment must thus rather be understood as a diagnosis of post-structuralism and its descendants. Stiegler's diagnosis, though provocative, is an open invitation to 'young philosophers' and all amateurs who seek wisdom to join the endeavour for a new critique of political economy (CPE, 17). In this thesis I respond to that invitation by developing Stiegler's project to critically examine the contemporary economic project: finance.

Finance, as a system of axioms and techniques for monetary management, expresses the logic of capital, how investment is governed. From a Stieglerian perspective it is crucial to understand how technics is constitutive of finance. This necessitates an investigation into the calculative techniques of finance—the actual methods used in accounting and finance and taught in business schools. Therefore, I will develop a technical understanding of finance – debt, money, capital and the *techniques* of its management. The aim is to re-embed the philosophical critique of economics in general, and finance more specifically, within the contemporary reality of financialized capitalism, or "financialization". The financialization of the economy implies that the *logic* of finance, and the implicit thinking within its operations, has become increasingly dominant, pervading private and public, for-profit and non-profit, formal and informal spheres. This is the case for the "world-economy", for businesses, but also for the everyday life of individuals and households.

There is no escaping finance; everyone is drawn into the orbit of its logic and its dictates. This is the core motivation for a philosophical engagement with finance; for those inhabiting Western economies finance is always already-there, in the form of money and credit.[1] This entails, in Stiegler's words, that a demonization of money merely 'creates a devil without also eliminating money's logic' (TT2, 257). The current time is the time of money, as understood by Elena Esposito both in an epochal and in a temporal sense, money overdetermines the current understanding of temporality in general.[2]

Economists themselves have asserted that economics is too important to leave to economists.[3] Not in the least, this is a matter of methodology; economists primarily use quantitative methods to model markets and transactions. This quantitative method is inadequate for the multitude of

[1] Michel Aglietta, *Money: 5,000 Years of Debt and Power*, trans. Susan Rendall (London: Verso, 2018), 32.
[2] Elena Esposito, *The Future of Futures: The Time of Money in Financing and Society* (Cheltenham, UK Northampton, MA, USA: Edward Elgar Publishing, 2011), 3.
[3] Ha-Joon Chang, *Economics: The User's Guide* (New York: Bloomsbury Publishing USA, 2014).

questions concerning the technics of finance, and its relation to time. Finance is *always* a temporal operation, a calculation of futurity. It is important to investigate how *financial rationality* determines what *investments in the future* are realistic, possible and "rational" based on calculations drawing on financial ratios. More than a question of finance, this is a question about futurity, desire and therefore of existence as such.

Simultaneously, economists have failed to give a comprehensive account of money. [4] Long has it been understood as a mere medium, that is neutral, following Irving Fisher's description of the 'veil of money'. [5] For John Stuart Mill, for instance, money is the most 'insignificant thing', a mere 'machine' doing more efficient what barter can do, that is, it is neutral as it does not alter the 'essential character of transactions'.[6] Philosophy of technology teaches that no technology is neutral, and that the medium itself contains messages. Yet, philosophy has failed to provide a cohesive account of money *as technics, as media,* to which the engagements of Georg Simmel and Marshall McLuhan are fruitful exceptions. This feeds into Stiegler's diagnosis of a severe negligence of philosophy for economics in general, which I develop in the direction of finance and money.

The road into the dark wood of finance is, first and foremost, a demanding path of thinking. One does not walk such a road without a good guide, and here the insights of Stiegler become foundational. Stiegler's work provides the interpretive key to understand the relation between technics and time as it is displayed in the techniques of finance as a 'financial pharmacology' (CPE, 88 & 92). The main question of this thesis is: "How does Stiegler's understanding of money relate to his analysis of financial pharmacology and financialization, and what does this reveal about the connection between finance and proletarianization?"

Though Stiegler pioneered the idea of finance as pharmacology, he didn't fully elaborate on it, leaving many questions unanswered. This thesis aims to develop an understanding of finance's technics as financial pharmacology, building upon and extending Stiegler's work. Even though a critical understanding of the relation between economic reason and time can already be found in Stiegler's first book *Technics and Time 1,* the financial crisis of 2007-2008 gave the 'systemic crisis of global finance' a more central position in his later post-crisis publications (OP, 22). His understanding of "financialization" in *For a New Critique of Political Economy* – which has not yet been recognized in the literature on financialization, nor in secondary literature on Stiegler – is largely a response to the 2007-8 financial crisis. Given Stiegler's idiosyncratic oeuvre and his progressive rereading of the philosophical tradition, it is essential to introduce his broader thinking and vocabulary before delving into the discussion of financialization.

[4] Aglietta, *Money.* Hyman P. Minsky*, Stabilizing an Unstable Economy* (New York: McGraw-Hill, 1986), 126.
[5] Irving Fisher, *Appreciation and Interest: A Study of the Influence of Monetary Appreciation and Depreciation on the Rate of Interest, with Applications to the Bimetallic Controversy and the Theory of Interest*, Publications of the American Economic Association Vol. XI, no. 4 (New York: Macmillan, 1896), 335, https://www.policonomics.com/wp-content/uploads/Appreciation-and-Interest.pdf, 69.
[6] John Stuart Mill, *Principles of Political Economy*, abridged by J. Laurence Laughlin (New York: D. Appleton And Company, 1885), Project Gutenberg, September 27, 2009, https://www.gutenberg.org/ebooks/30107. 341. Interestingly, Mill's writing allows for a Heideggerian deconstruction, as Mill writes that money only 'exercises a distinct and independent influence of its own when it gets out of order.'

This thesis consists of two parts: the first on financial pharmacology and the second on financialization. In the first part the history of writing and the history of finance will be thought of as co-evolving, through accounting practices and more specifically, that which Stiegler calls *grammatization,* lying at the basis of what he understands as *proletarianization*. A speculative understanding of money as a mnemo-technical pharmakon that grammatizes the social fabric and temporality will be developed, drawing on the work of Karl Marx, David Graeber, Michel Aglietta, Jean-François Lyotard, Georg Simmel, and Marshall McLuhan. The second chapter addresses the question how finance forms a system, and how this system led to systemic risk, systemic crises and systemic stupidity. Developing the notion of financial rationality, relating it to the rationalization of calculating reason and the ratios involved in bookkeeping and finance, will reveal the nihilistic logic of finance. Financial pharmacology will be understood as a response to the complexification of the human-technics relation, as well as a constitutive element of this complexification. The pharmacology of finance will be understood in this dual nature.

The second part takes up the development of a Stieglerian understanding of financialization. The third chapter develops Stiegler's understanding of it as the toxic idea of calculation without remainder, leading to a structural short-termism, where investment decomposes into speculation, profit becomes narrowly understood as mere monetary gain, and a general carelessness manifests itself in a lack of care for the indeterminacy of the future and the plane of consistences. The fourth chapter takes up the question of investment further, both libidinal and financial investment. This is important since in a financialized capitalism a new mode of proletarianization enters the stage of capitalism, not that of the worker or consumer, but a becoming-investor of citizens. This question of investment will be developed pharmacologically, as on the one hand it can deliver financial returns for the working class, whilst on the other it grammatizes libidinal investment and ties it to the future of an exploitative system. Ultimately, this leads to a reconsideration of infinity, a concept central to a new critique of political economy, particularly in relation to financial and libidinal investment concerning trading platforms and the European Union.

Part 1: Financial Pharmacology and Financial Rationality

Stiegler's writing is idiosyncratic; his thinking not only builds upon the history of philosophy, but also upon his own work. An explanation of the Stieglerian perspective of financialization is thus impossible without a sufficient introduction to his thinking and vocabulary. This first part of the thesis therefore begins by introducing Stiegler's core understanding of technics and humans as co-evolving, transductive processes, emphasizing the notion of humans as 'originally technical' in Chapter. 1. This foundational chapter will delve into Stiegler's key concepts through his interpretations of Plato's *Protagoras, Meno*, and *Phaedrus*, elaborating on his understanding of mnemotechnics through the processes of exteriorization, grammatization, and pharmacology. Crucially, it will demonstrate that the history of technics, dating back to the advent of writing, is inherently intertwined with the history of finance, arguing that the intimate relation between writing and accounting reveals finance as a hypomnesic technique and a particular form of grammatization. Given Stiegler's less explicit treatment of money's grammatizing function, this chapter will also develop a comprehensive explanation of how finance grammatizes the social fabric and temporality, drawing upon diverse perspectives to take this further.

Building on this theoretical foundation, the second chapter examines how these financial hypomnesic *pharmaka* interconnect to form an interdependent global financial system. It unpacks the pervasive financial rationality that governs this system, which encompasses both calculative reason and the intricate organization of financial criteria and ratios. Drawing on Yuk Hui's work, this chapter conceptualizes the financial system as a recursively organized, self-organizing network of interconnected machines and hypomnemata. The inherent risks and consequences of such a self-referential system are then vividly illustrated through a thorough analysis of the 2007–2008 financial crisis. This analysis leads directly into Stiegler's concepts of generalized proletarianization and systemic stupidity, using his insights on Alan Greenspan as a primary example, while also offering novel perspectives through the case of Long-Term Capital Management. This leads to a concluding summary on how to understand finance pharmacologically.

Chapter 1: Financial Pharmacology and Mnemotechnics

I smiled at myself at the sight of this money. "O drug!' said I aloud, "What art thou good for?"

Daniel, Defoe, Robinson *Crusoe*, 90

A technical understanding of finance —an inquiry into the calculative techniques and infrastructures that make financial operations possible — remains underdeveloped. While economic disciplines traditionally reduce money to its functions as a medium of exchange, unit of account, and store of value, they largely ignore the intricate technical operations, media, and infrastructures that not only make these functions possible but also shape their very essence.[7] This blind spot leaves us blind to how finance profoundly conditions sociality and temporality, extending far beyond the confines of economic transactions 'Economics is too important to leave to professional economists alone', writes Ha-Joon Chang, and the same is true for money and finance in general.[8] Economics is a cultivation of the *techniques* of quantitative analysis and modelling (econometrics) and management, but not an understanding of the economy, finance, or money *qua technics.* In the philosophical tradition a technical understanding of finance is also underdeveloped. Marx provides a thorough philosophical account of money and the money-form, showing how it is necessary to the logic of commodity exchange. However, Marx does not yet develop an understanding of how this monetary quantification of exchange-value is *de facto* calculated by techniques of calculation and an infrastructure of devices. Simmel's masterpiece *The Philosophy of Money,* and a chapter in McLuhan's *Understanding Media* are two precious exceptions to this blind spot, both developing a distinct understanding of money in its mediating function. The insights provided by these authors will return as this text unfolds. Yet another exception is provided by Marc Coeckelbergh who has urged for a technological understanding of money.[9] However, Coeckelbergh develops this understanding in relation to contemporary financial technologies, and thus misses how money, or more broadly, finance has been tied up to the history of technics ever since the advent of writing. This chapter addresses this gap by drawing on Stiegler's work to show how money and finance must be understood as forms of grammatization.

§1. Stiegler's Plato

According to Stiegler, humanity is without origin and is constituted by a default of origin *[défault d'origine]* (TT1, 144). This has a twofold meaning: an original ontological lack or original necessity of prosthesis, and a temporal forgetting. The former is explained by Stiegler by means of the myth of Epimetheus and Prometheus, as told in Plato's *Protagoras*. When

[7] See Gregory N. Mankiw, *Macroeconomics*. 7th ed. New York: Worth Publishers, 2009, 80-81.
[8] Chang, *Economics*.
[9] Mark Coeckelbergh, "Money as Medium and Tool: Reading Simmel as a Philosopher of Technology to Understand Contemporary Financial ICTs and Media," *Techné: Research in Philosophy and Technology* 19, no. 3: 358–380.

Epimetheus *forgets* to endow humans with qualities, humans are essentially constituted by a lack of properties. Prometheus anticipates this and steals Hephaistos' fire and Athena's knowledge to endow humanity with the supplementary prosthesis that can compensate for their lack of qualities (TT1, 114-115). In this manner, the necessity of the ontological lack is complemented by the necessity of the supplement; it is the *défaut qu'il faut* (WMLWL, 23). One conclusion Stiegler draws from this myth is that there is no "pure" human essence prior to technical mediation. Humans are constituted by an 'originary technicity' (TT1, 16). In Helmut Plessner's terms, the human is 'by nature *artificial*'.[10] According to Stiegler, *anthropogenesis*, the historical becoming of *homo sapiens,* and *technogenesis,* the historical becoming of technics, are *transductive* processes (TT1, 45). This means that these processes are related dynamically and are originally co-constitutive. There is a biological evolution of homo sapiens co-constituted by technics, which itself also evolves. The second meaning of this default of origin is that since there is no "origin" of the human as such - in Freudo-Lacanian terms - the origin is lost and can only be rememorated *nachträglich, après-coup* through culture that is technically constituted. In short, Stiegler understands technics as ontological condition of humanity, and not a mere activity, or mere instrument. Technics is supplementary to the human, but this supplementarity is essential.

Stiegler reads Plato's *Meno* and *Phaedrus* based on this understanding of the intricate relation between humanity and technics. In *Meno* (81a-86c) Socrates attempts to show how true knowledge is attained through *anamnesis,* remembering of innate ideas, which constitute true knowledge. Socrates attempts to demonstrate the innateness of the ideas by using his maieutic method to show how "even" an uneducated slave boy can solve geometrical problems. Socrates succeeds in making the uneducated man "remember" the ideas, concluding that he thus must have already had the knowledge. What Plato disavows, according to Stiegler, is how Socrates and the slave do not merely remember by means of dialogue and interior contemplation or meditation, but how they draw geometrical figures in the sand to support their reasoning. For Stiegler this demonstrates how an 'organization of the inorganic' – Stiegler's definition of technics – is used as a memory support (TT2, 4). When one asks the fundamental philosophical question 'where are the (mathematical) ideas?' one cannot, as Stiegler shows, simply point towards a body, brain or meta-physical realm (TT2, 135). The recollection of the ideas happens in-between the boy, Socrates and the prosthetic milieu. This means that there is not simply an interiority that is *opposed* to the exteriority of the drawing. The "transcendental" memory of the slave exists as a *composition* between interiority and exteriority. The externalization of thinking through drawing is a *necessarily prosthetic condition* of consciousness. Stiegler writes: 'The paradox is to have to speak of an exteriorization without a preceding interior: the interior is constituted in exteriorization' (TT1, 141).

Plato develops the opposition between the interior and the exterior in *Phaedrus* (274b-278b) as an opposition between *anamnesis* (reminding the innate ideas) and *hypomnesis* (remembering through an external support). This informs Socrates' concern with writing, once something is

[10] Helmuth Plessner, *Levels of Organic Life and the Human: An Introduction to Philosophical Anthropology* (New York: Fordham University Press, 2019). 288.

written down it can be a *reminder* without actual recollection of the ideas. As Stiegler writes, what is written down 'can be reproduced without attending to it, that is reproducing and repetition without internalization' (AS, 53).[11] Socrates does so by telling the Egyptian myth of Theuth, who presents writing to King Thamus as a gift to enhance memory and wisdom. Thamus rejects this claim, arguing that writing will instead produce forgetfulness, as people will rely on external marks rather than cultivating internal recollection. Socrates concern is that by relying on an external memory the capacity of active contemplation and recollection is substituted and "crowded out" – to use a term from economics - by a passive reliance on external tools.

Stiegler's reading of *Phaedrus*—informed by Derrida's *Plato's Pharmacy*—reveals how Socrates asserts that Thamus addresses writing as a *pharmakon*: both a support for reminder and a source of forgetfulness. Theuth says 'I have discovered a potion *[pharmakon]* for memory and for wisdom' (274e-275a). Thamus replies: 'it will introduce forgetfulness into the soul of those who learn it: they will not practice using their memory because they will put their trust in writing, which is external and depends on signs that belong to others, instead of trying to remember from the inside, completely on their own. You have not discovered a potion *[pharmakon]* for reminding *[mnemes]* but for remembering *[upomneseoos]*'. Based on this Stiegler understands writing as pharmacological mnemo-technics: it is a technical support of externalized memory that can induce internalization, but it can also institute a laziness and dependence, a mere exterior memory that displaces the work of living memory. Stiegler does not develop this pharmacology as an opposition, but rather as a composition of tendencies; writing contains *both* a positive, curative and negative, toxic tendency at the same time (PTF, 147). It is in this manner that Stiegler rather anachronistically understands Socrates as the first thinker of *proletarianization,* understood as a loss of knowledge *vis-à-vis* exteriorized mnemotechnics. This relation between exteriorization of memory and proletarianization must be developed further.

§2. Grammatization and Proletarianization

Stiegler understands the (Western) history of technics, from the Neolithic age onwards, as a history of grammatization (CPE, 10; DOID, 8).

> 'Grammatization is the process through which the flows and continuities which weave our existences are *discretized:* writing, as the discretization of the flow of speech, is a *stage* of grammatization.' (CPE, 31-32)

Grammatization is thus the discretization of continuous flux into discrete, formal elements. It converts time into space, rendering processes reproducible through the standardization and formalization of signs. As Stiegler puts it, it amounts to *'abstraction from a continuum'* (CPE, 31). Stiegler gives multiple examples of how grammatization is a specific mode of the

[11] Martin Heidegger, *Being and Time* (Oxford: Blackwell Publishers Ltd, 2001), 211–14. In this work, Heidegger develops an analogous argument, where he criticizes "idle talk" [Gerede] as mere repetition without understanding the ontological ground.

organization of the inorganic, but his most central example is the discretization of speech into alphabetic writing. A cornerstone of Stiegler's work is his understanding of writing *as* a technics—an organization of the inorganic (TT1, 205). Writing is an exteriorization of speech; it abstracts it from the continuum of the embodied voice. Speech "as such" is without origin, speech does not exist first in an interior only later to be exteriorized.[12] The human mind, from the outset, exists in its exteriorizations. The transductive relationship between inside and outside means that there is a dynamic relation between interiorization and exteriorization, as continuous co-constitutive processes.

