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The Price of Risk: What the Rise of Finance Can Teach Us About Justice

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The Price of Risk:

What the Rise of Finance Can Teach Us About Justice

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by

Roni Hanna Hirsch

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ABSTRACT OF THE DISSERTATION

The Price of Risk:

What the Rise of Finance Can Teach Us About Justice

by

Roni Hanna Hirsch

Doctor of Philosophy in Political Science

University of California, Los Angeles, 2017

Professor Joshua F. Dienstag, Chair

The dissertation traces the bond between risk and profit from its classical origin to its culmination in contemporary finance. Specifically, it dwells on the interwar period during which securities exchanges were redefined as markets for risk, subject to their own logic of supply and demand. Combining intellectual and institutional history, I show how financial markets emerge in this period as the ultimate means for transferring risks from the risk-averse masses to a handful of risk-takers, significantly skewing the distribution of the rewards of economic production. The pricing of risk, as a technical problem for economists as well as regulators, thus reveals a fundamental political problem that challenges widely held beliefs about the liberal subject, democratic rule, and distributive justice. As I argue in this dissertation, the presence of

uncertainty reverses liberal commitments to equal dignity and opportunity, justifying new social asymmetries in the name of greater security.

Uncertainty is a problem for justice when actions and outcomes are misaligned, and when this misalignment is broadly anticipated by the members of a political community. The dissertation offers an original interpretation of the tradition of political economy as a series of market solutions to this specific problem, which utilize a language of risk and reward. Adam Smith's master of industry, Frank Knight's entrepreneur, and J. R. Hicks' speculator were the new social protagonists introduced to personally carry the uncertainties of capitalist production and exchange. Each presupposes, and profits from, the general need of the many for a regular, guaranteed return for their efforts.

Divided into three parts, the dissertation discusses the meaning and limitations of these market solutions and the obstacles they pose for an effective politics of risk. In the first part, I show how profit displaced private property and the proprietary citizen as the governing ideals of liberal political economies, substituting hierarchy and difference for self-governance and autonomy. The second part focuses on the market as a system of risk reallocation. Much like insurance, financial markets work by way of classification and exclusion. Lacking the means to account for their broader social consequences, they remain suspect as political solutions. In addition, the history of financial regulation reveals that practitioners, lawmakers, and the public all rely on a shared set of market ideals, even as they oppose each other. The result has often been the paradoxical reproduction of theoretical inequalities through law. In conclusion, the third and final part of the dissertation foregrounds an alternative approach to risk developed by sociologists in the 1980s, who discussed the politicization of danger and progress by a new type of social movement. If markets and insurers offer ways to reallocate risks among a given

population, social movements use risk attribution strategically and symbolically in order to transform the language of personal responsibility into one of structural inequality. In particular, the experiences of the environmental justice movement help reframe the problem of uncertainty and justice as one of distribution, rather than allocation, paving the way for a participatory politics of risk.

The dissertation of Roni Hanna Hirsch is approved.

Robert Brenner

Carole Pateman

Theodore M. Porter

Joshua F. Dienstag, Committee Chair

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September 2016	"A 'Turn' to Risk? On the Coupling of Risk and Profit from Smith to Knight." In: *American Political Science Association Annual Meeting*, Philadelphia, PA
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July 2015	"The Migrations of the Risk Premium between Finance and Insurance." In: *Montréal Summer School in the History of Science and Economics*, Université du Québec à Montréal, Canada
June 2015	"The Price of Risk and Its Social Costs." In: *Business History Conference and European Business History Association*, Miami, FL
April 2015	"Decline and Confidence: The Meaning of Risk in the New Economy." In: *Western Political Science Association Annual Meeting,* Las Vegas, NV
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Introduction

The size and scope of the financial system today creates an opportunity, and an obligation, to revise common notions of what capitalism is and what it means for the liberal democratic project. In this dissertation, I argue that the lesson to be learned from the rise of finance is that uncertainty has played a constitutive role in shaping the capitalist system as a hierarchical, sharply inegalitarian one. More precisely, it is the control and elimination of uncertainty that define capitalist markets as much, or even more, than the concentration of capital or "primitive accumulation," so central to Marx' critique. To understand what an effective political intervention into capitalist markets might look like, therefore, one must first recover the lost history of uncertainty as an economic and social problem, for which markets, and specific market actors, were seen as the solution. This history, as I show, follows the bond between risk and profit as it unfolded since the seventeenth century, and culminates in the reconceptualization (along with the expansion) of financial markets as markets for risk in the early twentieth century.

The dissertation's aims are a little more modest. It is organized chronologically, but does not spend equal amounts of time on each of the story's key moments. Rather than a comprehensive historical argument, the dissertation examines in detail the conceptual and institutional emergence of the market for risk in the interwar years, with an eye to its origins in classical political economic thought, and its transformative effect on fundamental liberal assumptions. In particular, the dissertation focuses on the ways the mitigation of uncertainty has repeatedly served to undermine the assumption of basic sameness among people, with broad implications for ideals like equal dignity and the equal right to material goods, especially to the satisfaction of material needs, if not actual equality. When we examine the history of capitalism through the

lens of uncertainty, in other words, we can recover the inherent link between uncertainty and injustice.

The growing attention to risk in recent decades (Beck 1992; Luhmann 2002; Ewald 2002), sparked in large part by the urgency of an impending environmental crisis, has obscured a fundamental historical fact about risk. Before risk represented looming global catastrophe, pathological criminality, or epidemiological threats, risk was a financial construct meant to combat the uncertainty inherent in overseas trade (Daston 1995; Levy 2012). As François Ewald (1991) has shown, risks, as they emerged from the actuarial tradition, did not exist separately from their statistical representation and their monetary form. As both "collective" and "capitalized" in nature, they offer a unique way to contend with loss and the unknown; one that privileges the wide, technically driven distribution of the financial burdens of disaster, as opposed to a juridical logic which assigns personal liabilities. The dissertation begins with the incorporation of this term into a parallel but separate context: markets, conceived in part as a mechanism meant to eliminate uncertainty by redistributing the costs of risk, mediated by the concept of profit. Only at a later stage would markets be reimagined as systems for the reallocation of risk, directly, between persons of opposing desires: fear and greed.

As a market for risk, the financial system is founded on a pervasive, if tacit, new social ontology, dividing humanity into two distinct, opposing categories: the risk-takers and the risk-averse. The role of this market is to balance out these contrary forces: a balance of greed and fear, adventure and security, responsibility and "directed labor." An implicit, often unacknowledged departure from the homogeneous world of utility maximizing individuals, the political economy of risk emphasizes two basic groupings, defined by an asymmetry of

responsibility and coupled with a necessary asymmetry of rewards. It also establishes markets, not political institutions, as the primary site for resolving social conflict.

Addressing the dimension of risk in contemporary political economy, therefore, requires a rethinking of the central tools and critiques offered by political theorists, as they engage questions of democratic citizenship, the limits to markets, and the project of distributive justice. Two main reasons, I propose, can explain the general neglect of risk in normative and critical theory. The first is the dominant place private property, as a competing political economy, has continued to occupy in the political and theoretical imagination. Rooted in early-modern republican ideals of self-governance, autonomy, and equal dignity, property remains a powerful, perhaps overpowering, way of imagining a democratic political life and a regime of universal, inalienable rights. Even as property suffered numerous crises with the advent of full industrialization and "corporate reconstruction" in the late-nineteenth-century, risk has not featured prominently as its possible successor. Rather, a Keynesian inspired "consumer republic" or property-oriented "investor democracy" have emerged as answers to the growing incompatibility of proprietary citizenship with advanced capitalist societies.

Second, the role of the market for risk in the spread of a risk 'governmentality' has been largely overlooked in recent analyses of neoliberalism, despite the fact that the latter is primarily devoted to tracing the expansion of market logic into new fields (Foucault 2008; Brown 2015). Neoliberalism, as the name of a historical phenomenon rooted in the successful merging of scientific knowledge and actual political influence to liberalize markets, not only coincides with the rise of finance, but follows a similar model whereby society is restructured through market mechanisms. This, at least, has been the main claim of a growing literature concerned with the ways these market mechanisms have reshaped democracy and the liberal subject. And yet, this

literature too has so far ignored the lessons to be learned from the process by which risk was commodified and the specific definition of markets that allowed its commodification: namely the marginalist abstraction of markets as perfectly efficient. Indeed, the neglect of risk could be attributed as much to a misunderstanding of modern notions of markets as it is to the relatively marginal place of finance in these accounts. Moreover, by lumping the story of financial risk together with numerous other forms of risk governmentality and economic infrastructure neoliberalism remains too broad of a category, which does little to distinguish the different types of subjects formed by distinct processes of commodification.

The two primary sites today, for thinking historically, critically, and normatively about the intersection of politics and economics—private property and neoliberalism—have each in their way obscured the key role of uncertainty in shaping market society, and especially its more recent, financialized brand. This dissertation project, therefore, does three main things. First, it identifies the theoretical and institutional developments that went into the transformation of risk from the actuary's construct to a market-traded commodity. Second, it builds on this history to expose the competing versions of the political economy of risk, the persons and conflicts it gives rise to, and the fundamental assumptions lie behind its institutional designs. It does these things with an eye to a third, overarching task—understanding the politics of risk.

If the economics of risk can be made more transparent by examining its intellectual and institutional history, the politics of risk remain a puzzle and question even at the conclusion of this project. What should a politics of risk look like? While it cannot give definitive answers, the dissertation can nonetheless trace the terrain in which answers can be found. In this investigation, I propose that the subject of risk offers more fertile ways of thinking about the problems of citizenship and inequality than the unattainable subject of private property or the broadly defined

subject of neoliberalism. The argument, therefore, is both historical and normative. It suggests that the conditions for a democratic polity founded on private property are no longer widely available, while calling on theorists to think critically about the implications of the market for risk on our most foundational beliefs about human beings. Namely, I argue that the market solution to risk necessitates a sharp, at times conspicuous division of the rewards of progress and prosperity. It is by accepting the unimpeded market balance of risk-takers and the risk-averse that liberal democracies regularly sanction social division. The answer, therefore, cannot simply come from the regulation of these markets, which can, at best, force markets to make good on this so far unmet promise. The challenge of the politics of risk is to radically alter the very assumption of difference implied by the idea of risk.

The Subject of Risk

To say that risk organizes the political economy is to say that by shaping economic actors and institutions, including legal arrangements, risk goes on to determine the ways we understand social conflict, political agency, and the ethical obligations espoused by a political community in which a substantial financial system exists. The political economy of risk thus gives rise to a unique subject of risk, who makes sense of the (political economic) world through this framework, and in-so-doing is also shaped and managed by it, along the lines of Foucault's idea of a disciplinary discourse. The most prominent example of an economic-legal construct doing something similar is private property, and a comparison between the two can both indicate some of the key features of a political economy of risk, and the dangers of continuing to treat present day liberal societies exclusively through the framework of private property.

I would, however, like to make an even stronger claim about the connection between risk and property. Comparing the two, I argue, is not just conceptually sensible but historically mandated. As financial artifacts, both risk and private property share a common origin and form. In the early insurance schemes of the eighteenth and nineteenth centuries one had to be a sovereign and free individual in order to, quite literally, own one's risks (even the risks in one's person) and a general belief held well into the early twentieth century that "no man can carry a risk who has nothing to lose" (Clark 1982, 46). The second reason this comparison is historically significant, is that the political economy of risk, which appeared much later than the heyday of private property, did not emerge directly from it, but relied instead on approximately two centuries of capitalist economic thought centered not on property but on *profit*.

Profit, I argue in the first part of this dissertation, and its significant role in shaping an alternative set of public personas, social roles, and ethical cosmologies to replace the subject of property, was the medium through which risk could outgrow its original designation as an actuarial instrument. While property and risk are deeply linked, therefore, it is the gradual severance of this link, and the ever-tightening bond between risk and profit that tells the story of the twentieth century political economy of risk. At the heart of this new constellation of beliefs and institutions is the deceptively simple formula risk = profit, which this dissertation now seeks to expose as the generative puzzle behind much theorizing over risk, as well as the vehicle for competing ideological stakes.

Through profit, risk began to play a central role in the mechanics of markets, production, and accumulation. Profit also gave this emerging political economy its risk-taking protagonists and the risk-averse masses which they serve, as they came to populate the markets for labor and capital, and eventually the market for risk. Quite strikingly, it was also this bond which allowed

both risk and profit to re-emerge together in the twentieth century, after being pushed out by the new organizing framework of mathematical economics: perfect markets. While perfectly efficient markets left no room for profits (as residual remainders of market operations) and bracketed the detrimental effects of time and change, risk and profit found themselves linked precisely as the outliers of this new system of mechanical laws.

The Market for Risk

The subject of risk is not a stable category. Rather, it is the product of its own history, forged between economics departments, federal regulators, and public discourse. Understanding this history is therefore key in understanding the comprehensive impact the contemporary financial system has had on an increasingly globalized political culture. The main historical argument of this dissertation is that the expansion of risk beyond a set of instruments or theoretical constructs relies on the expansion of broad systems of financial risk-management. Comprehensive histories of insurance and the corporation have already demonstrated how these two risk-management technologies helped spread the logic of risk into state practice, the juridical tradition, and public culture since the eighteenth century. It is the aim of this project, therefore, to highlight a more recent, and arguably more crucial development: the rise of a market for risk as a novel form of risk-management. Unlike insurance and incorporation, which pool risks together in ways that cancel them out or widely distribute them, the market for risk was a solution of a different sort. The role of finance, so the theory goes, was to provide safety for most by bundling up risks and handing them over wholesale to the few who would carry them. If insurers taught governments the benefits of social safety-nets and corporate leaders taught them the value of consolidation, what did financiers teach them?

In the course of the second part of the dissertation, I will point to the ways in which the 'market for risk' drew on new scientific idioms of perfectly efficient, self-clearing markets to incorporate the unknown and unpredictable into that which can be packaged and sold at the *right price*. As such, it was imagined to be free of state intervention, moved only by the conflicting passions and plans of individual market actors, and capable of producing fair and stable outcomes for all. Conflict, in this new idea of markets, would finally be resolved in a state of balanced equilibrium, where the push and pull of competing forces comes to an ends and all are better off, or at least unharmed. Risk became, in the interwar years, properly an exchangeable market commodity, both in practice and in theory.

To a large extent, therefore, the story of the market for risk is also the story of markets as a scientific construct with a broad social, political, and cultural significance. If risk was the mechanism devised to deal with the problems of time and change, markets in the tradition of economic thought, and increasingly, as I will show, in the popular imagination, serve to balance competing needs and interests, optimize allocation, and reflect the fair and accurate value of goods. This specific notion of markets as price producing mechanisms, was born, with the exception of several important precursors, in the late nineteenth century, and has come to be known as the marginalist turn. The task and test of the market of risk would thus become the ability to properly price it—a price that will compensate and encourage risk-takers, while offering the rest security at a reasonable cost.

Risk, however, did not simply rely on a new mechanics of markets, but significantly challenged and altered it. To a great degree, the market for risk reveals the limitations of the marginalist abstraction, even as it expands its scope and reach. The presence of uncertainty forced economists both to extend the logic of supply and demand and to acknowledge the limits

to their model. Frank Knight, the subject of Chapter Two, explicitly framed his account of uncertainty as a study of the limits of perfect markets. It was precisely this limitation which prompted J. R. Hicks, a formalizer of both Knight and J. M. Keynes, to accept a vast asymmetry among persons in a dynamic reality, in place of the utilitarian logic of earlier, static equilibrium models. In all of these cases, the world of perfect knowledge, where present conditions and even future consequences are known to all, is replaced by a world of expectations and their repeated disappointment. The market for risk is therefore the scene for a competition of perceptions, once or more removed from the 'real' economy of goods and needs.

As a unique vehicle for, and test of, marginalist logic, therefore, I propose that the new market for risk should be seen as one case in the much wider phenomenon discussed by both critics and proponents of neoliberalism as the expansion of market logic. Financial markets, whether for stocks, derivatives, or loans, were conceived as places where risks, or really 'risk' as a uniform, homogenized, and divisible substance, can be traded according to principles of supply and demand. They therefore embody a quintessential story of commodification of that which was not previously amenable to exchange or was impossible to price. As a case-study in neoliberalism, the market for risk can thus fill in important blanks in existing accounts, which rarely offer a comprehensive notion of what "market logic" has meant for different actors in the twentieth century. Do markets display a single logic, and is their expansion uniform? What are the obstacles and frictions facing such expansion? The story of risk in twentieth-century finance provides one set of answers to these questions.

A Politics of Risk?

What critics of neoliberalism, on the one hand, and of the skewed distribution of private property, on the other, regularly overlook, is that both markets and property in their ideal form, are grounded in a fundamental promise of equal dignity and self-sovereignty. It is this normative core that has allowed both to serve as the bases for elaborate theories of justice, including highly egalitarian ones. Many of the programs, however, that have been suggested for reforming the system of wealth and income distribution or to reclaim the political culture of liberal societies, do not provide answers to the problems posed first by uncertainty, and then by the inherently asymmetrical market set up to combat it. The welfare state stands out in this context, not necessarily as an answer to the problems of distributive justice, as Rawls and others have argued (see O'Neill and Williamson 2012), but as a comprehensive solution to the problems posed by another risk-management system—the insurance industry. Public and national insurance schemes combat the exclusionary and discriminatory principles on which actuarial classification is founded. Beyond oversight over private insurers, the state as insurer is also crucial in controlling the price of policies in the insurance market, increasing overall access, and preventing the dangerous speculative bubbles which plagued the early insurance industry.

In this sense, the government has an equally important role in holding the financial system in check. Through its regulators, the state can ensure that risk is properly priced, and that all have access to a well-balanced portfolio, where they are well rewarded for risks taken, and properly charged for risks off-loaded. Such solutions, however, do not in any way contest the logic of social difference that lies at the core of financial pricing models. In important ways, the economics of risk has taken it upon itself to decide, and hide from view that it has decided, the answer to the problem Rawls posed in his "original position": are there acceptable forms of

inequality which a liberal society ought to maintain? Under conditions of uncertainty, it consistently argues, a conspicuous form of inequality is to be preferred over a state of general insecurity. What this means for politics is that we cannot solve the problem of risk through mere regulation of markets. The optimal market outcome, with uncertainty present, may not be something we can accept in a liberal democracy.

There is, however, an emerging politics of risk already at play in other spheres of social life, in the face of other, distinctly modern types of risk. John Dewey, writing in 1927, defines a public, or politically significant community, through its problems. Namely, it is by organizing to counter a problem posed by a third party that a public is formed. Risk-based organizing has largely followed this model, with one key distinction: that problems are identified not only in the present or immediate past, but, to a large extent, in the future. The struggle over risk and the boundaries of the risk community becomes a battle of political perceptions.

If movements are to be a countervailing force for the market for risk, they must undo some of its most powerful effects: the homogenization of risk, its mechanical pricing, its concentration in the hands of the few, and its growing disconnect from personal liability. The struggle, moreover, need not, and quite probably cannot, take place entirely in the context of financial markets. While a prominent response to the recent crises was the effort to amount new and significant regulations over finance, it is difficult to see how such actions challenge the basic premise that the financial system is a fair and efficient market. The answer, rather, comes from the interconnectedness of struggles in the name of endangered communities. Groups organized around the risks of environmental injustice, mass incarceration, or racialized police violence are already opposing the unequal outcomes of the market for risk. By attributing responsibility for risk, by transforming the boundaries of the risk community, now redefined through its own

organizing, and by differentiating among risks, they re-politicize the problem of risk in ways that ought to be extended to the financial endangerment facing individuals, households, and communities. It is, therefore, primarily in the work of movements that the distribution of risks across society becomes evident.

Chapter Outline

The dissertation is divided into five chapters, in three main parts. The first part deals with the historical linking of risk and profit through the work of Adam Smith, on the classical end, and that of Frank Knight, an interwar advocate of marginalist price theory. The second part discusses the emergence of the market for risk as a set of theories, on the one hand, and the cumulative outcome of struggles around actual securities and commodities exchanges, on the other. The final part discusses a late-twentieth-century notion of the politicized attribution of risk and its role in shaping a new kind social movement. Each chapter, moreover, highlights one or more of the new social protagonists which emerged around the bond of risk and profit, so far obscured by the story of 'possessive individualism': the master of industry, the entrepreneur, the hedger, the speculator, and the social activist. Each, as I show, represents a relation to capitalism in its dynamic elements and forms part of the effort to control uncertainty.

In the first chapter, I discuss at greater length the constitutive role of private property in defining the tenets of liberal society and citizenship, founded on the notion of a self-governing, independent, and virtuous proprietor. The chapter continues to identify the centrality of profit as an organizing category for the history of economic thought and, in particular, the classical project of establishing a fair and efficient system for the distribution of the fruits of labor. The chapter closes with a discussion of Adam Smith's theory of profit as a socially distributed,

market rate, which essentially transfers the costs of the entrepreneur's "risk and trouble" to society at large. Smith's "master of industry" is thus rewarded for her active employment of capital, but is personally spared much of the regular costs of risk. In return, she is limited in the rate of profit she can extract, in the interest of general social progress and prosperity.

