[Draft of Oct. 31, 2014—please do not distribute—thank you.]

Symbiotic Law & Social Science:
The Case for Political Economy in the Legal Academy, and Legal Scholarship in Political Economy

--Frank Pasquale

For many critics, legal scholarship is doubly defective. First, they consider law, as a social science, inherently less *objective* than natural sciences. Whereas natural science advances, law seems embroiled in the same old conflicts. The natural sciences become ever more precise, while legal opinions remain mired in contestable terms.[1] And while values have no place at a chemist's workbench, administrative rules and adjudications teem with them.[2]

Second, they consider neoclassical economics to be the queen of the social sciences, and law a mere handmaiden in her court.[3] Or, to use a more mercantile metaphor: mainstream economists export theory that specifies the ideal ends of social control; law merely provides a set of means.[4] Humble legal scholars should import this precious gift of understanding to illuminate and correct benighted common law reasoning, the dark hermeneutics of statutory interpretation, and the labyrinth of administration.

I believe that the second critique has, at its core, a commitment to flawed ideas at the heart of the first. The social sciences are not merely a second-rate version of the natural sciences. They have their own distinctive methods and goals. Interpretive social scientists, in particular, try to explain events as a text to be clarified, debated, argued about. They do not aspire to model our understanding of people on our understanding of atoms or molecules. Critical moral questions can't be settled via quantification, however refined "cost benefit analysis" and other political calculi become. Sometimes the best interpretive social science leads not to consensus, but to ever sharper disagreement about the nature of the phenomena it describes and evaluates. That's a feature, not a bug, of the method: rather than trying to bury normative differences in jargon, it surfaces them.

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[1] There is an effort to render more legal terms computationally tractable. See, e.g., Frank Pasquale, *The High and Low Roads of Automation*, June 3, 2014 (describing the work of Travis Breaux to render contracts in software, and commentary by Erik Gerding, Harry Surden, and Kenneth Bamberger on the limits of computation in legal theory).

[2] Wendy Wagner, *The Science Charade*; administrative law on "trans-scientific facts".

[3] For the "queen of the social sciences" formulation, see, e.g., David Colander, *The Cost of Being Queen: Some Reflections on Economist's Views of Coordination*, at http://community.middlebury.edu/~colander/articles/The%20Cost%20of%20being%20Queen.pdf.

[4] WILLIAM DAVIES, THE LIMITS OF NEOLIBERALISM: AUTHORITY, SOVEREIGNTY, AND THE LOGIC OF COMPETITION (2014). As Davies shows, the ordoliberal school of neoliberalism believed that markets needed to have some basic legal qualities, defined in statutes like competition and consumer protection law. Later neoliberals leaned on ever-more elastic concepts of utility and wealth maximization to subordinate standard legal structures to the business strategies of dominant firms.

Nor should an esteem for social science in general, or any particular social science, lead to disdain for legal scholarship. At their best, legal scholars do not merely apply theories from "real" social sciences with "real" PhD's. The relationship between law and social science is more complex. Legal academics are informed by other fields, but also return the favor by providing levels of understanding and a practical orientation.[5] For example, Philip Mirowski has pointed out that there is no one, standard, ordinary market. Legal rules deeply influence all of them. So rather than simply importing economic (or sociological, or psychological) theories into law, we need to assure that social scientists' models of reality reflect the legal rules that so deeply shape social structures. Ideally, the relationship is symbiotic, with lawyers and social scientists in dialogue.[6]

My ecological metaphor—affirming patterns of mutually beneficial exchange between the legal academy and other faculties—is designed to appeal to two audiences. First, in law schools themselves, many fine scholars face a crisis of confidence about the value of what they do.[7] Aggressive critics have shamed them, seizing on an erosion of the funding model for US law schools as an indictment of the scholarship they produce.[8] They would either eliminate scholarship altogether, or narrow its scope to technical specifications for rearranging business processes in order to maximize returns to shareholders and minimize the tax burden for public administration of justice. They find many admirers in the upper echelons of the bar itself, eager to disparage the skills of young professionals in order to justify paying them less.[9]

The legal academy will continue to run a Red Queen's Race to satisfy the demands of those who will always have an interest in derogating its performance.[10] But as it does so, it needs to regain a sense of the importance of what it does as *part of an academy*, to complement its extant efforts to engage in professional and interprofessional training designed to improve employment outcomes for graduates. We should continue to produce what Ian Shapiro has

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[5] *See* STEPHEN H. KELLERT, BORROWED KNOWLEDGE: CHAOS THEORY AND THE CHALLENGE OF LEARNING ACROSS DISCIPLINES (2008); *Martha Nussbaum on Creating Capabilities and GDP*, ECONTALK (Sept. 29, 2014), http://www.econtalk.org/archives/2014/09/martha_nussbaum.html.

[6] *See Special Issue: Law in Finance*, 41 J. COMP. ECON. 311 (2013).

[7] Robin West and Danielle Citron have documented and addressed the problem. Robin West and Danielle Citron, On Legal Scholarship, at http://aals.org/wp-content/uploads/2014/08/OnLegalScholarship-West-Citron.pdf.

[8] See, e.g., Larry Ribstein, *Practicing Theory: Legal Education for the 21st Century* ("Protected from the harsh winds of the markets, legal educators were free to develop a hothouse plant that bore little resemblance to anything that grew in the natural soil of law practice. The hothouse walls are falling, leaving law schools to cope with markets."). For those who see the role of law as precisely to cabin and channel the "winds of the markets," the metaphor is exactly backward. Rather than celebrating a decline in demand for legal services arising out of corporate influence over legislatures, administrative agencies, and the judiciary, which renders ever less wrongdoing accountable, it is better to expose that influence, the predictable damage it causes, and paths toward restoring a balance between capital and labor.

[9] See, e.g., attitudes described in these posts: http://www.concurringopinions.com/archives/2011/11/new-york-times-financial-advice-be-an-unpaid-intern-through-your-20s-then-work-till-youre-100.html; http://balkin.blogspot.com/2013/08/accelerated-learning-in-era-of.html.

[10] Bob Condlin, 'Practice Ready Graduates': A Millennialist Fantasy, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2316093&rec=1&srcabs=2309497&alg=1&pos=3.

described as problem-driven scholarship, to complement and utilize more method-driven fare.[11] But we should do so in full awareness that our often practical, normative orientation illuminates problems in extant models of social science, and helps set new agendas for them.

The shifting sands of education financing may well transform the dominant modes of legal studies into an undergraduate major, or a masters-style course shorter than the JD. I note this only as an empirical possibility, not to endorse it. But such developments should have at least one positive outcome: sparking a sense of solidarity in the legal academy with the broader academy, as law schools or departments re-emphasize the types of abstract critical thinking already identified as the key value of undergraduate majors in, say, philosophy, history, or economics. The self-identification of law schools as parts of universities, and not just parts of state or national bars, should enable a more self-conscious embrace of "big picture" thinking that is a hallmark of much valuable work in the social sciences writ large.[12]

The university enables interdisciplinary work, and political economy is an ideally hybrid discursive space for this process of mutual inspiration and correction. While it has, of late, been dominated by "positive political economists" focused on the pathologies of governance, there is a venerable tradition of political economists studying the "ideal role of the state in the economic and social organization of a country."[13] Lawyers are particularly well-suited to the task of studying political economy, because we are the ones drafting, interpreting, and applying the rules governing the interface between state actors and firms.

Integrating the long-divided fields of politics and economics, a renewal of modern political economy could unravel "wicked problems" neither states nor markets alone can address.[14] Indeed, the very terms "state" and "market" are beginning to seem antiquated. For example, Medicare may be publicly funded, but it's ultimately run by a panoply of private contractors.[15] Banks may make tremendous profits from financial "markets," but the main reason they have deposits and counterparties to deal with is governmental guarantees that take the sting

[11] Ian Shapiro, The Flight from Reality in the Human Sciences. Shapiro argues for the superiority of "problem-driven over method-driven approaches to the study of politics," making "the case for starting with a problem in the world, next coming to grips with previous attempts that have been made to study it, and then defining the research task by reference to the value added." He argues that "method-driven research leads to self-serving construction of problems, misuse of data in various ways, and related pathologies summed up in the old adage that if the only tool you have is a hammer everything around you starts to look like a nail."
[12] Cf ARMITAGE & GULDI, THE HISTORY MANIFESTO (2014); Gunther Teubner, Law and Social Theory: Three problems ("of necessity the law is exposed to the influence of social theory. The way out could be: "a distanced approach", whereby the law does not take social theories at their nominal value, but in a complex process of translation generates "added value" to legal doctrine.").
[13] Thomas Piketty, Capital in the 21st Century (defining political economy).
[14] For an example of such "wicked problems," see topics addressed in the work of David Moss. Elizabeth Gudrais, *Rebooting Social Science*, at http://harvardmagazine.com/2014/07/rebooting-social-science;
[15] Frank Pasquale, Private Certifiers and Deputies in American Health Care, N.C. L. Rev.

out of credit risk—and, in turn, reward many of those administering such guarantees with lucrative jobs once they leave government.[16]

So a purely economic approach to "markets" here, or a purely political approach to "states," misses the critical interaction between the two. A political economic approach is vital, and reflected in the enduring interest in the social theory of Smith and Mill, Tocqueville and Durkheim, Weber and Habermas. We still read realists like Robert Lee Hale, not just for ideas about regulation and legal reform, but because of their cutting analysis of the relationship between politics and markets. Today, several legal scholars are reviving this political economic perspective, suggesting interpretations, descriptions, and explanations of important social phenomenon that are valuable *entirely separately from* the legal reforms they justify or recommend.

This essay provides three perspectives on political economy and law. Part II explains why political economy needs law, focusing on gaps in Piketty's *Capital in the 21st Century.* One of the most important works of social science of our time, *Capital* is the best-selling book in the century-long history of Harvard University Press, and a rare work of scholarship to reach the top spot on Amazon sales rankings.[17] As one critic observes, "Piketty's success, like that of Hayek, comes in part because of his willingness to write about the economy as a political space."[18] But a growing chorus of critics have faulted Piketty's policy prescriptions as either utopian or hopelessly small-bore. The failure of Piketty's political economy to engage adequately with legal academics and activists left *Capital* vulnerable to such critiques, however authoritatively its author put to bed strictly data-related challenges to the validity of his conclusions.