Writing is one modality of grammatization. A different example can be found in the work of Henri Bergson and Lewis Mumford concerning how the clock - understood as an objectification of duration – is an abstraction from continuous time is discretized into uniform, spatially inscribed numbers. It is not that the clock lies outside of experience, once produced, the clock becomes constitutive of experience; the exteriorized induces interiorization. Another important example of grammatization stems from the "industrial revolution" where mechanical weaving machines such as the Jacquard Loom and Spinning Jenny replicated the bodily gestures, the embodied skill of the weaver. This knowledge is thus transferred from the body of the worker to the body of the machine. What once belonged to the weaver's body now stands before them as an object [Gegenstand]. What used to be technical knowledge, now becomes mere use or operation.[13] Crucially, for Stiegler, grammatization is also *'the condition of proletarianization'* (CPE, 11). Proletarianization constitutes a process: 'through which an individual or collective knowledge, being formalized through a technique, a machine, or an apparatus, can escape the individual who thus loses this knowledge which was until then his knowledge'.[14] On the one hand, this is now an exteriorized memory and container of capacity and skill, which can be used on demand, on the other it can result in a drastic forgetfulness on the side of the workers that used to "possess" this knowledge. As Stiegler writes, 'grammatization is irreducibly pharmacological' (CPE, 42). This means that it can both be toxic (informing dependence and non-knowledge) and curative (function as a support).

Stiegler draws on the work of Marx and Gilbert Simondon concerning *alienation* to develop this understanding of proletarianization. The reduction of the work done by the worker to mere standardized, repetitive procedural tasks, no longer requires knowledge, merely operation. In Marxist terms: the worker becomes a mere 'appendage to the machine'.[15] This loss of knowledge, if it is not countered by some other tendencies, induces a stupidity of the labourer, leading to a complete dependency on the means of production. For Marx this means that workers sell their labour power for a wage, while their produce is appropriated by the capitalist, who owns the means of production. Drawing on Simondon, Stiegler notes how this loss of knowledge and skill to the machine, is the condition of alienation from the fruits of labour, and

[12] The Derridean connotation of this is not accidental, as Stiegler draws heavily on the work of Derrida. Cf. Jacques Derrida, *Of Grammatology*, trans. Gayatri Chakravorty Spivak (Baltimore: Johns Hopkins University Press, 1998).
[13] Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Cecile Malaspina and John Rogove (Minneapolis: University of Minnesota Press, 2017). 255.
[14] Ars Industrialis, "Manifesto 2010," last modified October 5, 2010, https://arsindustrialis.org/manifesto-2010.
[15] Karl Marx and Friedrich Engels, *The Communist Manifesto*, (London: Penguin Books, 2015), 12.

the resulting *pauperization.* (DOID, 62). This leads to a general *disindividuation*, as Simondon describes, because the worker can no longer truly participate in the working process. The misalignment between the worker (who has become a mere operator) and the machine is thus not merely economical but also 'physio-psychological'.[16] Importantly, Simondon and Stiegler develop this alienation and proletarianization not as a mere class struggle, as this loss of knowledge also concerns engineers, managers, and capitalists etc. In other words, even if the workers would receive all products of their labour, as mere operators of a machine that has grammatized their knowledge and skill, they would still be proletarianized according to Simondon and Stiegler. Proletarianization, as the alienation from knowledge and skill, is not reserved for the working-class but is prevalent indiscriminately. This Stieglerian understanding of 'generalized proletarianization' will be developed further in the second chapter in relation to the financial system. For now, this preliminary pharmacological understanding of grammatization and proletarianization suffices. Since Stiegler also understands *numeration* as a technic of grammatization, this is the bridge towards an understanding of finance (AS, 53).

§3. Monetary Mnemotechnics

The history of writing, qua history of technics, is inseparable from the history of accounting and finance. Stiegler concludes that systems of writing have developed out of systems of computing (PTF, 75-76). This is illustrated by David Graeber's observation that 'the vast majority of cuneiform documents were financial in nature'.[17] The earliest written documents were concerned with economic matters, keeping inventory, recording debts, or apportioning ratios of silver and gold. As a form of writing, accounting or finance is thus a form of mnemotechnics. These archaeological and anthropological insights support interpreting the history of finance through the history of writing, as pharmacological hypomnesis. In *the Inhuman* Lyotard describes how humanity is caught up in a process of complexification of which humanity is not necessarily in charge, this history is also the 'complexification of memory'[18]. From a Stieglerian perspective this refers to the co-evolution of humanity with mnemo-technics, which is also the history of the evolution of accounting and finance.[19]As David McWilliams writes: 'Money is an ingenious technology that humans invented to help us negotiate an increasingly complex and interrelated world.'[20] This thesis follows this line of thought, departing from Stiegler's understanding of money.

Stiegler recalls that 'money' evokes the Greek *Mnemosunè*, goddess of memory and mother of the Muses, and traces it to the Latin *monere*, meaning 'to remember' or 'to remind' (CPE, 66). Stiegler thus emphasizes how money is a form of mnemotechnics, as he continues; 'money which, like all forms of retention, converts time into space, but which clearly does so in a very

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[16] Simondon, *Mode of Existence*, 133.
[17] David Graeber, *Debt: The First 5,000 Years,Updated and Expanded* (Melville House, 2014), 38.
[18] Ibid. 44.
[19] A historical account of financial evolution is beyond the scope of this text but the fact that money evolves is evident: from the debts and virtual quasi-money in Mesopotamia, to coins, bills of exchange, bank accounts, fiat money, and contemporary digital currencies and cryptocurrencies. Cf. Niall Ferguson, *The Ascent of Money: A Financial History of the World* (New York: Penguin Press, 2008). Here Ferguson develops a theory of money's evolution based on "punctuated equilibria" periods of relative stability.
[20] David McWilliams, *Money: A Story of Humanity* (London: Simon & Schuster UK, 2024), 6.

specific sense' (CPE, 66). This *specific sense* of monetary mnemo-technics is that it is 'a very particular case of grammatization', a specific form of the exteriorizations of writing as technics (CPE, 66). Stiegler indicates that monetary mnemo-technics is "very specific" and "very particular" but does not systematically develop this further. It remains obscure how to interpret this. Therefore, it is important to gather Stiegler's dispersed notes on money from across his oeuvre.

Stiegler defines money as 'a specific form of hypomnesis tertiary retention' (AS, 189). The notion of tertiary retention is close to that of *hypomnemata;* however, the former is drawn from Stiegler's reading of Edmund Husserl instead of Plato. Husserl distinguishes primary retention—immediate memory carried forward in duration—from secondary retention, which is active recollection[21] Stiegler criticizes Husserl for neglecting the role of 'external memory', 'tertiary retention' technically constituted by external devices such as audiovisual recordings, writings, photographs etc. However, financial pharmaka do not merely inscribe a retention, but also a *protention,* an anticipation. As Stiegler writes: 'before anything else money is both a tertiary retention and a tertiary protention (…) money is a pharmakon (POD, 159). Here Stiegler adds the notion of 'tertiary protention', a term vastly underdeveloped in his work.[22] Money is not merely an inscribed memory or stored value, but also a promise of value, of exchangeability. How this tertiary protention functions is not explained by Stiegler, but it is central in his understanding of money, as it recurs throughout his work. 'Money is a tertiary retention with the power to control protentional possibilities and to make calculations about them'(AS, 223). In a different vein Stiegler writes: 'capitalizable abstraction (money) is never more than credit assigned to the future, an advance' (TT2, 116). Money is thus a strange form of grammatization that as tertiary retention and protention is a modulation of temporality itself, of the ekstases of past, present and future. How exactly does money organize mnemotechnics through grammatization? What does it mean to say that money spatializes temporality?

§4. Money's Grammatization 1: Quantification of the Social Relation and Power

If writing grammatizes speech, the clock grammatizes duration, and the Jacquard loom grammatizes the bodily capacities and gestures of the labourer, what is the "object" of money's grammatizing function? What temporality does it spatialize, what continuum does it discretize, what process does it standardize? Since Stiegler's work remains obscure in this point, it is important to invoke the work of authors like Marx, Simmel and Graeber and connect it to Stiegler's analysis. In this section I assert that money grammatizes the social fabric through quantification, and develop a pharmacological understanding based on Marx's 1844 manuscripts.

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[21] Edmund Husserl, *The phenomenology of internal time-consciousness, (*Bloomington, Indiana: Indiana University Press, 2019).

[22] This lack is developed further by Yuk Hui (2019, 214). I want to contribute that that Stiegler only mentions 'tertiary protention' in relation to money. Hui makes use of the example of debt to explain the connection between tertiary retention and protention. Debt is not purely retentional since it also anticipates and *commands* a return. (2018, 146).

First, it is important to understand that money grammatizes through quantification. As developed by Marx in *Capital, Vol. 1.,* the money-form is the unit of account for exchange-value of commodities. Marx writes that 'things only become comparable in quantitative terms when they have been reduced to the same unit,' this unit is money.[23] "Value", of which money is the expression, is an abstraction of the flow of labour, that is tied to the body of the labourer. More precisely, value is derived from *abstract socially necessary labour time:* the average amount of labour time required, under normal conditions and with average skill and intensity, to produce a commodity in society. This constitutes the 'congealed quantities of homogeneous human labour' out of which valuable commodities are 'crystals of this social substance'.[24] Even though money is abstract due to its quantitative quality, it is a 'real abstraction' in the sense used by Alfred Sohn-Retel.[25] As the expression of value, money is not merely substantial—belonging to the material reality of things—nor is it reducible to a purely relational or mental realm of social construction. A disavowal of money's abstractions as mere phantasms would be a decadent denial of the everyday reality of money and debt.

Second, this grammatization of the social relationality of value through money is constituted technically. Money, in the terms of Lukács, is the *reification* of the social relation that constitutes value.[26] Money is merely the reified value form, a 'social hieroglyphic' like commodities itself; abstractions made from what is a social relation (value) for it to appear as an independent (valuable) object [Gegenstand].[27] In his *Philosophical Manuscripts 1844,* Marx understands money as a social bond that presents itself as an entity.[28] As the reification of sociality itself, money mediates all social action, acting as the 'coupling' [*Kuppler*] between 'man's need and the object.' It is the power of actualization, that which transforms desire into reality, and thus the 'truly creative power' of the *socius*.[29] In its reification 'Money is the alienated *ability of mankind.'*[30] As a "thing" money can be appropriated, the "creative power" of a socius can "possessed"; 'the extent of the power of money is the extent of my power.'[31] This power, or social potentiality, of money is also recognized by Maurizio Lazzarato, who asks rhetorically:

> what are the enormous quantities of money concentrated in banks, insurance, pension funds, etc., and manipulated by finance but potentialities, immense concentrations of possibilities? [32]

[23] Karl Marx, *Capital: A Critique of Political Economy, Volume I*, trans. Ben Fowkes (London: Penguin Books, 1976), introduction by Ernest Mandel, 141.
[24] Ibid. 128.
[25] Alfred Sohn-Rethel, *Intellectual and Manual Labour: A Critique of Epistemology* (Atlantic Highlands, N.J. Humanities Press, 1978).
[26] Georg Lukács. "Reification and the Consciousness of the Proletariat." In *History & Class Consciousness*, 83–222. Trans. Rodney Livingstone. London: Merlin Press, 1967.
[27] Marx, *Capital vol.1,* 167.
[28] Karl Marx, *Economic and Philosophic Manuscripts of 1844* (Mineola, NY: Dover Publications, 2007), 139.
[29] Ibid. 137 & 140.
[30] Ibid. 139.
[31] Ibid. 138
[32] Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition*, trans. Joshua David Jordan (Los Angeles: Semiotext(e), 2012), 48.

In this understanding of an alienated, reified power lies Marx's (implicit) pharmacological understanding of money. 'It is the true *agent of divorce* as well as the true *binding* agent'[33]. As a reified social bond that embodies undifferentiated purchasing-power, it ties everyone to society and society to everyone. Yet, it can also induce a separation among people. Aglietta summarizes the social power of money and writes 'liquidity (…) is a pure social relation, with no use-value other than the power to act upon society', but also adds to it 'by virtue of the universal acceptance of money.'[34] This latter part introduces the third dimension of money: its nature as credit, a dimension recognized by Stiegler. Since Stiegler does not develop it sufficiently, it is necessary to invoke the work of a variety of other authors to develop this pharmacological understanding of money and finance further.

§5. Money's Grammatization 2: Credit and Uncertainty

The previous section explained money as the quantified reification (grammatization) of the social bond as a social creative power that can be appropriated and "possessed". Money, as reified value, remains tied for Marx to abstract socially necessary labour-time. In this section, I expand upon how money, as technics, affects temporality. Money is the reification of the social bond, and Stiegler understands any society first and foremost as 'an apparatus for the production of fidelity' (NA, 72). Marx briefly discusses how money can transform 'infidelity into fidelity' as money, rather than being a neutral medium of exchange, becomes a potent force that corrupts and distorts social relations.[35] The work of Simmel is better suited to develop the relation between money and fidelity, between money and the trust that is necessary for a society to function, as Simmel develops it directly as *credit.*

Simmel follows Marx's line of thought concerning the quantitative or numerical grammatization of money, money as the reification or fetish of value, and money as radical leveller, as well as a general medium of purchasing power.[36]. Money, as the reification social creative power, 'is the bond binding society to me', writes Marx.[37] Simmel expands upon this social relationality and writes: 'money is only a claim on society. Money appears so the speak as a bill of exchange from which the drawee is lacking'[38] Money functions as the depersonalized, deterritorialized medium of exchange; a promise of purchasing power in a society that accepts the currency, inherently tied to trust and social relations.[39] This means money's value is rooted in the collective belief and societal guarantee that it will be accepted for future transactions, essentially functioning as a form of credit extended by the social community. Whereas for Marx, the value of money remains tied to labour-time, or the aggregated labour expended, for Simmel it can be understood as a grammatization of the social fabric of *trust* qua *credit*. Simmel's understanding of money and credit comes very close to the

[33] Marx, *Manuscripts 1844*, 139.
[34] Aglietta, *Money,* 7.
[35] Marx, *Manuscripts 1844,* 141.
[36] Georg Simmel, *The Philosophy of Money*, 3rd ed., trans. Tom Bottomore and David Frisby (London: Routledge, 2004), *passim*.
[37] Ibid., 139.
[38] Ibid., 176.
[39] Ibid., 178-179.

position of Graeber regarding debt, who develops the following thesis: 'The difference between a debt and an obligation is that a debt can be precisely quantified. This requires money.'[40] Graeber thus develops money as '"an accounting tool", or the technical support of the money-form a quantitative unit of account.[41] Through debt/money[42] the fabric of social obligations, the continuum of (social) temporality is grammatized, that is: exteriorized, formalized and standardized.

Debt/money constitutes a *temporization.* Money is the power to make a *difference*, but money does not have to be spent immediately. As tertiary retention, it *defers* expenditure and functions as protention. The same is true for debt, it allows one to make a difference *now, in advance,* to mobilize the power of money directly, whilst its repayment is postponed. Money/debt is the technics that mediates this social temporality: the advancement and deferral of time as creative power in a socius through tertiary retention/protention. This temporization, the mediation of money between the past (memory) and the future (anticipation), comes with uncertainty, which makes credit necessary, in both the social and financial sense of the term. As a creditor one grants credit to a debtor, the creditor must thereby trust the promise of the counterparty and since this is not certain, the creditor is exposed to the 'radical uncertainty of time', to the risks of the future.[43]. Debt is a claim on a future income stream, and this income stream must be earned, in one way or another, through labour or through capital gains. The same is true for money, it is a claim on the labour-time or creativity of someone yet unknown, time to be expended in future by someone from the socius. Money, as grammatized social obligation, is *expenditure in reserve*. As Jean-François Lyotard writes: 'money is nothing other than time placed in reserve, available'[44]. Or McLuhan: '"Time is money," and money is the store of other people's time and effort'.[45]

Based on the indeterminateness, the uncertainty that the future absolutely harbours, money is a way to calculate or lay a claim on the singularity of the radically uncertain horizon of time, the contingencies of the future. In Stieglerian terms, money/debt is a tertiary retention (a retainer of value) as well as protention (a promise for the future), as he writes, money as 'an apparatus of calculation', understood in the twofold sense of quantitative projection or anticipation (AS, 154). The monetary grammatization of money/debt is a formalization and as such an attempt to stabilize and manage the open-endedness of time itself. Money is the grammatization of time as such, and thus it holds a theological connotation. It is the power over choice and decision, over the future.[46]

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[40] Graeber, *Debt,* 21.
[41] Ibid. 46.
[42] The question of identity and difference regarding money and debt, or between debit and credit is beyond the scope of this text.
[43] Lazzarato, *Indebted Man,* 45.
[44] Jean-François Lyotard, *The Inhuman: Reflections on Time*, trans. Geoffrey Bennington and Rachel Bowlby (Cambridge: Polity Press, 1991), 66.
[45] Marshall McLuhan, *Understanding Media: The Extensions of Man* (London: Routledge, 2001), 147.
[46] Lazzarato, *Indebted Man*, 62-3.