The second chapter takes on another, seemingly very different approach to risk. Bearing the signs of institutional transformation in the corporate landscape of 1920s United States, as well as the radical shift within the newly branded economics discipline, Frank Knight offers a highly individuated profit-earning, uncertainty-bearing function. The chapter first discusses the ways profit, as a distributive share, had been eliminated from the new 'marginalist' approach to economics, which also bracketed change and time. As utility came to describe all market aims and gains, a perfect balance, or equilibrium, of supply and demand left no room for something like a residual money income. Knight's response was to redefine profit as belonging to a realm outside of market laws, the reward for a small subset of humanity engaged not in mechanical market exchange, but in taking on the inherent uncertainties of economic life. Entrepreneurs, as they were now called, would promise a predetermined future return for present labors, thereby eliminating uncertainty for the great masses of society. As this type of risk-taking is highly individuated, and will likely lead to significant individual losses, entrepreneurs, Knight argued, can only be lured to accept them with the expectation of significant rewards. Knight's theory of risk and profit thus lays the foundation for a dichotomized humanity, which is also asymmetrically rewarded along the risk line.

The third chapter lays out the main principles of the market for risk as it emerged from John M. Keynes' and John R. Hicks' foundational work on dynamic economics and risk. The chapter offers insight into the theoretical basis of the financial system as we know it today, while the

next chapter discusses some of its institutional origins and transformations. In Hicks' dynamic equilibrium model, irreducible economic uncertainties can be traded for a profit in the open market. Risk, in other words, could itself be subjected to a logic of supply and demand. Just like Knight, moreover, the model relies on a Machiavellian opposition of passions, as the fearful many, the hedgers, offload their risks into the hands of profit-seeking speculators. Though all risk-bearing activities now happen squarely within markets, the distributive outcome is similar to Knight's: conspicuous rewards for the few, and security for the many.

Chapter four begins with a discussion of current accounts of neoliberalism, which see it as the spread of market logic. A general weakness of this literature, I argue, is its inconsistent account of the actual mechanics and institutional grounding of markets. The chapter then makes use of the market for risk as a case study of this larger phenomenon, focusing on the role of widespread market idealizations in structuring the debates around market regulation and scientific market forecasting. The chapter follows the idea of equilibrium and the opposition of hedgers and speculators as they come to define and legitimize many of the speculative practices taking place in actual exchanges. The broad acceptance of these ideas, as I show, is not limited to practitioners and is frequently invoked by market critics from the private and the public sectors. The chapter points to the formative role of market ideals, and further argues that the unique character of the commodities exchange was particularly important in establishing speculator hegemony and market autonomy as regulatory principles. By pointing to the convergence of conflicting parties around a common set of ideals, moreover, the chapter articulates the limits of a politics of risk which relies primarily on regulation.

Finally, the fifth chapter lays out a political horizon for change. It foregrounds an alternative approach to risk developed by sociologists in the 1980s, commenting on the politicization of

danger and progress by a new type of social movement. If markets offer ways to reallocate risks, and insurance redistributes them among a risk-population, movements focus instead on the attribution of risk to the specific decisions of a social actor. The chapter draws on the experiences of the environmental justice movement and its radical forms of resistance to the governmental logic of risk. A quintessential form of risk-based organizing, it exposes the problem of risk as one of social distribution, rather than the technical reallocation of risk among a pre-defined group. As the work of environmental justice activists further shows, a demand for equity in risk is also a demand for agency and discretion, pointing the way to bottom-up, participatory forms of community organizing.

Chapter 1. Who Profits?

'Who profits?' is one of the more salient political questions one can ask. On the one hand, it is growingly amenable to quantitative measurement and analysis over time, place, deciles, and percentiles. On the other hand, globalization, relaxed capital controls, and the ubiquity of offshoring and anonymized corporate ownership have allowed many profiteers to remain undetected by tax collectors, consumers, or competitors. The gaping visibility of profits when it comes to general statistics is thus matched by less visible asymmetries in their final allocation. Moreover, the force of the question 'who profits' and its ability to prompt effective responses are dimmed when a more fundamental question is left unexplored, namely: what profits are, and what their social role is. Tracing profits to profiteers, therefore, performs only one of two vital functions: it dwells on the effect and consequence of profits, the structure of a profit driven system. Only by coupling the question 'who profits' with the question 'what is profit', or really by understanding both as one and the same question, can one begin to get at the source of profit, the ways by which they are generated, and the justifications given to their various distributions.

The aim of this chapter is not to show that the term 'profit' is applied inconsistently or inaccurately, though the former at least is certainly true, but to inquire why its use might be so frequent, what its moral weight is, and what are its social and political histories. Profit at its inception as a central political-economic concept marks the transition to an income-centered view of social and political life. It is therefore framed by a new way of posing the question of social distribution, through the class division between workers, capitalists, landowners, and a new kind of intermediary—the entrepreneurs. But profit is yet to be fully acknowledged as a core concept in this new framework by historians and political theorists, still very much occupied by the centrality of ownership and rights in defining individual agency and democratic citizenship.

In bringing the question of profit to the fore, the chapter thus lays out a new set of analytical tools with which to evaluate both the tradition of political economic thought and the significance of profit, and eventually of risk, for the citizen and subject of liberal market societies. Profit, I argue, shifts our focus from the idea of individuals as the subjects of (natural) rights and owners of appropriated wealth, to their place within the dynamic, changing, and uncertain processes of production and accumulation, as they take place over time. Where Lockean property marks the autonomy, self-governance, and basic dignity of an individual, and of all individuals, in possession of their own capacities, judgment, and labor, profit is more frequently tied to the inherent asymmetries of the production process and the societies that it breeds. In particular, profit is attributed to a special set of human characteristics—to the virtuous prudence or bold daring which can only be found in the few and which bestow a unique set of individual responsibilities.

Profit has thus given rise to a host of social and economic protagonists of widely varying dispositions. From the abstinent puritan to the innovator and risk-taker, profiteers as a would-be social class are bound together by their special relationship to the dynamic nature of capitalism. Over against this handful of elites, whose income is highly irregular, stand the masses of society—primarily wage-earners, but also capitalists and landowners, who receive interest and rent on their property. These predetermined, contractual returns provide their recipients the stability, certainty, and security enabled by a fixed payment-structure. Profit thus carries an intrinsic and consistent relation both to the social structure of market society, pitted against wages, rents, and interest, and to the risks involved with progressive development.

I begin this chapter by offering a historical outline of the concept of private property as the main building block of liberal political economy. The main aim of this section is to identify the

ways political theorists understand property and its history, but also to point out ways in which this model truncates our understanding of liberal thought and market society. Next, the chapter demonstrates the significance of the historical emergence of profit and traces its radical transformation in the twentieth-century by examining competing definitions of profit. I focus primarily on more substantive, as opposed to reductive, definitions of profit, which see it as a social relation to capital and an overdetermined solution to the contradictions of capitalism. Profit in these views, I argue, defines a social class and a unique social actor, who delivers a valuable service, for which capital is a condition and profit is a form of payment. The great plurality in definitions of profit of this kind can further be explained by the tensions and contradictions at the heart of a system of capital accumulation: the personal enclosure of general prosperity, the 'collective action problem' posed by the ability of capital to earn an interest, and the relation between profit and capital itself.

The chapter continues with a detailed account of Adam Smith's idea of profit as a socialized alternative to individualist twentieth-century views, which will be discussed at length in the next chapter, represented in the work of Frank Knight. As I will show, Smith's idea of profit was bound with the concept of risk, but lead him to a radically different conclusion than that drawn by Knight. Profit, for Smith, was a means of redistributing the burdens of uncertainty in capitalist production and, when kept in check, an engine of social progress. Moreover, profit was both regulated by, and a regulator of, markets. In both these aspects, therefore, Smith offers a powerful alternative to dominant interwar notions that placed profits beyond the purview of markets and their laws, as a limitless, highly personalized residual income that moves by "creative destruction." These two models of the bond between risk and profit, from two ends of a

tradition of classical political economy, would provide important blueprints for the discussion of risk and markets in the twentieth-century, the focus of the second part of this dissertation.

Property, Profit, and the Political-Economic Person

Duncan Bell (2014) has recently showed how a Locke-centered reframing of the history of liberalism was the product of 1930s-1950s socio-political pressures—an attempt to buttress individual liberties in the face of emerging totalitarian regimes. Prior to this Lockean turn, and its emphasis on contractual relations and a constitutional order, Locke's philosophy was largely seen as antithetical to liberal views, which centered on the expansion of the franchise and social equality (Bell 2014, 694). What Bell's revised intellectual history largely brackets is the question of liberal *political economy*, that is—the ways liberal ideology reflected the market societies from which it emerged.

In what follows, I propose that, much like the social contract, the political significance of private property in the Lockean model has been unduly inflated in postwar political theory, obscuring over a century of profit-centered political-economic writing. From postwar debates on the liberal origins of the United States (Hartz 1955; Hofstadter 1948) and civic-republican histories (Hont and Ignatieff 1983) to the Rawlsian rekindling of 'property owning democracy' (Rawls 1999) and libertarian entitlement theory (Nozick 1974), property has maintained, or more accurately, regained, a lingering hold on the political and historical imagination, despite its radical transformation since the late-nineteenth century and growing explanatory inadequacy.

In a highly influential example, C. B. Macpherson's (1962) discussion of "possessive individualism"—an ideological and analytic framework he traces back to seventeenth-century political thought—has elevated private property to its current status, at the heart of liberal

political economy. Drawing primarily on his analysis of Locke, Macpherson identified a tacit but foundational duality of private property. On the one hand, property-rights, by ensuring individual survival and reinforcing individual agency and will, emanate from the fundamental equality and dignity of all people. It is for this reason, Macpherson argued, that Locke emphasized not only the idea of property in one's person, and the products of one's labor, but the natural limitations on accumulation: appropriating only what one will actually use, and leaving "as much and as good" for others out of the common lot (Macpherson 1962, 200-1). On the other hand, however, when property becomes the basis for a full market society, where money allows individuals to accumulate property well beyond what they will personally consume, accumulation, rather than labor, becomes the definitive mark of individuality and a powerful commonwealth. In such a society, many are left without property and therefore fail to cultivate the full panoply of skills and capacities which entitle one to a place in the polity (ibid., 221).

Whether or not this interpretation is a perfectly accurate description of seventeenth-century Britain,[1] it is highly indicative of postwar thinking of private property, and its renewed significance for the project of liberal democracy, as it was now called (Bell 2014, 669). Calling for greater conceptual clarity, historians have paid significant attention to the transition from a natural law justification of property-rights to one founded on more progressive principles, fundamentally altering its meaning. Carol Rose (1994) shows how older notions of property as propriety are often conflated with more modern ones that see it as the guarantee of individual liberties in a market model of society (pp. 51-2).

[1] On this question see, e.g., Pocock 1985, 59, 68.

Prior to the market conception of property, Rose has argued, founded on the preference maximizing individual, the division of labor, and the right to exclude others, property had a substantially different role. Well into the seventeenth- and even eighteenth-centuries, it was still used to sustain a hierarchical structure of social roles and dispersed forms of government and authority. The quintessential form of property was land, held as a form of trusteeship meant to sustain households over generations, much like trade monopolies offered guilds exclusive market privileges. What ownership conferred in this model, was independence and the opportunity to exercise autonomous judgement. For this reason, it was equally applicable to the decentralized governments of seventeenth- and eighteenth-century Europe and to the American republic, which relied on proprietary citizenship as the basis for republican self-rule (Rose 1994, 61, 77-8). Similarly, the eighteenth-century transformed the public oriented, independent citizen owner into a self-cultivating, commercial specialist, whose possessive impulse opened up a space for refined consumption and the development of manners and tastes (Pocock 1985, 59; 1983, 247; Robertson 1983, 140).

The ideal, or at least ideal type, of private property, drawn from a liberal tradition now stretching back to a supposed origin in the seventeenth- and eighteenth-century, took the form of a progressively individuated set of rights. Its moments of transition and transformation have consolidated the right to property as self-interested, exclusive, and autonomous, drawing away from the other-regarding virtues and economic interdependency of a pre-capitalist world. While maintaining a tension throughout, between independence and what Macpherson has described as the permanent invasion of all in the affairs of all (Machpherson 1962, 87), property in its modern form increasingly takes on connotations of isolation and exclusion. To own, to be in possession of something, means to bar others from using it, to enjoy the protection of society and state for

this exclusion, and to exert over it an ultimate decision-making power: "the owner of a resource," according to one prominent definition, "is simply the individual whose determination as to the use of the resource is taken as final" (Waldron 1988, 39).

The regime of private property, whether one sees its origin in the alienable products of one's labor, in historical expropriation through enclosure, or a "clear act" principle,[2] works by way of individuation and separation. As in Macpherson's Locke, property highlights the atomist equivalence between persons, while justifying wide disparities in allocation. Within its increasingly uniform units, the private property regime at the heart of the postwar "liberal tradition" sees the relationship between persons to and through things as one founded on the independence, autonomy, and creativity of proprietary citizens. And yet, later transformations in the very meaning and institutional context of property no longer fall neatly into a narrative of increasing individuation.

The turn of the nineteenth-century marked a radical departure from natural law, altering the public-private relation folded into the institution of property. Industrialization in the United States was accompanied, and to a large extent enabled, by the reinterpretation of property law (Horwitz 1992, 40). No longer seen as a natural, historical privilege—the universal rights of "prior appropriation" or "ancient use"—property rights were increasingly interpreted as a public charter, beholden to the public interest (ibid., 17). Even more drastically, a true crisis of private property occurred at the turn of the twentieth-century, with the wide expansion of the publicly-

[2] The clear act principle of common property law saw ownership as a function of its public signaling and recognition. See Rose 1994, 18.

held corporation. Corporate consolidation was presented as a direct challenge to the Jeffersonian ideal of agrarian democracy and the independent proprietor (McCraw 1984).

The late-nineteenth-century populist revolt and Sherman Antitrust Act in the United States were further symptoms of the changing landscape of ownership, battling business collusion in the name of the small business owner who was being pushed out in the massive rationalization process of the economy. The "great merger movement" reorganized numerous industries and culminated in wartime centralization (Sklar 1988; Lamoreaux 1985; Sanders 1999). At the same time, corporations were being fitted for public ownership through the transformation of the stock exchange, giving rise to one of the greater predicaments of private property: the separation of ownership and control, captured in Berle and Means' seminal work on the modern corporation in the 1930s (Ott 2011, 144; Maurer 1999, 371). The problem as they saw it, reflecting an active interwar debate, was the remoteness of ownership and the loss of direct oversight over a business by its main stakeholders: the shareholders (Berle and Means 1933).[3]

It is, ultimately, the new reality imposed by the erosion of classical property that mandates the search for alternative analytic frameworks. Profit has historically emerged as a powerful economic category at the same time that property underwent change and, arguably, decline. As such, it does more than merely substitute a less effective, property-centered approach to political economy and the liberal subject. Profit has, at least since the late-eighteenth century, served as a

[3] Recent work suggests that the transformation was even more substantial: the rise of the modern corporation should not be construed as the splitting up of ownership into miniscule parts, but rather as the creation of collective bodies united in an independent person, the owner of itself. Ownership, in other words, became a collective affair, marking the agency and autonomy not of people but of their collective constructs (Ciepley 2013, 146–47). As Bill Maurer (1999) has shown, the financialization of private property through the stock exchange further precipitated a centuries-long "dephysicalization" of property, which undermined the basic bond between property and palpable things (374).

comprehensive alternative to property, reframing the basic relationship between markets and society. Perhaps ironically, property in this comparison, serves as an expression of the universal equality among persons (leaving aside the question of who counts as one), while profit, as I will show, emanates from difference, asymmetry, and fundamental inequality. Moreover, while both describe a regime of accumulation, only profit is unique to this regime, and only profit represents the dynamic and fluctuating outcome of accumulation, while property offers a more static representation of accumulation as wealth, privilege, and character. Finally, private property, in its classic (postwar) model, marks a process of individuation while profit highlights mutual-dependence, economic integration, and relativity (one can only be a profiteer if one can hire labor, employ capital, etc.). If property was the basis of virtue by giving its owner independence or by letting her cultivate her taste and moral aptitude, profit has a different relation to virtue, merely affirming it in retrospect, leaving it permanently uncertain and unstable.

With the decline of the small but autonomous citizen-proprietor, attempts were made to redefine the intersection of citizenship and economic activity through new protagonists, primarily the consumer and the investor (Ott 2011, 52). More than economic movers, these new protagonists were endowed with political efficacy and a national mission. The 'consumer republic' became the driving force behind a Keynesian New Deal economy, though their true rise to dominance would have to await the postwar, growth-centered economic framework and ideology (Collins 2000). The citizen as consumer was not only the material benefactor of price reducing competition and collaboration alike, but was largely the product of a new presentist culture, the construct of income strapped retailers who seized on new markets for household credit (Hyman 2011). Similarly, the "investor democracy" of citizen-shareholders was seen as a way to distribute economic stakes, and risks, more evenly across the population, promoting

industrial peace and offering shared prosperity without the need for actual redistribution of property (Ott 2011; Levy 2012). In what follows, I ask in what ways one can speak of a 'citizen profit-maker' and argue that it was precisely this new type of agent that defined the liberal tradition of political economy, and would ultimately shape a new social opposition between risk-takers and the risk-averse.

Profit as a Social Relation to Capital

Definitions of profit in the history of economic thought have been highly diverse and unstable, even more than other highly contested economic concepts—property, capital, utility—that have at least maintained some semblance of continuity. In 1931, economist John Hicks warned that "of all the traditional branches of economics, the theory of profits has had the greatest difficulty in attaining the 'safe path of a science,'" marked as it was by "that fundamental disagreement among competent writers about the mere direction of approach, or that utter failure of promising lines of inquiry to yield results of any great importance, which Kant declared to be the marks of a science still groping in the dark" (J. R. Hicks 1931, 170).

For this reason, the theory of profit has proved particularly suitable for carrying, and concealing, normative and political stakes. Profits have been tied to virtue and frugality, market efficiency, the surplus value of labor, or the entrepreneurial spirit, with equal amounts of scientific zeal. Max Weber's seminal work on the origin of capitalism in the puritan ethos has brought to the fore the ideological work undergirding competing ideas of profit. Profit could become a selfless calling by combining asceticism with a desire for measurable, cumulative success. Weber also clearly established the complementarity of profit and wages, which were

equally conditioned by the virtues of productivity, industriousness and the denial of luxury, jointly giving rise the capitalist mode of production (Weber 1992, 19, 104).

As the nineteenth-century "master of industry" grew into the twentieth-century entrepreneur, new traits and roles were attached to profit-making, similarly shrouding profit motives under a veil of social service and leadership. Joseph Schumpeter's entrepreneur was a leader and innovator, combatting the stagnant, habit-ridden nature of the human mind and charged with directing old resources to new, more productive avenues by way of creative destruction (Schumpeter 2011a, 245). The entrepreneur was thus radically distinct from workers, including salaried managers, who were destined to follow, the routinized products of administration.

The elusive nature of profit and its social significance are, however, generally obscured by its seeming self-evidence. According to a dominant popular view, profit is simply the product of exchange: buying for less and selling for more. It is purely a market phenomenon, prevalent as much in the neoclassical paradigm, which sees it as the outcome of mutually beneficial trade, as it is in the Marxist one, which sees it as the epitome of exploitation. Marx famously opens *Capital* by asking what a commodity is. He then introduces the split between the use value of a commodity and its exchange value and describes the fetishism which conceals this duality, giving the false sense that all value is a product of exchange (Marx 1992, 167). Exchange itself can take two forms. If it is motivated by use values, that is, the intrinsic worth a person might find in a commodity, the exchange begins and ends with a commodity and requires the use of money only as a medium of exchange (commodity-money-commodity, or C-M-C) (ibid. 200). The converse, which characterizes capitalist exchange, is motivated by exchange values and particularly by profit: one enters the market not as a seller of commodities, looking to purchase others, but as a 'cash' buyer of commodities with the intention of selling them for more money.

By mysterious machination, the capitalist has turned money into more money through the magic of the market, the basis for the capitalist mode of production (210).

At this point in Marx' argument, the mystery is unraveled with the discovery of the surplus value of labor. Labor, as a commodity itself, can be purchased at its exchange value and put to use in creating excess value (279). As long as the capitalist maintains a surplus between what she paid for labor power and what labor in use can add to other inputs, she has profited, and can continue participating in the endless cycle of money-commodities-money, or M-C-M′. As Marx acknowledges, what he is doing here is plugging in the producer-worker relation into the basic formula of the capitalist merchant, translating production into a language of exchange. Profit, therefore, straddles both worlds: the chimerical market fetish which turns money into more money by simple exchange, and the real economic process which creates exchange value through the usefulness of one special kind of commodity, labor power. Either way, profit spells out a pure form of exploitation, founded on the radical asymmetry in capital ownership.

From an entirely different perspective, the neoclassical 'marginalist' view similarly reduces profit to the language of exchange, this time to the bartering of goods which offers each participant 'profit' in the form of greater utility. If Marx was warning his readers of mistaking the fetish of exchange for the source of value, A. C. Littleton warns his readers at *The Accounting Review* of mistaking profit for a simple accounting trick. For Littleton, all exchange is motivated by the difference in utility between two exchanged items, propelled by a mutual desire to increase one's own utility. In the neoclassical view, in other words, there is no distinction between C-M-C and M-C-M, indeed, all exchange is founded on utility, or use-values. The role of accountants is, therefore, to record "the utilities of things given and things received" (Littleton 1936, 12). In this, Littleton is explicitly opposing the idea that profit is a

bookkeeping trick, the result of gaming the market, overcharging, or even the efficient organization of production (i.e. cutting costs). Utility precedes price, which merely reflects it, and all mutually beneficial trade marks a 'profit'. Where Marx inserted the surplus value of labor, therefore, Littleton plugged in utility—both were opposing what they saw as abstractions of exchange, but both retained its basic form.