The mirror image of this problem—law sorely needing political economy—is also evident. Part III quickly surveys areas of law insufficiently informed with a sophisticated social theory of economic and political power, and then focuses on a particularly problematic policy space: finance. Far too much work in the area assumes that there is something like a "market" in financial instruments which exists prior to the set of laws now governing it. Once we grasp how *constitutive* law is of markets in general, and financial markets in particular, a much broader range of policy options emerges. This broader range of options is vital to the future of what is now technocratically deemed "finreg."

Part IV examines the practical efforts of the Association of Professors of Political Economy and Law (APPEAL) to *recognize* excellent academic work, *restore* a traditionally reciprocal relationship between law and social science, and *revitalize* the role of legal academics

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[16] Kwak & Johnson, 13 Bankers; Andrew Lo, Review of 21 Books on the Financial Crisis.
[17] Dennis Abrams, *Piketty's "Capital": A Monster Hit for Harvard U Press*, Publishing Perspectives, at http://publishingperspectives.com/2014/04/pilkettys-capital-a-monster-hit-for-harvard-u-press/ (Apr. 29, 2014).
[18] Kim Phillips-Fein, at http://www.politicalresearch.org/2014/10/12/friedrich-von-hayek-thomas-piketty-and-the-search-for-political-economy/

as bold new thinkers in not just the implementation, but also the development, of social policy.[19] Bridging the gaps between political science and economics, the legal academy can help improve policy, and critique it when it goes awry. Our first conference, *Critiquing Cost Benefit Analysis in Financial Regulation*, brought together scholars from around the country with policymakers and advocates in Washington, to develop a rigorous response to industry efforts to hamstring Dodd-Frank Act implementation via ersatz quantifications of its likely effects on the economy. This critical project is a first step toward a more developed account of political economy and law: legal analysis that grapples with (rather than abstracts away) the unending interplay between politics and markets.

II. Why Political Economy Needs Law: The Case of Piketty

Piketty's *Capital in the Twenty-First Century* is a rare scholarly achievement. It weaves together description and prescription, facts and values, economics, politics, and history, with an assured and graceful touch.[20] So clear is Piketty's reasoning, and so compelling the enormous data apparatus he brings to bear, that few can doubt he has fundamentally altered our appreciation of the scope, duration, and intensity of inequality.[21]

Piketty's basic finding is that, absent extraordinary political interventions, the rate of return on capital (r) is greater than the rate of growth of the economy generally (g).[22] He finds that this relationship persists over time, and in the many countries with reliable data on wealth and income.[23] This simple inequality relationship has many troubling implications, especially in light of historical conflicts between capital and labor.

Most persons support themselves primarily by wages—that is, what they earn from their labor. As capital takes more of economic output (an implication of $r > g$ persisting over time), less is left for labor. Thus if we are concerned about unequal incomes and living standards, we cannot simply hope for a rising tide of growth to lift the fortunes of those in the bottom quintiles of the income and wealth distribution. As capital gains in power and influence, it takes more of

[19] I am one of the organizing members of APPEAL, along with other professors of law and economists. This formulation is an echo of the "three R's" of the New Deal—particularly in the sense that it seeks not root-and-branch revolution in the legal academy, but recovery of past achievements and reform of areas of scholarship now dominated by excessively formalistic, specialized, or narrow methodologies.
[20] This section originally appeared in the Boundary2 Review, as a review of Piketty's *Capital in the 21st Century*, and has been edited to advance the specific argument of this article.
[21] Doug Henwood, *The Top of the World*, Book Forum, Apr. 2014, http://www.bookforum.com/inprint/021_01/12987; Suresh Naidu, *Capital Eats the World*, Jacobin (May 30, 2014), https://www.jacobinmag.com/2014/05/capital-eats-the-world/.
[22] Thomas Piketty, Capital in the Twenty-First Century 25 (Arthur Goldhammer trans., 2014).
[23] Id.

the economic surplus that would be necessary to relieve their fate—unless law intervenes and demands some form of redistribution.[24]

The concentration of capital (any asset that generates income or gains in monetary value) is a natural concomitant of economic growth under capitalism—and tends to intensify if growth slows or stops.[25] Inherited fortunes become more important than those earned via labor, since the "miracle of compound interest" overwhelms any particularly hard-working person or ingenious idea. Once fortunes grow large enough, their owners can simply live off the interest and dividends they generate, without ever drawing on the principle. At the "escape velocity" enjoyed by some foundations and ultra-rich individuals, annual expenses are far less than annual income, precipitating ever-greater principal. This is Warren Buffett's classic "snowball" of wealth—and we should not underestimate its ability to purchase the political favors that help constitute Buffettian "moats" around the businesses favored by Berkshire-Hathaway.[26] Dynasties form and entrench their power. If they can make capital pricy enough, even extraordinary innovations may primarily benefit their financers, rather than their inventors.

Deepening the Social Science of Political Economy

Just as Rawls's *Theory of Justice* laid a foundation for a generation of theorizing about social justice, Piketty's work is so generative that one could envision whole social scientific fields revitalized by it.[27] Political economy is the most promising, a long tradition of (as Piketty puts it) studying the "ideal role of the state in the economic and social organization of a country."[28] Integrating the long-divided fields of politics and economics, a renewal of modern political economy could unravel "wicked problems" neither states nor markets alone can address.[29]

But the emphasis in Piketty's definition of political economy on "a country," versus countries, or the world, is in tension with the global solutions he recommends for the regulation of capital. The dream of neoliberal globalization was to unite the world via markets.[30] Anti-globalization activists have often advanced a rival vision of local self-determination, predicated

[24] As Piketty observes, war and revolution can also serve this redistributive function. Piketty, *supra* n. 3, at 20. Since I (and the vast majority of attorneys) do not consider violence a legitimate tool of social change, I do not include these options in my discussion of Piketty's book.
[25] *Id.* at 46, 571 ("In this book, capital is defined as the sum total of nonhuman assets that can be owned and exchanged on some market. Capital includes all forms of real property (including residential real estate) as well as financial and professional capital (plants, infrastructure, machinery, patents, and so on) used by firms and government agencies.").
[26] Alice Schroeder, The Snowball: Warren Buffett and the Business of Life (Bantam-Dell, 2008); Adam Levine-Weinberg, *Warren Buffett Loves a Good Moat*, at http://www.fool.com/investing/general/2014/06/30/warren-buffett-loves-a-good-moat.aspx.
[27] John Rawls, A Theory of Justice (1971).
[28] Piketty, *supra note 4,* at 540.
[29] Atul Gawande, *Something Wicked This Way Comes*, New Yorker (June 28, 2012), http://www.newyorker.com/news/daily-comment/something-wicked-this-way-comes.
[30] Philip Mirowski, Never Let a Serious Crisis Go to Waste: How Neoliberalism Survived the Financial Meltdown (2013).

on overlaps between political and economic boundaries. State-bound political economy could theorize those units. But, as Piketty shows, capital tends to slip the bonds of states, migrating to tax havens.

In the rarefied world of the global superrich, privacy is a purchasable commodity. Certainly there are always risks of discovery, or being taken advantage of by a disreputable tax shelter broker or shady foreign bank. But for many wealthy individuals, tax havenry has been a rite of passage on the way to membership in a shadowy global elite. Piketty's proposed global wealth tax would need international enforcement—for even the Foreign Accounts Tax Compliance Act (FATCA) imposed via America's fading hegemony (and praised by Piketty) has only begun to address the problem of hidden (or runaway) wealth (and income).[31]

It will be very difficult to track down the world's hidden fortunes and tax them properly. Had Piketty consulted more legal sources, he may have acknowledged the problem more adequately in *Capital.*[32] Such an acknowledgment could have led to a more convincing (and comprehensive) examination of the shortcomings of capitalism, rather than an economistic reliance on taxes and transfers. Never using the term "industrial policy" in his book, Piketty hopes that law may make the bounty of extant economic arrangements accessible to all. But we need to begin to ask whether our very process of creating goods and services *itself* impedes better distribution.[33]

When economic outcomes create distributive concerns, policymakers can either substantively intervene to reshape the benefits and burdens of commerce (predistribution or industrial policy), or may, post hoc, use taxes and transfer programs to redistribute income and wealth. For establishment economists, redistribution (happening *after* initial allocations by "the market") is almost always considered more efficient than "distortion" of markets by regulation or public provision.[34]

Legally Bounding Knowledge: Bank Secrecy and Tax Havenry

Tax law has historically been our primary way of arranging such redistribution, and Piketty makes it a focus of the concluding part of his book, called "Regulating Capital." Piketty laments the current state of tax reporting and enforcement. Very wealthy individuals have

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[31] The Foreign Account Tax Compliance Act (FATCA) was passed in 2010 as part of the Hiring Incentives to Restore Employment Act, Pub. L. No. 111-147, 124 Stat. 71 (2010), codified in sections 1471 to 1474 of the Internal Revenue Code, 26 U.S.C. §§ 1471-1474. The law is effective as of 2014. It requires foreign financial institutions (FFIs) to report financial information about accounts held by United States persons, or pay a withholding tax. *Id.*

[32] See, e.g., work by Itai Grinberg, other tax scholars on FATCA.

[33] David Grewal's recent review of Capital also shows how law (in the sense of commands of the sovereign) underwrites the "laws (in the sense of scientific observations of regular behavior) of capitalism" described in Piketty's book. Grewal, Harvard L. Rev., at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2515105.

[34] Christopher William Sanchirico, *Deconstructing the New Efficiency Rationale*, 86 Cornell L. Rev. 1003, 1005 (2001); Tsilly Dagan, *Pay as You Wish*, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2457212.

developed complex webs of shell entities to hide their true wealth and earnings.[35] As one journalist observed, "Behind a New York City deed, there may be a Delaware LLC, which may be managed by a shell company in the British Virgin Islands, which may be owned by a trust in the Isle of Man, which may have a bank account in Liechtenstein managed by the private banker in Geneva. The true owner behind the structure might be known only to the banker. "[36] This is the dark side of globalization: the hidden structures that shield the unscrupulous from accountability.[37]

The most fundamental tool of tax secrecy is separation: between persons and their money, between corporations and the persons who control them, between beneficial and nominal controllers of wealth. When money can pass between countries as easily as digital files, skilled lawyers and accountants can make it impossible for tax authorities to uncover the beneficial owners of assets (and the income streams generated by those assets).[38]

Piketty believes that one key way to address inequality is strict enforcement of laws like the Foreign Accounts Tax Compliance Act (FATCA), which is a United States-led effort to track down the wealth and earnings of United States citizens.[39] But America cannot accomplish much without pervasive global cooperation. Thus the international challenge of inequality haunts *Capital*. As money concentrates in an ever smaller global "superclass" (to use David J. Rothkopf's term), it's easier for it to escape any ruling authority.[40] Today's greatest hoards of wealth are digitized, as easily moved and hidden as digital files.