Similarly, Stiegler writes that money makes the economy, understood as a 'protention production system' more 'efficient' by money's grammatization (CPE, 66). This is one of the only positive notes Stiegler makes on the pharmacology of monetary grammatizations. As a pharmakon, monetary grammatization has ambivalent effects: it enables the coordination of (complex) economies, but it also subjects social life to the logics of calculation, speculation, and control. The latter, negative side of financial pharmacology dominates Stiegler's understanding of finance. Developing the positive potential of financial pharmacology is thus a loose end in Stiegler's work.

But money/debt is not merely an effect of the grammatization of time and uncertainty. It becomes a constitutive element in the social fabric of social obligations based on trust and credit (re-)introducing new forms of uncertainty and complexity in social relations, as made clear by Simmel.[47] Money/debt is fundamentally dependent on the trust underpinning a *socius*. Yet, as a quantitative form of credit, it simultaneously serves as a constitutive element that grammatizes and exteriorizes this very fiduciary cohesion of the social fabric, thereby shaping its constellation. This duality of complexification is important to understand, as it is at the core of Stiegler's understanding of technics.

Now, the complexity of finance does not end with money, debt, and accounting, as the notion of *capital* has not yet been addressed. Debit and credit have pre-existed capitalism. While money serves as a medium of exchange—consumed in the act of purchase or as means of settling a debt—capital is not directed toward consumption but toward investment. As Stiegler writes: 'capital is constituted as a power over protentions, in the first place through this tertiary protention that is money' (NA, 37). Hence, its power over protention goes further than a mere standardization of trust and promise, it becomes a more fundamental grammatization of the anticipation of what is deemed worthwhile to invest in. This is yet another complexification of finance as mnemo-technics, of capital as system of tertiary protentions in general. As Lyotard contends: 'Capital must be seen (…) as the effect (…) of a cosmic process of complexification'[48] Understood from Stiegler's perspective of originary technicity—the originary constitution of the human condition as technical—capital is not merely a tool to manage complexity. Rather, it is itself an expression of complexification, becoming a complexifying factor.

This capitalist system of tertiary retentions and protentions is the topic of the next chapter. Capital, grounded in the hypomnesic technics of accounting, debt and money, will be developed further as pharmacology of complexity. What begins as a tool for managing an already complex reality eventually blurs the distinction between cause and effect, as financial instruments themselves become primary drivers of complexification. This pharmacology of financial complexity will be developed in the next chapter in relation to the financial crisis of 2007-2008 and the financial system *qua system.*

[47] Simmel, Money, 178.
[48] Lyotard, *Inhuman,* 67.

Chapter 2: Financial Rationality and System

'With the spread of the bourgeois commodity economy the dark horizon of myth is illuminated by the sun of calculating reason, beneath whose icy rays the seeds of the new barbarism are germinating.'

Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*, 25

The work Stiegler does on financial pharmacology and financialization is written mainly in response to the financial crisis of 2007-2008. *For a New Critique of Political Economy* was published in 2009. In his 2010 work*, What Makes Life Worth Living,* Stiegler describes how the crisis's inherent irrationality and 'systemic stupidity' must first be understood as 'a systemic crisis of global finance' (OP, 22). This chapter seeks a general understanding of the financial crisis, one that emerges from an analysis of the financial system as a system. This analysis will clarify how it functions as a system of calculating protentions and how it contributes to generalized proletarianization

§1. Financial Ensembles and Techniques

For Stiegler, capitalism—or any economy—is a "system of production of protentions" (CPE, 66). In the previous chapter, it became clear how money functions as a mode of organizing retention and protention through grammatization. Yet money never operates in isolation, one does not talk about *a* money. Money exists within an ensemble—a network or infrastructure composed of heterogeneous beings. The mnemo-technical calculations of finance are not a mere mental matter, but is conducted in an 'ecology of the mind' in Batesonian terms, a technical *milieu,* as Stiegler writes:

> the question of protention cannot be reduced to the question of fiduciary credit: it is rooted in a retentional ensemble, and this ensemble is constituted as much by machines and by the souls of producers and consumers as it is by money (CPE, 66).

Money is therefore one element within a socio-technical *system*, co-constituted by machines and subjectivities alike. This system is the financial system, existing as a network composed of interconnected machines, hypomnemata, and human actors that organize memory (retention) and anticipation (protention). Capital is a complex system built upon money, defined by its calculative anticipation of future returns. It is value in constant motion, driven by the relentless pursuit of valorisation. Every investment or divestment decision is inherently a speculative act, with capital always circulating in search of profitable futures. Stiegler writes:

> The circulation of free capital is a specific protentional organization resting on a complex, fallible and corruptible system of *pharmaka,* in which one finds money, actions and obligations, various financial instruments, rating agencies etc.' (CPE, 70-71)

While an exhaustive list of machines comprising this technical system of global finance is impossible, a few examples are crucial to illustrate its complexity: algorithmic trading systems, high-frequency trading servers, clearinghouses, payment infrastructures like SWIFT, AI-driven risk assessment tools, etc. These machines are complemented by hypomnemata, external memory devices: databases, stock market indexes, annual reports, and the interfaces of smartphones and trading apps, etc. The capitalist "mind" calculating retentions and protentions is thus a composition of interiority and exteriority, a *financial technics* within a milieu. The *structure* of capital is built upon *infrastructures,* and the *logic* of finance cannot be disentangled from its *logistics*.

Marx criticized the "seemingly transcendental power of money". Marx attempts to – in Gramscian terms - denaturalize and historicize the omnipotence of exchange value and the reality of money as radical leveller, making everything exchangeable and interchangeable.[49] However, Marx focuses on its socio-historical conditions, but through Stiegler the metaphysics of the seemingly transcendental power can be challenged by pointing towards how this is constituted by the financial system of pharmaka. As Maurizio Lazzarato observes: 'Capital is indeed a relation, but a machinic one, insofar as it does not exclusively involve "subjects," (…) It also involves a growing number of non-humans.' [50] In other words, technics must be at the heart of monetary theory; all financial markets depend on this technological infrastructure of real-time valuation.[51]

Stiegler's main concern with the history of philosophy is that it 'has repressed technics as an object of thought", informing a critique of metaphysics not as a "forgetfulness of being" but a "forgetfulness of technics" (TT1, IX). The same is true for how economic theory often overlooks this complex network of machines and devices is constitutive for the "rational" decision-making of agents.[52] An important illustration is how the figure of Robinson Crusoe is presented as the ideal type of the rational, self-interested, utility-maximizing individual—*homo economicus*.[53] Marx criticizes the 'Robinsonades' for presenting a fundamentally ahistorical, ideological economic man.[54] He argues that they abstract from the concrete social relations and historical conditions of production, projecting capitalist categories like labour, exchange, and rational calculation onto an imagined pre-social state. Marx's critique of this metaphysical conception of capitalism and its logic and subjectivity is valid but the technical constitution of economic rationality must be radicalized from a Stieglerian perspective. Crusoe's rationality is not merely ideologically constructed but technically supported. As Marx writes:

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[49] Karl Marx, *Grundrisse: Foundations of the Critique of Political Economy*, English ed., trans. Martin Nicolaus (London: Penguin Classics, 1993), 146.

[50] Maurizio Lazzarato, *Governing by Debt* (South Pasadena, CA: Semiotext(e), 2015). 181.

[51] Cf. Manuel Castells, *The Rise of the Network Society* (Malden, MA: Blackwell Publishing, 2010), 60.

[52] The work of Michel Callon is an important exception to this diagnosis, researching how prices are formed not in an ideal, transcendental realm where supply and demand find an equilibrium, but locating it in an actual network of practices and techniques. Cf.

[53] Steven Horwitz and Sarah Skwire, "Crusoe and the Economists," *The Independent Review* 25, no. 3 (2020): 345–356.

[54] Marx, *Grundrisse*, 83.

> '(…) having saved a watch, ledger, ink and pen from the shipwreck, he soon begins, like a good Englishman, to keep a set of books.'[55]

Crusoe's capacity to rationalize his island-economy rests entirely on this "accidental" availability of these technical supplements, including pen, ink, paper and 'some mathematical instruments'[56]. Because humanity is default of origin, these "accidents" must be understood as structurally necessary. The tools rescued from the shipwreck are not trivial; they are the hypomnesic conditions for the rationalization of his island economy. Moving beyond Crusoe, the relation between double-entry bookkeeping and the rationalization of economic thought and the economy as such is the topic of the next section.

§2. Bookkeeping as Financial Technics

Financial technics encompass money, debt, and capital—understood as grammatized pharmaka—as well as the specific '*techniques'* of their 'management'. [57]. The technique that has impacted the course of modern economic history the most is the advent of double-entry bookkeeping. Building on the work of Werner Sombart, thinkers such as Max Weber, Oswald Spengler, and Joseph Schumpeter have argued that double-entry bookkeeping was a necessary condition for the emergence of capitalism as it laid bare the notion of "profit". As Sombart writes:

> 'Double-entry book-keeping is born of the same spirit as the system of Galileo and Newton (...) Double-entry book-keeping rests on the basic principle, logically carried out, of comprehending all phenomenon, purely as quantities.'[58]

Based on the first chapter, this quantitative logic underlying double-entry bookkeeping is understood as the grammatization conducted by the money-form as unit of account. As Schumpeter writes, money as medium of exchange is not an invention of capitalism, however:

> Capitalist practice turns the unit of money into a tool of rational cost-profit calculations, of which the towering monument is double-entry bookkeeping. (…) by crystallizing and defining numerically, it powerfully propels the logic of enterprise.[59]

The technique of double-entry bookkeeping dictates that each financial transaction is recorded twice: once as a debit and once as a credit. Debits are typically placed on the left side of an account, and credits on the right. For any transaction, the total debits must always equal the total credits. For instance, when an entrepreneur buys inventory for cash, the Inventory asset account is debited (increased) by X amount, and the Cash asset account is credited (decreased) by that same amount. However, an exchange always involves two parties, this means that the

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[55] Karl Marx, *Capita vol.1,* 170.

[56] Daniel Defoe, *Robinson Crusoe* (Planet PDF, 1719), 101, https://www.planetpublish.com/wp-content/uploads/2011/11/Robinson_Crusoe_BT.pdf

[57] John Kenneth Galbraith, *Money: Whence It Came, Where It Went* (Princeton University Press, 2017). 3.

[58] As cited in Oswald Spengler, *The Decline of the West: Form and Actuality*, trans. Charles Francis Atkinson (New York: Alfred A. Knopf, 1927), 490.

[59] Schumpeter*, Capitalism, Socialism, and Democracy*, 109.

transaction is also recorded in the books of the other party.[60] In this manner, double-entry bookkeeping systematizes the commercial domain of trade and exchange through mnemotechnics. Accounting as such is only made possible by these sorts of *hypomnemata* (CPE, 53). The "books" in bookkeeping—whether paper-based or digital—function as a necessary external memory supports for capitalist operations to propagate this systemization. Weber and Schumpeter develop this capitalist invention as a motor for "rationalization", in this case understood as the organization of the economy based on formal rules of calculation, and efficiency.[61] Drawing on these German influences, Stiegler develops this link between accounting and rationality further by understanding rationality from its root: ratio.

> 'Reason, understood by the spirit of capitalism as ratio and rationalization, that is, as reckoning [comput] and rational accounting [comptabilité rationnelle) (as shown, notably, by Weber).' (DOID, 64).

The rationality of capital encompasses, on the one hand, Enlightenment reason as developed by Horkheimer and Adorno (following Weber)—rationalization as totalizing instrumental domination—or as Heidegger notoriously denoted it: *Gestell*, the enframing essence of modern technics (TT1, 4). On a balance sheet, each entity—asset or debt—becomes a standing-reserve. But on the other hand, it also refers to ratio, 'to the sense in which accountants use this word' in the narrower sense of arithmetical comparison: ratio as numerical relation, as in 3/4 or 5/7 (DOID, 66). What I will further call financial rationality expresses this twofold understanding of financial calculating reason. It operates through these exteriorized, hypomnesic circuits to establish what is rational from the perspective of capital. This rationality of finance will be explained based on financial techniques used to determine ratios in the next section.

§3. Financial Ratios and Financial Rationality

It is important to recall Michel Foucault's critique of 'rationalization', as he insisted on analysing specific types of rationality tied to particular domains rather than a universal notion of rationalization itself, prompting the question *which kind* of rationality is being employed.[62] Therefore, Foucault urges an investigation into distinct rationalities, rooted in specific domains and practices, to discern the particular form of reason at work. I thus focus on the rationalization concerned with *financial rationality*, a transversal logic that is not limited to domains, but surely consist of specific calculative techniques, ratios in particular.

I want to substantiate Stiegler's line of thought for understanding *ratio* in the sense of the accountants, by shedding light on some crucial calculative techniques of accounting and finance. Already in *Anti-Oedipus* Deleuze and Guattari argue how capitalism functions on 'the basis of decoded flows, substituting for intrinsic codes an axiomatic of abstract quantities in the form of money.'[63] These ratios are the axioms that govern the logic of financial *rationality*, and

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[60] Aglietta, *Money.*
[61] Max Weber, *Economy and Society: An Outline of Interpretive Sociology*, ed. Guenther Roth and Claus Wittich, 2 vols. (Berkeley: University of California Press, 1978), 85-109.
[62] Michel Foucault, *Omnes et Singulatim: Towards a Criticism of Political Reason* (lecture, Stanford University, 1979), available at foucault.info.
[63] Gilles Deleuze and Félix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia* (London: Penguin, 2009), 139.

allow for its systemic operation. Accounting and finance are thus financial technics, techniques of calculation. A list of important ratios is provided in *Appendix 1* but here I focus on the techniques of finance as it concerns the projection of investment opportunities, whilst accounting is backward looking focused on reporting historical performance of a company. Return-on-Investment (ROI) and Risk-adjusted-Return or Sharpe ratio are the most elementary axioms of financial rationality and can be scaffolded into more or less complex formulas, ratios and models. These are the fundamental calculative tools at the core of financial decision-making. Investment decisions are determined by these financial ratios; based on a comparison of ratios, an investment decision is made. For example, if two potential projects have similar expected returns, the one with a higher Sharpe ratio would typically be preferred, indicating a better return for the (quantified) risk taken. This constant quantitative comparison transforms complex real-world variables into standardized financial metrics, facilitating seemingly objective judgements. Ultimately, this calculative framework dictates what constitutes "rational" action from the perspective of financial rationality, prioritizing the maximization of return and minimization of risk.

As Deleuze and Guattari note, this axiomatic is 'immanent', rendering all external motivation and argumentation obsolete, and 'flattening'.[64] This is recognized by Stiegler, when he states that the sphere of production-consumption is entirely subjected to 'the criteria of markets, that means, purely immanent, utilitarian and calculable criteria' (PTF, 129). Consequently, there are no values or motivations exterior to the logic of markets that can determine the direction of investment. Through this rational financial technics heterogenous activities can be placed on a plane where they are rendered commensurable, comparable, and exchangeable as investment opportunities. Whether it is warfare, education, health care or fast food, all activities can be compared based on – in the words of Thorstein Veblen- 'income-yielding capacity' related to risk.[65] Due to this flattening, immanent rationality of the risk-profit calculus, it can be said to be *beyond good and evil,* as its internal logic prioritizes quantitative optimization and valorisation above all other ethical or social considerations.

This logic of financial rationality is totalizing, and therefore systematic, as there is nothing that escapes the grammatization of finance. From the perspective of financial rationality, profitability or valorisation is what counts and what is taken into account. In doing so, Stiegler writes, these financial technologies are disenchanting time as such (NA, 72). Max Weber defines *disenchantment* as the reign of a dominance, as follows; 'we are not ruled by mysterious unpredictable forces, but that, on the contrary, we can in principle *control everything by means of calculation.'* [66] After all, finance transforms that which is inherently fluid and uncertain into quantifiable, predictable metrics: futurity as such. When profitability becomes the alpha and omega of human activity, it cannot result in anything but nihilism, as Nietzsche writes:

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[64] Ibid. 246.
[65] Thorstein Veblen, "On the Nature of Capital: Investment, Intangible Assets, and the Pecuniary Magnate," *The Quarterly Journal of Economics* 23, no. 1 (1908), 111.
[66] Max Weber, "Science as Vocation," trans. R. Livingstone, in *Max Weber: Essays in Sociology*, ed. H. H. Gerth and C. Wright Mills (New York: Oxford University Press, 1946, 12-13.

> What does nihilism mean? That the highest values devaluate themselves. The aim is lacking; "why?" finds no answer.[67]

The highest values (justice, peace, beauty, art, care for humans, animals, and the earth etc.) are devalued, as the force of extra-financial motivation is *marginalized.* What is valuable is merely translated into financial parameters, to be inscribed in the circulatory logic of capital's process of endless valorisation. While internally coherent in its calculations, financial rationality becomes irrational in its totalizing effect, leading to a profound devaluation of human and ecological well-being that cannot be captured by its metrics as they are 'externalities' excluded in the price, ergo calculations. This "remainder" reveals the irrationality of the totalizing logic of financial rationality as it pertains to a systemic blindness to non-quantifiable values and risks. For Stiegler this irrationality surfaced violently in the financial crisis of 2007-2008, where he rationalization of risk—via diversification, securitization, and insurance—had turned into its opposite. This is the topic of next section.

§4. The Credit Crisis and the Discrediting of Finance

At the heart of the 2007–2008 financial crisis lies a fundamental financial operation: the transformation of future cash flows—particularly those from mortgage contracts—into tradable assets. A 30-year mortgage entails monthly payments from debtor to creditor, who holds a claim on future income. While this claim is valuable, it is not as liquid as cash; it is a deferred payment and therefore subject to the uncertainty (differentials) of time. What is ultimately at stake in such a contract is time itself, and with it, the risk of default—the possibility that the debtor will fail to meet their obligations. The probability of default is expressed in the debtor's *credit rating*, a metric that reflects financial credibility in both a literal and technical sense. In the context of the financial crisis, however, the very metrics of financial credibility proved misleading, particularly with subprime mortgages—loans issued to debtors with poor credit ratings.