By turning profit into a question of pure loss and gain, the exchange story of profit is perhaps the simplest and most accurate. But it does little to explain the role profit has played, repeatedly and throughout history, in some of the most contested aspects of capitalism and in debates over the limits of its legitimacy. Looking at profit, like its *Oxford English Dictionary* definition, as "a financial gain, *esp.* the difference between the amount earned and the amount spent in buying, operating, or producing something" what is lost from view is the way profit has long shaped the relationship between wealth and civic life, between owners and producers, and between individual and collective welfare. What is missing from this definition, in other words, is the idea of profit as an overdetermined, social relation to capital.

What does it mean that profit is a social relation to capital? As an 'income variable', profit relates to the dynamic element of capitalism, the return over time for putting capital to work. Profit is thus determined, over time, by the amount of capital invested, the productivity of capital in a given economy, and the uncertainties involved in this time lapse between investment and reward. Even more than property and ownership, it is income from capital in its various forms that arranges the fundamental distinctions of capitalist political economy: the lines between profit, wages, rent, and interest separate the productive from the unproductive, the efficient from the wasteful, the original from the derivative (or 'real' from fictitious), the legitimate from the illegitimate. In the above example from Marx, profit represented an illegitimate form of income

from productive labor, enabled through the derivative medium of money. For Adam Smith, as I will show, profit is the legitimate gain for putting capital to productive work.

In what sense is profit also 'overdetermined'? The plural meanings of profit can be read as products of, and in part solutions to, some of the greater tensions of liberal thought. First, as the offspring of an Enlightenment ethos, 'profit' covers a range of phenomena that pit general welfare against the most highly individuated forms of personal gain. Like the enclosure of the commons in the late middle ages, which marks the origin of capitalist organization, profits were seen by political economists as enclosures in the fabric of general prosperity.[4] Profit became the name of the patented, if uncomfortable, asymmetry involved in the capitalist mode of production, and henceforth required its own set of justifications, usually found in the unique service rendered to society, not necessarily by owners of capital, but by its 'employers'.

The 'employment' of capital, moreover, involves a further tension in the form of a collective action problem. The tendency of capital to grow more and more concentrated means that it can earn an income without the "risk and trouble", in Smith's terms, of business, as long as some are willing to put it to work, and will pay an interest to its owners. For capital to be employed in the first place, therefore, profit must exceed any other rate of return, or at least appear to be higher, convincing enough people to go to the trouble. For this reason, profit, from its inception, was usually compared favorably with 'derivative' incomes, like interest or rent, which retained much of the former religious, and secular, animus against usury. While interest was seen as a vehicle for transferring wealth from the productive to the idle, inhibiting trade, and draining national

[4] I borrow the term from Jonathan Levy, who identifies a similar mechanism at work in early actuarial thought. Identifying and indemnifying risks was, in this analogy, a form of enclosure within one's personal sovereignty and selfhood, one that isolated a specific practice and offered compensation for its loss (Levy 2012, 9).

wealth in favor of foreign investors, profits offered incentives to counter the propensity to idleness (Tucker 1960, 17).[5]

Finally, a third tension forms around the very relation of profit to capital. If the difference between active and passive uses of capital dictates a difference in magnitude between profit and interest, the differences in their relation to capital mean that profit and interest take on radically different forms. Interest is a fixed, or at least predetermined, proportional relation to capital, organized by a contract between lender and borrower. The predetermined interest rate represents the socially-derived market value of capital. What, then, is the relation of profit and capital? There is no contract organizing returns on capital in its active use, which are inherently uncertain. The final tension of the capitalist system exposed in the idea of profit is the fact that its greatest rewards and most vital operation, namely putting capital to work, are subject to a great deal of uncertainty. Profit, in other words, is inherently linked with the risks of capitalist production. Unlike wages, interest, or rent, it is, by definition, linked with loss.

The history of political economy is full of conflicting solutions to this problem. For Adam Smith, as I will show in the next section, profit takes a similar form to interest, distinct only in magnitude. In the Smithian world, the long-term rules supreme, and variations in profit cancel out not only over time but across industries, leading to a fixed rate of profit that retains a fixed proportion to capital. Under ordinary conditions, therefore, greater capital investment must necessarily mean proportionally greater returns. A well-functioning business in a well-

[5] Similar sentiments were echoed well into the twentieth century. J. M. Keynes, for example, famously argued that high interest rates diminish the 'marginal productivity of capital', or the excess of profit from investment over earnings from saving and lending (Keynes 1936, 374–75, see also Tucker 1960).

functioning industry, moreover, can maintain a rate of profit commensurate with occasional losses.

In stark opposition, early twentieth-century ideas of profit, originating in the dynamic critique of neoclassical economics, see profit as radically distinct from capital. Figures like Ludwig von Mises and Frank Knight, saw the relation between capital and profit as 'arbitrary': one cannot assume a given proportion between them, nor are they causally linked.[6] As Knight put it, profits don't emerge from the difference between capital invested and returns, but from the difference between expected returns and actual ones (Knight 1921, 366). Speaking in front of the Mont Pèlerin Society in 1951, von Mises complained that

> Many errors concerning the nature of profit and loss were caused by the practice of applying the term profit to the totality of the residual proceeds of an entrepreneur. Interest on the capital employed is not a component part of profit. The dividends of a corporation are not profit… The market equivalent of work performed by the entrepreneur in the conduct of the enterprise's affairs is entrepreneurial quasi-wages but not profit. If the enterprise owns a factor on which it can earn monopoly prices, it makes a monopoly gain. If this enterprise is a corporation, such gains increase the dividend. Yet they are not profit proper. (Von Mises 2008, 9)

Profit is the one type of remuneration which bears no proportion to capital, and therefore has no relation to the advantages of its employment: it isn't the wage which compensates a skillful manager, it isn't the monopoly gain of a privileged market position, and it isn't the lenders' reward for entrusting their money with an enterprise. Instead, both von Mises and Knight understand profit not in its relation to capital, but in relation to loss: its binary opposite, equally

[6] I use the term "arbitrary" in the sense established by Ferdinand de Saussure (1959 [1913]) in the field of linguistics around the same time. De Saussure argued that the signifier, or phonetic representation, and the signified, a word's meaning, were tied in an arbitrary relationship, that nevertheless made their connection meaningful, allowing each to be understood in its own terms. In the analogy to profit, profit is not derived from capital, but should be understood in its own terms, not as a return on investment but as the opposite of loss.

plausible whenever an investment of capital is made. Risk in this view defines profit. Rather than distribute it across society through the 'ordinary' profit rate on consumption goods, risk is concentrated in the risk-bearing actions of the profit-maker, who, at least in theory, offers security to the rest of society. Risk, in other words, becomes the distinct purview of the profit-earning sector, the special skill of a new type of economic actor—the entrepreneur.

In the final part of this chapter, I discuss at greater length the classical view of profit as a form of social insurance fund and incentive to employ capital. In Adam Smith's model, profit is inherently social. It acts as the measure of a progressive society, and, as a fixed-rate across industries, serves as a benchmark for well-functioning markets. Socially derived, it is therefore socially bound, with clear limitations set on high profits that impede progress by harming the growth of the laboring class. This model, I argue, was radically overturned by twentieth-century theories, such as those quoted above, whose focus on short-term gains and individual initiative bred an idea of profit as an erratic, limitless, and conspicuous form of business compensation. Without suggesting a return to eighteenth- and nineteenth-century conceptions, therefore, I propose that they offer a valuable tool in considering the normative and practical implications of later notions of profit, particularly for the question of inequality.

Adam Smith on Profits as the Social Distribution of Risk

At the time Adam Smith was composing *Wealth of Nations* (1904 [1776], hereafter WN), profit was a relatively new object of inquiry, supplementing and, according to some, largely replacing more prominent forms of income from wealth, especially interest and rent (Tucker 1960; Meek 1954). The profit rate reflected a new relation between capital, time, and the problem of distribution. What did capital 'do' over time, that separated profits from interest? What did the

employer of capital do to earn a profit on it? And if profit is a form of income from the employment of capital, how does it stand in relation to other forms of income from this employment, particularly wages?

Both profit and wages in Smith, are new types of relations to value and wealth. Wages are determined in proportion to labor expended, and are thus a function of skill, time, and effort, as well as the demand for specific types of work. Profit is fundamentally different. It expresses a proportion to capital invested, removed from the level of skill and effort involved in putting this capital to work. Profit, according to this definition, is a form of incentive for individuals in possession of accumulated stock, or the opportunity to borrow it, to put "industrious people" to work (WN, 50). Value, finally, which in rudimentary societies is wholly determined by labor, must include, on top of a labor component, a sufficient incentive to bring about production: a profit component.

Profit, Wages, and the Employment of Capital

To clearly differentiate profit from wages, Smith rejects the common view that profits are the 'wages of superintendence'. The efforts of management, he claims, are similar, whether capital is expansive or limited. Profits, on the other hand, are not (WN, 51). The distinction is also evident in the way labor is remunerated. While a minimal subsistence, "the lowest consistent with common humanity" (70), serves as the lower limit on wages in any economy (or, in its absence, is the cause of the rapid demise of the working classes), labor is often compensated at much higher rates. These can be the result of high demand for a specific kind of labor, or labor in a particular place, primarily where large capital has accumulated in the cities. The remuneration for labor makes for a palpable image of the laboring person: it compensates for years of skill

acquisition, for the anxieties of intermittent work, for the credit and trust won among one's community, or for the sheer disagreeableness of the work (102-7).

Smith makes it a point to frequently remind his reader that the employment of capital lacks most of these kinds of 'premiums'. There is no distinct skill in the employment of capital to create significant inequalities of profit ("one branch either of foreign or domestic trade, cannot well be a much more intricate business than another" 104), no real difference between capital invested consistently or intermittently throughout the year (106) and no significant role for trust, since the employer of capital does so at her own risk (107). Smith's radical distinction of wages and profits thus leads him to quite an extraordinary conclusion. Wages, he claims, are a far more significant source of inequality than profits: "the average and ordinary rates of profit in the different employments of stock should be more nearly upon a level than the pecuniary wages of the different sorts of labour" (113).

The fact that Smith's conclusion runs against clear historical evidence and contemporary common sense regarding the source of inequality,[7] shows he was following a different kind of reasoning. For instance, Smith demonstrates how some profits, particularly those considered exorbitant, like the grocer's or pharmacist's, are really wages for the high-skill and much demanded labor they provide. The greater inequalities of labor and the idea of large rewards for specific skills and abilities underscores the centrality of labor-productivity in organizing Smith's arguments throughout the text. Labor serves as the only true source of value, the measure of

[7] Based on extensive historical data across multiple countries, Thomas Piketty argues that, while "it is perfectly possible to imagine a society in which inequality with respect to labor is high and inequality with respect to capital is low" (Piketty 2014, 242), in reality "inequality with respect to capital is always greater" due to high levels of capital concentration further compounded with high returns (often exceeding real growth rates).

buying power (money in Smith's system begets command over labor and is worth as much), and the only source of profit. For Smith, therefore, productivity is the ultimate virtue of the system of divided labor and uninhibited local exchange. Great fortunes, on the other hand, are rarely "sudden" and profits, under ordinary conditions, are the result of "a long life of industry, frugality, and attention" (115).[8]

Even more remarkable was Smith's claim that profit in a well-functioning market was a steady, fixed rate throughout the national economy. If wages encompass the diversity of skills and fates involved in capitalist production, profit, he argued, maintains a steady proportion to capital and tends toward uniformity across industries (92). One important reason Smith could conceive of such an idealization of the proper working of markets was the long-term perspective characteristic of classical political economy (Milgate 1979, 1). From the perspective of "'natural', or long-term 'normal,' conditions" (ibid.) profit disparities would eventually cancel out as the "masters of industry" alternated their investments: "when the stocks of many rich merchants are turned into the same trade, their mutual competition naturally tends to lower its profit" (WN, 89, see also 62). To do so, markets would have to approximate the Smithian ideal of "perfect liberty", or the absence of artificial prohibitions on such movements.

The idea of an 'ordinary rate of profit' thus abstracts from (or relies on the radical transformation of) real world phenomena such as barriers to access, monopolies, or the ability of innovators to disguise their profits, as Smith himself admits (WN, 96; 101; 116). It also brackets the immense difficulty of measuring the profit rate (WN, 89; Mirowski 1982, 181), and the need

[8] The one exception is speculation, which exploits market irregularities and therefore bears no fixed proportion to any one industry (WN, 115).

for national economies to be consistently capitalist and well-integrated in their mode of organization for the rate to properly equalize (Meek 1954, 141–42; Mirowski 1982, 186).[9]

Smith's claims about the rate of profit and its optimal proportion to capital thus form the basis of his critique of the system of divided labor and capital accumulation, contributing in part to the controversy among Smith's readers over the meaning of his idea of the 'invisible hand'. Is the pursuit of personal gain the driving force behind a self-regulating capitalist economy? Was "the mainspring of the economic mechanism… conceived in terms of the desire of individual capitalists to secure the highest rate of profit on their capital and to accumulate as rapidly as possible" (139), as Meek claims? Or, as others have argued, are high rates of profit a fundamental problem for Smith (Boucoyannis 2013; Hont 1983; Nacol 2016)? Greater clarity on the meaning and uses of profit can help resolve the apparent contradictions between Smith's claims, as well as those of his readers.

Since profits for Smith are even across industries, it is not the specific investment that determines the rate of profit but the "the general circumstances of the society, their riches or poverty, their advancing, stationary, or declining condition" (57). Profits, determined primarily by their environment, are therefore an excellent gage for the state of society and its prosperity.[10] It is in this context that Smith makes one of his more politically charged claims: the prevalent mercantilist doctrine that high profits make for a sound economy and that any decline spells out

[9] Though neither the British nor the Scottish economies in Smith's day could be said to be fully, or even predominantly capitalist, Mirowski shows how Smith's claim that profit is a fixed and uniform rate has empirical merit. Archival firm records, he argues, disclose "a fair amount of integration in firms' rates of profit in the eighteenth and early nineteenth centuries" (Mirowski 1982, 188).

[10] Much like the interest rate was, in the seventeenth- and eighteenth-centuries; see Tucker 1960.

general doom, was the product of the fundamentally flawed logic of merchants and other profiteers. It is this belief, and its impact on policy, that Smith was out to uproot (Boucoyannis 2013; Nacol 2016, 112–15).

Famously, Smith uses both empirical evidence and theoretical analysis to show that low rates of profit and high wages are the signs of progress and prosperity. Profits are high when capital is scarce, investment is low, and workers' wages can be squeezed due to oversupply. This is typically the case in relatively stationary societies, with limited or no progress. Societies in the midst of steady advancement, where capital is abundant, create constant and growing demand for labor, raise wages by forcing capitalists to outbid each other, and offer avenues for expansion and reinvestment of the proceeds. As profits decline, greater and greater initial capital is required to retain revenues, increasing demand for labor once more, and reinforcing the progressive cycle. "Not the actual greatness of national wealth, but its continual increase" (WN, 71) offers the greatest advantage to the greater part of society.

The reliance on profits, therefore, as commentators have emphasized, places the interests of capitalists and merchants in opposition to those of the public: "the interest of the dealers, however, in any particular branch of trade or manufactures, is always in some respects different from, and even opposite to, that of the public" (WN, 249). It is the task of market-competition and of governments, therefore, to curb these interests (Boucoyannis 2013, 1055; Hont 1983, 300; Rosenberg 1974). The interests of labor (and of landlords, for other reasons), are, on the other hand, perfectly aligned with progress. Though Smith's system is founded on self-interest, therefore, and the natural human inclination, and necessity, to barter for one's needs, his idea of profit as socially determined lends further support to calls for a more nuanced reading of the invisible hand, away from any kind of perfect, automatic alignment between personal and

collective interest (Rothschild 1994; Stimson 2004; Viner 1927). If people must "interest [the] self-love [of others] in their favor" (ibid.), in the aggregate they form "orders" of fundamentally opposed incomes and interests, locked in a zero-sum game. There is, therefore, no resolution to the inherent tension between the prosperity spelled out by the growth in national income and the need for incentives that act as 'enclosures' on that prosperity, and constantly threaten to topple it.

That said, there is also room to qualify the recent, and not so recent, revisions of Smith, which tend to distort the role of profit and to exaggerate Smith's critique of profiteers. Part of the confusion is due to the conflation of profit maximization with wealth and capital accumulation. Meek's arguments about the role of profits in moving the economy, for example, are perfectly accurate when it comes to capital: the progress and greater productivity of divided labor rely on increased capital accumulation, commanding ever greater quantities of labor. But greater capital accumulation in a given region means *shrinking profits*, as larger shares of income go to wages, making it at least somewhat contradictory to "secure the highest rate of profit" and "to accumulate as rapidly as possible" at one and the same time. Similarly, Boucoyannis' references to the "concertation of profits" (1058) and wealth tend to overlook the centrality of Smith's fixed rate of profit that directly undercuts it. In a given economy, all who belong to the profit-earning socio-economic order ordinarily turn out similar profits when investing "equal capital" (WN, 110).[11] If anything, Boucoyannis' account describes the concentration of capital and of power in the hands of a few—a situation that is nevertheless consistent with progress, according to Smith.

[11] The phrase "equal capital" is regularly used by Smith as a benchmark when evaluating the success of a given industry or occupation (in this case, the insurance industry). It thus relies on his idea of a uniform rate of profit and does much to embed it in his conceptual framework.

The scholarly emphasis on Smith's anti-capitalist sentiments may be overstated when one considers the permanent place of profit within the system and the logic behind its uniformity. While high profits may very well be "a pathology" (Boucoyannis 2013, 1055), profits as such are not. The separation of wages and profit, and the regular rate of the latter, are the marks of developed economies where division of labor is high. Profit and wages, therefore, are not two mutually exclusive forms of remuneration, but mutually constitutive, and while certain ratios between them may be hazardous, one, at least, must be beneficial. "To Smith," as Meek observes, "profit began to appear as an income uniquely associated with the use of capital in the employment of wage-labour" (Meek 1954, 139). It is precisely by defining one by way of the other while keeping them "sharply differentiated" (WN, 142), he shows, that Smith's idea of profit had been truly innovative, defining "profit as a new type of class income born of the capital-labour relationship" (141). What remains, therefore, is to understand how 'productivity' helps justify profits in Smith's system, making profit the reward, and incentive, for "the productive use of capital" while separating it from rent or interest.

Profit and Interest between the Active and Passive Use of Capital

Profit and wages form different relations to the 'employment of capital', but both are inherently productive and it is this language of productivity that renders profit altogether different from interest and rents. Though it retains a proportion to capital, profit is not a derivative income but rather an original return that serves as an incentive to undergo the "risk and trouble" of business. Interest on the other hand, is a by-product of profit, the necessary remuneration not to the employer of capital but to its owner (and rent, in similar ways is payment not for the productivity of land but for its mere enclosure).

However, when one compares Smith's definitions of interest and profit the difference between lender and 'employer of stock' becomes uncomfortably blurred:

> That derived from stock, by the person who manages or employs it, is called profit. That derived from it by the person who does not employ it himself, but lends it to another, is called the interest or the use of money. It is the compensation which the borrower pays to the lender, for the profit which he has an opportunity of making by the use of the money. Part of that profit naturally belongs to the borrower, who runs the risk and takes the trouble of employing it; and part to the lender, who affords him the opportunity of making this profit. (54)

The lender offers the borrower the means she requires so that she may productively employ them. So far, so good. Leaving aside for the moment the question of the division of risk between lender and borrower, and keeping in mind that 'trouble' cannot stand for some kind of managerial labor, as discussed above, the definition becomes puzzling when one considers what it means to employ one's capital:

> It seldom happens that the person who tills the ground has wherewithal to maintain himself till he reaps the harvest. His maintenance is generally advanced to him from the stock of a master, the farmer who employs him, and who would have no interest to employ him, unless he was to share in the produce of his labour, or unless his stock was to be replaced to him with a profit. (67)

The "master" is the person who can offer some kind of "advance" towards the "maintenance" of a worker throughout the productive process. The substantive difference between the two types of advances, and, accordingly, the share of the proceeds that those making the advance can claim, resides in the way each "share[s]" in the product and production process. Advancing regular wages for labor, which productivity comes to fruition only after a while, and putting up machinery, or "stock," which deteriorates through time, constitute for Smith a fundamental difference between passive and active use of capital. Profits, like wages, are an 'original' income while interest remains derivative, and can only ever be extracted from the profits of production.

As Tucker has shown, profits began attracting the attention of economic theorists as they were trying to resolve the problem of declining interest-rates in the seventeenth- and eighteenth-centuries. As early as the seventeenth-century, diminishing interest rates were tied with progress and prosperity, though the reasons and even causal arrow remained contested throughout (Tucker 1960, 29). While Locke and his contemporaries saw declining rates as the result of inflationary pressures, a money-supply explanation, eighteenth-century thinkers like Hume, Turgot, and Cantillon pointed to the high concentration of capital and to competition among lenders as the main cause. Profit, in this explanation, is affected by consequent competition among merchants and tends to decline in tandem with interest.

The underlying moralist framework of this theory had to do with the distribution of capital; the traditional hierarchy between virtuous thrift and frivolous spending. Both interest-rates and profits grow when capital is held by landlords, who would quickly consume it, enriching merchants but leaving little for lending and industry. In the hands of merchants, in contrast, capital would be saved and put to productive ends, increasing the supply of loans and diminishing interest- and profit-rates. By switching the focus from interest to profit, therefore, Smith was emphasizing the collective productive capacity of society, enabled by saving with a clear end to increasing personal gain and social investment in "commodities employed in production for the purpose of profit" (Tucker, 57, see also Aspromourgos 2005). "It is stock that is employed for the sake of profit," argued Smith "which puts in motion the greater part of useful labor in every society" (WN, 249). And it was the decline in the rate of profit that, for Smith, brought down the rate of interest, in accordance with the desirability of capital as a source of gains.