We have no idea what taxes may be due from trillions of dollars in offshore wealth, or to what purposes it is directed.[41] In less developed countries, dictators and oligarchs smuggle ill-

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[35] Nicholas Shaxson, Treasure Islands: Uncovering the Damage of Offshore Banking and Tax Havens (2012); Jeanna Smialek, *The 1% May be Richer than You Think*, Bloomberg, Aug. 7, 2014, at http://www.bloomberg.com/news/2014-08-06/the-1-may-be-richer-than-you-think-research-shows.html (collecting economics research).

[36] Andrew Rice, *Stash Pad: The New York real-estate market is now the premier destination for wealthy foreigners with rubles, yuan, and dollars to hide*, N.Y. Mag., June 29, 2014, at http://nymag.com/news/features/foreigners-hiding-money-new-york-real-estate-2014-6/#.

[37] Ronen Palan, Richard Murphy, and Christian Chavagneux, Tax Havens: How Globalization Really Works 272 (2009) ("[m]ore than simple conduits for tax avoidance and evasion, tax havens actually belong to the broad world of finance, to the business of managing the monetary resources of individuals, organizations, and countries. They have become among the most powerful instruments of globalization, one of the principal causes of global financial instability, and one of the large political issues of our times.").

[38] For a fuller account of law's role in promoting agnotology, see FRANK PASQUALE, THE BLACK BOX SOCIETY (2015).

[39] 26 U.S.C. § 1471-1474 (2012); Itai Grinberg, *Beyond FATCA: An Evolutionary Moment for the International Tax System* (Georgetown Law Faculty, Working Paper No. 160, 2012), *available at* *http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=1162&context=fwps_papers*.

[40] David Rothkopf, Superclass: The Global Power Elite and the World They Are Making (2009).

[41] James S. Henry, Tax Just. Network, The Price Of Offshore Revisited: New Estimates For "Missing" Global Private Wealth, Income, Inequality, And Lost Taxes 3 (2012), available at http://www.taxjustice.net/cms/upload/pdf/Price_of_Offshore_Revisited_120722.pdf; Scott Highman et al., *Piercing the Secrecy of Offshore Tax Havens*, Wash. Post (Apr. 6, 2013),

gotten gains abroad. Groups like Global Financial Integrity and the Tax Justice Network estimate that illicit financial flows out of poor countries (and into richer ones, often via tax havens) are *ten times greater* than the total sum of all development aid—nearly $1 trillion per year. Given that the total elimination of extreme global poverty could cost about $175 billion per year for twenty years, this is not a trivial loss of funds—completely apart from what the developing world loses in the way of investment when its wealthiest residents opt to stash cash in secrecy jurisdictions.[42]

An adviser to the Tax Justice Network once said that assessing money kept offshore is an "exercise in night vision," like trying to measure "the economic equivalent of an astrophysical black hole."[43] Shell corporations can hide connections between persons and their money, between corporations and the persons who control them, between beneficial and nominal owners. Law enforcement could try to connect all these dots, but there is always another secrecy jurisdiction willing to take in the assets of the conniving. Thus when Piketty recommends that "the only way to obtain tangible results is to impose automatic sanctions not only on banks but also on countries that refuse to require their financial institutions" to report on wealth and income to proper taxing authorities, one has to wonder: what super-institution will impose the penalties? Is this to be an ancillary function of the WTO?[44] Similarly, equating the imposition of a tax on capital with "the stroke of a pen" (568) underestimates the complexity of implementing such a tax, and the predictable forms of resistance that the wealth defense industry will engage in.[45] All manner of societal and cultural, public and private, institutions will need to *entrench* such a tax if it is to be a stable corrective to the juggernaut of $r > g$.[46]

Given how much else the book accomplishes, this demand may strike some as a cavil—something better accomplished by Piketty's next work, or by an altogether different set of allied social scientists. But if *Capital* itself is supposed to model (rather than merely call for) a new discipline of political economy, it needs to provide more detail about the path from here to its prescriptions. Philosophers like Thomas Pogge and Leif Wenar, and lawyers like Terry Fisher and Talha Syed, have been quite creative in thinking through the actual institutional

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http://www.washingtonpost.com/investigations/piercing-the-secrecy-of-offshore-tax-havens/2013/04/06/1551806c-7d50-11e2-a044-676856536b40_story.html.

[42] Dev Kar & Devon Cartwright-Smith, Center for Int'l Pol'y, Illicit Financial Flows from Developing Countries: 2002-2006 (2012); Jeffrey Sachs, The End of Poverty: Economic Possibilities for Our Time (2006); Ben Harack, *How Much Would it Cost to End Extreme Poverty in the World?*, Vision Earth, (Aug. 26, 2011), http://www.visionofearth.org/economics/ending-poverty/how-much-would-it-cost-to-end-extreme-poverty-in-the-world/.

[43] Henry, *supra* note 68.

[44] Piketty, *supra note 4*, at 523.

[45] Jeffrey Winters coined the term "wealth defense industry" in his book, *Oligarchy. See* Frank Pasquale, *Understanding Wealth Defense: Direct Action from the 0.1%*, at http://www.concurringopinions.com/archives/2011/11/understanding-wealth-defense-direct-action-from-the-0-1.html.

[46] For a similar argument, focusing on the historical specificity of the US parallel to the *trente glorieuses*, see Thomas Jessen Adams, *The Theater of Inequality*, http://nonsite.org/feature/the-theater-of-inequality.

arrangements that could lead to better distribution of health care, health research, and revenues from natural resources.[47] They are not cited in *Capital*¸but their work could have enriched its institutional analysis greatly.

A book is often influenced by its author's imagined critics. Piketty, decorous in his prose style and public appearances, strains to fit his explosive results into the narrow range of analytical tools and policy proposals that august economists won't deem "off the wall."[48] Rather than deeply considering the legal and institutional challenges to global tax coordination, Piketty focuses on explaining in great detail the strengths and limitations of the data he and a team of researchers have been collecting for over a decade. But a renewed social science of political economy depends on economists' ability to expand their imagined audience of critics, to those employing qualitative methodologies, to attorneys and policy experts working inside and outside the academy, and to activists and journalists with direct knowledge of the phenomena addressed.

The undertaxation of America's wealthy has helped them capture key political processes, and in turn demand even less taxation. The dynamic of circularity teaches us that there is no stable, static equilibrium to be achieved between regulators and regulated. The government is either pushing industry to realize some public values in its activities (say, by investing in sustainable growth), or industry is pushing its regulators to promote its own interests.[49] Piketty may worry that, if he too easily accepts this core tenet of politico-economic interdependence, he'll be dismissed as a statist socialist. But until political economists do so, their work cannot do justice to the voices of those prematurely dead as a result of the relentless pursuit of profit—ranging from the Lonmin miners, to those crushed at Rana Plaza, to the spike of suicides provoked by European austerity and Indian microcredit gone wrong, to the thousands of Americans who will die early because they are stuck in states that refuse to expand Medicaid.[50]

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[47] Thomas Pogge, *The Health Impact Fund: Boosting Pharmaceutical Innovation Without Obstructing Free Access*, 18 Cambridge Q. Healthcare Ethics 78 (2008) (proposing global R&D fund);William Fisher III, Promise to Keep: Technology, Law, and the Future of Entertainment (2007); William W. Fisher & Talha Syed, *Global Justice in Healthcare: Developing Drugs for the Developing World*, 40 U.C. Davis L. Rev. 581 (2006).

[48] Jack M. Balkin, *From Off the Wall to On the Wall: How the Mandate Challenge Went Mainstream*, Atlantic (June 4, 2012, 2:55 PM), http://www.theatlantic.com/national/archive/2012/06/from-off-the-wall-to-on-the-wall-how-the-mandate-challenge-went-mainstream/258040/ (Jack Balkin has described how certain arguments go from being 'off the wall' to respectable in constitutional thought; economists have yet to take up that deflationary nomenclature for the evolution of ideas in their own field's intellectual history. That helps explain the rising power of economists vis a vis lawyers, since the latter field's honesty about the vagaries of its development diminishes its authority as a 'science.'). For more on the political consequences of the philosophy of social science, *see* Jamie Cohen-Cole, The Open Mind: Cold War Politics and the Sciences of Human Nature (2014), *and* Joel Isaac, Working Knowledge: Making the Human Sciences from Parsons to Kuhn (2012).

[49] James K. Galbraith, The Predator State: How Conservatives Abandoned the Free Market and Why Liberals Should, Too (2009).

[50] Alex Duval Smith, *South Africa Lonmin Mine Massacre Puts Nationalism Back on Agenda*, Guardian (Aug. 29, 2012), http://www.theguardian.com/global-development/poverty-matters/2012/aug/29/south-africa-lonmin-mine-massacre-nationalisation; Charlie Campbell, *Dying for Some New Clothes: Bangladesh's Rana Plaza Tragedy*, Time (Apr. 26, 2013), http://world.time.com/2013/04/26/dying-for-some-new-clothes-the-tragedy-of-rana-plaza/; David Stuckler, The Body Economic: Why Austerity Kills xiv (2013); Soutik Biswas, *India's Micro-Finance Suicide Epidemic*, BBC (Dec. 16, 2010), http://www.bbc.com/news/world-south-asia-11997571; Michael P. O'Donnell,

Contemporary political economy can only mature if capitalism's ghosts constrain our theory and practice as pervasively as communism's specter does.