To make these future cash flows more liquid, financial institutions engaged in securitization—the bundling of mortgages into financial products such as Mortgage-Backed Securities (MBS).[68]As a result, future income streams can be sold *now,* transforming future mortgage payments into tradable assets, creating what Marx calls 'fictitious capital'.[69] Securitization aggregates both expected returns and risks from multiple mortgage contracts into a single financial product, enabling the manipulation of risk profiles with each "new" product. Through this modulation, it can taper to the demands of both risk-averse and risk-seeking investors. Securitization can thus be understood as a way to make the allocation of money (capital) more

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[67] Friedrich Nietzsche, *The Will to Power*, trans. Walter Kaufmann and R. J. Hollingdale (New York: Vintage Books, 1968), 9.

[68] My analysis of these financial operations is based on the work of Rajan and Roubini recognized for being canaries in the coal mine before the crisis. Raghuram Rajan, *Fault Lines: How Hidden Fractures Still Threaten the World Economy* (Princeton: Princeton University Press, 2010). And Nouriel Roubini, *Crisis Economics: A Crash Course in the Future of Finance* (London: Penguin Books Ltd, 2011).

[69] Karl Marx, *Capital: A Critique of Political Economy*, vol. 3, trans. David Fernbach (London: Penguin Books, 1981), 302-303.

efficient: those in demand of short-term liquidity and willing to sell long-term debt contracts (i.e. banks) can be matched with long-term investors (i.e. pension funds). In this manner, finance can be understood as a productive force in capitalism, as it lowers the cost of information by this mediating function.[70]

Yet securitization did not stop at bundling mortgages. Collateralized Debt Obligations (CDOs) went further by combining different kinds of debt—mortgages, student loans, credit card debt, corporate bonds, and even securities—into a single instrument. These were sliced into tranches with varying levels of risk and return that were sold individually. The system's intricacy deepened with the rise of Credit Default Swaps (CDS), a form of insurance against default, allowing holders of bonds or other debt securities to protect against the issuer's potential bankruptcy or failure to pay. While initially designed as a hedge for those exposed to default risk, CDS soon became a speculative tool. Crucially, one did not need to own the underlying asset to purchase CDSs. This means that, in analogy, one could purchase insurance against a house fire for a property in Amsterdam, whilst living in a rental apartment in Rotterdam. One could simply bet on failure; insurance became a profit-machine in case of default. A risk management tool became an opportunity for speculative profit. This resulted in an imbalance, where in 2006 the *Financial Times* wrote: 'the total size of the CDS universe is now believed to be 10 times bigger than the total pool of underlying cash bonds.'[71]. When subprime mortgage holders began to default, the effects rippled across the entire financial system: MBS lost value, CDOs collapsed, and CDS payouts triggered enormous shortfalls at institutions like AIG that were notoriously "*too big to fail"*

The grammatizations of the financial system were supposed to 'measure the *credit* that the financial sub-system accords (…) through this system of measurement, establish the belief that "society" invests in this activity' (CPE, 70). But this is precisely what failed in the *credit crisis,* which led to a discredit or distrust in the financial system's ability to correctly display the credibility of the future of business. The rationalization of risk led to a system in which risk was no longer contained but distributed and multiplied, on a systemic, global scale. This was also informed by the deterritorialization of securitization in relation to the debt contract. An American banker could issue a high-risk subprime mortgage, repackage it, and sell it globally, dispersing risk across the globe. This encouraged *moral hazard*—as mortgage originators could offload risk without bearing its consequences. Individual actors diversified risk, but the system as a whole became more fragile: credit risk of individual contracts was translated into *systemic risk*.[72] What began as a localized issue in the U.S. housing market escalated into a global financial crisis through this interconnectedness. Instruments originally designed to manage and rationalize risk became vectors of systemic irrationality.

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[70] E.g. Robert C Merton., and Zvi Bodie. (1995). "A Conceptual Framework for Analyzing the Financial Environment." In *The Global Financial System: A Functional Perspective*, edited by Crane et al., Harvard Business School Press.

[71] Gillian Tett, "Lessons for CDS Investors," *Financial Times*, November 2, 2006, https://www.ft.com/content/04b4453c-6a9c-11db-83d9-0000779e2340.

[72] Arnoud W. A. Boot, Naar een structuurverandering in de financiële sector, in *Lessen uit de crash: een antwoord op de financiële crisis*, ed. F. Becker, M. Hurenkamp, and P. Kalma (Amsterdam: Wiardi Beckmann Stichting, 2012), 110–135.

Now, if a debt contract is already a grammatization of the social relation, the securitization is the grammatization of that grammatized contract, and securities can themselves be securitized, it becomes clear how this becomes a complex of interconnected hypomnemata, and this is clear in the cascading effects of the crisis. The output of one element (subprime mortgage) is the input of another (MBS), which in turn can be repackaged (CDO) or "insured" against (CDS) creating a fragile network of *recursive loops*. These hypomnesic machines, are very different from the mechanical machines in Marx's time. Financial systems are self-referential and adaptive, constantly reconfiguring their prices and expected risks.[73] Unlike the fixed mechanical operations of industrial machinery, their "output" actively shapes and redefines their subsequent "input," leading to unpredictable and often accelerating systemic effects in "real-time".

Whereas Stiegler understands technics as the 'organized inorganic', Yuk Hui develops it as the 'organizing inorganic', and I argue that the latter is best suited to illustrate the recursive logic of financial systems. The rising interest rates on American mortgages was a contingent event that the recursive logic of the system failed to integrate, leading to a systemic failure.[74] This contingency informed a cascade of effects that were uncontrollable by humans, and displayed the automated "autonomous" financial markets consisting of a worldwide network of coupled machines that are recursively organized. This shift means that machines are no longer simply tools or instruments but rather 'gigantic organisms in which we live'[75]. The self-organizing financial system is a complex network of depersonalized, anonymous flows, becomes incontrollable as these processes, ran by non-human machines, do no longer require the input of human subjects. The idea that the financial system "leads a life on its own" illustrates the reification of financial grammatizations, as well as the reality of abstraction. The relation of individuals to this system is one of impotence, or in Stieglerian terms, proletarianization. This feeling is expressed by Jörgen Hoffmeester, the protagonist of Arnon Grunberg's *Tirza*, who saw all his invested savings vanish in a hedge fund after the 9/11 terrorist attacks shook financial markets:

> The world economy had brought him to his knees. In the world economy, he had found the enemy that was too strong for him, too strong for the predator. Finally, a real enemy. But it was an enemy without a face and without a name. One from whom there was no recourse. The world economy was an enemy that would not break the silence. (...) He could never embrace the world economy to gently bite it to death. The world economy had no face. [76]

The system's overwhelming complexity for individuals induces a form of proletarianization—a loss of knowledge that Stiegler terms stupidity. How this proletarianization is generalized, and this stupidity is systemic, is the topic of next section.

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[73] Yuk Hui, *Recursivity and Contingency* (London: Rowman & Littlefield International, 2019), 183 & 217.
[74] Ibid., 15.
[75] Ibid. 28.
[76] Arnon Grunberg, *Tirza* (Amsterdam: Singel Uitgeverijen, 2009), 174–75.

§5. Systemic Stupidity and Generalized Proletarianization

'The proletariat is not the working class', writes Stiegler (CPE, 40). The proletarianized are those who have lost their knowledge and know-how or skill *[savoir-faire],* their knowledge on the art of living a good life together *[savoir-vivre],* and a loss of theoretical and critical knowledge *[savoir-theoriser]* to the exteriorized machines and cybernetic system they inhabit. Stiegler develops this conception of proletarianization based on Simondon's reinterpretation of Marx's notion of alienation, understanding it not primarily as socio-economic issue but as a relation between humans and technology. Importantly, Marx understands alienation in relation to pauperization or the becoming-proletariat of the workers, while for Simondon and Stiegler this concerns a loss of knowledge in relation to machines, transcending classes. Simondon already gives an example from the financial context: 'Bankers whose social role has been exalted by mathematicians (…) are as alienated in their relation to the machine as the members of the proletariat.'[77]. This assertion of Simondon is a prefiguration of how Stiegler understands the financial crisis of 2007-2008, to understand how even the "financial elite" or "technocratic experts" could not prevent the crisis from occurring, due to the opaque complexity of financial products in combination with the automated trading systems operating in real-time. The cybernetic system is without steersman *[kubernetos].*

Stiegler's favourite exemplary is Alan Greenspan to explain how 'the elites have themselves been proletarianized, that is, *deprived of knowledge of their own logic and by their own logic* – a logic reduced to calculation without remainder.' (CPE, 47). Greenspan, the chairman of the Federal Reserve from 1987-2006 was a fierce proponent of the *Efficient Market Hypothesis* (EMH); the idea that markets left to their own devices would incorporate all available information into prices (calculation without remainder), thereby producing rational outcomes.[78] This idea can already be found in the work of Friedrich von Hayek, asserting that prices contain all the relevant information needed for decentralized economic decision-making, thereby being the most efficient bottom-up system for coordination of scarce resources.[79] The cascading financial catastrophes since 2007, led Greenspan to revise his standpoint. In 2008, during a hearing by the US House of Representatives, Greenspan stated: *'I still do not fully understand why it happened'*.[80] In other words, Greenspan had to come to terms with the failure of the ideology of which he was a proponent, the prices of risk for MBSs and of CDOs did *not* contain all relevant information, there was a *remainder.* An explanation given by Greenspan is that the models used for risk management that determined the capital reserves of big financial agencies were flawed, as they were trained with historical data from period between the 1980s and 2000s, in which there was low macroeconomic volatility and steady economic growth.[81] In this manner, the predictors were unfit for estimating the risk of crises and moments of stress. The fact that even the chairman of the Fed was without knowledge in relation to the complex, opaque

[77] Gilbert Simondon, *Mode of Existence*, 133-134.
[78] For a theoretical explanation of EMH: Eugene F Fama. (1970). "Efficient Capital Markets: A Review of Theory and Empirical Work." *Journal of Finance*, 25(2), 383–417.
[79] F. A. Hayek, "The Use of Knowledge in Society," *The American Economic Review* 35, no. 4 (September 1945).
[80] U.S. Congress, House Committee on Oversight and Government Reform, *The Financial Crisis and the Role of Federal Regulators*, 110th Cong., 2nd sess., October 23, 2008, H. Hrg. 110-209, https://www.govinfo.gov/content/pkg/CHRG-110hhrg55764/html/CHRG-110hhrg55764.htm.
[81] Ibid.

financial system, is understood by Stiegler as an illustration of *systemic stupidity [bêtise]* and *generalized proletarianization.*

This stupidity *[bêtise]* refers both to a certain dumbness as well as a bestiality, a drive-based impulsiveness, a proletarianized short-circuiting of hypomnemata, without interiorization, a mere *automation,* that which Keynes called the 'animal spirits' of investors.[82] While trades are made at the 'speed of light', all humans are without knowledge, and their psyche is not even a constitutive element of the loop. This automation of trading can reinforce the recursive logic, or cascading effects of financial crisis as there is no moment of interreference or evaluation but real-time execution, an 'economy of light-time' (NA, 173). For Stiegler, Greenspan is an exemplary of proletarianization *vis-à-vis* the global technical system, not merely the financial system. There has already been quite some attention in the secondary literature on the role of the Greenspan-figure in Stiegler's work.[83] Therefore, I want to introduce a new example illustrates the generalized proletarianization specifically in relation to financial knowledge.

In 1998 the hedge fund Long Term (!) Capital Management (LCTM) was bailed out for $3.6 billion by a consortium of 14 banks and brokerages led by the New York Fed.[84] Two members of the board were Myron Scholes and Robert Merton, who co-invented the Black-Scholes-Merton Model (see *Appendix 1*): a canonical model for option-pricing that is still taught at universities.[85] This model revolutionized financial economics by providing a mathematical framework for valuing derivatives, significantly influencing risk management and financial engineering. Scholes and Merton were awarded the Nobel Prize in Economics in 1997 for their work, one year before LCTM was bailed out for using highly leveraged arbitrage strategies. LCTM was on the verge of default but as they leveraged their investment with funds borrowed from banks, LCTM's default could bring those banks into financial distress, threatening financial stability. LCTM provides an early exemplary of how financial calculation without remainder fails. Financial modelling, based on the premise that the uncertain future can be anticipated based on historical data indefinitely, failed.[86] Merton and Scholes, renowned academics, illustrate how the generalized proletarianization is also a loss of theoretical understanding, Stiegler writes: 'experts' - that is, proletarianized elites' (SOS, 198).[87]

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[82] John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harper Business, 1964), 161-162.

[83] Calum Watt, "The Legend of Saint Alan: Larnaudie and Stiegler in the Oversight Committee Room," *French Cultural Studies* 31, no. 3 (2020): 173-184, and Solange Manche, "The Problem Is Proletarianisation, Not Capitalism: A Critique of Bernard Stiegler's Contributive Economy," *Radical Philosophy* 211 (2021): 38–50

[84] Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (Cambridge, MA: MIT Press, 2006), chap. 8, "Arbitrage.".

[85] See Jonathan Berk and Peter DeMarzo, "Chapter 21: Option Valuation," in *Corporate Finance* (Harlow, Essex: Pearson Education Limited, 2017) and John C. Hull, "The Black-Scholes-Merton Model," in *Options, Futures, and Other Derivatives* (Harlow, Essex: Pearson Education Limited, 2012.

[86] Roger Lowenstein, *When Genius Failed: The Rise and Fall of Long-Term Capital Management* (New York: Random House, 2000).

[87] A full out development of this epistemological critique of financial economics based on the fact that business faculties still teach these BSM-models in their financial courses is beyond the scope of this text. Nevertheless, It is a worthwhile entry point into an examination of how (economic) schools systemize generalized proletarianization and effectuate a proletarianization of the university system.

The proletarianization of Greenspan, Merton and Scholes is painfully ironic, however, it also begs the question concerning Stiegler's understanding of proletarianization as a mere loss of knowledge. Namely, the *effects* of this proletarianization are distributed unevenly across socio-economic classes. LCTM made soaring profits for years, until they didn't, and were bailed out as they were "too big to fail" prefiguring the bailouts by the Fed's 700-billion-dollar TARP programme in 2008. At the same time, those subprime mortgage owners that defaulted, lost their house and wealth. The financial elite thus retains a privileged position amidst the systemically stupid situation of generalized proletarianization. The *effects* of this proletarianization are distributed unevenly across socio-economic classes, in which those at risk of pauperisation *is* the working class, and not the generalized proletariat. As *nota bene* Warren Buffet says concerning the financial elite and the crisis: 'They may have been disgraced, but they went away rich."[88] Stiegler is correct in saying that Greenspan's good salary does not make him less proletarianized in relation to the financial system.[89] However, what is at stake is not so much salary, but whether one's *wealth* (house-ownership, savings etc.) is *at risk.* While Stiegler's concept suggests a form of proletarianization as a loss of knowledge that can transcend traditional class boundaries, the material consequences and vulnerability to financial ruin are unevenly distributed across socio-economic classes, in this sense, there is a working-class, which is a class who is *at risk.* This blind spot in Stiegler's work will prove itself to be problematic in the second part of this thesis. Before doing so, it is thus important to conclude on Stiegler's conception of a financial pharmacology and to end this part of my thesis.

§6. Financial Pharmacology

In this section I want to conclude on the first part of this thesis that was primarily concerned with an understanding of Stiegler's 'financial pharmacology'. The most important task was to develop an understanding of money, but finance in general, as a 'particular case' of grammatization, of mnemo-technics in a 'specific sense'. This grammatizing function has been laid bare as a quantitative operation based on money as unit of account. Thereby, economic questions concerning the social fabric of (reciprocal) obligations, temporality, and creativity become grammatized; formalized, standardized and exteriorized in reified inscriptions. Money is thus an apparatus of calculation, connoting both quantification as well as projection and anticipation. This constitutes the specific sense in which money/debt is a mnemotechnics, as tertiary retention it is also a tertiary protention, becoming constitutive for the relation of humanity with temporality as such, making possible the 'mathematization of anticipation' (SOS, 11).

This has informed the preliminary understanding of money's pharmacology as being, on the one hand, a mediation of social power, and on the other, a reification leading to alienation/proletarianization. It is at once that which binds the socius, as that which can tear it apart, it can bridge distances, while it can also increase distances due to its abstraction from the

[88] The Wall Street Journal, *Warren Buffett Explains the 2008 Financial Crisis*, September 6, 2018, video, 4:40, https://youtu.be/k2VSSNECLTQ.
[89] Bernard Stiegler, "L'emploi est mort, vive le travail ! Entretien avec Ariel Kyrou," *Actu-philosophia*, May 20, 2015, 17-8.

social fabric, replacing it by purely calculative interactions mediated by an abstract, objective medium. This lies at the basis of an understanding of financial pharmacology. All financial pharmaka are on the one hand a response to the increased (economical) complexification as well as a complexifying factor on the other hand. What, on the one hand, is an efficient system of projecting desires and organizing protentions, on the other hand, is a ‘totalizing’ function capable of reducing everything to its immanent, flattening axioms, calculating risk-return ratios, thereby devaluing all non-financial motivations.