The historical decline of interest rates thus signaled a change in the balance of power between landlords, capitalists and financial intermediaries (Pocock 1985, 68–69). Like the distinction between profits and wages, the distinction between profit and interest marks a broader social division, and it is here, I propose, that Smith produces his harshest critique. When compared with the income of labor and landlords, profit-making and profiteers are suspect, as their interests go against those of progress. But from another perspective, that of consumption, profit, as a form of investment in goods and services, appears to belong on the productive end of a deep social divide:

> there is no country in which the whole annual produce is employed in maintaining the industrious. The idle every where consume a great part of it; and according to the different proportions in which it is annually divided between those two different orders of people, its ordinary or average value must either annually increase, or diminish, or continue the same from one year to another. (56)

Profit is fundamentally different from interest and rent not only because it is original, while the latter are "always a derivative revenue" (WN, 54), but because it is a form of productive consumption and spending. Productive capital, not wealth, profit (and wages), not property and its rents, are the sources of prosperity in Smith's world.

Profit, wages, and risk

Finally, with profit comes the question of loss, particularly from a contemporary perspective. Risk plays a significant but not definitive role in Smith's system. It is not the identifying mark of one social 'order' or institution, but rather distributed throughout society, where its greatest burden falls on the shoulders of wage-earners, in contrast with the twentieth-century view. In her comprehensive analysis of risk in early political-economic thought, Emily Nacol (2016) identifies a duality in Smith's approach to risk. On the one hand, individual risk-takers are vital

to economic discovery, expansion, and exchange (100). Successful risk-takers, therefore, cultivate both beneficial inner qualities, particularly a type of risk-wary, calculating prudence, as well as extensive social networks of trust and reputation, an idea significantly expanded in Smith's *Theory of Moral Sentiments* (118). On the other hand, however, when bound together, either in joint-stock companies or various political conspiracies, risk-taking *bodies* tend to amplify the negative impact and sheer scope of economic risk in the name of personal gain. This is largely due to their ability to detach risky ventures from their downside—both stockholders and managers are sheltered from corporate losses—and their disproportional influence on government and policy (105).

It would appear, therefore, that Smith's only solution to the omnipresence of risk in capitalist society comes from virtuous individual-risk taking, while collective risk-taking is regarded as a social malaise, fueled by a malignant profit motive (ibid., 100). I argue, however, that well-regulated profit in Smith's theory, far from amplifying the problem of risk-taking, in fact offers a *collective* form of risk-management, as do, in other ways, interest and wages. Notably, risk plays a distinct role within the definition of profit. A basic level of returns, Smith argues, precedes that surplus which can properly be called profit. These returns serve as a rainy-day fund which compensates the employer of capital for possible losses: "the lowest ordinary rate of profit must always be something more than what is sufficient to compensate the occasional losses to which every employment of stock is exposed. It is this surplus only which is neat or clear profit" (WN, 97-8).

What is colloquially called profit, or 'gross-profit', in other words, is really a twofold and at times threefold form of remuneration, containing some kind of operational insurance, a pure surplus, and occasionally also 'catastrophe' insurance: "gross profit comprehends frequently, not

only this surplus, but what is retained for compensating such extraordinary losses" (98). The "ordinary rate" of profit, therefore, which is determined and funded by society through its markets, acts as a collective insurance on business. In addition, profits also organize the distribution of risk between the lender and employer. "The stock," claims Smith, "is at the risk of the borrower, who, as it were, insures it to the lender" (99). Since the employer of stock has tied her fate with that of the finished product, it is she who will bear the costs of failure, rather than the lender. The interest rate, on the other hand, reflects, and compensates for, the risk taken on by the lender: it must be "more than sufficient to compensate the occasional losses to interest, which lending, even with tolerable prudence, is exposed" (98).

If profit acts as a social compensation for the risks of "employing one's capital," it is perhaps unsurprising, though generally overlooked by readers, that Smith locates some of the greatest individual risk-taking in the realm of wage-labor, rather than profit. It is here, in one's choice of occupation, often involving the investment of large amounts of time and capital, that the "probability of success" becomes a significant cause of vast inequalities. The lower the probability of success, the greater must be the rewards (Smith's quintessential example is law school). Wages rise sharply to compensate workers for the intermittent work offered in some employments, or the large degree of failure in others, namely for "those anxious and desponding moments which the thought of so precarious a situation must sometimes occasion" (105).

The presence of risk throughout the system of value and exchange, moreover, does not mean that risk can be easily detected, measured or isolated. On the contrary, the line that separates the 'risk-premium' from actual surplus remains ambiguous and is often misjudged. Smith laments human psychology, which is far from rational when it comes to assessing the unknown future or the value of an uncertain prize. The lottery serves him as a model for a large portion of economic

decisions, in which "the soberest people scarce look upon it as a folly to pay a small sum for the chance of gaining ten or twenty thousand pounds; though they know that even that small sum is perhaps twenty or thirty per cent. more than the chance is worth" (109). In choosing a profession or making an investment, Smith claims by analogy, people tend to overestimate their own talents, underestimate the odds of losing, and prefer large prizes at low, overpriced odds. In the absence of strong character and a hesitant if bold nature, therefore, the profit-based system, with its built-in safety nets, would appear to be Smith's far more substantive, thoroughly social answer to the problem of risk.

Conclusion

In 1921, Frank Knight identified the greatest obstacle facing theories of profit in the twentieth-century. The now dominant utilitarian ideal, he argued, which envisioned perfectly competitive markets reaching equilibrium where all are better-off, no longer had a place for such a thing as profit. "Perfect competition" as the new working assumption behind economic models meant that price will always equal cost in "a remainderless distribution of products" (Knight 1921, 19). For Knight, and for his readers in the decades to come, profit had become the site for reflection on the gap between models and reality, the "problem of the contrast between perfect competition and actual competition" (ibid.). Uncertainty, or irreducible risk, which he identified as the main cause of imperfection in markets, became the source of profit while risk-taking—really "uncertainty bearing"—was defined as the ultimate function of the entrepreneur. This function set her apart, and above, all other market participants, as the sole actor whose role is to direct and take responsibility for economic decisions (ibid., 271).

Profit became a unique, highly individuated remuneration for a special, personalized function, in part because it no longer corresponded with the abstract system of laws by which markets were understood. This twentieth-century notion emerged alongside the modern corporation, where ownership and control grew into distinct functions in their own right, and the expansion of financial intermediation, with its increased emphasis on short-term gains. Twentieth-century definitions of profit and the entrepreneur thus highlight the radically different economic and epistemological world in which Smith was writing and in which classical political economy was forged. Dedicated to questions of social progress and the expansion and distribution of economic surplus (Aspromourgos 2005; Winch 1972; Morgan 2012), the labor theory of value conceived of profit in thoroughly social terms and let markets determine and regulate it, by and for society.

For Smith, profit reflected the value placed by society on the "risk and trouble" of the undertaker of business, not in relation to their enterprise, but in relation to the conditions of society itself. Profit served as a synthetic reflection of the economic conditions, skill, and temperament of a given land—the incentive required, across industries, to induce individuals to put labor and resources to productive use. Though necessarily abstracting from a reality far less standardized and significantly more rigid in its institutions, Smith's idealized free market retained an important place for profit. Rather than eliminate it, market freedom, Smith's main concern, guaranteed that profit rates remained even across society and high enough to sustain this new, profit-earning social class. Similarly, a fixed rate of profit had to guarantee this class basic protection against regular, and sometimes irregular, risks, making risk-carrying a social burden rather than an individual service, in what is perhaps the most notable distinction between the two notions of profit.

For this reason, Smithian profit-making stands out in the social consequences and mandates that attach to it. Smith's system maintained a permanent tension between individual incentive and collective benefit. The greatest threat of a profit-earning class, as he saw it, was the pressure it could exert on governments, driven by the pursuit of ever higher individual gains. The interest of profiteers as a group ran directly against the greater good of society, which thrived when low profits made way for higher capital accumulation and wages. Unlike the twentieth-century view, from Weber to Knight, Schumpeter, and von Mises, Smith clearly outlines the limits to legitimate profit. Liberated from its dependence on ownership, profit in this capitalist origin story, marks the power of a new form of economic organization—the division of labor and free exchange—to grow social wealth while productively, and relatively safely, putting it to work. In its ideal, it is socially maintained at a level high enough to safeguard and prompt investment and low enough to propel rather than inhibit progress. Not profits, but their regulation, therefore, are the key to a classical vision of progressive equilibrium.

The social definition of profit, however, did not in any way preclude steep social inequality. Accumulated capital and its growing concentration, the basis for any profit driven system, naturally limit the number of people who can actively engage in profit-earning activities. Profit, moreover, plays a key role in defining the two fundamental social oppositions competing for resources in Smith's market economy, locked in a zero-sum game. On the one hand, profit pits labor against the "masters of industry" for shares in surplus gains. On the other, it separates the productive consumption of this surplus from its unproductive uses, in the persistent tension between industry and hoarders of wealth.

Profit, in Smith as much as in Knight or in Schumpeter, goes beyond market mechanics and rules to give rise to an entire social, political, and ethical cosmology. Social functions and

hierarchies, along with their conflicts, their tensions and, at times, their resolution in economic equilibrium, are regulated and justified through the working of the concept of profit. Far from fixed, its changing meanings and historical development reveal the effect of scientific transformation on the ways society can be conceived and organized. Bound with a notion of inequality, of fundamental difference in social roles and positions, the question of profit in political economic thought amounts to a vital normative and practical question, within the context of market society: which kind of inequality is to be preferred, and by which mechanism should we organize the allocation of society's conspicuously asymmetric rewards.

Chapter 2. Profit, Uncertainty, and Markets

Frank Knight represents, at one and the same time, a road not taken and the epitome of a new approach to risk and wealth, which marks the emergence of a new risk-management paradigm in the interwar years, founded on financial markets. His work posed a challenge to two historical developments. The first is the evolution of economics as a science, and the second is the maturing of two parallel, partially overlapping risk-management technologies: insurance and incorporation. In economics, now severed from the tradition of classical political economy by its search for general laws and their mathematical representation, a new model of markets would abstract away all dynamic and uncertain elements of economic life. Similarly, with the expansion of insurance and publicly held firms, and the integration of industries, a new confidence in the power of institutions to eliminate risks would shape legal and political battles and extend the principles of insurance and rationalization to public institutions and national programs. Knight challenged each of these new frameworks' apparent triumph over the uncertainty and unpredictability of economic life. He did so by focusing on risks which cannot be reduced or eliminated and market conditions that do not comply with the new equilibrium model of economics and its assumption of perfect competition. Both, he argued, could be tended to by radically revising our notion of profit.

Knight's intervention into both the marginalist and the actuarial logic foregrounds the relationship between markets and risk, and in particular the late-nineteenth-century notion of markets as self-clearing and perfectly balanced. The idea of "perfect markets" or "perfect competition," however, requires some caution on the part of the contemporary reader. A key figure in the history of the University of Chicago's economics department, Knight's invocation and reflection on the term remains a puzzle. Chicago in the 1920s and 30s was renowned for its

free-market advocacy in an age of progressive interventionism and for significant emphasis on mathematical rigor in an intellectual environment dominated by historicist and empiricist methods (Burgin 2013; Backhouse, Bateman, and Medema 2010; van Horn and Mirowski 2009). Moreover, Knight and his contemporary, Jacob Viner, were responsible for the intense graduate education in marginalist "price theory" of the future leaders of the "Chicago School," which formed one of the bases of the school's ideological turn to free-market radicalism.[1]

And yet, Knight's theory of perfect markets was neither descriptive nor prescriptive, but a theoretical abstraction in the spirit of economic mechanics: a frictionless environment for exchange to take place to the point of equilibrium. For Knight, the unqualified reduction of the economy to 'perfect markets' distorts more than it reveals. In his exposition of the theory, he takes issue with the mechanized, automated image of society it implies, where human choices are but instincts and long-term plans are reduced to whims. Moreover, the degree of artificiality of perfect markets, he claims, was rarely made explicit, bracketing the forces of time, change, and the unpredictable and therefore distorting the basic conditions of human life.

Uncertainty, on the other hand, enters Knight's account as a thoroughly disruptive force. Well beyond the detrimental effects of imperfect knowledge on markets' ability to yield accurate, efficient prices, uncertainty is the key force shaping both human consciousness and social hierarchy. The presence of uncertainty separates the realm of mechanical "doing" from a realm of deliberation and judgment in the face of the inherently unknowable, where action itself becomes secondary. Similarly, within this 'duplicated' world, those willing to act on their

[1] While the precise impact of price theory as a graduate curriculum on later Chicago economists continues to be debated by scholars, in particular the question whether it had a unifying influence and continuity, it remains an important link between Knight and his successors. See, e.g., Emmett 2013, 147–49; Medema 2013, 162.

predictions of the future, to offer guarantees to others, and to assume responsibility for their judgments are separated from the greater mass of society, which will accept their leadership and direction in return for security and stability. Profits, therefore, are awarded to "risk-takers" not as innovators, who put production in motion and create something wholly new out of the old, as we find in Schumpeter's contemporaneous, highly influential definition of the entrepreneur (Schumpeter 2011b). Rather, profits are awarded to those who, through their present guarantees of future rewards, allow a market system to emerge in the first place.

From the automated decision maker on the margin, often not much more than a potential or actual bundle of goods, the economic person in Knight's theory regains her human character and a social role. She is unique in her ability to lead by accepting responsibility in a fluctuating, unpredictable world. She offers security in the absence of technological solutions for economic risks. She is not a mere cog or valve in a modernized organization, or an abstract store of productive capacity, and she has no special relationship to capital. Knight's entrepreneur, defined by her risk-taking, is the opposite of a reductive model of a person. Rather, she is the personification of social responsibility, the individualist bearer of true uncertainty.

By tying together profit and uncertainty, however, Knight was also arguing for the market necessity of a highly erratic and skewed form of residual income and a steep social and organizational hierarchy, with few at its top. Uncertainty, and its division of humanity into leaders and followers, also mandated sharp asymmetries in the distribution of social rewards and a rigid regime of private property as the necessary evils of non-idealized market society. His theory thus made explicit what Smith's notion of profit had largely implied: in order to guarantee the many a fixed, contractual return for their effort and investment, some must assume the

remaining uncertainties of economic life, and would only do so if the reward was sufficiently lucrative.

I begin this chapter by examining the transformation, verging on elimination, of profit in economic theory as it underwent the 'marginalist turn' and an intensified process of mathematical 'scietification' in the late-nineteenth-century. Next, I turn to Knight's synthesis of the classical and marginalist traditions in an extended thought experiment meant to highlight the gap between perfect markets and real ones, followed by his introduction of temporal aspects, drawing heavily on the principles of insurance. The third and final section will examine how a distinct social figure, the entrepreneur, emerges from the need to ground markets in reliable guarantees towards the future, in the face of inherently uninsurable, immeasurable risk. In the following chapters, I will discuss the ways Knightian uncertainty was both abandoned by economists committed to equilibrium, and reintroduced, by force of a new interest in the dynamic and unstable elements of the economy. As a new risk-management paradigm emerged to package and sell "irreducible risks," Knight's entrepreneur, and the inherent social asymmetry which describes her, would be reproduced almost in full in the figure of the speculator.

From Distribution to Utility: Profit and the Marginal Revolution

The equilibrium model stands out in its commitment to the abstract representation of the economy as a closed system of contrary forces seeking permanent resolution in a static state. It owes its eventual success, to the growing attractiveness of mathematical representation and its identification with science proper, but also to the weakness of its competitors. Economic statistics that could furnish empirically grounded theories were still limited and underdeveloped in the late-nineteenth and early-twentieth, and other scientific models, particularly biological

ones, were shunned for their lack of generality (Ingrao and Israel 1990). In a dramatic contraction of the normative scope of economic thought, the equilibrium of forces—which corresponds with the moment market-higgling is concluded, an offer is accepted, and quantities for manufacture are settled—would ultimately be interpreted as fundamentally fair, the benchmark of individual (and aggregate) welfare. When exchange takes place at an equilibrium price, all participants are better-off or at least unharmed. No one person, in other words, could be made better off without making someone else worse off. The model, therefore, represents a narrowing of the scope of economic analysis and at the same time an extension of its applicability, through the generalization of all markets (Winch 1972, 335).

This new system of forces displaced the classical socio-political concern with private and public wealth accumulation, its social distribution, and the problem of population growth, all of which were definitive in the work of Smith, Malthus, and their successors. Economic laws in the classical tradition centered on the changing relations between available capital, the food supply, and the rate of population growth, as it threatened to exhaust available means of subsistence. From the work of Smith to that of Mill, solutions included technological innovation in agriculture, the division of labor, territorial expansion, and a culture of prudent abstinence from unnecessary consumption, which directed profits back into productive processes (Morgan 2012; Hutchison 1953; Winch 1972). It also relied on the proper distribution of capital and its revenues among the three productive classes: landowners, capitalists, and workers. The "labor-theory of value," the main engine of classical political economy, thus grew out of a reflection on progress, as we find in Smith: "if the society were annually to employ all the labour which it can annually purchase, as the quantity of labour would increase greatly every year, so the produce of every

succeeding year would be of vastly greater value than that of the foregoing" (Smith 1904, 56; see also Winch 1972, 338).

In the equilibrium model, on the contrary, the economy was reduced to the function of exchange, and the study of human behavior was limited to the satisfaction of needs and desires, to "unlimited greed" and the rational ability to maximize pleasure (Ingrao and Israel 1990, 10; Morgan 2012). It also maintained a limiting set of assumptions about human nature, like perfect foresight, and a novel emphasis on the tendency of utility to diminish as one consumes more and more of the same thing. The new focus on consumption not only supplemented the production-centered perspective of the classical tradition, but revealed that market activity found its natural end in the point of satiety and in the scarcity of goods and means, which together were the source of all value (Jaffé 1972, 389). The equilibrium model thus abstracted away the very elements which drew Marx' critique of capitalism: the idea that the market was fundamentally a sellers-market, who can indefinitely 'consume' its products, as long as they can sell them at a profit. Instead, it presented the market as facilitating, through perfect competition, the maximization of utility on both ends of a transaction, through a price which reflects a perfect symmetry of forces.

As befits a key mover of the classical approach, the concept of profit was radically transformed by the new framework, demonstrating its realignment around the problem of exchange. As a distributive share rewarding the upkeep of productive processes over time, profit, even more than wages, rents, or interest, epitomized the classical focus on progressive aspects of capitalism and class division. Within the static logic of equilibrium, on the other hand, it was eclipsed, and to an extent subsumed, by a new term, belonging to a new set of values and valuations: utility. The new regime of utility transformed the meaning of "gain", from a share of the fruits of productivity to the optimal satisfaction of a need, the maximization of the beneficial

effects of exchange. Within the framework of general equilibrium theory—the pure mechanics of a strictly economic world—the fact of capital accumulation would be abstracted away, replaced by an idealized static state in which 'endowments' were pre-given.

Was this to be the end of profit as an integral part of the capitalist system? The end of risk as an important explanatory variable? No longer denoting a distributive share, profit was retained in the new system as a force, a tendency, a motive. Reduced to the entrepreneur's search for efficiency, profit was no different in its structural significance than a desire fulfilled through consumption. An optimizing principle on the production side of the equation—mirroring individual utility maximization on the demand side—it satisfied a more abstract 'desire', the hollowed out 'pleasure' in the relative improvement of one's position. In effect, the marginalist turn eliminated profit in its classical sense (and still quite common colloquial and practical sense) not once but twice. First, profit was reduced, or at least individuated, from a social distributive share to the subjective sense of personal benefit. Even more significantly, perfect competition, as I will show, and the perfect efficiency of exchange implied by equilibrium, left no room for profit as an extra or a surplus, since all costs were reflected in the equilibrium price, and no more. In other words, profit was eliminated once in its meaning, and again in its form. Strongly linked with profit, and temporal elements more broadly, the fate of risk and uncertainty was even more drastic. As a static system in which all transactions occur at a single moment and for all time, while all enjoy perfect foresight, the equilibrium model bracketed risk, seemingly for good.

How did utility come to replace profit, and at what cost? In ways that prefigure the fraught debates over risk in the 1930s, utility did not enjoy an uncontested ascent. On the one hand, it gave the marginal revolution its central object of inquiry, an indispensable (at least until the 1920s) structural component, and a lingering connection with its normative heritage. On the

other hand, utility remained one of the theory's most contested aspects, as a magnitude that, its critics argued, could not be measured, standardized, compared, or aggregated—all necessary manipulations without which its usefulness as an analytic category was questionable.[2]

Historians have offered several explanations for the puzzling rise of utility to hegemonic status. Notably, nearly all are concerned with the technical, rather than substantive significance of the term, which relates it to the broader process of the mathematization of economics. In other words, despite its origins in a fundamentally normative and political project, such as one finds in Jeremy Bentham or J. S. Mill, the utility concept's main attraction for economists were its properties as an object, and tool, for scientific inquiry. As T. W. Hutchison (1953) comments, in a telling anachronism, Bentham, in the eyes of the marginalist tradition, was

> the first great English originator of individual maximization analysis, and the great propounder of the idea that something of profound clarificatory significance, normative or positive, is being said about human actions or some aspect of them when they are described as 'maximizing' actions. (14)

Not utility per se, but the fact of its maximization, according to Hutchison, was Bentham's landmark contribution.