Piketty has been compared to Alexis de Tocqueville: a French outsider capable of discerning truths about the United States that its own sages were too close to observe. The function social equality played in Tocqueville's analysis, is taken up by economic inequality in Piketty's: a set of self-reinforcing trends fundamentally reshaping the social order.[51] I've written tens of thousands of words on this inequality, but the verbal itself may be outmatched in the face of the numbers and force behind these trends.[52] As film director Alex Rivera puts it, in an interview with *The New Inquiry*:

> I don't think we even have the vocabulary to talk about what we lose as contemporary virtualized capitalism produces these new disembodied labor relations. . . . The broad, hegemonic clarity is the knowledge that a capitalist enterprise has the right to seek out the cheapest wage and the right to configure itself globally to find it. . . . The next stage in this process. . .is for capital to configure itself to enable every single job to be put on the global market through the network and its increasingly sophisticated physical outputs.[53]

Amazon's "Mechanical Turk" has begun that process, supplying "turkers" to perform tasks at a penny each.[54] Uber, Lyft, TaskRabbit, and various "gig economy" imitators assure that micro-labor is on the rise, leaving micro-wages in its wake.[55] Workers are shifting from paid vacation to stay-cation to "nano-cation" to "paid time off" to hoarding hours to cover the dry spells when work disappears.[56] These developments are all predictable consequences of a globalization premised on maximizing finance rents, top manager compensation, and returns to shareholders.

Further Erosion of Our Moral Compass: Failure to Expand Medicaid to Low-Income People in All States, 28 Am. J. Health Promotion iv (2013); Sam Dickman et al., *Opting Out of Medicaid Expansion; The Health and Financial Impacts*, Health Affairs Blog (Jan. 30, 2014), http://healthaffairs.org/blog/2014/01/30/opting-out-of-medicaid-expansion-the-health-and-financial-impacts/.

[51] It would be instructive to compare political theorists' varying models of Tocqueville's predictive efforts, with Piketty's sweeping $r > g$. See, e.g., Roger Boesche, Why Could Tocqueville Predict So Well?, 11 Political Theory 79 (1983) ("Democracy in America endeavors to demonstrate how language, literature, the relations of masters and servants, the status of women, the family, property, politics, and so forth, must change and align themselves in a new, symbiotic configuration as a result of the historical thrust toward equality"); Jon Elster, Alexis de Tocqueville: the First Social Scientist (2012).

[52] See, e.g., Frank Pasquale, *Access to Medicine in an Era of Fractal Inequality*, 19 Annals of Health Law 269 (2010); Frank Pasquale, *The Cost of Conscience: Quantifying our Charitable Burden in an Era of Globalization*, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=584741 (2004); Frank Pasquale, *Diagnosing Finance's Failures: From Economic Idealism to Lawyerly Realism*, 6 India L. J. 2 (2012).

[53] Malcolm Harris interview of Alex Rivera, *Border Control*, New Inquiry (July 2, 2012), http://thenewinquiry.com/features/border-control/.

[54] Trebor Scholz, Digital Labor (Palgrave, forthcoming, 2015); Frank Pasquale, *Banana Republic.com*, Jotwell (Jan. 14, 2011),http://cyber.jotwell.com/banana-republic-com/.

[55] *The Rise of Micro-Labor*, On Point with Tom Ashbrook (NPR Apr. 3, 2012, 10:00 AM), http://onpoint.wbur.org/2012/04/03/micro-labor-websites.

[56] *Vacation Time*, On Point with Tom Ashbrook (NPR June 22, 2012, 10:00 AM), http://onpoint.wbur.org/2012/06/22/vacation-time.

Inequality is becoming more outrageous than even caricaturists would dare. The richest woman in the world (Gina Rinehart) has advised fellow Australians to temper their wage demands, given that they are competing against Africans willing to work for two dollars day.[57] Or consider the construct of Dogland, from Korzeniewicz and Moran's 2009 book, *Unveiling Inequality*:

> The magnitude of *global* disparities can be illustrated by considering the life of dogs in the United States. According to a recent estimate . . . in 2007-2008 the average yearly expenses associated with owning a dog were $1425 . . . For sake of argument, let us pretend that these dogs in the US constitute their own nation, Dogland, with their average maintenance costs representing the average income of this nation of dogs.
>
> By such a standard, their income would place Dogland squarely as a middle-income nation, above countries such as Paraguay and Egypt. In fact, the income of Dogland would place its canine inhabitants above more than 40% of the world population. . . . And if we were to focus exclusively on health care expenditures, the gap becomes monumental: the average yearly expenditures in Dogland would be higher than health care expenditures in countries that account for over 80% of the world population.[58]

Given disparities like this, wages cannot possibly reflect desert: who can really argue that a basset hound, however adorable, has "earned" more than a Bangladeshi laborer? Cambridge economist Ha Joon Chang asks us to compare the job and the pay of transport workers in Stockholm and Calcutta. "Skill" has little to do with it. The former, drivers on clean and well-kept roads, may easily be paid fifty times more than the latter, who may well be engaged in backbreaking, and very skilled, labor to negotiate passengers among teeming pedestrians, motorbikes, trucks, and cars.[59]

Once the importance of "skill biased technological change" is properly discounted, the classic economic rationale for such differentials focuses on the incentives necessary to induce labor. In Sweden, for example, government assures that a person is unlikely to starve, no matter how many hours a week he or she works. By contrast, in India, 42% of the children under five years old are malnourished. [60] So while it takes $15 or $20 an hour just to get the Swedish worker to show up, the typical Indian can be motivated to labor for much less. But of course, at this point the market rationale for the wage differential breaks down entirely, because the background set of social expectations of earnings absent work is epiphenomenal of state-guaranteed patterns of social insurance. The critical questions are: how did the Swedes generate adequate goods and services for their population, *and* the social commitment to redistribution

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[57] Peter Ryan, *Aussies Must Compete with $2 a Day Workers: Rinehart*, ABC News (Sept. 25, 2012, 2:56 PM), http://www.abc.net.au/news/2012-09-05/rinehart-says-aussie-workers-overpaid-unproductive/4243866.
[58] Roberto Patricio Korzeniewicz & Timothy Patrick Moran, Unveiling Inequality, at xv (2012).
[59] Ha Joon Chang, 23 Things They Don't Tell You About Capitalism 98 (2012).
[60] Jason Burke, *Over 40% of Indian Children Are Malnourished, Report Finds*, Guardian (Jan. 10, 2012), http://www.theguardian.com/world/2012/jan/10/child-malnutrition-india-national-shame.

necessary in order to assure that unemployment is not a death sentence? And how can such social arrangements create basic entitlements to food, housing, health care, and education, around the world?

Piketty's proposals for regulating capital would be more compelling if they attempted to answer questions like those, rather than focusing on the dry, technocratic aim of tax-driven redistribution. Moreover, even within the realm of tax law and policy, Piketty will need to grapple with several enforcement challenges if a global wealth tax is to succeed. But to its great credit, *Capital* adopts a methodology capacious enough to welcome the contributions of legal academics and a broad range of social scientists to the study (and remediation) of inequality.[61] It is now up to us to accept the invitation, realizing that if we refuse, accelerating inequality will undermine the relevance—and perhaps even the very existence--of independent legal authority.

III. Why Legal Scholarship Needs More Politico-Economic Perspectives: The Case of High-Frequency Trading

Intellectual historians, theorists of the social studies of science, and philosophers of science have traced patterns of intellectual exchange and bricolage among (and within) the natural and social sciences.[62] They also recognize the permeability of the boundary between "science" and culture, explanation and description, facts and values. As Piketty observes:

> I dislike the expression "economic science," which strikes me as terribly arrogant because it suggests that economics has attained a higher scientific status than the other social sciences. I much prefer the expression "political economy," which may seem old-fashioned but to my mind conveys the only thing that sets economics apart from the other social sciences: its political, normative, and moral purpose…The question it asked was: What public policies and institutions bring us closer to an ideal society?[63]

That last sentence—about a social science that asks "What public policies and institutions bring us closer to an ideal society?"—should be familiar to every legal scholar. The vast majority of our articles are designed to have a "normative bite," even if the standard apparatus of literature review, footnotes, and anticipation of objections leaves many proposals closer to nibbles.

So are the authors of these law review articles like Moliere's Monsieur Jourdain, speaking political economy all their careers without even knowing it?[64] Unfortunately, it does not yet make sense to classify broad swathes of legal scholarship as contributing directly to the

[61] Paul Farmer observes that "an understanding of poverty must be linked to efforts to end it." Farmer, *In the Company of the Poor,* at http://www.pih.org/blog/in-the-company-of-the-poor. The same could be said of extreme inequality.
[62] Kellert, Borrowed Knowledge; Balkin, Cultural Software; Mirowski, ed., Nature Read in Tooth and Claw (collection).
[63] 574.
[64] Who made the discovery that he had "been speaking prose all my life, and didn't even know it!"

discipline of political economy.[65] The hallmark of the political economic approach is a persistent awareness of the *mutual constitution* of states and markets, institutions and individuals, via *historical* processes. This is still the exception, not the norm, among legal scholars.

"So what?", some might ask. Why not permit law professors to develop a scholarly identity as master technicians, perfecting the types of reasoning and analysis that practicing lawyers engage in every day? If law schools were simply trade schools, divorced from universities, that may well be a sensible evolution for the profession. But the role of law professors among the community of scholars has always been more complex.[66] Moreover, there is more to significant legal practice than technique.[67]

An obsession with technique, at the expense of serious consideration of ultimate ends and political judgment, also threatens to accelerate the self-marginalization of some legal academics. For example, ever more elaborate disclosure schemes for campaign finances are not likely to be effective if, as is happening now, complex corporate structures make it nearly impossible for voters to truly understand the *ultimate* funders of candidates. Nor is a small reminder of that anonymity likely to do much to deter voters from being affected by an ad.[68] Moreover, mere disclosure means little in a context where (as in the recent New York Democratic primary for governor between Andrew Cuomo and Zephyr Teachout) one candidate can outspend the other 40 : 1.

Whole swathes of corporate law tend to tinker around the edge of governance and compensation schemes without acknowledging how skewed the allocation of productivity gains have become (away from labor, and toward capital and top managers). In hundreds of articles, the maximization of "shareholder value" is the presumed goal of corporate law. But we now live in an era when capital is extraordinarily concentrated. The primary end of financial markets should not be trying to guarantee that the 96% of financial wealth held by the top quintile generates maximum returns for those owners. Scholars analyzing (and proposing reforms) of such markets must offer some plan for assuring positive outcomes for the other 80% of the population. Otherwise, we should expect an ever-growing divergence between the main owners of capital and those whose primary income derives from labor.