Even though Stiegler speaks of a financial pharmacology, he emphasizes the negative dimension of finance, in relation to the irrationality of the financial crisis in particular. What was introduced as “tools” for risk “management” led to a systemic risk that almost brought down the global economy as such. To claim that finance is a pharmakon is thus a matter of asserting that there is something in the nature of finance that does good or can do good. I have not managed to reach a definitive answer on whether this is the case. Stiegler’s argument that money makes the production of protentions more efficient is unconvincing, as the distrust in financial markets in ’07-’08 illustrates. Furthermore, efficiency is a typical indicator that belongs to calculating instrumental reason that has informed the rationalization and the corresponding irrationality. However, Stiegler’s analysis makes clear that if there is a benefit to money, it must be sought in this coordination of creative power of a socius and its relation to futurity as such.

To deny financial technics any positive dimension is to deny the utility of something that lies at the origin of sedentary civilization—an archaic remnant of the co-evolution of humanity and technics, as shown by tracing monetary grammatization to Mesopotamia. To reject monetary grammatization would evoke a gigantic project: to simply remove monetary grammatization from the configuration of the economy. Here I want to recall from the introduction that money, debt and finance are already-there and that a demonization of money merely ‘creates a devil without also eliminating money’s logic’ (TT2, 257). The “financialization” of the world-economy, which is the topic of the third chapter, only deepens the manner in which the logic and logistics of finance are already-there and raises the stakes of concluding that finance is merely toxic. For now, the pharmacology of finance has become a mere hypothesis that I will return to in the last chapter, by proposing a potentially positive dimension of finance in relation to the future of investment.

Part 2: Financialization and the Libidinal Economy

The difficulty with the term "financialization" is that it functions simultaneously as *explanandum*, that which needs to be explained, as well as *explanans*, that which is invoked to explain the phenomenon. Brett Christophers has criticized the notion of "financialization" for being the buzz-word of the 2010s, mainly as a reaction to the financial crisis of '07-'08.[90] An early programmatic definition of financialization was given by Gerald Epstein in 2005, defining financialization as 'the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies'.[91] The use of this notion took off after the global financial crisis of 2007-2008.[92] Since then, research on the notion has soared, with the field primarily consisting of work by social scientists and heterodox economists, predominantly from post-Keynesian and Marxian perspectives. Natascha van der Zwan partitions the literature on financialization based on the scale of analysis.[93] Those who research on the *macro-scale* take the world-economy as unit of analysis understanding it in its historicity and changes in the regimes or modes of accumulation, the *meso-scale* takes corporations as the unit of analysis, analysing changes in corporate finance and corporate governance, the *micro-scale* focuses on households and individuals and often analyse changes in the financialization of everyday life based on a Foucauldian lens. These scales compose one another, nevertheless, the chosen scale functions as a perspective, or methodological outlook.

In Chapter 3 I develop Stiegler's understanding of financialization, to be found in the second part of "*For a New Critique of Political Economy*". Stiegler's analysis of financialization is not yet recognized, neither in the financialization literature nor in the growing secondary literature on work on Stiegler. It is important to show how Stiegler's work also converges with other authors from the literature. Stiegler is concerned with the macro-scale changes in how financialization stemmed from substantial economic and ideological changes, and how this impacts the functioning of businesses on the meso-scale. Based on the Stieglerian conception of financial pharmacology, financialization can be understood as an overly toxic manifestation of financial *pharmaka*, leading to proletarianization through a short-circuiting of financial hypomnesic circuits. The goal of this third chapter is to set out Stiegler's understanding of financialization as the logic of calculation without remainder, leading to a decomposition of investment into speculation, a narrow understanding of "profit" and a structural short-termism, leading to indifference and carelessness regarding the incalculable long-term.

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[90] Brett Christophers, "The Limits to Financialization," *Dialogues in Human Geography* 5, no. 2 (2015): 183–200, https://doi.org/10.1177/2043820615588153.

[91] Gerald A. Epstein, "Introduction: Financialization and the World Economy," in *Financialization and the World Economy*, ed. Gerald A. Epstein (Cheltenham: Edward Elgar Publishing Ltd, 2005), 3.

[92] Manuel B. Aalbers, "Financialization," in *The Wiley Blackwell Encyclopedia of Urban and Regional Studies*, ed. Anthony M. Orum (Malden, MA: Wiley Blackwell, 2019., https://doi.org/10.1002/9781118786352.wbieg0598.pub2.

[93] Natascha Van Der Zwan, "Making Sense of Financialization," *Socio-Economic Review* 12, no. 1 (2014): 99–129, https://doi.org/10.1093/ser/mwt020.

In the fourth chapter, however, I will develop an understanding of the relation between financial and libidinal economy, by means of the notion of "investment". The notion of investment is central to Stiegler's critique of political economy. However, Stiegler has not sufficiently developed an understanding of how financial investment, especially amidst a financialized daily life, corresponds to a mode of proletarianization that is irreducible to the proletarianization of the worker or the consumer. This will be developed in relation to speculative investments on trading platforms, as well as big European projects to mobilize savings of individuals and households. I end this chapter with three dimensions to install curative tendencies in the pharmacology of finance based on the Stieglerian perspective: innovations in accounting, caring for the incalculable, and the divestment of disinvestment.

Chapter 3: A Stieglerian understanding of financialization

'To allow the market mechanism to be sole director of the fate of human beings and their natural environment (...) would result in the demolition of society.'

Karl Polanyi, *The Great Transformation*, 76

'(…) the joint stock company whose shareholders are united solely in their interest in the dividends, to such an extent that they do not even care what the company produces.'

Georg Simmel, *The Philosophy of Money*, 343

Drawing on the work of Fernand Braudel, Giovanni Arrighi's historical analysis of capitalism makes clear that financialization is not merely a neoliberal phenomenon, but is a recurrent phase in economies in the "autumn of their development".[94] Arrighi summarizes that financialization marks a moment when, for a particular regime of accumulation, 'the investment of money in the expansion of production and trade of commodities (M-C-M') is less profitable than investment in pure financial deals (M-M')'.[95] Nevertheless, the concept "financialization" itself is of recent origin, and is mostly used to describe the advent of neoliberalism, in the "conservative revolution" of Ronald Reagan and Margaret Thatcher. Even though Stiegler does not explicitly state that his examination of "financialization" refers to this period from the late 1970s onwards, the history of capitalism and finance during this time was notably marked by the advent of new information and communication technologies (ICT).[96] What does Stiegler's analysis of financialization entail?

94 Giovanni Arrighi, *The Long Twentieth Century: Money, Power and the Origins of Our Times* (London; New York: Verso Books, 2010). Cf. Fernand Braudel, *Civilization and Capitalism, 15th-18th Century, Vol. III: The Perspective of the World*, trans. Siân Reynolds (New York: Harper & Row, 1984), 246.
95 Arrighi, *Long Twentieth Century,* 9.
96 Castells also develops this relation between what he calls "the New Economy" and the advent of ICT in *The Rise of the Network Society (2010).*

§1. Contextualizing Financialization

Stiegler's historical contextualization aligns with analyses in the French Regulation School and Marxist scholarship: neoliberalism—the "conservative revolution"—emerged as a response to the 1970s "crisis of profitability" (CPE, 96-98). This crisis stemmed from the internal contradictions of the Fordist-Keynesian regime of accumulation, also known as the Keynesian Welfare State.[97] This regime was characterized by a compromise between labour and capital: full employment and stable wages complemented high productivity on the supply side, resulting in steady economic growth. [98] Institutions such as the welfare state and labour unions were central in defending the interests of workers. John Ruggie described this arrangement as "embedded liberalism": an institutional attempt to reconcile international free market operations with domestic labour protections and social welfare, preventing the market economy from becoming "disembedded" from the social structures it depends upon—following Polanyi's terminology.[99]

In the 1970s, this system of embedded liberalism began to unravel due to stagflation and a falling rate of profit—processes exacerbated by historical shocks such as the oil crises of 1973 and 1979.[100] To restore corporate profitability, the economy was restructured through neoliberal policies; deregulation of financial markets, privatization and an attack on labour unions. Neoliberalization was not a rupture with the logic of capitalism, but with the juridical and socio-political institutions that had previously *embedded* the market. Laws and policies that once restrained capital's tendencies were deregulated, thereby revitalizing corporate profitability. It realizes that which Polanyi warned against when he wrote:

> [T]he control of the economic system by the market is of overwhelming consequence to the whole organization of society: it means no less than the running of society as an adjunct to the market. Instead of economy being embedded in social relations, social relations are embedded in the economic system.[101]

Stiegler identifies financialization with the 'conservative revolution,' understanding it through the broader political and ideological transformations enacted by Reagan and Thatcher (AS, 24). Almost synonymously, David Harvey writes: 'Neoliberalization has meant, in short, the financialization of everything.'[102] Finance came to dominate all aspects of the economy, and this economy was simultaneously globalized. These three notions – neoliberalization, financialization, globalization - reflect capitalism's inherent drive to expand capital

[97] Michel Aglietta, "Capitalism at the Turn of the Century: Regulation Theory and the Challenge of Social Change," *New Left Review* 232 (1998): 41–90; David Harvey, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2007).
[98] Alain Lipietz, *Mirages and Miracles: The Transformation of Global Fordism* (London: Verso, 1987); Robert Brenner, "The Economics of Global Turbulence," *New Left Review* 229.
[99] John Gerard Ruggie, "International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order." *International Organization* 36, no. 2 (1982): 379–415
[100] Gérard Duménil and Dominique Lévy, *Capital Resurgent: Roots of the Neoliberal Revolution* (Cambridge, MA: Harvard University Press, 2004)
[101] Polanyi, *Great Transformation,* 60
[102] Harvey, *Brief History of Neoliberalism,* 33.

accumulation and accelerate its turnover and valorisation, exemplified by Marx's assertion that 'capital is the endless and limitless drive to go beyond its limiting barrier'.[103]

Globalization is capital's answer to spatial barriers that delimit the intensity of capital accumulation; capital strives 'to tear down every spatial barrier (…) and conquer the whole earth for its market.[104] Globalization does not merely mean the globalization of commodity markets, but also the globalization of financial flows of capital, currency and credit, as well as "material" flows of resources, goods and bodies. Simultaneously, capital seeks not merely to overcome spatial barriers geographically, but to 'annihilate space with time,' minimizing the time spent in motion from one place to another'[105] This aims to increase the *speed* at which capital is turned over, valorised. Such acceleration causes decisions, transactions, and information to flow virtually instantaneously, collapsing the time dimension of economic activity regardless of physical distance—what Harvey calls 'time-space compression.'[106] The global, recursive, real-time calculative financial system, as described in chapter 2 is the epitome of this annihilation of space by time, as the time of trading itself has become light-time.

Financialization is an attempt to short-circuit the production process in general by increasing the trade in securities, derivatives, options and futures.. For financial capital, the production process is but an impractical intermediary in the quest for return on investment, valorisation of capital. As already described by Arrighi financialization can be understood as a shift from M-C-M' to M-M'. This Stieglerian notion of *short-circuiting* will be extended into the rest of the chapter. For now, it is important to move from this socio-historical contextualization of financialization in relation to the logic of capital, to Stiegler's analysis of financialization.

§2. Fictitious Capital and Performativity

For Stiegler, finance is almost synonymous with fictitious capital, as fictitious capital concerns stocks, government bonds, securities, derivatives, and option-contracts. Fictitious capital is a form of mnemo-technics of calculative anticipation relating to an uncertain future. Fictitious capital is an apparatus for *pricing the future*, thereby grammatizing futurity as such. After all, the price of fictitious capital is dependent on *expected returns*. Even though this is not developed by Stiegler, it is important to see how the calculative technique of *Net Present Value* (NPV) lies at the heart of finance as *technique*. NPV is calculated by the sum of the present values of expected cash flows, discounted at an appropriate rate (often the rate of interest or weighted average cost of capital) to determine the profitability of an investment. This discounting of expected cash flows to the "now-moment", is a mode of grammatization, bringing the flowing, uncertain future to an immanent priced plane by applying a standard rate. Fictitious capital is a grammatization of the uncertain future to come, but as it is priced it can also be appropriated. As Cédric Durand writes: 'fictitious capital represents claims over wealth

[103] Marx, *Grundrisse,* 334.
[104] Ibid. 539.
[105] Ibid.
[106] David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge, MA: Blackwell Publishers, 1992), 306-307.

that is yet to be produced. Its expansion implies a growing pre-emption of future production.'[107] Stiegler points out this relation to uncertainty:

> 'Fictitious capital is a system of anticipations and gambles *which can only make judgements about illusions,* that is, speculations and calculations about future possibilities *which may never be realized.* (CPE, 84)

In this regard, financial markets are a complex, technical system to calculate the future, while the behaviour of people acting on this expectation can change the course of events. Hence, a form of performativity enters its operations. Consider Joseph Stiglitz's description of financial bubbles; the price of an asset increases because people expect it to increase, creating a self-fulfilling prophecy where expectations are confirmed by the rise of the price.[108] In other words, the expectation that an asset's price will rise attracts capital, which in turn results in a price increase. In this manner, it can also turn into its opposite, bursting the bubble.[109] In this sense, the (financial) system of protentions comes to anticipate nothing but itself, becoming it self-referential, which for Stiegler means that it becomes speculative as will be explained next section (CPE, 80-81). This discloses how the financial markets, as systems of tertiary protention, operate, as Stiegler writes:

> 'If capitalism is a protention production system which in terms of its performativity is very remarkable-thus when one says that the stock market has lost so many billions of dollars in the course of such and such a crisis, this means that a power of active protentions, a power of the action of protentions (of anticipations) has been lost by the credit system' (CPE, 66-67)

Financial markets are thus grammatizations of the future, discretizations of the continuum of time in the form of protentions articulated in prices. The performativity of expectation in financial markets comes to the fore in the highly illustrative example of Donald Trump's tariff announcements. If the USA were to impose tariffs, this would harm free trade, and therefore the expected cash flows of companies would decline, leading to a fall in stock prices, which in turn would indicate a decline in trust or confidence in market performance. In other words, the grammatized belief, or *credit*, that circulating free capital accords to the financial performances of these businesses is lowered (CPE, 80). Trump, however, merely performed a speech-act stating his intent, without actually imposing these tariffs. When Trump later changed his position on tariffs, the stock markets "restored," as expected returns from free trade were re-established. The performative function of speech-acts in relation to stock prices is (implicitly) recognized by corporate financial theory, in the so-called *pecking-order theory*. According to these theories, a company's announcement of actions like share buybacks or increased dividend payouts, while seemingly positive, can paradoxically signal to the market that the firm lacks sufficiently attractive positive NPV projects in which to invest its retained earnings, signalling that it is currently overvalued for not being profitable in the longer term. [110]

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[107] Cédric Durand, *Fictitious Capital* (London: Verso, 2017). 1.
[108] Joseph E. Stiglitz, "Symposium on Bubbles," *Journal of Economic Perspectives* 4, no. 2 (Spring 1990): 13–18.
[109] Esposito, *Future of Futures*, 77-87.
[110] Stewart C. Myers and Nicholas S. Majluf, "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have," *Journal of Financial Economics* 13, no. 2 (1984), 187-221.

As Stiegler writes, ‘fictitious capital is *a pharmakon* , and more precisely an *accounting game [jeu d'ecritures]' (*CPE, 80). This game of writing, besides systematizing the anticipation of the future, can thus also invoke proletarianization, a mere short-circuiting of this semiotic system, without attending to its referent. This points to the first two dimensions of Stiegler's understanding of financialization: the decomposition of investment into speculation, and the question of whether this surplus money, derived from manipulations of this game of writing, can be rightfully called "profit". This is the topic of the next section.

§3. From Profit and Investment to Rent and Speculation

Already in *Technics and Time 1* Stiegler writes the following:

> "Decisions made 'in a nanosecond' are *calculations performed on series of indicators* dealing primarily with the stock markets themselves and with macroeconomic decisions interfering with them, and not evaluations of the macroeconomic situations of particular enterprises." (38, my emphasis)

Here, Stiegler explains how actions in financial markets revolve around the hypomnesic system, detached from and without concern for the actual economic situation or the conditions of economic actors. Day traders who profit by buying and selling the same stock multiple times per day exemplify this: they engage with price as a pure signifier, devoid of reference to underlying value. Trump's speech acts increase market volatility, creating price differentials exploitable by traders buying and selling stocks multiple times daily. Stiegler asks whether these sorts of operations with a narrow, monetary definition of Return-on-Investment resulting from a mere manipulation of hypomnemata understood can rightfully be called "profit" (CPE, 76). While Stiegler does not explicitly conclude this, I argue these operations constitute rent-extraction based on the short-circuiting of hypomnemata, rather than genuine profit-making. David Ricardo introduced the concept of *economic rent* to describe how landowners profit simply from ownership of fertile land or advantageous location, without contributing to labour or capital. This notion of rent can be extended to describe how traders 'make' money: by merely manipulating the hypomnesic system—the *jeu d'écriture*.

In fact, Stiegler challenges whether these operations can even be termed "investment". Besides day-traders, an infamous example is that of Michael Burry, hedge fund manager at Scion Capital, who in 2007 purchased CDSs hedging against CDOs and MBSs, betting on the collapse of subprime mortgages if interest rates rose — which they did.[111] While CDSs were initially designed to hedge risk, Burry used them purely for speculative gain, extracting $725 million in "profit" without contributing to production, innovation, or efficiency. This paradigmatic example illustrates how hypomnemata, originally designed to diversify risk, were short-circuited for immediate monetary gain, contributing solely to cascading crises. Such carelessness for the economy and the system of tertiary protention can no longer be called investment; it is, rather, disinvestment—mere 'pillage of the production apparatus', according to Stiegler (CPE, 81).

[111] Michael Lewis, *The Big Short: Inside the Doomsday Machine* (New York: W. W. Norton & Company, 2010).