Maximization, however, would receive its distinctive mechanistic, individualistic tint with the marginalist turn. The late-nineteenth-century saw a shift in focus from the maximization of personal and social prosperity, ultimately measured in the 'greatest good for the greatest number,' to a limited notion of personal betterment within fixed and scarce means. Utilitarian

[2] Though not on equal stature with utility, the concept of risk would, upon its reintroduction, be subject to similar doubts. Whether and how to incorporate change and instability, and therefore risk, into a model of exchange relations and the feasibility of actually measuring risks and their impact, were the main questions economists faced whenever they attempted to read their new models into a turbulent economic reality. These debates are discussed in Chapter Three.

decision-making centered on the allocation of limited resources and utility became a continuous, nonlinear function of quantity consumed, shaped by the diminishing intensity of satisfaction.

Through the introduction of marginal utility, therefore, Jevons, Walras, and others gave the maximization problem a much more specific form: the maximization, or really optimization, of a nonlinear function. In this way, utility as a function of consumption went a great deal further than the psychological and behavioral characteristics of *homo oeconomicus* in which it was ostensibly rooted. What Alfred Marshall (1895) had dramatized in his "margin of doubt", the fateful decision to consume or not to consume an additional unit of a given good,[3] was in fact an elementary component in a much more ambitious attempt to create an economic mechanics:

> the marginal utility theory of value provided the architype of a 'microeconomic' maximizing allocation problem, capable of pure and simple mathematical formulation, and using the concept of the marginal unit to formulate a precise maximizing solution… what was important in marginal utility was the adjective rather than the noun. Marginal utility analysis introduced the marginal concept as an instrument of maximization analysis…[4] (Hutchison 1953, 16)

Bridging mechanics and psychology, W. S. Jevons (1888 [1871]) and Irvine Fisher (1925 [1892]) removed much of the subjective drama of decision-making by depicting it as a mechanical balancing act of personal utilities and costs. As Harro Maas (2005) has shown, the willingness to place the intimate inner world of the individual in direct causal relation with a world of exchangeable things meant a sharp departure from the tradition of political economy.

[3] "the additional benefit which a person derives from a given increment of his stock of anything, diminishes with every increase in the stock that he already has. The increment of the commodity which he is only just induced to acquire (whether by his direct labour or by purchase) may be called its *Marginal Increment*; because he is on the margin of doubt whether it is worth his while to incur the outlay required to obtain it" (Marshall 1895, 168).

[4] On early versions of marginalism in nonmathematical economics see De Marchi 1972; in mathematical economics see Ingrao and Israel 1991, chap. 3.

Representing utility as a function of goods consumed, was a direct challenge to the enlightenment theory of mind; though the gap of mind and matter had been closing since the days of Descartes, only a handful were willing to deny the human mind a separate sphere of activity, which was also self-motivated, autonomous, and free-willed. Jevons' early contributions to utility theory, propped by innovations in psychology and physiology, took aim both at the divide and its methodological implications, opting instead for an analysis of utility as "the mathematical relation between stimuli and satisfaction" (Maas 2005, 91) that is, a complete materialist reduction. Instead of choice and judgment, utility was seen as a physiological force, with pleasure and pain "mov[ing] the will automatically, just like forces move the balance" (217).[5]

[5] Jevons also conducted a parallel set of physiological experiments in fatigue, which enabled him to depict disutility as a function of work and to measure the "trade-off between useful effect and fatigue" (Maas 2005, 117), using a unified form to represent both sides of the balance of utilities. This further goes to show that ideas of the 'human engine', inspired by the growing dominance of the steam engine, were crucial not only for the development of energetics in physics, but to marginalist economics as well (ibid. 112-3).

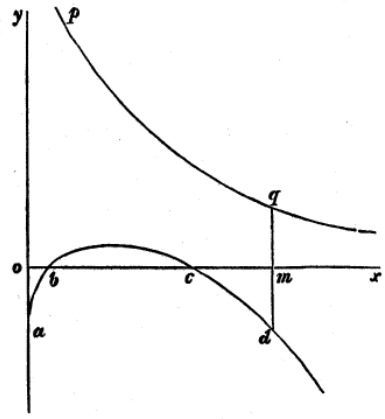


FIG. 9.

William Stanley Jevons' utility and disutility curves, 1871. Source: Jevons 1888, 173

If curve *pq* represents the "return on labour" (ibid. 119) and *abcd* represents the disutility of work "there will, of necessity, be some point *m* such that *qm =dm,* that is to say, such that the pleasure gained is exactly equal to the labour endured. Now, if we pass the least beyond this point, a balance of pain will result: there will be an ever-decreasing motive in favour of labour, and an ever-

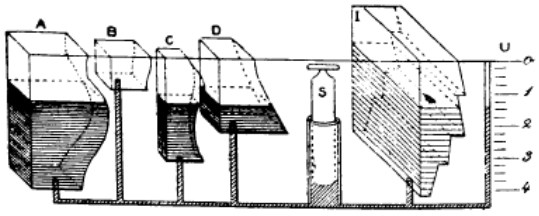
Similarly, and without changing the fundamental shape of the utility curve and its diminishing returns, Fisher interpreted it as the desire propelling us to consume a good, rather than the supposed pleasure its consumption yields. Utility, in this case, is an incrementally diminishing desire that can be exhausted by the full satisfaction of our needs. The final unit consumed, therefore, had to invoke perfect indifference: a little more and we would derive pleasure that is lesser than the cost of consuming it; a little less, and our desire would continue to push us to action. Only in equilibrium would the disutility and utility of consumption perfectly balance each other, bringing the system of contrary forces to a state of rest:

> two forces are equal if at the same time they alone act on the same particle in opposite directions and *no* change of motion results. One is greater when additional motion is produced in its direction… just as coincidence is the test of equality of geometrical figures, and the tip of the scales the test of equality and inequality of weights, so is the desire of the individual, the test of the equality and inequality of utilities. (Fisher 1925, 12)

§ 2.

Let the individual I distribute his income over the commodities A, B, C, ... M. Let the thickness of each cistern in fig. 6 be proportional to the price of the commodity it contains. Thus if A bears a price of $2 per yard, B $1 per gallon and C $\frac{1}{2}$ per pound, the thickness of cistern B is 2, of B 1, and of C $\frac{1}{2}$.

6.



Let the unit of area on the front surface of each cistern represent a unit of commodity, yards for A, gallons for B, etc.

Then the volume of liquid will evidently indicate the money value of the commodity, for it equals the front area times the thickness, that is, the quantity of commodity times its price. Moreover the sum of all the water will indicate the whole* income in dollars. The unit of volume thus represents not a yard, gallon, pound, etc., but a *dollar's worth* in each case. For A it would be $\frac{1}{2}$ yard, for B 1 gallon, for C 2 lbs., etc.

Accordingly let the curves which limit the cisterns be so constructed that the ordinates shall represent marginal utility *per dollar's worth* not per yard, gallon, etc.

§ 3.

The liquid will seek its own level corresponding to the economic proposition : *A consumer will so arrange his consumption that the marginal utility per dollar's worth of each commodity shall be the same.*

Figure 2: Irvine Fisher's hydraulic model, 1891.
Source: Fisher 1925, pp. 32-3.

increasing motive against it. The labourer will evidently cease, then, at the point m." (Jevons 1888, 173).

Much is at stake in Fisher's mechanics, which he demonstrated, quite literally, using a hydraulic mechanical model, replete with vessels of various shapes and sizes, in which fluids found their balance, mimicking an individual's competing needs, the costs of consumption, and their effect on the allocation of a given set of resources. Utilitarian mechanics at the closing of the nineteenth-century was a way to establish a rigorous scientific basis for economics using two overlapping strategies: modelling and testable hypotheses. Both strategies were grounded in what Maas has called "mechanical reasoning": a form of reasoning by analogy, using small, simple machines to study the underlying causal mechanisms of complex phenomena, which can then be represented mathematically and diagrammatically (Maas 2005, 177-8). Mathematics, therefore, was only one way to create economic models, which are more broadly defined as simplified, miniature worlds unto themselves, objects for manipulation and inquiry (Morgan 2012, 7). Still rare in the nineteenth-century, mathematical models offered a convenient, but not exclusive way to create simple, rule-bound worlds and use them to conduct various 'experiments', to test hypotheses, and to explore their empirical significance (ibid. 30-31).

Mechanical reasoning and its method of "mimetic experiments" (Maas 2005) was a standard of truth and rigor adopted from what was seen, for a limited period in the history of modern science, as its ultimate example: mechanical physics, and especially energetics. As E. Roy Weintraub (2002) has shown, this new approach was distinct from its geometrical, Newtonian predecessors and its formalist successors in its insistence on the correspondence between mathematical definition, economic law, and their concrete empirical manifestation. Also unique was the tendency of mathematicians at the time to see applied mathematics as an engine for mathematical discovery, extending this analogical, empirically grounded logic to their own standards of rigor:

> to be rigorous in one's modeling of a phenomenon was to base the modeling directly and unambiguously on the experimental substrate of concrete results. The opposite of "rigorous" was not "informal" but rather "unconstrained." To provide a nonrigorous explanation or model in biology, or economics, or physics, or chemistry was to provide a model unconstrained by experimental data or by interpersonally confirmable observations.[6] (Weintraub 2002, 49)

Mechanical reasoning marked a move away from the deductions of pure reason, which characterized Newtonian mechanics, as it did Mill's introspective deduction of the laws of economics.[7] The empirically grounded scientist, on the other hand, would depart from actual phenomena by way of abstraction or synthesis, into the realm of mathematical and mechanical representation. She would then return, through tests and observations, to the realm of concrete evidence, where she could demonstrate the causal relations implied by her models. It was not, therefore, an inductive technique, of seeking patterns in large collections of data. The 'small machines' of mechanical reasoning were used to establish the underlying structures of these phenomena in a genuine attempt to uncover causality while retaining a rich empirical content (Maas 2005, 193; Morgan 2012).

With the adoption of tools, methods, and validity criteria from physics, however, a great deal of substance was also imported, prompting the reimagination of economic activity as a system of

[6] It was precisely this confidence in the ability to describe the workings of the physical world using mathematics that would suffer a deep crisis at the turn-of-the-century, with the development of set theory and non-Euclidian geometry. From the crisis would emerge a diametrically opposed notion of rigor as abstract axiomatization, which still holds today (Weintraub 2002, 23).

[7] Weintraub describes the older, Newtonian-styled physical mathematics which lingered artificially in Cambridge due to its qualifying "tripod" exams as "concerned with deriving certain conclusions from geometric arguments" (Weintraub 2002, 3). Mill, a nineteenth-century figurehead of classical political economy, would continue to insist that the laws of economics, as laws of human behavior, should be deduced directly from the mind through a process of pure introspection, and not by reference to empirical phenomena (Maas 2005, 81).

forces. In a series of physics analogies, utility became the counterpart of energy, an unobservable, immeasurable mover that defined the entire system, conserved throughout its internal transformations and conversions. Marginal utility was that part of utility which directed and actualized the movements of the human particle, *homo oeconomicus*, or in other words, the force derived from this greater magnitude (Mirowski 1984, 366). Philip Mirowsky, who has argued for the pervasive influence of energetics over the marginalist turn, quotes Edgeworth at length on this fundamental analogy:

> "the application of mechanics to the world of the soul is countenanced by the hypothesis… that Pleasure is the concomitant of Energy… as the movements of each particle, constrained or loose, in a material cosmos are continually subordinated to one maximum sub-total of accumulated energy, so the movements of each soul… may continually be realizing the maximum of pleasure" (Edgeworth 1881, quoted in Mirowski 1984, 364).

It is in this context, therefore, that utility first found wide applicability, but eventually gained its fiercest critics, around the question of its measurability. Early marginalists, such as Walras, Jevons, Marshall, or Edgeworth, accepted a notion of utility and even marginal utility as non-measurable magnitudes that are nevertheless susceptible to mathematical operations. In the words of Edgeworth, utility required a "'sort of economical algebra, in which the problem is not to find *x* and *y* in terms of given quantities, but rather to discover loose quantitative relations of the form: *x* is greater or less than *y*…'" (Edgeworth 1889, quoted in Weintraub 2002, 28). Under conditions of equilibrium, moreover, as Marshall emphasized, prices offered a palpable measure of the final magnitudes of conflicting motives involved in an economic transaction (Marshall 1895, 76).

Within a few decades, however, the very same, mechanically grounded approach, would come to require greater and greater preciseness in measurement, and a far greater role for quantitative, empirical grounding. True to form, these critiques came from the more

mathematically inclined, even as mathematics and physics were adopting a language of formalist abstraction (Weintraub 2002, 51). Within the framework set out by the likes of Vito Volterra, an applied mathematician, Wilfredo Pareto, Walras' successor, and G. C. Evans, utility had to be replaced. While Pareto successfully promoted the indifference curve as a substitute for an overly obscure and impractical notion of utility,[8] Evans, albeit less successfully, abandoned the utility program altogether, proposing instead an input-output model of production, a field far more suitable for the quantitative scientist (ibid. 33, 59; see also Ingrao and Israel 1990; Hutchison 1953, 303-4).

[8] Indifference curves represent preferences, or ordinal utilities, rather than magnitudes of ("cardinal") utility. They can be plotted between a horizontal and a vertical axis each representing a good. The curve marks all combinations of the two goods which are equally valuable for an individual, i.e., among which she is indifferent, but of which she would choose a greater over a lesser amount. To optimize the preferences of two individuals trading among themselves, Pareto would set up two such systems of coordinates, opposite each other, where each individual moves as far "uphill" as she can until she encounters her exchange partner (Morgan 2012, 11).

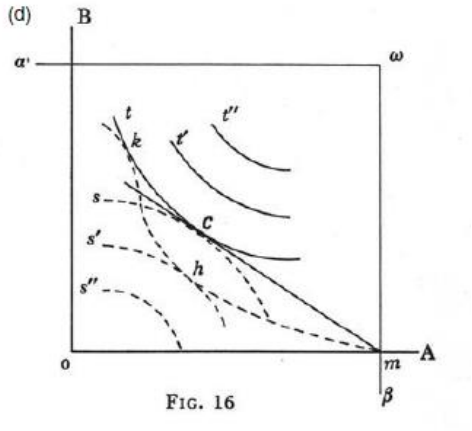


Figure 3: Wilfredo Pareto's indifference curves, 1906.

Source: Morgan 2012, 110.

To summarize, though it signified various referents in the real-world—a degree of pleasure or an active desire, a measurable substance or an immeasurable magnitude—utility was broadly seen as a tool with which to think about economic life as a mechanical system. The attempt to fit the economy into this model entailed several displacements within the objects and objectives of economic study. First and foremost, it required a change of 'scene': from the world of production to the site of exchange. While the laws of supply and demand are certainly older than the marginalist turn, they had not been represented as a system of forces in which both are, by definition, given equal weight. By focusing on production, its fruits, and their allocation, classical political economy took for granted the forces shaping demand and consumption. In an important early version of this idea, Nicolas-François Canard, in 1799, compared the opposition of supply and demand to the balancing of liquids (Ingrao and Israel 1990, 69-71). Seventy years later, Leon Walras (1954 [1874]) would set up his system of interlocking markets on the same principle, each of three main markets balancing out contrary forces: the buyers and sellers of goods, of productive services, and of capital services. In each market, and throughout all three, an equilibrium price[9] was assumed to exist which regulated the quantities to be produced and sold.

Utility, expressed as a function of consumption, progressing in infinitesimal increments with diminishing returns, took the form of a quantifiable motive force that could be balanced against other forces of production and consumption. The relationship between utility and consumption

[9] Notably, equilibrium 'price' in the bulk of these models referred not to monetary price necessarily, but to the price of one or more goods in terms of another good available on the same market, and valued only for its own qualities and not as a medium of exchange. This is important, because the absence of money in these representations of the economy further distanced them from the dynamic realities of actual markets, as interwar economists began to emphasize.

was then ‘discovered’ within actual data, as the relation between price and quantity consumed. Equilibrium price, represented by Walras as the outcome, once and for all, of an open outcry mechanism which he borrowed from the securities exchange, marked the ultimate end-point of exchange, the final state toward which all active forces tend, and where movement comes to its ultimate halt. This type of optimization problem—finding the state at which all economic ‘forces’ can be settled—became the heart of economic theorizing. In place of energy and force, sometimes in direct analogy, economists posited utility and marginal utility. The fields where these forces interacted were the interrelated markets for commodities and productive services. The thing being moved—the various reductive versions of *homo oeconomicus*, alternately represented by her desires, pleasures, decisions, or bundles of goods and needs.

Eventually, the success of utility had more to do with its manifestation as one in a system of forces than with its foregrounding of an inner world of motives and desires. Utility was susceptible to the broader marginalist logic and marks the moment of its expansion and generalization, rather than its origin.[10] The heyday of utility, moreover, was coupled with the spread of marginalist analysis to other aspects of economics within the general equilibrium framework, in the analysis of production and in monetary theory, which facilitated the integration of the various markets of an economy under one system (Jaffé 1976). Finally, amenable to differential calculus, the mathematical representation of marginal principles offered economics a unity of method with the exact sciences, and increasingly with the life and human

[10] Early versions of marginalism, as Hutchison shows, emerged wherever incremental changes to price and quantity-produced had a significant, nonlinear impact. Even classical theory included marginal logic when it reflected on the effect of available land on rents and profits. Another important site for early marginal thinking was in public utilities, and particularly railways, where small shifts in prices could entail much wider shifts in consumption habits; see Hutchison 1953, 17.

sciences as well (Maas 2005, 3). It was in the unity provided by marginal logic that utility gained much of its traction.

So how did risk and profit fare in this new constellation of ideas? The determinist models borrowed from physics and natural law had no particular need to represent the day-to-day experience of doubt, unmet expectations, and incomplete knowledge. Profit as a dynamic element, a return on the productive employment of labor and capital over time, was partially replaced by utility, whose meaning overlaps with the more subjective, a-temporal aspects of profit as a personal benefit. Moreover, Walras' general equilibrium established the "zero profit norm," which set the price of a good exactly equivalent to the costs of producing it, illustrating the way perfect competition requires balance, not surplus. The timelessness of equilibrium, the idea that it represents the moment an economic system comes to a state of stable rest, essentially precludes risk and uncertainty, because it precludes any future change or exchange. Moreover, the single, timeless price in this model, is determined by participants who have complete knowledge of the markets they are trading in, and therefore cannot err in their estimates of the relative value of a good or the quantity to be produced. In the same way that growth, accumulation, and distribution remained beyond the purview of the new, exchange-centered scientific framework, it would therefore appear that risk too, as a byproduct of capitalism as a dynamic system, would remain a vestige of past concerns.

The reappearances of risk in economics are therefore telling of the uneasy, indirect path by which the idea of equilibrium evolved between its contrary commitments to formalization and realism. The two working assumptions of equilibrium analysis, zero risk and zero profit, were to become Frank Knight's point of departure as he set out to define both as the joint manifestation of the imperfection of markets. The study of this rule-bound realm, which welded together risk

and profit beyond the mechanical laws of economics, moreover, proved to be a sharp turn from the logic and tools that drove the latter. If utility remained a rather hollowed out concept where great normative expectations once lay, Knight's analysis of the overlooked temporalities of markets relied on reviving the dead metaphor of equilibrium. To understand the social place of risk and profit, in other words, Knight asked how a world and a society with perfect competition might look, and concluded it would be an automated sphere dominated by doing, rather than thinking.

Reviving the Metaphor: Frank Knight and the Promise of Perfect Markets

Risk, Uncertainty, and Profit is an attempt to deal systematically with the remainders and discarded details of economic and social life left over from high theory. To get from *homo oeconomicus* to the entrepreneur, Knight develops his own highly abstract market theory. He incorporates the cutting edge mechanical models of his day, adopting key ideas such as the energetic creation and barter of goods, or the ultimate balance of the system in the equality of pleasures—a balance that precludes any profit:

> The primary attribute of competition, universally recognized and evident at a glance, is the "tendency" to eliminate profit or loss, and bring the value of economic goods to equality with their cost… a remainderless distribution of products among the agencies contributing to their production. (Knight 1921, 18; hereafter RUP)

Working through the mechanical model, however, his main emphasis is not on the nuances of price formation, but on the ways the model interacts and reflects back on a much messier reality, one in which markets are never perfect.

In reality, Knight argues, markets are not defined by a stable and efficient balance, but by the recurrence of mismatched prices and unmet expectations, and consequently by profit and loss.

Thus, “to display [the] implicit premises of theoretical reasoning is… to explain the problem of profit, the absence of which is the essential distinction between theoretical and actual economic society” (51). The distance from reality, moreover, does not undermine the theory, but it does raise serious questions on the limits of its applicability, prompting a broader reflection on the significance of using a mechanical, static metaphor to explain a dynamic social reality. Namely, the mechanical model highlights those aspects of economic life which are in fact mechanical and automatic, making all social activity predictable.

Perfect markets owe their frictionless operation to various factors: the timelessness of a static state, perfect communication and the absence of fraud, and perfect freedom for market participants, to name a few. Knight catalogues most of these factors as “idealizations of market tendencies”. As he will go on to show, many of the more rigid constraints and particularly the static state can be relaxed without harming the perfection of markets. One, however, remains completely artificial, representing a significant distortion of the nature of human society, and is therefore the foundation of perfect markets as an ideal: “the fundamental condition… that men *know exactly what they are doing*, that no uncertainty is present” (RUP 94, original emphasis).

I argue, therefore, that what is at stake for Knight in the mechanical metaphor was the relationship between thinking and doing, between choice and value. In his retelling of price theory, thinking and doing define two separate spheres of activity, one responsible for exchange as a rational, if largely automatic calculation, and the other responsible for true choice, with an eye to the future and a sense of the accuracy of one’s own predictions. The two can only overlap under the highly unrealistic assumption of perfect knowledge, and their internal imperfections and mutual inconsistencies in reality provide much of the material for a theory of risk and profit.