A Case Study in Finance Law: High Frequency Trading

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[65] Ironically, the legal scholarship now most likely to be identified *as* political economy suffers from the same defects that Pikettian political economy is aimed at curing in economics: a narrowness of scope and cynicism about the role of the state in the economy. Compare, for instance, legal scholars' Political Economy Research Center (PERC), and the Political Economy Research Institute (PERI) of the University of Massachusetts at Amherst.

[66] Michael Madison, *Visions of the Future of (Legal) Education*, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2412238 (noting the persistence of faculties of law over hundreds of years in Europe).

[67] Michael Madison, *The Lawyer as Legal Scholar*, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=511367.

[68] This proposal was recently discussed on the program *On the Media*, advanced by one of the leading election law scholars of our time.

With the publication of Michael Lewis's book *Flash Boys*, the computerization of finance has finally entered the limelight.[69] Lewis's bombshell book accused high technology traders (and complicit exchanges) of rigging the stock market.[70] Though concerns about misuse of technology had been growing for years, mass media attention spurred a flurry of regulatory activity.[71] Cases against leading firms and "dark pools" are now pending, and Congress has investigated trading practices.[72] Regulators are aiming to separate the wheat from the chaff, permitting legitimate forms of high-frequency trading, while punishing or effectively prohibiting more destructive forms.[73]

Unfortunately, mainstream policy discussion about high-frequency trading is unlikely to improve capital markets significantly. Legal commentary on high-frequency trading suffers from a fundamental misconception about the nature of the relationship between law and finance.[74] Whereas most legal commentators assume that the technology of finance is independent of legal rules, such rules are in fact a prime driver of technological developments in finance. The literature on high-frequency trading also tends to assume without proving that the primary goal of the financial system is to promote liquidity – that is, to assure that equities can be bought and sold in the fastest, most expeditious manner possible. This, too, is a problematic assumption, because sometimes a financial system can do far more to facilitate real productivity and economic stability when it puts some friction into exchange and encourages long-term investment. There is no necessary relationship between the overall wisdom of capital allocation in a society and its enabling ever decreasing time commitments to investment.[75]

Policymakers' failure to recognize that finance is endogenous to law, and that liquidity is only one of many values in a financial system, has distorted legal scholarship on high-frequency

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[69] MICHAEL LEWIS, FLASH BOYS: A WALL STREET REVOLT (2014). Lewis made more accessible an argument pioneered by Scott Patterson, Sal Arnuk, and Joseph Saluzzi. SCOTT PATTERSON, DARK POOLS: HIGH SPEED TRADERS, AI BANDITS, AND THE THREAT TO THE GLOBAL FINANCIAL SYSTEM (2012) (discussing quants who pioneered early algorithmic trading, and came to see its later development as predatory); SAL ARNUK AND JOSEPH SALUZZI, BROKEN MARKETS: HOW HIGH-FREQUENCY TRADING AND PREDATORY PRACTICES ON WALL STREET ARE DESTROYING INVESTOR CONFIDENCE AND YOUR PORTFOLIO (2012).

[70] LEWIS, *supra* note 1, at 265-66. High-frequency trading is the use of computer algorithms to rapidly place, modify, or cancel orders, often in just fractions of second. IRENE ALDRIDGE, HIGH-FREQUENCY TRADING: A PRACTICAL GUIDE TO ALGORITHMIC STRATEGIES AND TRADING SYSTEMS 13 (2013) (discussing definition used by the Commodity Futures Trading Commission).

[71] *See* John McCrank, *Exclusive: SEC targets 10 Firms in High-frequency Trading Probe – SEC Document,"* REUTERS (July 17, 2014, 5:19 PM) http://www.reuters.com/article/2014/07/17/us-sec-investigation-highfrequencytradin-idUSKBN0FM2TW20140717.

[72] *Conflicts of Interest, Investor Loss of Confidence, and High Speed Trading in U.S. Stock Markets Before the S. Permanent Subcomm. on Investigations*, 113th Cong. (2014) (testimony of Bradley Katsuyama, President and CEO of IEX Group).

[73] Concept Release on Equity Market Structure, Exchange Act Release No. 34.613.58, 75. Fed. Reg. 3594, 3606 (Jan. 21, 2010).

[74] In a nutshell, the regulators are letting the worst aspects of the technology shape their approach, rather than trying to limit them. Marc Lenglet, *Conflicting Codes and Codings: How Algorithmic Trading is Reshaping Financial Regulation*, 28 THEORY CULTURE & SOC'Y 44, 47-8 (2011).

[75] MARY MELLOR, THE FUTURE OF MONEY: FROM FINANCIAL CRISIS TO PUBLIC RESOURCE 5 (2010); ADAIR TURNER ET AL., THE FUTURE OF FINANCE: THE LSE REPORT 14 (2010).

trading. Leading scholars' primary concern is whether regulators can keep up with the technology of the high-frequency traders.[76] *They should be examining how regulation itself incentivized the development of millisecond-level trading technology, and could in the future reduce (or even eliminate) its appeal*. Moreover, the finance law scholarship program of fine-tuning the practices of extant public exchanges (and dark pools) misses a critical problem with equity trading: its short termism.[77] Management teams and boards at publicly traded companies will become less likely to make important, long-term investments when stock prices are increasingly driven by short run trading dynamics.

Fortunately, an emerging approach to financial affairs, known as the *Legal Theory of Finance* (LTF), offers illumination here, and should guide future policy interventions.[78] Led by Columbia Law Professor Katharina Pistor, an interdisciplinary research team of social scientists and attorneys have documented the ways in which law is *constitutive* of financial markets. Revitalizing the tradition of legal realism, Pistor has demonstrated the critical role of law in generating modern finance. Though law to some extent shapes all markets, in finance it is fundamental—the "products" traded are very little more than legal recognitions of obligations to buy or sell, own or owe. [79]

The legal theory of finance changes the debate, which can now move beyond stale dichotomies like "law vs. technology," or "state vs. market." As Pistor shows, "financial markets are rule-bound systems" and "finance is essentially hybrid between state and markets, public and private."[80] The legal theory of finance also enables a more substantive dialogue about the purpose of finance, beyond merely increasing the speed, efficiency, and accuracy of trading. Once we acknowledge that public resources are the critical foundation of modern finance, we can begin to re-instill it with *public purpose*. Here, another branch of thought about finance—mainly arising out of the work of British economists like Mary Mellor, Geoff Mulgan, Ann Pettifor, and Mariana Mazzucato—should inform American debate.[81] Their *substantive* approach to finance, focused on the most productive deployment of capital, is a necessary corrective to decades of *procedural* focus in US law.

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[76] Tom C.W. Lin, *The New Investor*, 60 U.C.L.A. L. REV. 678, 717 (2013) ("Law constantly plays tortoise to finance's hare."); Tara Bhupathi, *Technology's Latest Market Manipulator? High-frequency Trading: The Strategies, Tools, Risks, and Responses*, 11 N.C. J.L. & TECH. 377 (2010); Charles R. Korsmo, *High-frequency Trading: A Regulatory Strategy*, 48 U. RICH. L. REV. 523 (2014) ("With novel technology…the harms involved and the best methods for avoiding them are unlikely to be fully understood with any great confidence. Without significant experience, it may not be possible to develop efficient and effective ex ante regulations.").

[77] Lynne L. Dallas, *Short-Termism, the Financial Crisis, and Corporate Governance*, 37 IOWA J. CORP. L. 265 (2012).

[78] Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMP. ECON. 315, 317 (2013).

[79] ROSCOE POUND, JURISPRUDENCE 163-64 (1959) ("In a commercial age wealth is largely made up of promises.").

[80] Katharina Pistor, *Law in Finance*, 41 J. COMP. ECON. 311, 312 (discussing the four key components of the legal theory of finance).

[81] MARY MELLOR, THE FUTURE OF MONEY: FROM FINANCIAL CRISIS TO PUBLIC RESOURCE (2010); GEOFF MULGAN, THE ART OF PUBLIC STRATEGY: MOBILIZING POWER AND KNOWLEDGE FOR THE COMMON GOOD (2009); ANN PETTIFOR, JUST MONEY: HOW SOCIETY CAN BREAK THE DESPOTIC POWER OF FINANCE (2014); MARIANA MAZZUCATO, THE ENTREPRENEURIAL STATE: DEBUNKING PUBLIC V. PRIVATE SECTOR MYTHS (2014).

Law informed by political economy redefines the problem of high-frequency trading through the twin lenses of the legal theory of finance and substantive guidance of investment. The common mental picture of hapless, outmatched regulators contending with technical expertise beyond their comprehension is misleading. First, it was regulators who changed the rules and sparked the rapid growth of high-frequency trading technologies.[82] Second, regulators' lack of resources is not simply the natural state of affairs—rather, it is one intensively pursued by lobbyists who influence the relevant Congressional committees to cut appropriations, and to prevent agencies like the SEC and CFTC from keeping some share of the billions of dollars they effectively earn by policing markets and imposing fines.[83] The relevant regulators could always go back and undo or alter the rules that make milliseconds matter in trading. Congress could empower regulators to do more to deter misuses of latency (i.e., the delays in transmission between certain orders and their execution). A tax as small as a tenth of a penny per trade could effectively end most high-frequency trading. Rather than taking the current rules and technological capabilities of law enforcement as the given baseline for discussions of high-frequency trading, we should instead view them as the prime *targets* of reform.

Defining High-frequency Trading

Modern equity markets are very complex.[84] Whereas trading was once done by actual human beings, the majority of trading today is done by sophisticated computers running complex algorithms (commonly referred to as algorithmic trading).[85] For example, consider what happens when an investor logs into an account at a brokerage to place an order (all within a second, given automation).[86] The broker will sometimes send the trade to wholesalers.[87] As of 2012, these

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[82] One critical development was the implementation of aspects of Regulation NMS (National Market System). *See, e.g.*, Dissemination of Quotations in NMS Securities, 17 C.F.R. § 242.602 (2005); Access to Quotations, 17 C.F.R. at § 242.610; Disclosure of Order Execution Information, 17 C.F.R. § 242.605 (2005) (on making order execution information available); PATTERSON, *supra* note 69, at 49 (discussing Reg. NMS's effects on trading venues' monitoring of prices).

[83] In other agencies of government, like the Centers for Medicare and Medicaid Services (CMS), law enforcers can keep some of the money they collect in fines, in part in order to invest in better ways of detecting and deterring fraud in the future. Frank A. Pasquale, *Private Certifiers and Deputies in American Health Care*, 92 N.C. L. REV. 1661, 1667 (2014).