This disinvestment is a form of proletarianization as it is a short-circuiting of the game of writing, devoid of attentiveness towards the "underlying" economy, in the same vein as Socrates warned for the pharmacology of writing. This carelessness, the mere exploitation of grammatized flows, aligns with the nihilistic indifference of financial rationality I developed in §2.2. For Stiegler this demonstrates a 'short-termism which has systemically and not accidentally been translated into the decomposition of investment into speculation' (CPE, 6). This short-termism is structural, as Mariana Mazzucato illustrates:

> 'The average holding time for equity investment, whether by individuals or institutions, has relentlessly fallen: from four years in 1945 to eight months in 2000, two months in 2008 and (with the rise of high-frequency trading) twenty-two seconds by 2011 in the US.' [112]

In this speculation, aimed merely at making a buck as soon as possible, the long-term is played out against the short-term. Financial markets and pharmaka are no longer "efficient" modes of long-term projection, and investments in uncertain futures, but merely manipulated for monetary gain on the short-term. Thus, financialization, understood as the M-M' logic—made possible for Stiegler only by the technical hypomnesic infrastructure—manifests as a toxic form of financial pharmacology. Keynes already observed that financial experts were no longer concerned with 'making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional valuation a short time ahead of the general public'.[113] This results in a careless mode of engagement with the financial system of tertiary retention/protention, leading to a narrow understanding of profit, inducing:

> the destruction of profitability understood as *benefit*: it leads to the destruction of profitability understood as the consolidation of the dynamism and durability of the system as that which *does* the system *good. (CPE, 86).*

Stiegler is therefore highly sceptical about applying the notion of "profit" to these operations. This marks a conceptual shift: from *investment* to *speculation*, and from *profit* to *rent*. Stiegler speaks of a "decorrelation" between the financialized economic system and all other systems, this must be related to the notion of disinvestment.

§4. Disinvestment and Decorrelation

Stiegler writes that under financialization "investments" are determined exclusively by the terms of 'pure accounting' (CPE, 5). In other words, investments become entirely directed by the immanent, flattening logic of financial rationality, concerned solely with the income-generating capacities of the invested asset (ROI). As a result 'financialized capitalism becomes entirely speculative and is reduced to a single aim: that of speculative profit' (SOS, 199). This "calculus of profitability" in turn informs the decision to invest or divest.[114] Stiegler writes:

[112] Mariana Mazzucato, *De waarde van alles: Onttrekken of toevoegen aan de wereldeconomie* (Amsterdam: Nieuw Amsterdam, 2018), 199.
[113] Keynes, *General Theory,* 154.
[114] Harvey, *Brief History of Neoliberalism*, 160.

> [T]he anticipation systems made possible by this *phantasia* of capital presuppose the existence of a free capital which structurally tends to disinvest when it sees its profit decline. These disinvestments are short-circuits, in just the same way as artificial and hypomnesic memory- that is, the *pharmako*n of writing – can short-circuit living and anamnesis memory. (CPE, 80).

Harvey captures this decision, based on financial rationality, based on the decline of profitability with his concept of "capital switching," referring to how capital migrates between different sectors or circuits—such as from manufacturing to real estate or financial products (e.g., derivatives, securities, futures)—in search of higher returns. [115] For instance, when money is no longer invested in production facilities but in real estate or stocks of other companies.[116] In a "normal" circulatory process, capital valorises itself through the production and sale of commodities—what Marx described as the M–C–M′ circuit. In contrast, financialization bypasses the commodity-form entirely. Its logic is M–M′: money begets more money without passing through production, distribution and consumption, while still working towards capital's final cause: profitability. It allows financial capital to "profit without producing." [117] Greta Krippner empirically confirms this shift in the U.S. context, demonstrating that a growing share of corporate profits derive from financial rather than productive activities.[118]. In this sense, financialization is not a detour from capitalism, but a *short-circuited* expression of its essential logic: the infinite pursuit of surplus value and return on investment.

Many authors speak of a 'decoupling' between the productive economy and the financial economy. Stiegler claims that the 'economical system is almost completely directed by the financial sub-system, itself globalized,' leading to a structural "decorrelation" between the financial and production systems (CPE, 98). Stiegler already recognized this decoupling in *Technics and Time 1:*

> This recently finalized transformation of economic organization, in which the financial sector becomes autonomous with regard to production (…) the so-called "financial bubble" is becoming autonomous to such an extent that it is often cut off from productive realities, and functions according to a logic of belief (or of credit) massively determined by the performances of telecommunication and computer-based systems in the management of financial data. (TT1, 38)

How must this cut-off financial system be understood in relation to the productive system? Carlota Perez describes the 'paper economy decoupling from the real one'[119] while Robert Cox sees finance increasingly 'decoupled from production to become an independent power, an

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[115] Manuel B. Aalbers, "The Financialization of Home and the Mortgage Market Crisis," *Competition & Change* 12, no. 2 (June 2008).
[116] Manuel B. Aalbers, "Financial geography II: Financial Geographies of Housing and Real Estate," *Progress in Human Geography* 43, no. 2 (2018).
[117] Costas Lapavitsas, *Profiting Without Producing : How Finance Exploits Us All* (London; New York: Verso, 2013.
[118] Greta R. Krippner, *Capitalizing on Crisis: The Political Origins of the Rise of Finance* (Cambridge, MA: Harvard University Press, 2011).
[119] Carlota Perez, "The Double Bubble at the Turn of the Century: Technological Roots and Structural Implications," *Cambridge Journal of Economics* 33, no. 4 (2009) doi:10.1093/cje/bep028. 780.

autocrat over the real economy'.[120] Although Stiegler does not frame it as an opposition between financial and real economies, the spirit of his thought aligns with Perez and Cox: the hypomnesic financial system has become overly toxic and relatively independent, generating cash without contributing to production or employment. Stiegler describes how profit realized from financial speculation is no longer dependent on the configuration of variable capital (labor) and constant capital (machinery), as in Marx's calculations, but is mere remuneration where initial investment < return (CPE, 77).

Empirical analysis demonstrates that the current size of the financial sector hinders real economic growth.[121] But Stiegler goes further than speaking merely of a hindrance or obstruction of the production apparatus by finance. Rather, he describes the destructive character of disinvestment, arguing that speculation is actively waged against the productive apparatus. An important example for Stiegler is the financial technique of the leveraged buyout (LBO) (CPE, 88–89). An LBO is a financial technique in which a company is acquired primarily through debt secured by its own assets. The aim is to extract short-term gains through asset stripping and dividend payouts, after which the hollowed-out company is sold off. The firm is no longer seen as an *organization,* part of the organological milieu that humans inhabit and need to take care of, but as a mere *bundle* of assets and liabilities to be optimized for rent extraction.[122] This highlights an instance of financial rationality's irrationality, as LBOs led to returns on investments while completely destroying viable organizations.

Thus, through various manipulations of the mnemotechnical *jeu d'écriture* and its performances, the financial sub-system becomes disembedded from the socio-economic fabric it necessarily relies upon. As I will explore, this "decorrelation" of financial markets entails that financial rationality comes to overdetermine the social relation with futurity itself.

§5. Financial Selections of Protentional Possibilities

Husserl's, Heidegger's and Sartre's analyses of the phenomenological subject—or *Dasein*—already suggest that to *ek-sists,* is to be *ek-static:* existence is structured by a dynamic interplay of the temporal exstases of retention and protention. To exist is to anticipate, expect, and project—to "live forward". Furthermore, Stiegler understands this ek-static condition of projection of the human as a *libidinal economy,* an organization of the psychic apparatus as desiring, believing being. As he writes, "there is no economy other than when it is projected into an investment (…) because an economy, whether libidinal or political, is always an economy of protention" (CPE, 65–66). In a financialized economy these protentions are overdetermined by calculative models, fictitious capital and financial rationality (DOID*,* 44–45; TT1, 260-264). As Stiegler argues already in *Technics and Time 1:*

> Anticipation, at the most global level, is essentially commanded by investment calculation—collective decision-making, temporalization—in short, destiny is submitted to the techno-

[120] Cited in: Aalbers, *Financialization of Home and Mortgage*, 149-150.
[121] Stephen G. Cecchetti and Enisse Kharroubi, *Why Does Financial Sector Growth Crowd Out Real Economic Growth?*, BIS Working Papers No. 490 (Basel: Bank for International Settlements, 2015).
[122] Krippner, *Capitalizing on Crisis*, 55.

> economic imperatives regulating this calculation. This is as well the domination of a certain understanding of time. (TT1, 42)

Stiegler evokes destiny, recalling Heidegger's conception of *Ge-stell* as a *Ge-schick.*[123] *Ge-stell*, as instrumental reason, guides humans along a calculative path; under financialization, futurity is destined by financial rationality. The economy internalizes everything into an accounting, reducing all to calculable measures for business and market negotiation (CPE, 54). The reign of calculative reason manifests itself as 'completely calculable exchange' (CPE, 65). Only protentional paths compatible with capital's valorisation are selected and privileged, as only these possibilities are deemed "rational" or "realistic" from the perspective of financial rationality. Financial rationality controls which possibilities are selected based on financial parameters, ratios. This is especially clear in how "venture capitalists dominate what is worthwhile to invest" (CPE, 116). Technical innovation is no longer guided by societal needs or long-term goals but by the turnover demands of circulating capital.[124]

As Stiegler writes this is based upon a "certain understanding of time"; one in which time becomes entirely accountable (DOID, 67). In other words, time is subject to the logic of 'calculation without remainder' (CPE, 47). Money, as standardized unit of account, allows for the grammatization of time—a process of standardized finitization through NPV-calculations, a technique at the heart of the "metaphysics of financial temporality." [125] The notion of "discounting" is no accident, as the indeterminate, openness of uncertain time itself is discounted. The future becomes nothing but a deferred "now-point", rendered calculable through linear NPV-calculations bringing futurity onto a horizontal plane where past and future cancel each other out through simple arithmetic. Stiegler speaks of a "fossilization" and "freezing into a wall of time" conducted by speculation (CPE, 107). Lazzarato also uses the metaphor of freezing:

> Finance sees to it that the only choices and the only possible decisions are those of the tautology of money making money (….) the future and its possibilities (…) seem to be frozen.[126]

The indeterminate openness of the future is annulled, neutralized, fossilized, frozen. The linear chronological understanding of time reduces the uncertain, virtual future to a mere extrapolation of the present. This extreme form of grammatization of social temporality forecloses the possible and neglects the infinite creativity residing in the uncertainty of the future by pricing and discounting it. This ambitious attempt of 'calculation without remainder' by financial economics directly confronts Frank Knight's famous distinction between risk—where probabilities are known or estimable—and true uncertainty, where they are fundamentally

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[123] Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York: Harper & Row, 1977),

[124] For a more thorough analysis of this disadjustment see Ties van Daal, "World to Waste: The Toxic Legacy of Consumerism and Technoscience", *Erasmus Student Journal of Philosophy* 25 (2025).

[125] Bill Maurer, "Finance 2.0," in *A Handbook of Economic Anthropology*, 2nd ed., ed. James G. Carrier (Cheltenham, UK: Edward Elgar, 2012), https://doi.org/10.4337/9781849809290.00019.

[126] Maurizio Lazzarato, *Making Indebted Man*, 48-9

unknown or incalculable.[127] The 2007-2008 financial crisis painfully clarifies that a remainder of calculation exists—that which cannot be accounted for. This makes that, in the words, of Derrida: 'The future can only be anticipated in the form of an absolute danger. It is that which breaks absolutely with constituted normality'.[128] Without "accounting" for the incalculable – which is the absolute limit of calculability - there is no time, no futurity. For Stiegler, a belief necessarily surpasses calculable trust and credit, when this is discounted the foundation for al trust and credit is corroded: 'calculating trust is necessarily self-destructive' (DOID, 45).

Finance is thus a specific expression of a calculating reason that 'wishes to determine indeterminate time' , to calculate the incalculable, to program the unprogrammable, to calculate the probability of the improbable (TT1, 232) Finance *discounts*—in both senses of the term—the singularities at the horizon, the indetermination of the future, the incalculable projections that constitute the play of temporality itself (DOID, 60). In other words, it cancels the indeterminate future—this indetermination as *chance*, as an opening to the future in its *im-probability*—that is, to the future as irreducibly singular (DOID, 45)

Financial calculations deal with the probable, but the future harbours the *improbable*. The "infinitive consistence," or the horizon beyond calculability, is destroyed by financial rationality (*CPE*, 106). In a different Stieglerian register, probability functions deal with that which exists empirically, while excluding that which consists of—those non-finitizable, infinite "objects" such as the beautiful, the good, and the true. Precisely those beings that stir erotic desire and a longing for the unattainable are disavowed. It is no coincidence that Socrates never asked for a just or beautiful thing, but for the *idea*—as these are "out of this world". At the same time, these *consistences,* for Stiegler, are what "make life worth living" (WMLWL, 76). The immanence of financial rationality—as analysed through Deleuze, Guattari, and Stiegler—subdues any transcendence. This leads to "the destruction of temporalities (long circuits)," those desires and dreams which are not immediately monetizable (CPE, 102–103). What lies on the plane of consistence—justice, truth, beauty, friendship—cannot be calculated, and therefore plays no role in determining the realm of the possible under financial rationality, informing the nihilism discussed earlier. Without such infinitive consistencies, there is no careful protention—only careless speculation, the immanent nihilism of exchangeability. This results in both the compression of all anticipations into an ultra-short-term horizon of speculation and the collapse of the system of motivations (CPE, 107). Stiegler's task, then, is to oppose this economic irrationality with a new epoch of care—one directly tied to the incalculable: "taking care above all of the improbable" (AS, 98).

To conclude, this chapter has analysed the distinct, yet interconnected, dimensions of Stiegler's understanding of financialization. First, the idea of 'calculation without remainder' rejects the uncertainty, improbability, and indeterminacy of the future—it's very openness or play of time. This calculation, or grammatization, through pricing and discounting, leads to an annulment of the future and destroys the long-term belief in consistence—of singularities such as the good,

[127] Frank H. Knight, *Risk, Uncertainty, and Profit* (Boston: Houghton Mifflin, 1921).
[128] Derrida, *On Grammatology*, 5.

the true, and the beautiful. In this manner, the economy as a protention production system becomes toxic. Capital is no longer invested in long-term projects but rather in short-term speculations for monetary gain; rent extraction. Hence, financialization aggravates the toxicity of financial pharmacology by failing to attend to the financial system's role in coordinating protentions, merely manipulating the hypomnesic inscriptions for short-term monetary gain becoming speculative. Ultimately, its pervasive technical (financial) rationality precipitates a profound decorrelation from the productive apparatus and social systems, cultivating a nihilistic indifference toward the future by becoming a mere writing or accounting game that manipulates hypomnesic traces instead of contributing to socio-ecological good. The relation between capital investment and the desire for an infinitizable future is the central theme of the next chapter, which will develop a critique of political economy as a critique of investment.

Chapter 4: Political Economy of Libidinal and Financial Investment

'Economics are the method; the object is to change the heart and soul.'

Margaret Thatcher[129]

'Everyone is an investor, baby'

DEGIRO

The aim of this thesis is to extend Stiegler's project of the critique of political economy onto the domain of finance. In the previous chapter, it became clear that the total calculation of futurity leads to its annulment. This is because there exist horizons of consistence that are constantly deferred yet remain desirable precisely because they cannot be immediately gratified. Stiegler writes: 'The question of the infinite is the question par excellence of a new critique of political economy' (WMLWL, 78). The infinite is what distinguishes investment from speculation for Stiegler, a distinction that informs his statement that 'global capitalism will be capable *of renewing its energies* only on the condition that invents a *new logic* and *new objects of investments'* (WMLWL, 90). Here, Stiegler points to the convergence between the libidinal and financial economy through *investment*, a new logic that I attempt to develop in this chapter. For Stiegler, the new critique of political economy entails a critique of libidinal economy (CPE, 65). Stiegler draws on Lyotard's *Libidinal Economy*, an expansive notion of economy as energy and a political economy of how this energy and desire are channelled and transformed, bound and liberated, encompassing the flow of affects and libidinal intensities.[130]

Even though Stiegler develops an understanding of financial pharmacology, money as grammatization, and a distinct approach to financialization, he fails to develop his own thesis

[129] Margaret Thatcher. Interview by Ronald Butt. *Sunday Times*, May 3, 1981. https://www.margaretthatcher.org/document/104475.

[130] Jean-François Lyotard, *Libidinal Economy* (New York: Continuum, 2004). This work is indebted to Sigmund Freud's "Beyond the Pleasure Principle" as well as the development of the notion of 'general economy' provided by Bataille in 'the Accursed Share vol 1'.

that all new forms of grammatization lead to new modes of proletarianization in this financial domain (WMLWL, 60; CPE, 41). Stiegler's analysis misses the specific financial proletarianization inherent in contemporary financial capitalism, a mode of capitalism differing from mere Taylorist (productivist) or Fordist-Keynesian (productivist-consumerism) regimes of accumulation. The proletarianization pertaining to financial capitalism is that not of the worker or the consumer, but of the citizen-as-investor. This will be developed further by extending Stiegler's analysis from the macro- and meso-scales (developed in the previous chapter) to the micro-scale 'financialization of daily life'. From the Dutch and broader European context, I will show how individuals are increasingly compelled to navigate complex financial landscapes, focusing on the examples of student debt, pension funds, and a general becoming-investor of European citizens. This will inform an exploration of a potential direction for developing the curative dimension of finance in relation to the libidinal economy, in relation to a desire for the future.