When Knight writes about the entrepreneur—the economic agent defined by her profit-earning capacity—he is therefore filling in the empty signifier produced by several decades of reductive economic modeling and the highly abstract notion of *homo oeconomicus*. Similarly, he reconstitutes profit not as a personal benefit, a form of utility, but rather as a proper "distributive share different from the returns to the productive services of land, labor, and capital" (RUP 18), harking back to classical theories tying profit and productivity.[11] Profit as a distributive share, he argues, rightfully belongs to the unique class of entrepreneurs. The theory of profit was thus dedicated to two primary questions: what was it that entrepreneurs earned a profit for—how, in other words, can risk-taking lead to profit-earning—and how did they fare as a social class and collective economic actor.

Doing

"History, and especially modern history," argues Knight, "is largely the story of progressive organization and its changes in form" (RUP 55). "In organized activity," he continues, "individuals perform different tasks, and each enjoys the fruits of the labor of others." Perfect competition is the recurring tool with which the broader notion is put forward, that organization can be generated, unguided and unplanned, by the market itself. Competition is first and

[11] Knight does not separate the classical and marginalist traditions when it comes to questions of profit and distribution. Instead he uses a geographical division to catalogue key flaws in the tradition a whole, characterizing profit as a highly unstable concept and even object of inquiry. The French tradition, Knight begins, tended to identify profit with a wage for superintendence while British thinkers equated it with a return on capital (RUP, 24-5). In Germany and Austria, profit was seen as a separate return, derived either from market advantage, bargaining skill, or monopoly status (28), while American writers identified it with time and change, rather than their outcomes: immeasurable risk (34). Finally, the scientific socialist tradition did much to foreground profit, but offered a highly reductive definition "in which all that is not wages is a profit which represents exploitation of the working classes" (27-8).

foremost a single mechanism meant to solve two allocative problems related to the economy as a collaborative project: "the assignment of tasks and the apportionment of rewards" (ibid.). The solution, in turn, is both individualistic and automatic: self-interest drives individuals to pursue the greatest returns for their effort and sacrifice, and to rationally barter to fulfil their needs. This mutual tendency is itself sufficient to guarantee optimal results for all, and is grounded in the reduction of humanity to calculating, perfectly rational creatures, dominated by a means-ends logic (56).

By making them explicit, Knight's model economy was meant to bring to light, in some cases to absurdity, the ruling assumptions and mathematical abstractions of marginalist price theory, centering on the claim that "the members of the society

> act with complete 'rationality.' By this we do not mean that they are to be 'as angels, knowing good from evil'; we assume ordinary human motives… but they are supposed to 'know what they want' and to seek it 'intelligently'… all their acts take place in response to real, conscious, and stable and consistent motives, dispositions, or desires; nothing is capricious or experimental, everything deliberate. They are supposed to know absolutely the consequences of their acts when they are performed, and to perform them in the light of the consequences. (RUP 77-8)

Perfect knowledge, as it is defined here, is indistinguishable from perfect rationality, which itself relies on the objective and subjective knowledge of consequences. Individuals acting within this economy enjoy costless, instantaneous exchange, complete freedom, and perfect communication, which mean that "every potential buyer of a good constantly knows and chooses among the offers of all potential sellers" and "every person is the final and absolute judge of his own welfare and interests" (77-9).[12]

[12] Knight's thought experiment, using a highly abstract, static model, has precedence in the work of J. B. Clark, who explained the existence of profit by separating a highly rigid "static state" from dynamic and progressive change, the sources of profit. Knight temporarily accepts the

The irony of this hyper-rational, sovereign omniscience is that it is premised on decision-making but effaces the true meaning of individual choice, a paradox that will help shape Knight's depiction of the entrepreneur. Each individual in the model economy receives subjective satisfaction from holding one good or another at a certain amount. Equilibrium, therefore, originally describes a personal state, the equal satisfaction from all goods, in their varying quantities, that end up in one's possession: "when confronted with alternative, quantitatively variable lines of action or experience, we tend to combine them in such proportions that the physically correlated amounts or degrees of each are of equal utility to the person choosing" (64). Equilibrium is the moment in which the individual, after a series of consecutive decisions to buy or sell, to labor on this or on that product, will cease her economic activity.

In a market with perfect knowledge and communication this individual "law of choice" will seamlessly lead to general equilibrium within several rounds of adjustments, by giving rise to a uniform rate of exchange for any two goods; the highest rate that can clear the market and leave no one with an unwanted surplus (84). Market exchange ratios will "be so adjusted that *at those ratios* no individual will wish to exchange anything in his possession for anything in the possession of anyone else" (85). Decisions, therefore, in this idealized system of exchange, are nothing but the necessary outcomes of calculation, of comparing the relative value of one good and another, "recognizing the technological equivalences (for the person in his role of producer)

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suggestion to keep "all given factors and conditions... absolutely unchanged" throughout consecutive rounds of exchange, only to prove that the static state is not a necessary condition for perfect markets. Predictable changes, as many progressive changes are, pose no difficulty, and are absorbed into the costs of goods, as I will show. On the more implicit assumption of perfect knowledge and the infallibility of expectations in the history of economic thought, see: Hutchinson, 323-6.

of physically measured units of different goods, and the consumption-value or utility equivalences (in his role of consumer), and of course the exchange ratios in both cases" (Knight 1925b, 426).

In its most extreme form, which Knight describes as "the point of view of the gods" over human affairs (ibid., 423), the system of exchange is defined by the principle of the conservation of value, perfectly analogous to the principle of the conservation of energy, which retains its quantity while shifting forms. "Value acquired" in the act of exchange is always identical to "value given," while in the system as a whole, value 'flows' from producers to consumers. It is a perpetual energetic cycle, from potential value (stored in wealth or labor power, but also desire[13] and any other assumed motive force) to value in its "kinetic" state (income, the fleeting act of consumption, gratification), moving like an electric current (ibid., 424). It is therefore highly significant that the single condition which allows value to retain this flawless convertibility, while effacing true human deliberation, is the availability of perfect knowledge and communication.

Perfect information, in Knight's vivid description, would work its way through the economic system not merely as an external reference point for individuals, but by actually transforming

[13] Knight consistently turns away from metaphors emanating from the psychic, "hedonic" realm, while emphasizing elements of choice and planning as the system's primary movers. The latter stem directly from the assumed transparency of the system and rationality of human actors: "the quantities of economics are properly *rates,* the motives not desires immediately present to consciousness, but detached judgments of need or value" (RUP 59). Rejecting earlier marginalist notions of exchange as an opposition of forces tied to a hedonic calculus, he writes that a "mental bias… compels us to interpret [exchange] phenomena in terms of a pressure or force back of exchange and causing it, or of which it is the 'expression.' It makes no difference to the abstract theory of method whether the urge to exchange be called pleasure, desire for pleasure, desire for goods, utility, psychic income, or something else. It is the analogue of potential, and value potential would be the proper scientific designation" (Knight 1925, 21).

human nature, imprinting its rational imperatives onto people's minds. Perfect markets, in other words, were they to actually exist, would mean a radical contraction of human judgment:

> The constant presence of the published scale of exchange ratios and the working-out of the whole organization in terms of it must have a tremendous influence in 'rationalizing' the economic activity, in impressing its quantitative features on men's minds, and enforcing precise calculations and comparisons. (RUP 88)

For the fully rationalized market actor, decisions are limited to comparing quantities of an abstracted "value in exchange," which they either create or expend (89). The decision to undertake a certain line of production in such a society, the decision to work for a given wage, or to trade at a given rate of exchange, all stem automatically from the perfect knowledge of present and future prices and even present and future needs. In other words, decisions on the margin determine all prices, but the theory abstracts away that which makes a decision a decision: loss, uncertainty, error, incomplete knowledge, unpredictable consequences. For this reason, approximately two-thirds of Knight's book will be dedicated to dynamic conditions and the irreducible fact of uncertainty.

Doing and Time

There are important ways in which time and change feature prominently even in Knight's 'pure theory', diverging from a dominant strand of the marginal tradition, where adjustment over time was either assumed, but not discussed, or actually abstracted away. An important example of the latter was Léon Walras' idea of simultaneous settlement, or *tatonnement*, exemplified in the open outcry method of securities exchanges, where all haggling and negotiation preceded the actual, singular act of exchange (Walras 1954, 84; Ingrao and Israel 1990, 103–5). Knight, moreover, went a great deal beyond adjustment over time and insisted that progressive change—and many

of the risks involved with it—could be incorporated into a model of perfect markets, posing little challenge for the assumption of perfect knowledge.

How did economic dynamics enter Knight's thinking? While Irving Fisher, an American economist, presented, as early as 1890, a mature, highly static and abstract mechanical market system, it was Alfred Marshall's synthetic (both marginalist and historical), evolutionary approach, that served as a common reference for US economists across fields (Backhouse, Bateman, and Medema 2010). Knight incorporated the Marshallian theory of a long-term "normal price," or the idea that equilibrium required adjustment over time. For example, a decision to produce a good in the present, he argued, requires an estimate of future gains drawn from present prices. This will at first give rise to a price differential "analogous to 'profit'" between estimated and actual future prices, leading to a complicated game of estimation and adjustment that will eventually equilibrate the market:

> As soon as men find out accurately what goods are going to be worth *after* they are produced, they will employ their productive energy accordingly, and the profit differential will disappear. And since this is what they constantly strive to do, with *some* measure of success, the system will tend toward that equilibrium adjustment in which no profit exists. (RUP 90)

Knight's main targets, however, were not the marginalists and their timeless models, but rather an emerging American economics literature already contending with the lingering problems of income and distribution, as part of a broader rethinking of *laissez faire* ideology. As Bradly Bateman (2005) has shown, the American university system in the postbellum nineteenth-century no only lagged in its theoretical savvy, but was "firmly in the hands of the industrial capitalists," overseeing a wider transformation of republican ideals. From the independent worker and small capital holder, which drove abolitionist rhetoric in the name of economic progress, American industrialization and vertical integration relegated many to the

status of permanent wage laborers. Industrial development, led by large corporations, thus remained the only truly "free" economic force (Bateman 2005, 187).

In contrast, the early professionalization of American economics was led by a small group of scientifically driven pioneers, including J. B. Clark, Richard T. Ely, and Carter Adams, known as the "ethical economists." They displayed a commitment to government regulation of markets, which stemmed from a combination of the Christian socialism of their German training and the lingering hold of Protestant values in a radically new guise (Bateman 2008; 2005, see also Morgan 1994). The project of creating a scientific economic discipline, with much more room for public oversight, was shared by two rivaling approaches near the turn-of-the-century: the marginalists, who promoted a mathematical method of abstraction and high theory, and the institutionalists, who espoused a historical method, supported by statistical analysis, in the study of government and market relations, and especially the role of corporations (Rutherford 2000).

Not only, therefore, did both approaches enjoy a degree of influence in academic circles, but they were also engaged in dialogue and intellectual confrontation. Proponents of economic mechanics found it necessary to defend a methodologically reductive position, and to take seriously problems that are central to historical analysis, like the competitiveness of markets or their ultimate ability to promote efficient and fair social distribution. American marginalists, including Knight, took on the dual task of promoting the pure mathematical theorizing of their chosen method, while providing a thorough response to their critics, well beyond the boundaries of their models, indeed in defense of the very choice to place markets at their center. Part of the marginalist project, therefore, became to distinguish well-functioning markets from their aberrations, a problem which Clark saw as a political and even moral one (Morgan 1994, 233),

while Knight approached it primarily from an epistemological perspective—the gap between theory and reality.

In profit, this confrontation of approaches and its pluralist outcome came to the fore both substantively and methodologically. On the one hand, profits represented a highly contested distributive category and constant source of crisis and tension in an age of rapid industrial consolidation and strong political backlash.[14] On the other hand, profits could not be easily resolved within the new mechanical models, which tended to eliminate them wholesale from their ideal of market efficiency. It therefore occurred to several leading voices in this new generation of economists to tie profits with the dynamic elements of economics that had been left out of equilibrium analysis. Knight himself found his immediate predecessors and main interlocutors among this group: J. B. Clark and F. B. Hawley, who were engaged in an ongoing debate on the relation of profit to business risks. Knight's innovation, as I will show in this section, was not only to add temporal aspects to the static model, but to show that equilibrium analysis can in fact be expanded to include many of the economy's dynamic aspects, displacing the center of attention from time and change to their distinct outcomes: risk and uncertainty, or measurable and immeasurable risk.

[14] I refer here primarily to the political and legislative battles around the "trust problem" at the turn of the twentieth-century, framed by the Sherman Antitrust Act of 1890 and the establishment of the Federal Trade Commission in 1914 (Sanders 1999, 267; Sklar 1988, 91). The Sherman Act represented a strong, if sometimes merely nominal prohibition on business collusion and collaboration in the name of free and open competition, propelled by populist sentiment against the backdrop of an intense period of corporate consolidation. The "great merger movement" was an unprecedented wave of industrial rationalization heralding a new age of highly centralized, horizontally integrated firms (Lamoreaux 1985), while the FTC and further antitrust legislation during the progressive era established a substantial role for government and the courts in overseeing mergers and determining the limits of reasonable collusion.

While readers have focused on Knight's unique epistemological distinction between risk and uncertainty (see, e.g., Lawson 1985; Hopkins 1933; Brooke 2010), as indeed did he (RUP, 35; 45), I propose that in making this distinction Knight was responding to a broader question: whether profit can be regarded as the distributive share of a unique class, an independent, fourth 'factor of production' to supplement the classical, threefold division into labor, capital, and land. The question of time and its effects, in other words, cannot be distinguished from questions of distribution—an internal tension that has defined the concept of profit throughout its historical evolution. Knight's intervention was no different, and the aim of his painstaking work to differentiate the manageable effects of time from those which defied calculation and redistribution hinged on the centrality of the question "who profits." Did the entrepreneur represent a fourth political-economic agent, separate from the worker, capitalist, and landowner? It was this question that drove much of the active debate around profit at the turn of the century (Hopkins 1933).

To reiterate, from the marginalist perspective, which eschewed problems of social distribution altogether, the question was somewhat absurd. Since profits tended to zero, and were precluded from the equilibrium state, it made little sense to speak of a class of professional profiteers. Markets are self-clearing by definition, and even if they could be assisted in the process of adjustment, any expert market-forecaster would be destroying their own income as their predictions became more accurate. From the opposite end of the methodological and political spectrum, the critique was surprisingly similar. Profit was seen as a market or "business" phenomenon, completely divorced from production. Thorstein Veblen, for example, argued that, whereas industry is a vast complex machine, best kept in the hands of technical experts, the "business man's place in the economy of nature is to 'make money' not to produce

goods…" (Veblen 1919, 92) and they do this by way of "sabotage", "by obstructing, retarding or dislocating this working system at some critical point…" (63) at a great cost to the greater community. "The highest achievement in business," he concludes, "is the nearest approach to getting something from nothing" (92, see also Hopkins 1933, 63).

Dynamic economics carved a path in-between these views, by tying profits directly with time, change, and uncertainty. Once the assumptions of a static state were relaxed, it asked, can profits be re-integrated into both markets and production? Are they an economic phenomenon of sufficient standing to provide a regular income for a unique economic sector? Both Clark and Hawley answered, for widely different reasons, in the affirmative. For both, profit was the ultimate residue of business activity—that part of income which is left over when all costs have been paid. The causes of this residue were also similar: the fundamental unpredictability of future prices. For both, therefore, profit differs from other forms of income because it cannot be predetermined—it is neither calculable in advance nor can it be promised in a contract, expressing those aspects of business life affected by constant change and fluctuation. Profit, in both accounts, had an intimate relationship with time and change. Moreover, profit had a vital function for the economy, though the nature of this function was the cause of much disagreement and a decades-long debate on the "risk theory of profit" first put forward by Hawley.

For Hawley, profits were the reward for risk-taking. Where risk is absent, whether because the future is perfectly known or because one can transfer one's risks to another party, namely an insurer, profit would also be eliminated (Hawley 1900, 87). Risks thus furnished a special kind of income and necessitated a unique type of specialist class in the economy, the entrepreneurs, who constituted a fourth "economic force," or factor of production, alongside land, labor, and

capital. Clark generally agreed that risk-taking tends, on the whole, to increase wealth for individuals, the risk-bearing class, and society as a whole:

> In a sense there is a net gain realized from risk-taking. Men do not hazard their capital for an amount of annual gains that in a long term of years will just offset their losses. They demand more than this, and get it… To every other industry, and therefore to society as a whole, there accrues each year an accession of wealth that is the offset for perils encountered. Business repays men, not only for their labors, but for their fears. (Clark 1892, 40)

Clark's key point, however, was that risk-taking is not the source of profits. Risk, he argued, has a market price, calculable in advance and therefore translatable into fixed costs. It is not, therefore, of the nature of profit, which is a true residue and unpredictable sum.

While elevating risk, therefore, to its status as a central economic problem and an engine for development, Clark's position also rendered profit, and the strict entrepreneurial function, of diminished significance. Profit, in his view, is a pure market phenomenon, which emerges when a talented entrepreneur succeeds in predicting market conditions and in selling her product for a substantively greater price than its costs. The entrepreneur is limited to "co-ordinating the elements furnished by others" and "contributes to industry nothing but relations.

> He connects labor and capital with each other in his own establishment. He connects this establishment with others, and makes it do its part in the general industrial system. He becomes the owner of the products of this industry, as they are turned out, and sells them in the market for what he can get. (ibid., 46)

Rather than carrying risks, the entrepreneur is therefore a "risk-maker," allowing others, namely the owners of capital, to take risks through her business initiative (48).

What is at stake here, I propose, is a fundamental difference in the way risks and their management are perceived—a difference Knight was keenly attuned to, and which shaped his own risk theory of profit. Clark and Hawley, I argue, represent two distinct notions of risk-

management. Clark subscribes to an "insurance principle" as the primary risk-mitigating tool, but also as a comprehensive interpretative framework for understanding the business world of his time. He recognizes that insurance technology is recent, and that its application to the business world is even newer (41). Hawley, on the other hand, subscribes to what Knight would call the "specialization principle" or the idea that some risks, namely the majority of business risks, can only be mitigated through individual risk-bearing.

Clark's notion of risk is thoroughly actuarial, albeit with a special business twist—it includes the subjective value of loss, on top of objective estimations of its probability. Not all losses are identical, says Clark, applying a marginalist logic, because not all gains are identical. One's first unit of capital is far more valuable than the hundredth unit. The least valuable unit is therefore the one that has the highest likelihood of being lost, while the most valuable unit has the least likelihood. One can therefore calculate in advance the definite value of each and all units lost, based on a combination of the objective, actuarial chance of losing, and its subjective cost. The compensation for risk can now be included in the calculation of production costs, and paid the capitalist out of business revenues (42–4).

This view has several immediate implications. First, risk resides in ownership itself. The owner of capital is the one who must be compensated for risking it, according to her own subjective estimation of the pain of losing. Clark's views thus echo the dominant approach to risk as it developed in the actuarial tradition, on the one hand, and in nineteenth-century property law, on the other. Mediated through a fast-growing insurance industry, risk was a function of personal autonomy and self-ownership and represented a clearly defined material stake in one's possessions. Life insurance in the US, for example, exemplifies what Jonathan Levy (2012) has called a "double commodification," in this case placing a price on the value of one's labor

power, or "vital force"—a value to be claimed by one's dependents in the event of its loss due to timely or untimely death. The value of this labor power, in other words, was isolated, and, together with the predetermined probability of its loss, constituted an insurable risk, a form of property in its own right (61). To varying practical success, moreover, ownership-like claims were often invoked as a form of regulatory ideal for insurance markets, requiring that the insured or beneficiary prove an "insurable interest" in the underlying asset, so as to prevent wild speculation (32, 89). In Clark's view, therefore, it was the capitalist alone who took the risks of industry, since "no man can carry a risk who has nothing to lose" (Clark 1982, 46).

Second, in Clark's view, risk is minimized as capital is concentrated (rendering each additional unit less painful when lost). Large corporations thrive because they can amass great capital and further divide its risks between numerous investors, each carrying the burden of but a small fraction of whatever capital is lost. In the evolution of society, as Clark frames it, which retains only those forms of organization best suited to a competitive market, large corporations have won out against small businesses because they are better "loss bearers" (50). Third, a direct correlate of the second, Clark concluded that as capital grows concentrated and as its ownership is disbursed, so does the compensation to the capitalist for her risks shrink, leaving the entrepreneur with larger profits (54).