[84] This paragraph and the next two rely on the diagram that is part of Matthew Philips and Cynthia Hoffman, *What Really Happens When You Buy Shares*, BUS. WK., January 6, 2013 ("A transaction that used to be straightforward can now take an almost infinite variety of paths.").

[85] Trades are essentially contracts, and can be rendered computable by translation into programs. Harry Surden, *Computable Contracts*, 46 UC DAVIS L. REV. 629, 635 (2012) ("Colloquially, the term "computable" is used when a computer can be given the means to produce a desired result (such as a mathematical computation.")). *See also* Graham Bowley, *Clamping Down on Rapid Trades in Stock Market*, N.Y. TIMES, October 8, 2011, at C1 ("[High-frequency] trading . . . now accounts for two of every three stock market trades in America."); Tor Brunzell, *High-frequency Trading—To Regulate or not to Regulate—that is the Question*, 2 J. BUS. & FIN. AFFAIRS, no. 1, 2013, at ("It is estimated that HFT accounts for two-thirds (perhaps, even three-quarters) of equity trading in the US, and about one-third of the equity trading in Europe."); MacKenzie & Pardo-Guerra, *supra* note **Error! Bookmark not defined.**, at 34 ("Only a very small minority of deals are now consummated by human beings: the heart of trading is tens of thousands of computer servers . . . carrying millions of messages a second.").

[86] Philips & Hoffman, *supra* note 84.

[87] *Id.*

wholesalers could "internalize" about a fifth of trades, matching them with their own internal orders.[88] The rest of the trades are sent out to two types of trading venues: public exchanges and dark pools.[89]

Public exchanges must display prices openly and have other obligations to customers.[90] As of early 2013, seven companies were operating thirteen public exchanges.[91] Dark pools, by contrast, are more numerous and opaque.[92] Handling about 13 percent of orders, they are favored by traders who do not want news of their activities to be disseminated (too quickly) to other traders.[93]

Why does secrecy matter? Consider, for instance, a trader who wanted to buy a sizeable portion of shares at each hour of the day, from 10:00 a.m. to 3:00 p.m. If rival traders learned of that strategy at 10:30 a.m., they might buy shares ahead of the sequential purchases, knowing the later purchases would drive up demand (and thus price). They could then make a quick profit by selling the shares to the sequential purchaser. Instead of seeing shares rise *after* his purchases, he'd see them rise *before*. His action may well be the primary reason for the rise, but the profits for it would go to the people who traded ahead of him. By contrast, imagine if the news of the sequential purchases breaks the next day. At that point, markets may interpret the buys as a sign of the strength of the company offering the shares. In that scenario, the sequential purchaser gets to keep the gains attributable to his own "vote of confidence" in the shares. It's all a matter of timing.

Those in favor of ever higher frequency of trading (and ever more granular measures of the time of the placing of bids and asks) argue that no trader "deserves" to reap the benefits of leading or spurring investment in an equity merely by being first.[94] They shed no tears for the sequential trader effectively scooped by anticipatory algorithms. Yet that same logic should apply a fortiori to their own activity. The question of where any gains from trading go is at bottom one of policy, not pure economic theory. The markets can be structured to neutralize any given party's advantage; the real question is whether proactive structuring by any given market or regulator will substantially diminish *economic productivity*, not liquidity.

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[88] *Id.*
[89] *Id.*
[90] *Id.*
[91] *Id.*
[92] *Id.;* PATTERSON, *supra* note 69, at 342 (2013).
[93] Philips & Hoffman, *supra* note 84; PATTERSON, *supra* note 69, at 202 (traders are "exploiting the 'latency' of the system, a measurement of the time it takes for information to move from place to place").
[94] The "bid" is the highest price a buyer will pay to buy a specified number of shares of stock at a given time. The "ask" is the lowest price at which a seller will sell the stock. SEC. & EXCHANGE COMM'N, *Definitions*, http://www.sec.gov/answers/bid.htm (last visited Aug. 1, 2014).

Computer programs now execute a sizeable portion of daily transactions.[95] The time frame has narrowed, and there are plenty of opportunities to gain a temporarily hidden advantage. The *Wall Street Journal* exposed a simple example involving sneak peeks at important reports. Algorithms parse major news stories the moment they "break" online, instantly dispatching buy or sell orders (when, say, the words "Pfizer" and "lawsuit" or "breakthrough drug" appear in the same paragraph).[96] Reports can easily move markets. By paying for early access to the data, sometimes as little as two seconds, traders beat rivals who assumed they were all on a level playing field.[97]

Of course, buying early access to data streams is in some ways a self-defeating project—as soon as it is exposed, smart traders may stop using the data altogether as a prompt to trading. Or they may up the ante, and try to outwit the early-data buyers at their own game. How might that work? The key is the fragmentation of markets for stocks, and superfast communication technology. Let's say one trader's bots put in a buy order for 5,000 shares of Pfizer at $100 a share after parsing a report with the words "Pfizer" and "breakthrough" in it at 9:54:58 a.m. (58 seconds after 9:54 a.m., and two seconds before the story is made public). That order *itself* may be a kind of news to other traders, once it is transmitted to their terminals. If someone else's bots can process a trade before the early trader can, they can beat him to the punch. And just as the early trader paid for a peek at the news report before other saw it, a flash trader may pay the early trader's exchange to find out *immediately* when the order has been placed.

High-frequency trading (HFT) allows transactions to occur in fractions of a second.[98] In the example above, one trader may manage to grab the shares at 9:54:58:100 a.m. (58 seconds and 100 milliseconds (thousandths of a second) after 9:54 a.m.). There are at least two types of information advantage deployed here. First, high-frequency traders are profiling pending orders on exchanges to try to detect likely price movements milliseconds before they occur. They can do so by paying for "direct data feeds" from public exchanges.[99] Such direct feeds convey

[95] Algorithmic trading refers to the use of computers to place orders on equities markets while using algorithmic codes to decide the specific aspects of the order, such as the timing, price, and quantity, all without any human intervention. Nathan D. Brown, *The Rise of High-frequency Trading: The Role Algorithms, and the Lack of Regulations, Play in Today's Stock Market*, 11 APPALACHIAN J. L. 209 (2012). Algorithmic codes are typically proprietary and secret. *Id.* at 222.

[96] Predictive analytics can use massive data sets to develop pattern recognition of what happened to prices after a given word appeared in key news sources. The same technology is affecting many businesses. *See, e.g.*, Malcolm Gladwell, *The Formula*, NEW YORKER, Oct. 16, 2006, at 139 (Epagogix software can predict the success of screenplays based on content analysis of word usage and structure).

[97] Brody Mullins, Michael Rothfeld, Tom Mcginty & Jenny Strasburg, *Traders Pay for an Early Peek at Key Data*, WALL ST. J., A1 (June 12, 2013); Ronen Perry and Tal Z. Zarsky, *Queues in Law*, 99 IOWA L. REV. 1595, 1629 (2014).

[98] Brown, *supra* note 95, at 209–210; Brunzell, *supra* note 85 (discussing the common arguments proponents of high-frequency trading make supporting its use). There are a range of algorithmic trading strategies; high-frequency trading (HFT) describes one subset of these strategies. David Golumbia, *High-Frequency Trading: Networks of Wealth and the Concentration of Power*, 23(2) SOCIAL SEMIOTICS 18, 36 (2013).

[99] Scott Patterson and Jenny Strasburg, *For Superfast Stock Traders, a Way to Jump Ahead in Line*, WALL ST. J., Sept. 12, 2012, at B1.

information faster to paid subscribers than they do to the Securities Information Processor (SIP), which is the standard report of trading activity (such as posted bids and offers) at an exchange.[100] When a high-frequency trader can obtain information on likely trades before (most of) the rest of the market, he can engage in "latency arbitrage"—that is, to take advantage of a temporary knowledge advantage to anticipate where the market is going (even if the price movement is very slight) and act accordingly.[101]

The strategies of HFT are supercharged by big data. They require the use of past patterns of trading to predict the future. Consider, for instance, how weather forecasting can be almost impossible two weeks out, but almost certain over a time span of minutes or hours, given contemporary models and monitoring of weather patterns.[102] So too can the prediction of momentary market moves in response to, say, an order for 100,000 shares of a stock be near-certain (even if we still have far less sense of where the stock will be in two weeks).

HFT strategy depends entirely on information advantage—knowing something (or algorithmically decoding some signal) before everyone else does.[103] Lately, the limiting factor in fast trading is not computing power, but communication power. Thus firms are paying to construct ultrafast cables between financial centers.[104] Spread Networks spent over $200 million to lay a cable between Chicago and New York-area exchanges, estimating that firms could make $20 billion in a year exploiting price discrepancies (lasting less than a second) between the two cities.[105] Modelers have devised more extreme solutions to the time delay problem. An "optimal

[100] SAL ARNUK AND JOSEPH SALUZZI, BROKEN MARKETS: HOW HIGH-FREQUENCY TRADING AND PREDATORY PRACTICES ON WALL STREET ARE DESTROYING INVESTOR CONFIDENCE AND YOUR PORTFOLIO (2012). The SIP is "the technology responsible for collecting quote and trade data from the exchanges, consolidating the data, and sending out a continuous stream of real-time best bids and offers (quotes) and last sales (trades)." Colin Clark, *Improving Speed and Transparency of Market Data*, NYSE EXCHANGES (Jan. 19, 2011 3:13 PM), https://exchanges.nyx.com/cclark/improving-speed-and-transparency-market-data. Some critics have argued that HFT traders getting faster quotes through direct feeds is illegal. *See Nanex~22-Aug-2013~Amazon's 2.5 Minute Outage at 11:01*, NANEX RESEARCH, http://www.nanex.net/aqck2/4398.html ("[E]xchanges are providing data to High-frequency Traders via direct feeds ahead of the SIP or consolidated feed. This is a clear violation of Reg NMS…In fact, this behavior renders Reg NMS moot.").

[101] Latency arbitrage "involves trading in the sub-second time windows between when market prices move and when market prices update their quoted prices." Matt Prewitt, Note, *High-frequency Trading: Should Regulators Do More?*, 19 MICH. TELECOMM. & TECH. L. REV. 131, 136 (2012).