§1. The Financialization of Daily Life

Research on the *financialization of daily life* often resembles the Foucauldian focus on the processes of subjectification and governmentality. The collapse of the Fordist-Keynesian regime of accumulation, the corresponding decline of the welfare state and increasing indebtedness of citizens is described by Randy Martin as a "risk-shift". This entails increased interaction of "ordinary people" with financial investing (for instance, in stocks and bonds), pension plans, investing in real estate, credit products (e.g. consumer loans) and insurance products. As Martin writes, financialization

> 'asks people from all walks of life to accept risks into their homes that were hitherto the province of professionals. Without significant capital, people are being asked to think like capitalists'.[131]

I will substantiate Martin's description of the risk-shift with two examples from the Dutch context: pension funds and student indebtedness. Under Dutch law, participation in a Dutch pension fund is mandatory for all employees, entailing the monthly deduction and allocation of a portion of their wages. A legal proposal for a reorganization of Dutch pension funds has recently passed the House of Representatives. Previously Dutch pension funds were organized as defined-benefit schemes, whereas today they are defined-contribution schemes in which the benefit at retirement is determined by returns made by pension funds that invest the money in financial markets.[132] This reform explicitly shifts the investment risk from the collective pension fund to the individual employee, as the guaranteed benefit is replaced by one contingent on market performance. In this manner, all Dutch employees are mandatorily and automatically drawn into the circuits of capital and financial markets. As Ewald Engelen already anticipated in 2003, this ties the long-term future of social systems directly, and inevitably to the fate and volatility of financial markets.[133] This is a strong example of how the financialization of the

[131] Randy Martin, *Financialization of Daily Life* (Temple University Press, 2002). 12.
[132] De Nederlandsche Bank, "Ons pensioenstelsel straks," DNB Actuele Economische Vraagstukken, last modified May 2024, https://www.dnb.nl/actuele-economische-vraagstukken/pensioen/ons-pensioenstelsel-straks/.
[133] Ewald Engelen, "The Logic of Funding European Pension Restructuring and the Dangers of Financialization," *Environment and Planning A* 35, no. 8 (2003): 1357–1372.

economy and the future is an existing reality that cannot simply be rejected. One can demonize financialization and financial markets, but that does not undo the relation between futurity and financial rationality. To declare that this investment in the future is merely toxic would oversimplify a multifaceted reality that individuals are expected to navigate. To plan and save for retirement or the future in general is not in itself toxic and is made possible by the tertiary mnemotechnics of money. The intimate relation between financial planning and investment in financial markets also ties their savings to financial temporality and financial futurity.

The second important example concerns those who have not entered the labour market yet; students. My generation of Dutch students has become indebted; aggregate Dutch student-debt has more than doubled since 2015.[134] For some time, studying has been surrounded by the discourse of an "investment" of time and energy into "human capital." Now, however, it has become an actual investment for which most students have to go into debt, marking a convergence between investment in the future in both the financial and libidinal sense.

In this manner, the risk of unemployment or delayed education is privatized, becoming the individual (financial) problem of the student. The financial reality of this risk-shift became painfully clear for Dutch students when they saw a rise in the interest rate on their debt from 0% to 2.5%. For years, the interest rate was 0% as the government could borrow cheaply, but this period of exceptionally low interest rates ended when the European Central Bank increased the interest rate to counter inflation. The interest rate on Dutch student loans was increased because it is linked to the interest rates on Dutch government bonds. Dealing with this *interest rate risk*, students are asked to think like capitalists, as Martin asserted. The investment into "human capital" and what Foucault called the "enterprise of the self" are becoming more serious through these financial lock-ins.[135] The enterprise of the self comes to resemble the logic of a hedge fund, a debt-leveraged investment vehicle.This is more than a metaphor, as in 2024 5% of all Dutch students in debt, used their student debt to invest in assets such as stocks, bonds or cryptocurrencies.[136] Even though this is but a small portion of privileged individuals who do not directly need the debt for tuition and housing, it highlights the effects of financialization on students and their relation to financial rationality.

What is at stake in both examples is the calibration between the libidinal economy of investment in the future, which is at the core of being a student or participating in a pension fund, and its articulation through the grammatization of financial investments. This relation between libidinal and financial investment must be explored further. In particular, this becoming-

[134] Centraal Bureau voor de Statistiek (CBS), "Minder mensen met studieschuld," *CBS Nieuws*, October 10, 2024, https://www.cbs.nl/nl-nl/nieuws/2024/41/minder-mensen-met-studieschuld.
[135] Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*, ed. Michel Senellart, gen. eds. François Ewald and Alessandro Fontana, trans. Graham Burchell (New York: Palgrave Macmillan, 2008) 230.
[136] Annette Groen, Gitta van den Enden, and Nouschka Veerman, "Nibud Studentenonderzoek 2024" (Utrecht: Nibud, 2024), https://www.nibud.nl/onderzoeksrapporten/rapport-studentenonderzoek-2024/, 29. For more anecdotal evidence see Samuel de Weerd, "Beleggen is populair onder studenten. Wordt de pechgeneratie toch nog rijk?," DUB, April 5, 2022, https://dub.uu.nl/nl/achtergrond/beleggen-populair-onder-studenten-wordt-de-pechgeneratie-toch-nog-rijk. Annemijn, "Is het slim om te beleggen met je studiefinanciering?," Studenten.com, April 7, 2022, https://studenten.com/blog/is-het-slim-om-te-beleggen-met-je-studiefinanciering?from=rmb.

investor of citizens must be explained from the logic of capital itself and the different modes through which capital has exploited the libidinal economy, resulting in proletarianization.

§2. Extra-productive and Extra-consumptive Existence

In earlier chapters I have explained how financialization is an extension and modulation of capital's quest for valorisation, rather than a fundamental rupture. In this section, I will develop the argument that the financialization of daily life must be understood based on the continuous exploitation of the libidinal economy. Stiegler describes a continuity between the time of Marx and contemporary consumerism; the development of proletarianization (DOID, 35). Now, if capitalism itself has undergone another metamorphosis into financial capitalism, the mode of proletarianization must have changed subsequently. This is the proletarianization induced by the becoming-investor of the citizen. The common thread that weaves through this is that capital appropriates the libidinal economy of those who inhabit social systems. This difference in continuity must be explored step by step, following the capitalism of Marx's time, toward the Fordist-Keynesian economy of consumerism, and the contemporary financialized economy.

Marx and Engels have vividly described the relation between proletarianization and the accumulation of capital, as a form of pauperization. They describe a time when men, women, and children became wage-labourers in the factories, working 10 to 16 hours. Engels viscerally describes the poor conditions of the working class – especially the physical state of the children; deformed, sick and called out of bed to work at 3 a.m.– as 'social warfare' [137] Marx cynically writes:

> 'Capital (…) takes no account of the health and the length of life of the worker, unless society forces it to do so. Its answer to the outcry about the physical and mental degradation, the premature death, the torture of over-work, is this: Should that pain trouble us, since it increases our pleasure (profit)?'[138]

In its extreme form, this displays how every barrier becomes an integrated limit in the expansionary drive of capital, functioning as a limit to what Polanyi understood as the (dis-)embedded market economy. The subsistence and reproduction of labour-force is this lower limit, which capital nevertheless tries to transgress. This denotes a general strategy of capital to increase accumulation by increasing labour-productivity. This can be done by prolonging the working day, but also by increasing productivity per hour worked. An important moment in this labour-based extraction is the advent of 'Taylorism'; the standardization of workflows by grammatizing the process into repetitive motions and procedural tasks to improve productivity through efficiency.[139] The proletarianization resulting from this division of labour is aptly described by Adam Smith:

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[137] Frederick Engels, *The Condition of the Working Class in England in 1844,* trans. Florence Kelley Wischnewetzky (New York: John W. Lovell Company, 2011). 18.
[138] Marx, *Capital 1*, 381.
[139] Frederick Winslow Taylor, *The Principles of Scientific Management* (New York: Harper & Brothers, 1911), http://strategy.sjsu.edu/www.stable/pdf/Taylor,%20F.%20W.%20(1911).%20New%20York,%20Harper%20&%20Brothers.pdf.

> The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same (…) generally becomes as stupid and ignorant as it is possible for a human creature to become.[140]

The "assembly line" marked a significant progression in capital's appropriation of labour, giving rise to "Fordism." This system uniquely combined high productivity with high consumption, where labourers' wages were crucial. Fordism involved lowering costs through standardized production, enabling workers to afford the products they made. This Fordist-Keynesian accumulation regime, characterized by full employment, low inflation, and stable wages, is seen as the precursor to neoliberalism. Productivity growth, driven by technological advancements and scientific labour management, necessitated increased consumption or "demand" to valorise capital. Products needed to be sold, and new markets created if none existed, a process generalized under consumerism, marketing, and advertising. As Stiegler notes, marketing, the "secular arm of private financial power," creates demand for overproduced commodities (SOS, 176). Ultimately, sales are essential to complete the circulatory cycle of productive capital.[141]

With the advent of marketing comes the 'attention economy', and what Stiegler calls 'psycho-power' – the capturing of conscious duration as a primary object for capital. While maximized surplus value from direct labour was first only maximized at the factory floor and spare time was merely recovery time, the rise of consumer society demonstrates how capital's extractive logic has expanded to encompass 'extra-productive existence' – time spent outside the factory or office (DOID, 67). Herbert Marcuse also recognizes this shift as the rationalization of consumption and free time. [142] Non-work must be rendered "productive" through its commodification into "hobbies", "holidays", "leisure time" etc. Outside of the workplace capital attempts to mobilize the libido, in the words of Marcuse, the 'quantum of free energy'.[143] This mobilization of desire is fundamentally a rechanneling of the libidinal economy toward commodified consumer products and experiences. For Stiegler, this entails a different mode of proletarianization: the loss of *savoir-vivre* (know-how to live), as all walks of life are commodified and desire is produced, standardized, and formatted into behavioural models (DOID, 35; CPE, 40). This affects the libidinal economy of the individual, as consumer desires must be instantly gratified, exemplified by the Amazon "Buy Now" button or TikTok's reduction of the timespan of attention to 7 seconds. This effectively short-circuits the traditional path of desire toward an unattainable object, replacing sublimation with a constant push for immediate, desublimated drive-based gratification.

Stiegler rightfully describes how consumerism *aggravates the toxicity of financial pharmacology,* where investment is entirely directed by the dictate of financial capital for unapologetic rates-of-return (CPE, 88). Here Stiegler sees financial capital as the shareholders

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140 Adam Smith, *The Wealth of Nations, Books I-III*, trans. H.T. Willetts (New York: Penguin Classics, 1982), 368
141 Karl Marx, *Capital: A Critique of Political Economy, Volume 2*, translated by David Fernbach (London: Penguin, 1992), 133.
142 Herbert Marcuse, *Eros and Civilization: A Philosophical Inquiry Into Freud* (Psychology Press, 1955). Another innovation of capital that I cannot sufficiently develop is the way that consumers of social media are made productive through both datafication and algorithm training.
143 Marcuse, *Eros and Civilization,* 93.

who demand the maximisation of sales, which is the bread and butter of consumerism. The demands of ROI lead to "the destruction of temporalities (long circuits) which are not immediately "monetizable," but Stiegler adds "that is, capable of being absorbed by a consumer market. (CPE, 102-103). Stiegler is primarily concerned with the 'destruction of citizenship and its replacement by consumerism' (SOS, 199). However, discussing pension funds or student debt is not about consumption, but about *investment.* The fundamental difference is that in consumption, money is used as purchasing power, yielding no return beyond the purchase itself, while money invested as capital is expected to deliver a return (M'). This informs a different mode of proletarianization: consumerism aims at the wages of workers, whereas financial capitalism aims at their savings—the surplus that remains from wages after consumption. This means that capital attempts to appropriate and exploit not only 'extra-productive existence' (as Stiegler writes) but also 'extra-consumptive existence'. Hence, Stiegler accepts a continuity between the proletarianization of the worker and that of the consumer, both belonging to different modes of capitalism. However, he fails to conceptualize the proletarianization of financialized capitalism and its impact on the libidinal economy. This must be explored further.

§3. Speculation and Libidinal Economy

Sarah Hall writes that financialization has increasingly urged people to '*act* as entrepreneurial investor subjects, rather than 'passive savers' as part of a wider individualization of risk within society'[144]. Inflation, in particular, incentivizes this structurally. "Idle money" does not deliver a return; it will only depreciate through inflation. [145] The influence of inflation as a structural principle of post-Bretton-Woods capitalism can hardly be overestimated.[146] As a systemic principle of macroeconomic and monetary policy, it is a structural incentive—or, more accurately, an imperative—for money not to "lie idle" but to be put back into circulation, through consumption or investment. The question then arises: how does one invest money, where is it best put to use?

One channel is investing through trading platforms. In this regard, Stiegler's description of the psycho-power of advertising is applicable, as many trading platforms and brokers actively attract users to their apps. DEGIRO's slogan *"Everyone's an investor, baby"*, Trading212's *"Investing for everyone"*[147] and Brand New Day's "*Everyone an extra jar with pension funds"*[148], exemplify this aggressive campaign to mobilize "idle" savings into investment/speculation, like a vampire sucking up the dead labour accumulated in the saving deriving from wages that exceed consumption.[149] Through these advertisements, individuals are *interpellated,* hailed out, into a becoming-investor.[150] To "invest" financial means is to

[144] Sarah Hall, "Geographies of Money and Finance II: Financialization and Financial Subjects," *Progress in Human Geography* 36, no. 3 (June 2012): 405, https://doi.org/10.1177/0309132511403889. My emphasis.
[145] David Harvey, *The Limits to Capital* (Verso, 2006), 196.
[146] The transformation of financial technics from the Bretton Woods quasi-gold standard to floating exchange rates is worthwhile but beyond this text's scope, especially as money creation by central and commercial banks is the nexus of state-corporate cooperation in securing capitalism.
[147] Trading 212, "Trading 212," Trading 212, accessed June 26, 2025, https://www.trading212.com/nl.
[148] Brand New Day, accessed June 26, 2025, https://new.brandnewday.nl
[149] Marx, *Capital 1*, 342.
[150] Louis Althusser, "Ideology and Ideological State Apparatuses (Notes towards an Investigation)," in *Lenin and Philosophy and Other Essays*, trans. Ben Brewster (New York and London: Monthly Review Press, 1971), 86

inscribe money into the hypomnesic circuit, into the financial channels through which capital circulates. This process of inscription is crucial. DEGIRO says: 'If you have some common sense, and some *money that can work for you*, then you are an investor'[151]. Robert Kiyosaki, author of the best-selling financial self-help book *Rich Dad, Poor Dad,* states: "The poor and the middle-class work for money. The rich have money work for them".[152] Both statements contain the extreme reification of value, as if money, mobilized as capital, inscribed in the hypomnesic financial system (M-M'), possesses the capacity to "work". Marx's observation of interest-bearing capital (credit) becomes generalized under financialization: 'it becomes as completely the property of money to create value, to yield interest, as it is the property of pear-trees to bear pears'.[153]

Stiegler's aim, however, is to revitalize investment. These trading platforms, as digital technologies enabling financial transactions, disclose investment possibilities for a broad pool of individual investors.[154] eToro's slogan *Trade on the Go, Investment Anytime Anywhere* makes clear how, in Stieglerian terms, these platforms are indifferent to whether they mobilize savings for speculative reasons or for actual investment.[155] To inscribe money in the game of writing is not yet sufficient to count as investment, as it can also be mere short-termist speculation on financial traces. A convergence between financial investment and the libidinal economy can be discerned. To invest anywhere anytime means that one can "invest" without attending to the quality of the grammatization of the protention, merely speculating on volatile price movements. In other words, what these apps facilitate is the unconstrained unleashing of what Keynes called the 'animal spirits' of impulsive, non-deliberate investment, which I connected to Stiegler's analysis of stupidity [bêtise] as a certain impulsive bestiality. These trading apps thus do not facilitate the careful protention of desire inherent in investment, but a mere de-sublimation, a thirst for monetary gain leading to a toxic manifestation of the financial pharmaka (WMLWL, 25). Thus, the libidinal and financial economy connect through this immediate accessibility of real-time trading on frictionless interfaces.

However, the grammatization produced by the system of financial tertiary protentions can indeed lead to short-circuiting and proletarianization, but it can also function as a support for setting long-term goals, inducing actual investment tied to an infinite desire for incalculable singularities (CPE, 42). In other words, investment platforms could potentially not be merely *used*, but could constitute a renewed *practice* of investment, both financially and libidinally, addressing the question: what is desirable, what future is worthwhile to invest in? This question must be answered in contrast to the short-termist trading platforms in relation to a project: the European Union.

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[151] DEGIRO, "DEGIRO Nederland," accessed April 3, 2025, https://www.degiro.nl.
[152] Bestselling author Robert Kiyosaki, who declared housing an "always good idea" before the 2007 subprime mortgage crisis and later faced multiple business bankruptcies, vividly illustrates the proletarianization of financial knowledge and its problematic relation to financial education and advice.
Robert T. Kiyosaki, *Rich Dad Poor Dad* (Scottsdale, AZ: Plata Publishing, 2017), 22.
[153] Marx, *Capital 3*, 516.
[154] Castells, *Network Society,* 155.
[155] Trade on the go with eToro™," eToro, January 27, 2025, video, 0:12, http://www.youtube.com/watch?v=rtjCHlXStN4.