In this actuarial view, therefore, corporations are best understood as instruments for the redistribution of risk and loss.[15] The profit driven system, moreover, and its residual gains, aims

[15] Applying the insurance principle to a new corporate reality in the twentieth century was a widespread phenomenon. The idea of the corporation as a social form of insurance served as a new legitimating discourse, and technical sensibility, in support of the massive integration of firms and the ultimate suppression of populist anti-trust advocacy and legislation (Levy 2012). Levy names financial activists like G. W. Perkins (of the New York Life Insurance Company) and journalists like Walter Lippmann as key figures in the dissemination of a new rhetoric of organization out of chaos, reframing large scale corporate mergers as progress towards true

not at the maximization of profit per se, but at the minimization of the costs due to the risk of initiating business. Profiteers are, in this sense, not so much a unique class with a distinct income, but a force, moved by petty gain, that nevertheless drives industry to greater efficiency, rationalization, and innovation, for the benefit of society at large. This benefit will ultimately exceed, though not erase, the (grave) cost to society in sustaining a profit driven system, a sentiment largely shared by Knight. "Can we test the value that the community puts on this effect?" asks Clark, "Note what it endures, in order to get it;

> count the incidental costs of corporate growth. Proverbially soulless agents in power, massed wealth that corrupts law-makers and menaces the State, management preying on its own clientage,—such things are borne when the enduring of them means a vitalizing of industry by quickened progress. A more dynamic quality imparted to the economic system,—this is a result for which any price will be paid. It is gained whenever we reduce the initial terrors of business enterprises. (ibid. 54)

In contrast, Hawley's position highlighted the importance of individual choices under conditions of uncertainty. An individual can only profit when she shows a knack for picking those ventures where her talents are best utilized (Hawley 1893, 468). Clark's 'subjective cost of losing,' argues Hawley, is not a predetermined, calculable cost that must be paid to the capitalist. Rather, it comes into play in the internal calculations and ultimate decisions of entrepreneurs as they compete with each other. "It is," he writes, "the subjective value of the risk to the possible competitor who comes nearest to undertaking it, but is finally deterred, and not the actual risk-taker's subjective valuation of the risk, which determines the reward that will be exacted for its

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socialization of production. More than a redistribution plan for gains, however, corporate consolidation meant a new kind of freedom from the hazards and uncertainties of modern industry. "Risk" writes Levy, in this new discourse, now seen as the collective risk from industrial progress on a national level, "would have to be incorporated by society, rather than enclosed and borne by individuals" (Levy 2012, 265).

assumption" (ibid., 469). Hawley's privileging of risk-taking as the unique source of profit also meant that he rejected the notion that risks belong to the owner of a property invested. And yet, the relation between property and risk is not severed. For Hawley, true "ownership" is essentially transmitted to the risk-taker who will both put capital to work and vouch for its success. The entrepreneur owns her finished product, and it is this stake in the future prospects of the enterprise that makes her the true risk-bearer (472-3).

In between these two paradigms—risk-distribution and risk-specialization—runs Knight's distinction between risk and uncertainty, the calculable and incalculable, perfect and imperfect markets. Before turning to Knight's more unique, but better-known, innovations in the theory of risk-specialization, the remainder of this section will focus on Knight's account of temporality within equilibrium. For Knight, temporality, progressive change, and even some of their most disruptive outcomes, namely possible losses, were not in themselves an obstacle for the functioning of perfect markets. In other words, both change and loss, or risk, were compatible with equilibrium analysis as long as both could be predicted sufficiently well in advance:

> If any or all of these changes take place regularly, whether progressively or periodically or according to whatever known law, their consequences in the price system and the economic organization can be briefly disposed of. Through the machinery of the exchange of present and future values all of them will be fully "discounted" an indefinite time before they occur. They will not upset human calculations or destroy universal perfect equalization of alternatives. Hence, in particular, changes, if foreseeable, do not disturb the prerequisites of perfect competition for productive services, bringing about exact equivalence between costs and values, with absence of profit. (RUP 148)

Knight's approach to progressive change relies on his analysis of extended processes under static conditions, drawn from the work of Alfred Marshall (164). Saving and investment, for example, are market regulated 'conversions' of present consumption into future earnings. When one invests in a capital good, or in one's education and skills, one is withholding consumption in

the present for a future earning-stream. In that, investment over time acts just like present day exchange of one good for another (162). The market regulates the exchange through the interest rate, or the ratio between the value of a present consumption good and the value of future gains from its investment. It will reach equilibrium, when present day consumption of the good produced is equal in value to future earning, making any further sacrifice futile (ibid. 164).

The mere fact that investment takes place over time, therefore, does not preclude the system from reaching a state of equilibrium, where the present value of future earning can be clearly determined. But what about a dynamic environment? When things like the size of the labor force, available capital goods and lands, or the nature of human tastes are not fixed but fluctuating, a permanent gap opens up, argues Knight, between the equilibrium rate and the real rate. This could mean, for example, that present day abstinence will continue being worthwhile no matter how much one saves. The gap between the equilibrium rate and the real rate is, in effect, the measure of progress:

> throughout the modern industrial period the rate of interest has been above the equilibrium level, social conditions being as they are (including human psychology, the *mores*, and especially the concentration of income in a few hands), as is proved by the fact that capital has constantly and rapidly accumulated. (167)

Knight's account of possible future losses follows a similar principle of inter-temporal conversion. This time, the conversion relies not on the calculation of the interest rate, but on insurance technology, which transforms a possible loss in the future into a fixed cost in the present (213). Insurance "eliminate[s] uncertainty by dealing with groups of cases instead of individual cases" (245). It thus works by way of *consolidation* and yields concrete estimates of future scenarios, using statistics and probabilistic calculation (as opposed to the principle of *specialization*, which relies on individual risk-taking under true uncertainty). Insurance owes its

ability to measure and to distribute the costs of future losses widely to the virtues of accurate classification: "measurability depends on the possibility of assimilating a given situation to a group of similars and finding the proportions of the members of the group which may be expected to exhibit the various possible outcomes" (246). By pooling together and properly distinguishing categories of cases and outcomes, one can allow losses to offset each other, or at least to stay within a predictable margin.[16]

From the vantage point of calculable probability, moreover, an insurer not only estimates the total burden of future unknowns. She also performs the task of distributing the burden equitably among participants. It is, in fact, a moral calculus. The insurer "must be able to present a fairly plausible contention that the particular insured is contributing to the total fund out of which losses are paid as they accrue in an amount corresponding reasonably well with his real probability of loss i.e., that he is bearing his fair share of the burden" (246). As Francois Ewald has subsequently argued, by the turn of the twentieth-century, insurance technology and its construction of various "risks" was responsible for the socialization of danger and the redistribution of its costs, thereby shifting the boundaries of social groups and even political communities (Ewald 1991, 202). For all the social value of these dual functions—classification and redistribution of risk—however, the insurer is not, for Knight, a profit-maker. In a perfect market, an insurer would make no profit, since her calculations would only permit her to collect

[16] In several places Knight refers to this phenomenon specifically as the "law of large numbers"—a statistical commonplace, if not properly a mathematical law, which, as he writes, will "distribute the losses, and make them calculable" in cases of a truly indeterminate nature (259). The law, in other words, stipulates that as long as random occurrences can be grouped and classified, their probability of occurring can also be calculated through observation. On the emergence of the law of large numbers in nineteenth century France, see Hacking 1990; on the role of classification in the evolution of actuarial science and practice, see Bouk 2015.

premiums commensurate with future losses, while retaining a fixed and predetermined fee for her services. In a world where all future losses were amenable to probabilistic calculus, there would be no profit at all (247).

It is also significant that Knight extends the insurance logic, much like Clark, to the business world. Like Clark, Knight interprets the emerging business landscape of large, centralized, often publicly held corporations as a form of social organization meant primarily to tackle uncertainty. Though the corporation's risk-mitigating capacities go well beyond its insurance function, unlike Clark's more limiting interpretation, consolidation nonetheless remains a central principle in their design and success, according to Knight. The insurance principle is at work in corporations in several ways, that have since become commonplace. First, by grouping together ventures, decisions, and functions, an expanding corporation increases its ability to offset both losses and errors in judgment. At least some of this 'consolidation' involves the concentration of decision-making, which minimizes the problem of bad judgment and bad predictions through the sheer volume of decisions being made by a unified body or even one person (252). Secondly, modern corporations facilitate the distribution of risk by replacing direct ownership with disbursed investment and allow individual investors to diversify their pool of risks (254).

In his account of the insurance principle, therefore, Knight diverges significantly from both of his predecessors. He begins by joining forces with Hawley to attack the Clark's contention that profit is separate from risk-taking. At the same time, however, he joins the latter in suggesting there is in fact a large range of risks that are amenable to prediction and calculation, in ways that remove them from the purview of the profit-earning entrepreneur. One may also add that Knight rejects in both cases the notion that risks, both objective and subjective, are thoroughly calculable. There are, however, more substantive differences between the three,

which Knight will develop in his account of risk specialization. Most notably, Knight rejected the idea that the entrepreneur's unique income, individually and collectively, as a social class, amounts to an aggregate net positive. In other words, Knight dismissed the idea that a risk-taker must earn a "risk-premium" merely for enduring the discomfort of bearing risks. Indeed, while measurable risks have a place in a perfect market, and will have an equilibrium price, profit relies on incalculable, uninsurable risk, that is, on the equal or greater likelihood of loss. Secondly, Knight marks another important turn in the theory of risk and profit, by reversing the relationship between risk and ownership and in essence severing their historical bond.

Knowing, Thinking, Judging

The mechanistic world that emerges from marginalist analysis, Knight will ultimately argue, is an inhospitable world. Reducing all human activity to automatic necessity, it leaves no room for reflection, deliberation, and true decisions. The realm of perfect markets, premised on the universal availability of perfect knowledge is, therefore, the realm of pure and constant activity, where

> man's energies are devoted altogether to doing things; it is doubtful whether intelligence itself would exist in such a situation; in a world so built that perfect knowledge was theoretically possible, it seems likely that all organic readjustments would become mechanical, all organisms automata. (268)

In contrast, a discussion of uncertainty and the limits of knowledge means a focus not on human action, but human reflection over action. The "mechanics" of uncertainty begins not with externally satisfied needs and wants, but with states of consciousness and complex guessing games as they interact with our emotional world. "With uncertainty present," Knight continues, "doing things, the actual execution of activity, becomes in a real sense a secondary part of life;

the primary problem or function is deciding what to do and how to do it" (ibid.). If market information "imprints" its mechanical dictates on the minds and actions of individuals, the realm of profit and loss is one of transformative decision-making.

Uncertainty is Knight's answer to the mechanical, reductive tendencies of markets. Its most fundamental effect is to duplicate the world: doing is coupled with thinking, prediction with judging one's powers of prediction. A second layer of reflectivity envelopes the socio-economic world and gives rise to a new protagonist: the entrepreneur, who bridges the two by projecting, anticipating, and acting on her intuitions. There is, therefore, a redemptive quality to our fundamental ignorance as human beings. "We should not really prefer to live in a world where everything was 'cut and dried,'" mused Knight, "which is merely to say that we should not want our activity to be all perfectly rational.…we *do* strive to reduce uncertainty, even though we should not want it eliminated from our lives" (238).

The distinction between doing and thinking (about doing) highlights the most prominent limit of equilibrium analysis. The assumption of perfect knowledge, or anything near perfect knowledge, Knight repeatedly emphasizes, is simply untenable in reality. There is, he argued, both true indeterminacy in the world, and real limits to human knowledge and foreknowledge:[17] "it is a world of change in which we live, and a world of uncertainty. We live only by knowing

[17] Knight was making a deliberate intervention into an ongoing debate among probability theorists, that carried some importance for the question of business risk. Namely, it was the question whether probabilities reflected real-world indeterminacy or were merely the result of insufficient knowledge. What was at stake was the way we treat the unknown world—whether we are permitted to assume that what we don't know really is determined by chance (and will therefore display a certain regularity), or whether deeper causes are at play, that could distribute adversity in highly skewed ways (219). As Toni Lawson (1985) has shown, Knight represents a less common example of a theory which applies both definitions at once, emphasizing his notion of the limits of human foreknowledge.

something about the future; while the problems of life, or of conduct at least, arise from the fact that we know so little" (199). The business world, according to Knight, was entirely geared towards the future, regularly producing mismatches between expectations and outcomes. Dealing with future desires and whims, expansion and shortages, a business person seldom had the kind of firm footing in her predictions and calculations as did the actuary, or, conversely, the auctioneer dealer of the marginalist idealization. While the latter were experts in measurable risk, the former was dealing with an entirely different phenomenon: uncertainty.[18]

Knight's profit earning entrepreneur, the reflective expert in risk-specialization, thus emerges from the critical limitations of marginalism, on the one hand, and insurance, on the other. For Knight, the entrepreneur is a unique specimen in a wide and complex typology of human tendencies—a kind of diversity which marginalism could easily bracket, while insurance could reduce to a fixed set of prices. Uncertainty, therefore, merited not only reflection on human consciousness, uniformly conceived, but on the variations in human psychology and their further impact on social differentiation. Knight quite explicitly uses the biological metaphor of "cephalization"—the emergence of a centralized control system in an evolved organism—to discuss the role knowing, prediction, and one's estimation of the value of one's predictions, play in assigning social roles and establishing (organizational) hierarchy (268). A given combination

[18] Other limitations further prevent perfect markets from serving as a benchmark or regulatory ideal for real markets. For one, perfect communication will quickly devolve into anti-competitive tendencies, like business collusion, fraud, and collective bargaining, and ultimately "force an authoritarian system upon society" (193). Even more important, and less contestable, are the limitations on the insurance principle. First, as a principle that thrives in large numbers, it cannot perform its classificatory analysis on events that are too rare or unique (251). Second, by isolating risks, transferring them, and concentrating them in the hands of expert third parties, insurance leads to a problem of moral hazard. When one knows one need not bear the costs of miscalculation and misadventure, one tends to be less careful, if not deliberately reckless (256).

of confidence, accurate intuitions, and the trust of others, he argued, was the foundation for a different approach to risk-management, wholly distinct from insurance. The entrepreneur was the ultimate risk-specialist because she combined the functions of prediction, responsibility, and control:

> the function of making these estimates and of "guaranteeing" their value to the other participating members of the group falls to the responsible entrepreneur in each establishment, producing a new type of activity and a new type of income entirely unknown in a society where uncertainty is absent… the assumption of *responsibility* for the correctness of his opinions becomes a condition prerequisite to getting the other members of the group to submit to the manager's direction" (276)

True uncertainty and the vastness of human ignorance lead Knight from mechanics to an evolutionary biology of social types, determined by forms of knowing and moderated by self-judgment. He began from the assumption that all consciousness, and therefore all reason, were "forward-looking" (203). It was not, however, vision or progress that Knight had in mind, but biological necessity. To survive, advanced organisms relied on their ability to gear up resources not only in the face of present danger, but ahead of future ones. It was the ability to conjure an emotionally stirring image of danger in one's mind that allowed the more encumbered of living beings to overcome it (201). From an evolutionary perspective, greater foresight meant better fit: "the adjustments by which the organism adapts itself to the environment require time, and the farther ahead the organism can 'see,' the more adequately it can adapt itself, the more fully and competently it can live" (200).[19] Our complex interaction with such forward facing imagery,

[19] Knight remains uncharacteristically silent on his sources for these and other assertions on the nature of consciousness and intelligence. One highly plausible reference is the active debate among materialists, mind-body dualists, and pragmatists on the nature of consciousness and its role in guiding human behavior (see, e.g. Bode 1921; Dewey et al. 1917). The philosophy of Henri Bergson, possibly mediated through the work of B. H. Bode, emphasized the notion that consciousness is forward facing and anticipatory (Bode 1917). Another important source for

moreover, forms part of the reflective nature that separates us from automata: "we *perceive* the world before we react to it, and we react not to what we perceive, but always to what we *infer*" (201, original emphasis).[20]

From this basic evolutionary premise unfolded a complex typology of attitudes towards both danger and its anticipation, the site in which the distinction between risk and uncertainty unfolded. First, Knight divided future predictions into three categories. The first category of prediction is a priori probabilistic knowledge, derived from logical principles under idealized conditions. For example, the untestable deduction that a fair coin will turn up "heads" half of the times, in an infinite number of tosses. In the second category are empirically derived probabilities, drawn from statistical data and relying on a "law of large numbers" to distribute chance occurrences in recordable frequencies (214). The second is therefore the leading principle behind the work of actuaries, whose central occupation was the art of classification that would yield accurate probabilistic predictions, as discussed in the previous section.

The third category was far less common in such accounts of probability theory, and it epitomized the Knightian 'duplication'. When all one can produce is an educated guess, Knight argued, what we have is not really a probability (though it is often referred to as such) but an estimate (225). The true expertise behind estimates, therefore, was not classification or

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Knight's theory of consciousness is Herbert Spencer's *Principles of Psychology* (1855), which he references in other contexts.

[20] Part of Knight's recurring invective towards the human automaton is a direct critique of the burgeoning science of "behaviorism" both in economics and psychology. The reduction of human action to unconscious instinct and reaction, in his view, fails to compete with the achievements of psychology and the theory of knowledge, precisely because it ignores such things as liability to error, judgment and choice, and purposive action. See, e.g., Knight 1925a; RUP, 202-3.

deduction, but judgement: properly estimating the value of the estimate itself, usually by examining the person making it:[21]

> the business man himself not merely forms the best estimate he can of the outcome of his actions, but he is likely also to estimate the probability that his estimate is correct. The "degree" of certainty or of confidence felt in the conclusion after it is reached cannot be ignored, for it is of the greatest practical significance. The action which follows upon an opinion depends as much upon the amount of confidence in that opinion as it does upon the favorableness of the opinion itself. The ultimate logic, or psychology, of these deliberations is obscure, a part of scientifically unfathomable mystery of life and mind. (227)

It is this additional need to invoke trust and confidence in one's estimate that defines the unique entrepreneurial type, her function, and her place at the top of the organizational hierarchy. After the insurance principle of consolidation, says Knight, "the second fact or set of facts making for a reduction of uncertainty is the differences among human individuals in regard to it" (239). These differences include the capacity to form correct judgments about the future, to "*judge means* and discern and plan," but, more importantly, the ability to act on those plans and confidence in one's judgment and power of execution. The full science of risk-specialization thus relied on a threefold typology of attitudes toward uncertainty: a preference for greater and lesser security, relative talent in making accurate predictions, and the degree of confidence one can invoke in one's estimates. Security thus appears twice in this typology: first, with regard to industry and life plans and, second, with regard to one's confidence in a future prospect.

[21] Much of Knight's science of estimates is focused on the singularly important task of judging people—their aptness for a job, the value they will be able to produce and therefore their proper compensation (which is guaranteed in advance), their tendencies, taken on aggregate, as future market forces and trends: "It will at once occur to the reader that this capacity for forming correct judgments (in a more or less extended or restricted field) is the principal fact which makes a man serviceable in business… the judgment or estimate as to the value of a man is a probability judgment of a complex nature, indeed" (229).

For Knight, uncertainty "select[s] men and specialize[s] functions" (270). The duality of thinking and doing, predicting and judging, finally translates into a stark, if morally neutral, division of humanity into leaders and followers, a hierarchy of decision makers and workers.[22] The natural differences in attitudes and capacities form the basis of occupational differentiation, assigning responsibilities for the economy's "routine operations" from workers to supervisors and managers. If, in the absence of uncertainty, control was a matter of mechanical coordination, "the exercise of judgment involving *liability to error"* now required "the assumption of *responsibility* for the correctness of his opinions [as] a condition prerequisite to getting the other members of the group to submit to the manager's direction" (276). Only upon the (convincing) assumption of responsibility, therefore, does a manager become an entrepreneur.

The "enterprise system," as it grows in scope and undergoes technical specialization, culminates in an ultimate split between responsible control and secure and directed labor. It is "the system under which the confident and venturesome 'assume the risk' or 'insure' the doubtful and timid by guaranteeing to the latter a specified income in return for an assignment of the actual results" (269-70). "The essence of enterprise," continues Knight,

> is the specialization of the function of *responsible direction* of economic life… a special social class, the business men, direct economic activity; they are in the strict sense the producers, while the great mass of the population merely furnish them with productive services, placing their persons and their property at the disposal of this class… Any degree of effective exercise of judgment, or making decisions, is in a free society coupled with a corresponding degree of uncertainty-bearing, of taking the responsibility for those decisions… With the specialization of function goes also a differentiation of reward. The produce of society is similarly divided into *two kinds of income,* and two only, contractual income, which is essentially *rent*… and residual income or *profit.*" (271)

[22] Notably, Knight qualifies the extent of this dichotomy by suggesting that no position is completely devoid of responsible decision making, just as no position lacks routines work. There are, however, positions which require a lot more of the first and which involve extensive oversight or direct, personal consequences (300).

The wage-profit system, premised on the existence of uncertainty, transforms the meaning and mechanism of competitive markets in important ways. Markets no longer equalize actually existing supply and demand, but present-day expectations of future supply and demand. All "are acting, competing, on the basis of what they *think* of the future" (273, original emphasis). In such a reality, the estimates of entrepreneurs, backed by concrete assurances and a willingness to act, are indispensable for the very possibility of a market society. Only because entrepreneurs are willing to guarantee today the earnings of tomorrow, the argument goes, can there be a market for labor and for capital goods in the first place. Without such guarantees, wages and interest rates would remain indeterminate, dependent on an uncertain outcome. Uncertainty, therefore, is the true impetus to homogenize and commodify labor in industrialized society, as wages are levelled out and standardized through the haggling of entrepreneurs in the open market (272). With a nod to the Marxist formulation, Knight refers to the "general wage rate" as the "socially or competitively *anticipated* value of the laborer's product" (274, emphasis added)—anticipated, that is, by the group of entrepreneurs competing among themselves for use of this labor.

So, what is profit and how is it determined competitively in this forward-facing market? Profit is the gap between the market-determined costs of labor and capital, and individual success in bringing a product to market. What this means is that the entrepreneur's success is always dependent on the fortunes of all other entrepreneurs, but not due to a supply and demand mechanism of some kind, where entrepreneurial talent is bartered for.[23] Profit is the outcome of a

[23] There is one way in which one can talk of the supply and demand for entrepreneurs. Knight argues that there are limits to effective control, which depend on the talents of the entrepreneur relative to the size and levels of sophistication of an enterprise. In other words, entrepreneurial talent determines the size of a firm (282). The "supply" of the right combination of "(a) ability…

contest of expectations, not only about the future, but about the expectations of others. Beyond good judgment, and the failed judgments of others, the "self-confidence of entrepreneurs as a class" becomes a major component in one's personal success. When ability is high all around, profit rates will tend to be low, since everyone has a good sense of what the future holds. When general confidence is overly high, on the other hand, prices of labor and capital will soar, potentially leading the entire entrepreneurial class to overall losses. Thus, "whether any particular individual becomes an entrepreneur or not depends on his believing (strongly enough to act upon the conviction) that he can make productive services yield more than the price fixed upon them by what other persons think they can make them yield" (281). The greatest gains are to be made by able entrepreneurs in a society generally bereft of such individuals (284).[24]

Profits, therefore, are never strictly individual. While only a handful of market participants get to pocket this truly residual income, their success depends on the performance of all other participants. Profit is a social residuum, which cannot be traced back to any individual contribution, talent, or service. As Knight repeatedly emphasizes, profit is unimputable: it is not a return on capital or remuneration for work, which means it bears no relation to the finite

(b) willingness, (c) power to give satisfactory guarantees" thus determines "demand", or the size and number of productive units in a society (283).