[102] *Predicting the Weather: Forecasting*, THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH 2 (2013)

[103] HFT often involves "very high order amounts; rapid order cancellation; a flat position at the end of the trading day; extracting very low margins per trade; and trading at ultra-fast speeds." Andrew J. Keller, Note, *Robocops: Regulating High-frequency Trading after the Flash Crash of 2010*, 73 OHIO ST. L.J. 1457, 1459 (2012).

[104] For example, McCabe observes, a "Chicago-New York cable will shave about 3 milliseconds off . . . communication time." Thomas McCabe, *When the Speed of Light Is Too Slow: Trading at the Edge*, KURZWEIL ACCELERATING INTELLIGENCE BLOG (November 11, 2010), http://www.kurzweilai.net/when-the-speed-of-light-is-too-slow.

[105] LEWIS, *supra* note 1, at 15. Economic sociologists have also studied Spread Networks. Donald MacKenzie et al., *Drilling Through the Allegheny Mountains: Liquidity, Materiality and High-Frequency Trading*, 5 J. OF CULTURAL ECON. 279, 285 (2013).

scheme" would "push trading firms to build new computers [at] the exact, optimal points in between markets"—even if that happened to be in the middle of an ocean.[106]

Evaluating High-frequency Trading

Before addressing the legal and economic theory specific to finance, it is helpful to consider the problem of high-frequency trading from another perspective: that of rank ordering in a competition. Consider, for instance, a school that wants to name a valedictorian, and finds that the top two grade point averages are 3.94645 (Bob's) and 3.94646 (Ann's). If the rule established beforehand is "the valedictorian is the person with the highest GPA," Ann is the obvious choice. However, if the school had clarified that GPAs were rounded to the second decimal place, the two tie for co-valedictorian, with GPAs of 3.95. I take no position on whether either is the more desirable outcome (though I am deeply skeptical that a 0.00001 point difference is in any way a reliable indicator of the relative intelligence or work ethic of the two students). I just want to observe that, when it comes to such fine-grained differentiations, *either* rule can be plausibly chosen: to make a 10,000th of a point, or even a billionth of a point, count, or to decide via rounding to limit the number of significant figures in the determination.[107]

A similar logic should guide our treatment of HFT. Though the determination of common, precise standards of time has been a hallmark of scientific and technological advance, its value to systems of buying and selling is always relative to the social purpose of those systems.[108] There is no inherent virtue in being able to measure the time that a trade is placed and submitted in either thousandths, millionths, billionths, or quadrillionths of a second. HFT advocates may say that, without finer demarcations of time, they are stuck deciding what to do with, say, two orders that both come in at 10:00:01 for a set sale of the only 100 shares of stock available that day. Knowing that one came in at 10:00:01:001 and the other at 10:00:01:002 allows the shares to be allocated to the first purchaser. But the rule could just as easily be set to choose, at random, one order to allocate the shares to. Or to divide them evenly. Or to offer each bidder the chance to rebid within one hour. Once the rule is set, traders adapt. All of these methods can be translated into the high technology of contemporary finance.

In short, technology does not necessarily drive markets toward the goal of ever-faster trading. The social practice of buying and selling stocks is fundamentally malleable, and technology makes it ever more malleable.[109] As Travis Breaux has shown, the computation of "terms of use" online makes possible extraordinarily detailed and diverse set of privacy

[106] A. D. Wissner-Gross & C. E. Freer, *Relativistic Statistical Arbitrage*, 82 PHYSICAL REVIEW E 056104-1 (2010).
[107] Perry and Zarsky, *supra* note 97, at 1635.
[108] PETER GALISON, EINSTEIN'S CLOCKS AND POINCARE'S MAPS: EMPIRES OF TIME (2003); DAVA SOBEL, LONGITUDE: THE TRUE STORY OF A LONE GENIUS WHO SOLVED THE GREATEST SCIENTIFIC PROBLEM OF HIS TIME (2007).
[109] *See* ROBERTO MANGABEIRA UNGER, PLASTICITY INTO POWER: COMPARATIVE HISTORICAL STUDIES IN THE INSTITUTIONAL CONDITIONS OF ECONOMIC AND MILITARY SUCCESS 153 (1987) (defining plasticity as "the facility with which work relations among people – in a plant, in a bureau, in an army – can be constantly shifted in order to suit changing circumstances, resources, and intentions.").

preferences to be chosen by consumers and businesses.[110] Moreover, "computational contracts" have a long history in finance and could be applied here.[111] Trading is never merely a market—rather, it is always already a co-creation of markets and states. The only way trading happens is because an intricate set of rules governs and defines nearly all aspects of the consequences of placing an order, cancelling the order, denying or delaying the fulfillment of an order, among myriad other considerations. Without those rules, the "market" would grind to a halt. As the legal theory of finance shows, there is no sophisticated contemporary financial trading system outside the rules established by authorities.[112]

Law is *constitutive* of so-called financial markets, not some mere side constraint on them.[113] The "products" traded are very little more than legal recognitions of obligations to buy or sell, own or owe. Trading patterns rapidly adopt to changing legal rules—as evidenced by the rise of HFT itself. For example, consider proposals to regulate access to co-location, in wake of the HFT arms race to place servers as close as possible to trading hubs. Currently, only those players with the most money can afford to have their servers placed closest to the exchanges' servers. A rule favoring more equal access to co-location might would reduce unfairness resulting from this zero-sum race to fast access. Cognizant of this, the CTFC proposed a rule in June 2010 requiring uniform access to co-location facilities.[114]

If that kind of rulemaking appears too complex or contested, another proposal would also solve many problems arising out of HFT: namely, a very small financial transactions tax.[115] Trivial from the perspective of ordinary traders who make, say, dozens of trades per day, a tax of a penny per trade would be devastating for those who use bots to execute millions. The European Union has already proposed such an intervention.[116] Top economists have also supported it.[117] A financial transactions tax would deter the complex trading schemes behind some black box finance, and the volatility they engender.

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[110] Travis D. Breaux & Ashwini Rao, *Formal Analysis of Privacy Requirements Specifications for Multi-tier Applications* (2013), *available* at http://www.cs.cmu.edu/~./breaux/publications/tdbreaux-re13.pdf.

[111] Harry Surden, *Computational Contracts*, 46 U.C. DAVIS L. REV. 629, 645 (2012).

[112] Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMP. ECON. 315, 317 (2013). Several other articles in the same journal issue discuss the implications of LTF for derivatives, foreign currency exchange, and central banking.

[113] "So-called" because they are not merely markets—they are always already creations of markets and states. The only way trading happens is because an intricate set of rules governs and defines nearly all aspects of debt, equity, derivatives, and currency exchange. Thus the term "exchange" (commonly used in health care after the passage of the Affordable Care Act) might be a more accurate descriptor of the spaces of trading in finance. However, this article will follow the dominant nomenclature of financial "markets"

[114] CFTC-SEC report, *supra* note **Error! Bookmark not defined.**, at 67. The proposed new version of the MiFID would likewise require equitable co-location practices.

[115] Jim Corkery and Kristen Zornada, *High-frequency Trading and a Financial Transactions Tax*, 22 REVENUE LAW JOURNAL 3, 8 (2012).

[116] Press Release, European Comm'n, *Financial Transaction Tax under Enhanced Cooperation: Commission Sets Out the Details* (Feb. 14, 2013), available at http://europa.eu/rapid/press-release_IP-13-115_en.htm.

[117] John Dillon, *An Idea Whose Time Has Come: Adopt a Financial Transactions Tax*, KAIROS Policy Briefing Paper No. 24, Jun. 24, 2010.

For finance traditionalists, stepped up regulatory interventions or taxation are troubling because they are alleged to distort financial markets. Their implicit normative lodestar is the legitimacy of the present in contrast to the presumed illegitimacy of a reshaped process and purpose for trading. Were there societal consensus on the value of present trading practices, they might have a point. However, prominent economists, politicians, and even the public at large have expressed suspicion about the real value of current financial sector activities.

Regulators' present agenda for HFT entails a number of paradoxes. The purely procedural commitment to reduce unfair information advantage suggests a positive aspiration to eliminate latency for information transmission. But such an ideal bumps up against the laws of physics, as well as a largely privatized telecommunications grid.[118] Even light has a speed limit (186 miles per millisecond). There will always be natural distortions, or mere differences in distance, that undermine the ideal of instantaneous communications and universally uniform presentations of bids and offers. The SEC and other regulators have substituted an impossible technical goal (a level playing field for information and order transmission) for more substantive engagement with investment patterns.

What would substantive financial regulation entail? Consider John Cassidy's commonsense explanation of liquidity:

> Liquidity refers to how easy or difficult it is to buy and sell. A share of stock in a company on the Nasdaq is a very liquid asset: using a discount brokerage such as Fidelity, you can sell it in seconds for less than ten dollars. A chocolate factory is an illiquid asset: disposing of it is time-consuming and costly. The classic justification for market-making and other types of trading is that they endow the market with liquidity. . . . But liquidity, or at least the perception of it, has a downside.[119]

Cassidy goes on to explain how liquidity can encourage short-termism and wreaks havoc with the planning of some entities. But some of those plans were, no doubt, unwise, and deserving of a withdrawal of support. Thus a critique of short-termism cannot itself merely be formal, blindly encouraging long term investment. It must, instead, offer some evaluative metrics of projects that *deserve* long term support. Where *should* long-term allocations of capital be directed?

Many economists and social scientists are offering compelling answers. For example, Mariana Mazzucato has underscored the importance of nanotechnology as a general-purpose technology that could dramatically expand the production possibilities frontier for our society.[120] She also documents the critical role green technology could play in disentangling the developed

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[118] Andrew J. Keller, *Robocops: Regulating High-frequency Trading After the Flash Crash of 2010*, 73 OHIO ST. L. J. 1457, 1462 (discussing co-location in general and how traders try and place their servers as close as possible to the exchanges' servers).

[119] Cassidy, *supra* note 61, at 88.