§4. Investment in the European Union

Besides these trading platforms, the European Union is also determined to activate the savings of EU citizens, not only through pension funds but also directly as private individuals. In contrast to savings platforms, the aim is not short-termist but explicitly related to the long-term investment in the future of the European Union itself. The Draghi report—written by Mario Draghi (ex-Goldman-Sachs banker)—states that 'Europe needs to invest an enormous amount of money in a relatively short time' to restore competitiveness with China and the USA, especially regarding energy (decarbonization) and technology (AI).[156] Draghi states that these investments 'should mainly come from private sources', and points to the importance of the Capital Markets Union (CMU) and a Savings and Investment Union (SIU) to 'facilitate the transfer of private capital into investment'. The installation of a CMU and SIU are long-term projects of the EU. The CMU aims to realize a single, integrated capital market across its member states, making it easier and cheaper for companies to raise funding and for investors to find opportunities across borders.[157] Complementing this, the more recent SIU aims specifically to mobilize the vast pool of household savings in Europe, held in bank accounts, and to channel them into productive investments within these capital markets.[158] Furthermore, through financial educational programs the EU aims to create an 'attractive and consumer-friendly investment environment and to promote an investor culture among EU citizens' as well as 'to promote the mobilization of private capital and to stimulate more investment activity inside the Union'.[159]

In this manner, financial investment and the long-term (libidinal) investment in the future of the European Union are calibrated at the micro-level of individuals and households. Here, the pharmacology of finance resurfaces, primarily highlighting its curative side, as European investors can receive a financial return by investing savings in European projects. This pharmacology of investment was already anticipated by David Harvey in 1982:

> [W]hen these savings are mobilized as capital, workers can also receive interest. This appears to make money capitalists of workers (…) workers then have a strong stake in preserving the very system that exploits them, as the destruction of that system would entail the destruction of their savings. (…) worker organizations acquire considerable economic power—hence the struggle for control over union pension funds, insurance funds (…) This introduces a whole new dimension into class struggle.[160]

[156] European Commission. "The Draghi report on EU competitiveness." accessed June 10, 2025. https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en.

[157] European Commission. "What is the capital markets union?" accessed June 10, 2025. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/capital-markets-union/what-capital-markets-union_en.

[158] European Commission. "Factsheet: Savings and Investments Union." Last modified February 20, 2024. https://finance.ec.europa.eu/regulation-and-supervision/savings-and-investments-union/factsheet-savings-and-investments-union_en.

[159] Council of the European Union, *Council Conclusions on Financial Literacy*, May 14, 2024, accessed February 7, 2025, https://data.consilium.europa.eu/doc/document/ST-9930-2024-INIT/en/pdf.

[160] Harvey, *Limits to Capital*, 262.

Through the investment of savings, financial *interests* and longer-term desires and projects synchronize across classes. This introduces a positive tendency into the system, as the working class can receive dividends and capital gains on the surplus value. As Harvey rightfully notes, this introduces a new dimension in class struggle: wage-laborers (the Marxist "proletariat") are now becoming-investors, effectively becoming-capitalists. As I pointed out in §2.4, Stiegler has misunderstood this, focusing too much on the generalization of proletarianization as an epistemical relation between humans and the system they inhabit. Stiegler does not recognize how the financial proletarianization is distributed unevenly. Since the biggest source of inequality is not income (wage) but wealth (capital), the becoming-capitalist of European citizens can induce a countertendency to the growing inequality. As Piketty has argued, the rate of return on capital (r) is larger than the rate of economic growth (g).[161] Therefore, while enabling wage-laborers to participate more in capital ownership could help diminish this gap, its impact should not be overestimated, as it is directly proportional to the amount of savings invested. Naturally, the wealthier class possesses significantly greater savings to invest compared to those with very low incomes.

On the other hand, it also intensifies the investments of the working class in the system that exploits socio-ecological systems and their libidinal economy of labor, consumption, and attention. It subtly transforms citizens into stakeholders in their own exploitation, obscuring the systemic costs beneath the veneer of individual gain. The promise of individual return makes the working class complicit in and invested in the future of business as usual—the status quo—libidinally and financially, thereby pacifying the desire for a less exploitative economic system. As Durand points out in the case of fossil fuel:

> 'to halt fossil fuel extraction would immediately result in a knock-on destabilisation of the financial markets. (…) the preservation of fictitious capital on the stock market directly impedes the fight against global warming ' [162]

In other words, to invest in the current financial system that only generates "profit" through totalizing exploitation, is to invest in a system that is running out of steam. In this manner, all EU citizens can potentially become complicit investors if investment is done without care for the plane of consistences, driven merely by the nihilistic indifference of financial rationality. This brings to the fore a conflict between the green and the red, the ecological and the social, the profitable and the worthwhile. This is, at its core, a tension between short-term economic security or wealth and the long-term viability of the system as a whole. Of course, there is no economic security or financial value on a dead planet. At the same time Keynes was painfully accurate writing: '*In the long run* we are all dead.'[163] In this context: one cannot expect the working class to invest in barely profitable projects that benefit socio-ecological systems. This Stieglerian perspective clarifies that without *care* for the long-term, a profitable short-termist approach to investment is mere speculation, amounting to disinvestment. How could attempts to install curative tendencies in the pharmacology of finance look like?

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[161] Thomas Piketty, *Capital in the Twenty-First Century* (Harvard University Press, 2017).
[162] Durand, *Fictitious capital*, 63-4.
[163] John Maynard Keynes, *A Tract on Monetary Reform* (London: Macmillan and Co., 1929), 80.

§5. Three Dimensions for a Curative Pharmacology of Finance

Based on the Stieglerian analysis, three dimensions for installing curative tendencies in the pharmacology of finance can be identified: calculative innovations, care for the incalculable, and divesting disinvestments. These dimensions can be analytically separated but need to be developed conjunctively to effectively counter the destructive tendencies of financialization.

First, new accounting practices integrating social and ecological values into financial decision-making are indispensable, yet insufficient. This domain involves innovations in reporting and measurement, where authors such as Dirk Schoenmaker and Willem Schramade develop financial frameworks and calculative techniques making environmental and societal costs visible and actionable.[164] At the European level, the Corporate Sustainability Reporting Directive (CSRD) represents a significant step in this direction, obliging companies to systematically report on environmental and social factors alongside traditional financial metrics. If finance is the grammatization of protention through pricing and quantification as credit, this grammatization must be credible and must not systematically exclude factors that properly inform prices, such as socio-ecological costs, often jettisoned as mere "externalities". If social and ecological externalities were systematically internalized into price functions, the fundamental ratios would shift, altering what counts as a "rational" investment. By internalizing externalities, short-term speculative returns would lose their false advantage over projects that sustain the habitability of the earth for humans and non-humans. In this way, recalibrating financial rationality from within its own calculative techniques could open space for investment logics less nihilistic and more aligned with care for the future. Yet, calculative innovations in accounting, while opening possibilities for genuinely transformative investment, can never integrate the irreducible uncertainty of the temporal horizon itself.

Therefore, the second dimension involves taking care for the incalculable. Such long-term care can function as a counterweight to a financial system addicted to short-term returns and speculative acceleration. This ethical-political motivation transcends financial rationality. It is here, concerning the plane of consistences, that infinity must be reconsidered as political and libidinal economy. The logic of M-M' expresses a bad infinity of which 'the number sequence is its paradigmatic form', there mere arithmetic of remuneration (M-M') legitimated by financial rationality.[165] The final cause of financial investment can be more money or profitability, but the final cause of the libidinal economy of desire is a singularity that constantly defers. The speculative question what this good infinity entails in relation to finance is up for further research. Finance must be restored as a means to an end beyond self-referential remuneration. Finance must be restored as a protentional system that makes life on this earth worth living, recognizing ecological limits and societal well-being as intrinsic goals. The infinity underlying this is not endless growth or accumulation, but the regeneration and maintenance of viable socio-ecological systems, everyday anew, its completion always deferred

[164] Dirk Schoenmaker and Willem Schramade, *Corporate Finance for Long-Term Value* (Cham: Springer Nature, 2023).

[165] David Harvey, *Marx, Capital, and the Madness of Economic Reason* (London: Profile Books, 2017), 173.

through differentiation. Only with this care for infinity, for this singular non-financial otherness, can the future be reopened. For the European project to succeed, the desire for remuneration on investment for every individual becoming an investor through the SIU must be calibrated with a project of infinity, an infinite desire that must be articulated, narrated. This translates into financial actions that prioritize long-term resilience, intergenerational equity, and investments that actively regenerate social and natural capital, rather than merely extracting from them.

This non-financial motivation can inform the third dimension: to divest disinvestment. The call for divestment is heard in social movements, shareholder activism, and the decisions of institutional investors such as pension funds to withdraw funds from fossil fuel industries, for instance. Sometimes divestments are driven by financial rationality: fossil assets, for instance, are increasingly regarded as 'stranded assets,' and investors wish to avoid long-term risks. At other times, divest is informed by an ethico-political motivation such as long-term care and intergenerational justice. The latter can actually lead to a divestment of disinvestment, of the nihilistic, short-term speculations of mere monetary gain and rent extraction legitimated through the cold calculations of financial rationality itself. To negate the negation of finance would entail the divestment of disinvestments. Withdrawing financial resources from harmful sectors can be reinvested in different, regenerative projects and activities, developing temporal orientations that remain open to a future that cannot be fully calculated.

In conclusion, finance has infiltrated in the everyday life through student debt, pension funds, marketing and European projects. This ties the fate of individuals and social system to the fate of financial markets, creating a link between the libidinal and financial economy of investment in the future. Furthermore, the becoming-investor and the mobilization of savings of individuals is a new stage of proletarianization that belongs to the financial economy. These financial *pharmaka* can be *used* either for mere short-term gain—that is, speculation—or they can inform a renewed *practice* of investing in the long-term. This renewed practice is driven by the desire for an economic system that benefits socio-ecological systems, and that takes care for the socio-ecological conditions of (economic) life as such. Ultimately, this chapter reveals that a curative pharmacology of finance consists of three dimensions: calculative innovation, caring for the incalculable and divesting disinvestment. At the heart of this critique of political economy as a reconsideration of the relation between libidinal and financial investment is the notion of infinity.

Conclusion

In this thesis I have developed Stiegler's critique of political economy in the direction of finance. I worked with the research question: How does Stiegler's understanding of money relate to his analysis of financial pharmacology and financialization, and what does this reveal about the connection between finance and proletarianization?

Chapter 1, "Financial Pharmacology and Mnemotechnics", established finance as a form of grammatization and mnemotechnics through money, a technical system that records, calculates, and organizes the temporal social bond. Money, as a distinct monetary mnemotechnics, functions as both "tertiary retention" (stored value) and "tertiary protention" (anticipated future value), fundamentally modulating temporality. Crucially, this process is pharmacological, possessing both curative and toxic tendencies. Its grammatization of the social fabric through quantification reifies social relations into an externalized "creative power," exhibiting a pharmacological duality that can foster connection or separation. It is both a response to complexification as well as a complexifying factor itself. The analysis was deepened by examining money's role in credit and trust, highlighting its function in managing time and uncertainty as a *pharmakon* that stabilizes temporal flows while introducing new uncertainties.

Chapter 2, "Financial Rationality and System", shifted to the financial system's general understanding, particularly in light of the 2007-2008 financial crisis. It defined the financial system as a complex socio-technical ensemble of machines and human actors organizing retention and protention, where capital's valorisation occurs. Double-entry bookkeeping was identified as a technic (grammatization) constitutive for the understanding of profitability, and therefore for the rationalization of businesses. Financial ratios (e.g., ROI) were shown to flatten diverse activities, prioritizing quantitative optimization. This totalizing logic paradoxically harbours irrationality by excluding non-quantifiable goods and risks, resulting in nihilism. The 2007-2008 crisis exemplified this, as the logic of calculation without remainder transformed risk management into systemic irrationality, leading to a loss of human control and a "discrediting" of finance. This constitutes systemic stupidity and generalized proletarianization, where even central bankers such as Greenspan, and Nobel Laureates such as Scholes and Merton have lost knowledge and control of the complex, automated, recursive system operating in real-time. However, a crucial critique of Stiegler's framework was introduced: the material consequences of this proletarianization are unevenly distributed, disproportionately impacting the working class.

Chapter 3, "A Stieglerian Understanding of Financialization," contextualized the financialization of the economy emerging from the 1970s "crisis of profitability." Financialization was understood as capitalism's drive to overcome spatial and temporal barriers through globalization and neoliberalization. Fictitious capital was understood as a mnemotechnics pricing and grammatizing futurity through calculative anticipation. This system, harbouring a performativity, becomes self-referential and speculative, detaching from underlying socio-economic realities. This leads to disinvestment, where "investment" becomes purely accounting-driven speculative profit, diverting capital from productive activities into rent-seeking, destroying the productive apparatus and socio-ecological systems. Ultimately, financialization's selection of protentional possibilities becomes determined by this calculating rationality, fossilizing time and annulling the uncertain, improbable future. By privileging only quantifiable outcomes, it omits transcendent values, contributing to nihilism and the collapse of long-term motivations, thereby demanding a new "epoch of care" that values the incalculable.

Chapter 4, "Political Economy of Libidinal and Financial Investment," extended Stiegler's critique to the domain of finance by exploring the convergence of libidinal and financial economies through investment, particularly concerning the "citizen-as-investor”. This chapter argued for a specific financial proletarianization, moving beyond previous productivist or consumerist forms. It examined the financialization of daily life, illustrating how a "risk-shift" compels individuals to navigate complex financial landscapes. Mandatory defined-contribution pension schemes and rising student debt exemplify how citizens are intrinsically linked to volatile financial markets, making their long-term future contingent on financial rationality. Building on this, the chapter developed capitalism's evolving exploitation of the libidinal economy, from Marx's "extra-productive" labour to consumerism's "extra-productive existence" (loss of *savoir-vivre*). It argued that financial capitalism now targets "extra-consumptive existence"—the portion of savings beyond consumption—leading to a distinct financial mode of proletarianization for the citizen-as-investor, whose savings are directly exposed to market logic, a nuance Stiegler's framework did not fully conceptualize. Through the investment of debt, savings and pension funds, citizens become complicit in a system that exploits socio-ecological systems and well-being in general, as their libidinal and financial economy converges in the temporality of financial markets. The chapter further explored how speculation is incentivized by inflation and facilitated by trading platforms, which aggressively mobilize "idle money," reifying money's "work" and fostering impulsive "animal spirits" rather than careful, long-term investment. While this can lead to a toxic short-circuiting of the libidinal economy, the chapter also considered the potential for a renewed practice of investment, as seen in the European Union's efforts to mobilize citizen savings for long-term projects like decarbonization and AI. This aims to calibrate individual financial interests with the EU's future, potentially fostering a "becoming-capitalist" among the working class. However, it also highlights a tension: while offering individual returns, it risks complicity in a system that exploits socio-ecological systems, obscuring systemic costs beneath individual gain and pacifying the desire for a less exploitative economic system.

In conclusion, the thesis proposes three dimensions for a curative pharmacology of finance: calculative innovations in the realm of accounting by internalizing social and ecological externalities recalibrating financial ratios with rationality, care for the incalculable through infinitizing desire for the future through non-financial means, divesting divestments or quitting speculation by urging pension funds and private individuals to financially invest in that which makes life worth living, regenerative practices. Ultimately, this critique of political economy, by reconsidering the relation between libidinal and financial investment, places the notion of infinity at its heart, arguing for an economic system that benefits socio-ecological systems and cares for the conditions of life itself. Future research can develop these three dimensions further, and especially develop the relation between "good infinity" and finance. Furthermore, in the domain of the philosophy of science the insights from this thesis can inform a critique of neoclassical and financial economics, still dominant in business and economics faculties, and how this relates to a proletarianization of the university.

Appendix 1: Key Financial Ratios

1. Net Present Value (NPV)
NPV calculates the present value of future cash flows, discounted at a specific rate, minus the initial investment. It is used to assess the profitability of an investment.
NPV = $\Sigma [C_t / (1 + r)^t] - C_0$

Where:
- C_t = cash inflow at time t
- r = discount rate
- C_0 = initial investment
- n = number of periods

2. Weighted Average Cost of Capital (WACC)
WACC represents a firm's average cost of capital from all sources (equity and debt), weighted by their proportion in the firm's capital structure.
WACC = $(E / (E + D) \times r_e) + (D / (E + D) \times r_d \times (1 - T))$

Where:
- E = market value of equity
- D = market value of debt
- r_e = cost of equity
- r_d = cost of debt
- T = corporate tax rate

3. Return on Investment (ROI)
ROI measures the gain or loss generated on an investment relative to its cost. It is a simple indicator of profitability.
ROI = (Net Profit / Investment Cost) × 100%

4. Current Ratio
The current ratio indicates a company's ability to pay short-term obligations using its current assets.
Current Ratio = Current Assets / Current Liabilities

5. Solvency Ratio
Solvency ratios measure a firm's ability to meet its long-term obligations. There are multiple solvency ratios; a common one is the debt-to-assets ratio.
Solvency Ratio = Total Debt / Total Assets

6. Risk-Adjusted Return (Sharpe Ratio)
The Sharpe Ratio measures the excess return per unit of risk. It helps compare the performance of investments considering their volatility.

Sharpe Ratio = $(R_p - R\_f) / \sigma_p$

Where:
- R_p = portfolio return
- R_f = risk-free rate
- σ_p = standard deviation of portfolio return

7. Black-Scholes-Merton Model (European Call Option)

The Black-Scholes-Merton model calculates the theoretical price of a European call option, assuming constant volatility and a lognormal distribution of asset prices.

$C = S_0 N(d_1) - X e^{(-rT)} N(d_2)$

Where:

$d_1 = [\ln(S_0 / X) + (r + \sigma^2 / 2) T] / (\sigma \sqrt{T})$

$d_2 = d_1 - \sigma \sqrt{T}$

Variables:
- C = price of the European call option
- S_0 = current price of the underlying asset
- X = strike price
- T = time to maturity (in years)
- r = risk-free interest rate
- σ = volatility of the underlying asset
- N(d) = cumulative distribution function of the standard normal distribution

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