[120] MARIANA MAZZUCATO, THE ENTREPRENEURIAL STATE: DEBUNKING PUBLIC VS. PRIVATE SECTOR MYTHS 196 (2013) (discussing a "systems perspective" for improving productivity).

world from various negative effects of fossil fuels.[121] Even if shale gas and other alternative carbon sources have reduced the urgency of a green energy transition at present, there are still enormous opportunities to increase efficiency (and democratize energy access) in renewables.[122]

Paul Krugman and Joseph Stiglitz have also provided compelling answers, focusing on infrastructure and basic research.[123] Robert Kuttner has creatively developed plans for professionalizing several occupations that are presently under-trained and under-paid.[124] Focused on home health aides and nursing home workers, a project like Kuttner's could flip the baby boom's aging from an economic threat to a boon capable of providing stable, sustainable jobs.[125] We need to hear from far more social scientists like them. Without clear substantive answers to the question concerning finance, all we can reliably expect in the future is that capital will be allocated to whatever instruments lead to the highest fees for self-serving intermediaries.[126]

How did American financial regulators' focus on the sequence of information disclosure lead them into this paradoxical position—of effectively trying to correct for tiny time differences that may arise out of variations in the location of traders and the communications equipment they can afford? Part of the answer lies in an insufficiently politico-economic approach. "Finance experts" who measure policy's effectiveness with referenc to internal metrics of value (like promoting liquidity or the efficiency of transactions) only achieve a patina of rigor by deliberately ignoring rival values (such as long-term commitment to important projects, or the deterrence of unnecessary or manipulative transactions).

Historical understanding of the development of finance regulation also helps us understand the "roads not taken" in today's dominant policy debates. Modern securities law is rooted in the governmental response to the financial crisis of 1929 and its ensuing, devastating effects on the American and global economies. President Franklin Delano Roosevelt faced two distinctive points of view in coming to grips with the crisis. Progressive activists had been calling for more transparency and disclosure in the financial sector since the turn of the 20th century. This was a primarily procedural remedy; the idea was to empower ordinary investors to make better decisions by ensuring that those soliciting investments disclosed sufficient information about their nature and likely risks.[127]

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[121] *Id.*
[122] JEREMY RIFKIN, THE ZERO MARGINAL COST SOCIETY 5 (2013).
[123] PAUL KRUGMAN, END THIS DEPRESSION NOW (2012); JOSEPH STIGLITZ, FREEFALL (2011).
[124] ROBERT KUTTNER, OBAMA'S CHALLENGE: AMERICA'S ECONOMIC CRISIS AND THE POWER OF A TRANSFORMATIVE PRESIDENCY 146 (developing plan to professionalize the "human-service economy").
[125] *Id.*
[126] Fresh thinking in finance recognizes the importance of this substantive turn. *See, e.g.*, ANN PETTIFOR, JUST MONEY: HOW SOCIETY CAN BREAK THE DESPOTIC POWER OF FINANCE 89 (2014) (discussing a "suite of policies for subordinating finance to the real economy"); MARY MELLOR, THE FUTURE OF MONEY: FROM FINANCIAL CRISIS TO PUBLIC RESOURCE 156 (2010) (discussing a "Green New Deal).
[127] MARTIN MAYER, THE BANKERS: THE NEXT GENERATION 34 (1997).

Another group of advisors pushed for a more substantive approach. Alarmed by the waste of capital in the 1920s in slapdash real estate development, they envisioned agencies intended to "direct the flow of new investment in private industry" toward socially useful projects.[128] For these critics, deception was a problem of the crisis, but not the *primary* problem (after all, who would complain about being deceived into an investment that provided reliable, sustainable returns? Rather, they focused on wastes of resources. For example, Rexford Tugwell wanted a commission to influence the allocation of capital.[129] The corporate governance expert Adolf Berle advocated for an agency to "exercise a real control over undue expansion of groups of credit instruments," to reduce volatility and tame financialization.[130]

Unfortunately, the United States chose another path. Government pursued industrial policy, but investment markets were in large part left out of it.[131] By 1934, Roosevelt and Congress had decisively opted for disclosure-based, rather than substantive financial regulation. And for decades, the strategy appeared to be a serviceable one. Investor confidence was high, and an orderly flow of investment into the stock market was rewarded with an orderly, relatively high rate of return. Nevertheless, many critics have warned that the United States has systematically underinvested in infrastructure, health information technology, antibiotics, public transportation, home health care, technical education, and many other sectors and services, particularly in the last few decades.[132] Instead, thanks to many of the dynamics that high-frequency trading is the culmination of, more capital has been going into finance itself.[133]

The concept of finance mostly financing finance may seem paradoxical. But it is ultimately a reflection of the power of Wall Street over other sectors of the economy.[134] While Wall Street firms pride themselves on forcing managers in ordinary industries to cut costs and reduce wages, economist Thomas Philippon has confirmed that finance firms themselves are becoming more expensive.[135]

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[128] Henry T. C. Hu, *Too Complex to Depict? Innovation, 'Pure Information,' and the SEC Disclosure Paradigm*, 90 TEX. L. REV. 1601, 1614 (2012).
[129] BERNARD STERNSHER, REXFORD TUGWELL AND THE NEW DEAL 103 (1964).
[130] JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 40-41 (3d ed. 2003). *See also* ADOLPH A. BERLE, POWER 188 (1969). ("Political officers can choose their objectives and, with some measure of predictability, create and use economic forces to produce desired results.").
[131] VERNON RUTTAN, IS WAR NECESSARY FOR ECONOMIC GROWTH? (2009) (discussing the rise of defense-based industrial policy).
[132] ROBERT BRENNER, THE BOOM AND THE BUBBLE: THE US IN THE WORLD ECONOMY (2003); BRETT FRISCHMANN, INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES x (2012) (noting dismal report card for basic infrastructure ranging from aviation and bridges to levees and public parks to transit and wastewater).
[133] JAN TOPOROWSKI, *THE END OF FINANCE 131 (2002)* ("The process of capital market inflation distorts. . . economic and social priorities by allowing finance to determine its own values.").
[134] Mukunda, *supra* note 30.
[135] Thomas Philippon, *Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation* (2013), *available* at http://pages.stern.nyu.edu/~tphilipp/papers/Finance_Efficiency.pdf.

Stable, sustainable returns for investors are only possible in environment where some critical mass of investors are acting for the long-term, rather than trying to take advantage of moment by moment fluctuations in prices. Moreover, there must be some societal steering of capital towards sectors where it underallocated, and away from places where it is overallocated.[136] And it is this thoughtful steering that high-frequency trading directly undermines.[137]

Moreover, to the extent that high-frequency traders are merely trading on the basis of others' actions, they are parasitic, making money from the market process itself rather than informed investment in the future. What are the costs of diverting more funds (and thus, human effort) to financialization? Macroeconomists J. Bradford Delong and Stephen Cohen calculate that:

> Over the past 15 years, the United States has half-consciously re-shaped its economy. The country shifted some 7 percent of its GDP out of manufacturing and added some 7 percent of GDP in the expansion of finance, insurance, and real estate transactions. . . . The communities of engineering practice and innovative technological development do move and emerge elsewhere as you shift labor from real engineering, which calculates stresses in materials and quantum tunneling in doped semiconductors, into financial engineering, which calculated delta-hedge decay and vega convexity for synthetic securities. It also means that you must create more and more debt so that other nations have the dollars to accumulate and not balance their trade—and yours."[138]

Endlessly trading and revaluing such debt (and equities) will not contribute to real living standards, and in fact has reduced them.[139] As University of Chicago Law Professor Eric A. Posner and economist Glen Weyl recognize in their review of Piketty, "the fundamental problem facing American capitalism is . . . the radical deviations from the just rewards of the marketplace that have crept into our society and increasingly drives talented students out of innovation and

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[136] Hartmut Rosa and William E. Scheuerman, *Introduction,* in HIGH-SPEED SOCIETY: SOCIAL ACCELERATION, POWER, AND MODERNITY 25 (Hartmut Rosa and William E. Scheuerman, eds., 2009) ("Globalizing capitalism's obsession with fast profits and quick turnover times conflicts with the necessities of long-term system reproduction, including its own natural and ecological presuppositions; fast capitalism meshes poorly with the fundamental rhythms of human existence, thereby engendering intense stress and unease in everyday life.").

[137] HARTMUT ROSA, SOCIAL ACCELERATION: A NEW THEORY OF MODERNITY 159 (2013) ("a democratic self-steering and self-binding of society. . . .is dependent on cultural, structural, and institutional presuppositions that seem to be rapidly eroding in late modernity precisely as a consequence of social acceleration.").

[138] STEPHEN S. COHEN & J. BRADFORD DELONG, THE END OF INFLUENCE, 146–147 (2010).

[139] ROBERT KUTTNER, THE SQUANDERING OF AMERICA: HOW THE FAILURE OF OUR POLITICS UNDERMINES OUR PROSPERITY 130-45 (2008) (connecting predatory finance to decline in living standards).

into finance."[140] Only a patient, considered industrial policy can reverse the short-termist, liquidationist ethic now accelerating returns to finance while draining the real economy.

HFT is a perfect match for a finance sector dominated by ever shorter time horizons. Equity markets are becoming ever less concerned with the real economy (for example, questions like, Which company makes the most fuel-efficient cars? or even Which firm makes cars that customers will want to buy?) than with windows of opportunity for sudden arbitrage (for example, How do we buy thousands of shares of Ford milliseconds before a major pension fund buys them and drives up their price, and then sell them milliseconds later?).[141] HFT strategies may conduce to some abstract conception of liquidity, but they do not provide measurable gains to the *productive* functions of the economy.

[Parts IV (on APPEAL) and V (conclusion) are still incomplete. I apologize for this absence, but will be happy to discuss in my presentation. I may ultimately change part III of this draft to discuss other's excellent work in political economy, rather than trying to pursue it myself. For example, I may draw on my reviews of Jennifer Taub's *Other People's Houses*, Orly Lobel's *Talent Wants to be Free*, Gabriella Coleman's *Coding Freedom*, Rakesh Khurana's *From Higher Aims to Hired Hands: The Social Transformation of American Business Schools and the Unfulfilled Promise of Management as a Profession*, and the collection *Access to Knowledge in the Age of Intellectual Property*. My review of Julie Cohen's book, *Configuring the Networked Self* also describes aspects of excellent legal scholarship in political economy.]

140 Posner & Weyl, Thomas Piketty Is Wrong: America Will Never Look Like a Jane Austen Novel," The New Republic, July 31, 2014, at http://www.newrepublic.com/article/118925/pikettys-capital-theory-misunderstands-inherited-wealth-today.

141 DOUG HENWOOD, WALL STREET: HOW IT WORKS AND FOR WHOM 156 (2005); Gautam Mukunda, *The Price of Wall Street's Power*, HARV. BUS. REV., June 2014, at 14.