[24] It would seem that Knight's highly individuated entrepreneurial function was out of step with the reality of large, concentrated, publicly held corporations, of which he was very much aware. In response to such reservations Knight offers a lengthy discussion of divided ownership. First, he foregrounds hiring decisions as the single most important group of decisions in a firm. By appointing a hired manager, shareholders and their representatives have taken ultimate responsibility over the firm's success, and are therefore the rightful earners of its profits. Though this risks conflating profit with ownership, Knight further offers a prophetic distinction between a competitive rate of return on investment and the unique return on an individual investment that is properly the profit. Since investors are able to shift their investment quite swiftly as they see fit, there emerges an equilibrium market rate for returns on investment (309).

amounts of labor and capital put into a product (308-9). What becomes clear through this definition, is that profit is conceptually severed from ownership. One need not stake one's private assets to have made a profit. While uncertainty threatens all investment in a product, the entrepreneur's risks emanate from her expectations and predictions, not any actual investment. There is, moreover, no market operation which allocates profits among all individuals that have earned them, according to their contribution, as there is for labor and capital. Profit is not a market-rate.

There is, however, an important social benefit in risk-specialization, and it is hard to deny that profits take the form of a reward for this service.[25] If profit isn't a direct form of remuneration for efforts, for accuracy, or, importantly, for the mere discomfort of risk-taking, what is the inducement to carry risks? Despite his detailed classification of human types, Knight's entrepreneur is not, in the bottom line, simply a superior predictor, or even a person particularly prone to act on her intuitions. Accepting a high level of risk-exposure, according to Knight, is driven by culturally constructed impulses coupled with deeply ingrained human irrationality. It will usually require either conspicuous material benefits, or some kind of mental triumph. The entrepreneur is "largely motivated by a desire to possess wealth… to obtain a large increase in his wealth in a short time" (333) or, even more prominently, by "the desire to excel, to win at a game, the biggest and most fascinating game yet invented, not excepting even statecraft and war" (360).

[25] At least one of these benefits is that profits on the whole cost society less than what it would cost to ensure the great unknowns of the production process, even if such insurance is possible (RUP 362-3).

There is, therefore, no reason to assume that entrepreneurs on the whole stand to gain from their activity. Knight himself was "strongly of the opinion that business as a whole suffers a loss" (365). In a world where entrepreneurs are characterized by over-confidence, "are not the critical and hesitant individuals, but rather those with restless energy, buoyant optimism, and large faith in things generally and themselves in particular," estimates tend to be higher than real gains (366). Unlike the value society places on labor, land, or capital goods, therefore, the value it places on uncertainty-bearing, which ought to be quite high, can nevertheless translate into massive losses for entrepreneurs as a social class. Profits disappear and aggregate losses abound, the greater the collective tendency to amplify basic human fallacies around chance and uncertainty. "It is a familiar fact," writes Knight, in support of his damning conclusion, "well discussed by Adam Smith,

> that men will readily risk a small amount in the hope of winning a large… while they commonly will refuse to incur a small chance of losing a larger amount for a virtual certainty of winning a smaller… to this bias must be added an inveterate belief on the part of the typical individual in his own "luck," especially strong when the basis of the uncertainty is the quality of his own judgment. The man in the street has little more sense of the real value of his opinions than he has knowledge of the "logic" (if such it may be called) on which they rest. In addition, we must consider the almost universal prevalence of superstitions. Any coincidence that strikes attention is likely to be elevated into a law of nature, giving rise to a belief in an unerring "sign." Even a mere "hunch" or "something tells me," with no real or imaginary basis in the mind of the person himself, may readily be accepted as valid ground for action and treated as an unquestionable verity. (235-6)

It is perhaps fortunate, therefore, that few market actors exist solely as entrepreneurs, or limit themselves to the function of uncertainty-bearing. The modern corporation is depicted by Knight as a long chain of (ever shifting) responsibility. At the lowest levels, nearly all decision-making is routinized and free of either judgment or responsibility, while on higher levels the greatest responsibility is vested in hiring decisions. In the modern corporation, 'direction' means primarily the hiring of subordinates and therefore "business judgment is chiefly judgment of

men. We know things by knowledge of men who know them and control things in the same indirect way" (291). Moreover, "the natural result" of public corporate ownership is a "complicated division or diffusion of entrepreneurship, distributed in the typical modern business organization by a hierarchy of security issues carrying every conceivable gradation and combination of rights to control and to freedom from uncertainty as to income and vested capital" (300). Whether through its widescale fragmentation, its unimputability, or its market making capabilities, therefore, Knightian profit is thoroughly social, even as it manifests itself in the conspicuous gains of the few. The balancing act of asymmetrical accumulation, moreover, will continue to dominate market solutions to the problem of risk in the decades to come.

Conclusion

When Knight wrote his book about profit, he set out to defend the validity of this concept and its continued role in facilitating capitalist production. The apologetic stance resembles only slightly Adam Smith's attempt to find a middle ground between the conflicting interests of profiteers and of society, who relied on them but could not entrust them with its law-making. For profits to have a positive impact on economic progress, Smith argued, they must be small, but not so small that they do not cover ordinary losses and some kind of compensation for the enterpriser's trouble, higher than the return for the passive investment of capital. One hundred and fifty years later, Knight's defense of profit asked to give account of residual income and uncertainty—two aspects of economic life that were sidelined by the rise of marginalism, on the one hand, and the expansion of insurance technology, on the other. But he was also contending with a persistent, increasingly politicized critique of profits, tied, in the American context, with antitrust populism

and a growing contention that profits had little to do with actual production, and much more to do with market manipulation.

In between these conflicting pressures and multiple, contrary audiences, Knight's conclusions often remain painfully equivocal, though, I contend, they are not quite so paradoxical as readers have claimed (Burgin 2009; Emmett 1999). As Knight observed, by the turn of the twentieth century, the conditions which shaped Adam Smith's early notion of profit were radically transformed. One central change, with wide repercussions for the rest of the century, was the adoption of a short-term view (RUP 302-3, see also, Milgate 1979). Smith could theorize a steady, socially determined and uniform profit *rate* because, in the long-run, gains and losses were expected to cancel out. This long-term view, moreover, relied on a relatively static notion of economic conditions, which further aspired to reach the national "stationary state," in which full progress had been achieved (shrinking profit to a minimum).

Knight's book marks a key moment in a much wider transition to a predominantly short-term view. The labor-theory of value made way for a marginalist framework, where small, incremental adjustments were central in setting the value and efficient allocation of goods. With the introduction of widespread, diffused ownership and market-mediated investment, small changes in rates of return, wages, or interest, would prove crucial, and short-term decisions would rule the day. The short-term view, therefore, changed the meaning of profit, and, according to Knight, necessitated, for the first time, its sharp delineation from other forms of return. Not a socially fixed fund but the unpredictable, unimputable, highly individuated "residuum."

Knight's solution to the problem of profits is located in the boundaries of markets. Profits are both a market phenomenon, and distinctly not a market phenomenon. In Knight's terminology,

markets are the realm of doing—their principles are mechanical and automatic, and their dependence on our wants and desires is nominal at best. Profits occur on a second level of complexity, introduced by the presence of uncertainty, where thinking, knowing, and deciding become the dominant features. Profits are not market products, but they go out to *market-makers*, and reflect the value of their appraisals of markets and of each other. If Smith offered a market rate of profit—relatively stable, perfectly uniform across fields, and bearing a direct relation to the amount of capital put to work—for Knight profit is not a "rate" at all. It varies widely and is far from guaranteed on an aggregate social level. Its sole justification is, that under conditions of uncertainty there would be no market at all, since all present contracting is forward looking, and resolved only in an unknown future. Uncertainty mandates that some earn the residual, unexpected income economic life actually yields, in return for giving worthwhile guarantees to everyone else.

Knight's ambiguity is, however, much more striking when one attempts to understand who the entrepreneur is, as a social actor and protagonist. The answer to the question 'who profits?' in the Knightian context is, so it seems, 'who knows?'. It might be useful to begin by recalling those figures who, in his account, no longer merit the name 'entrepreneur', and specifically the ways Knight parted company with his contemporaries. First, Knight severed the link between risk-taking and property ownership, though, perhaps surprisingly, he did not go as far as Smith, who suggested that ownership and profit-making are thoroughly distinct.[26] Rather, Knight reverses their traditional roles. If for J. B. Clark, and a long actuarial tradition, only the owner of

[26] Smith was making a point about the difference between interest rates (and rents) and profit, the former designating the return for the passive use of capital, while the latter for its active use. Notably, Smith's had envisioned the "master of industry" as a borrower of capital (Smith 1937, 54)

property may risk it, for Knight it is for the sake of individual risk-bearing that a regime of private property exists in the first place. Private property, and consequently wealth, taken as a goal in its own right, are merely a set of incentives to accumulate, which drive individuals to accept high exposure to risk.

An even more important effect of a private property regime, however, is the fear of losing. Personal liability is necessary in order to keep managers and investors in check, and ensure sounder decision-making. In this way, the profit motive, understood as a claim to greater wealth, regulates the entire hierarchical decision-making body, while minimizing the amount of people affected by bad decisions:

> free enterprise must be justified if at all on the ground that men make decisions, exercise control, more effectively if they are made responsible for the results of the correctness, or the opposite, of those decisions. If property were socialized we should still have to concentrate the function of the actual making of decisions, but it would be in a far greater degree than now a routine task, with the remuneration independent of the results. (RUP 358)

For this reason, one type of property, in particular, plays a decisive role in the entrepreneurial structure. Collateral is a form of property that serves as a guarantee of promises, and which can be substituted, at least in theory, with persuasion by other means: "the greater part of the uncertainty and power are centered in the ownership of certain *property* which is placed in the position of guaranteeing the contractual income of the other property and that of the labor used in the business" (350, original emphasis).

Knight's reversal of the place of property in a profit-driven capitalist system is thus reinforced by his rejection of the common notion that risk-bearing is a social-service that will be rewarded socially, with net gains for entrepreneurs over time and as a class. Not all risks, he argues, can be reclassed and regrouped so as to cancel out. In the absence of such an insurance

principle, risk-taking is, generally, a losing game. By justifying property through the existence of uncertainty, Knight revises the very notion of private property, removing from it from any kind of natural self-evidence, or ethical merit. Freedom of the markets and freedom of contract are, he argues, a far cry from true freedom, which "refers or should refer to the range of choices

> open to a person, and in its broad sense is nearly synonymous with "power." Freedom of contract, on the other hand, means simply absence of formal restraint in disposal of "one's own." It may mean in fact the perfect antithesis of freedom in the sense of power to order one's life in accordance with one's desires and ideals. (RUP, 351)

The contractual notion of society and state is, for him, highly restrictive, giving voice and rights exclusively to property owners. Rather, the entrepreneurial system has instrumentalized property, which now serves the threefold purpose of a guarantee, a check on decision-making, and the fuel behind the collective desire to 'get rich quick', the basis of the system of risk-management through specialization.

But who, finally, are the entrepreneurial market-makers? As Knight ventures further away from the mechanical truths of economics, his answer to this question proves indeterminate and even contradictory. Are profit-earners individuals endowed with particularly sharp senses and good judgment, or are they reckless gamblers, whose stories of loss and self-destruction are obscured by profit statistics? Are they personally responsible and significantly compromised, or are they mere links in a long chain of responsibility, that leads to an unidentified mass of stock holders? Is profit truly the making of an individual, where confidence meets foresight and leadership, or is profit the outcome of sufficiently well-coordinated efforts at anticipating the future, diminished as the group of entrepreneurs grows larger and more confident? I propose that behind these dualities lies Knight's conviction in the transformative power of decision-making itself, in sharp contrast with the reductive models of cost/benefit calculations on the margin.

Responsible decision making does not bestow a modern-day virtue upon industry leaders, as we find in Weber (1992), nor does it cultivate a virile, daring spirit among the bourgeois masses, as one might find in Schumpeter (2011a). As Ross Emmett has shown, Knight attributes any kind of social betterment and spiritual improvement primarily to social institutions and laws, which have the unique ability to push society in the direction of "better wants" (to be fulfilled by the value-neutral market) (Emmett 2013, 101). Rather, the figure of the entrepreneur exemplifies the transformative power of real decisions. "Is the inner nature of things—especially of people," asks Knight in an early set of notes,

> "given" in such a sense that all their doings and manifestations *are* but the "expression" or "manifestation" of a given inner nature, that what they do in the broadest sense follows inevitably from [w]hat they are at the moment of the doing? *Or* on the other hand is there "more" to than that? Is there a margin of choosing to *be* one thing or another, or choosing to do in a sense which involves choosing to be… (Knight 1925a, 349)

To that, he replies that

> We choose, concretely, to do, choose a course of action, but our choice depends partly on what we are and is in part a choice to be something more or less different… in part—and no doubt in the main—we are "such that" we do what we do, but also, to a greater or lesser extent, our conduct is "more than" an expression of our nature at the moment, and we are more than we are! This margin of creative self-change is the essential thing from the point of view of making values valid. (ibid., 350)

What business life offers, in this view, is an opportunity to make significant, transformative decisions, an opportunity to become what one chooses. In the longer arch of the intellectual history of risk, profit, and property, the Knightian entrepreneur is the key to understanding markets not through their mechanical, self-perpetuating laws, but through the conditions of their possibility. These, moreover, are grounded in a distinctly human experience and set of faculties: personal responsibility, greed, fear, self-confidence, and judgment—especially the judgment of

other people's character and abilities. Markets and personalities are made through a different kind of decision, one that transcends mere calculation and relies on the openness of the future.

By definition, however, the kind of true decisions that give rise to markets and sustain them remain beyond the purview of economic laws. Knightian uncertainty does not describe an alternative mechanics for those aspects of economic life bracketed by marginalism (though his account of insurance should be seen precisely in this way). Rather, human psychology and perhaps deeper questions of meaning, being, and consciousness are the sites where promises and guarantees can be exchanged. It is, therefore, a line of argumentation that had been out of step, from its inception, with the trajectory of modern economics and its more imperialist ambitions, not least among Knight's Chicago successors. In the coming decades, economists, from John Hicks to Kenneth Arrow and William Sharpe, would proceed to conceptualize a market entirely devoted to the buying and selling of risk, namely the financial market, greatly expanding Knight's program of applying insurance principles to equilibrium analysis. His profiteer in her individualist uniqueness and potential for conspicuous rewards, would creep in only tacitly within this elaborate new mechanics, as a speculator, taking on the unknown and offering the many security.

Chapter 3. The Price of Risk

One need not look further than the recent financial crisis and its aftermath to realize the wide-ranging impact of the present day financial system. A wide literature exists to explain everything from the spread of financial services (Krippner 2005; Epstein 2005), to the mechanics, and failures, of financial instruments (Mehrling 2010b; Admati and Hellwig 2013), and the macroeconomic conditions which precipitated the exponential growth of both (Brenner 2009; Duménil and Lévy 2001; Ferguson and Johnson 2009). But the social and political world shaped by the 'rise of finance' remains foreign, largely obscured by numbers and figures. What subjectivities and social positions emerge from a financialized world? How does financial knowledge, embedded in economic institutions, create new forms of power and modes of exclusion? In this chapter, I argue that economists' engagement with questions of risk and equilibrium analysis was crucial in conceptualizing financial markets as markets for risk. Since the 1930s, risk has a key role not only in redefining how finance is practiced and legitimaized, but the social protagonists, and conflicts that would emerge in and around it.

As I will show, the idea of a market for risk both expanded the economic logic of the equilibrium of supply and demand, and greatly challenged it. Where the utility-maximizing individual served as the basis of the market's innate ability to balance supply and demand, the introduction of time, change, and unmet expectations would prove unsettling not only for mathematical method but for the very premises of utilitarianism. No longer in full control of the consequences of her decisions, the economic individual was now plagued with doubt and fear, overcome only with the lure of great reward or extensive spending on personal security. Between these two options—safety and the oscillation between profit and loss—Knight's original

intuition about entrepreneurs and all others will become a rather stable new 'anthropology', separating risk-takers from the masses of the risk-averse.

In this chapter, I trace the intricate ways the challenge of time unfolded in John R. Hicks' and John Maynard Keynes' theories of money, interest-rates, and forward-contracting, as they introduced the concept of the 'risk-premium,' or the price of risk, into mainstream economics. They did so, I argue, in order to tackle the Knightian challenge of irreducible uncertainty from an entirely different angle, an angle he rejected and warned against: equilibrium analysis. Instead of an entrepreneur carrying the uncertainties which neither insurance nor incorporation could resolve, Keynes, and especially Hicks, posited a market clearing model of risk, where irreducible uncertainties could be traded following their own principles of supply and demand. Knight's entrepreneur, replaced by the financial speculator, had laid the groundwork for the ideal of 'a market of risk' that would continue to define financial markets throughout the twentieth-century.

What is the Risk-Premium?

An 1867 *Economist* article entitled "Why the Number of Good Investments is so Small" offered readers an original investment strategy. Insurers, it claimed, will increase the price of their premiums with increasing risk, extending and diversifying the amount of 'ventures' they undertake in order to increase safety. "Why," it asks, "cannot this be done in finance?" (1408). *All* investments, it claimed, can become much safer by charging an extra premium for risk and setting it aside "as an insurance fund." In such a case, one would still be able to extract a rate, equivalent to the rate of return on a safe investment, as a profit. The reason that this was not common practice, however, lay in human nature:

> the fact is, that there is a real pleasure to the mind in slight pecuniary danger. It has the character of gambling and the delight of gambling… and while vanity, a craving for excitement, and a sanguine disposition run deep into mankind, good investments will always be few, because upon all but the very unsafe ones, the return made and the return required are not enough to create a reserve fund, by which danger may be met when it arrives. (ibid.)

For over a century since, the innate tension between the 'reserve fund,' the rate of return, and speculative human nature, are very much the persistent dowry of the 'risk-premium,' for its drafters and theorists alike. *The Economist* captured not only the innate contradiction between investors' professed profit motive and their preference for, often costly, high-risk ventures. It revealed a more tacit conflict between two different, at times mutually exclusive conceptions of risk and the risk-premium. According to one fundamental approach, risk, financial or otherwise, merits the efforts of the actuary and the careful planning of one's portfolio. The risk-premium should reflect our current, most complete knowledge on possible hazards and dangers, so that an insurer or investor may calculate the amount of reserves (and offsetting investments) needed to meet future losses.

Somewhat departing from this notion, or even rejecting it (largely on practical grounds), is the idea that risk is at once inevitable and highly unwanted, and requires a systemic solution. In the *Economist*, for example, 'good investments' are synonymous with 'safe investments.' Risk-takers, therefore, must be lured into taking them and handsomely compensated. Common practice at the time the column was composed, as much as the 20th, tended to match general risk-aversion in the public with the contrary tendencies of a specific type of person, over-represented in the investor community: those "very-quiet, grave-looking people" with a penchant for gambling (ibid.).

So how should one understand the risk-premium? It could, on the one hand, be founded on the calculation (mathematical or otherwise)[1] of future prospects, and accordingly kept largely as a reserve sufficient to cover losses. On the other hand, it could be the product of a slightly different science or art, which is nevertheless distinct from pure randomness in setting the price of risk. In this latter view, the risk-premium could mean the calculation of the proper incentive that will draw investors to take a risk. In other words, what is needed to price risk in this case is something like a science of human greed and fear, rather than the prediction of economic trends. The basic problem of the risk-premium is how to match risks and returns, and how to conquer a nature, both individual and collective, that tends towards their mismatching in return for excitement and perhaps the promise of a great reward.

The introduction of the risk-premium into economics is, therefore, a crucial junction in its history. Two main avenues ushered in the acceptance of this technical term into the heart of mathematical economics, coming into its mature form by the 1930s.[2] The first was the problem of time and change, the idea that one could no longer treat stability as the norm and turmoil as the exception, but rather must give an account of change and turbulence themselves, as fundamental market principles. The 1929 crash and following depression greatly precipitated this

[1] See O'Malley (2004) on non-mathematical prospective intuition as part of the entrepreneurial skillset.

[2] A widely accepted narrative identifies the late-nineteenth, early-twentieth centuries as a turning point in the history of economics as it differentiated itself from classical political economy by adopting mathematical models as its central logical and empirical tools (Morgan 2012; Boumans 2007) and by attempting to discover economic laws using methods mimicking those of physics, specifically energetics (Weintraub 2002; Mirowski 1989). Common explanations see in the mathematical reduction of economics a crucial aspect of its professionalization (Blaug 1972), a turn to a unified logic of individual decision making, or, conversely, a process of depoliticization, the resistance to 'ideological suspicion' and historicist critique in the late nineteenth century (Düppe 2011; Winch 1972). For an extensive discussion, see Chapter Two.

conclusion, as did the overly static nature of the quintessential economic tool—the equilibrium model—which was indispensable in shepherding economics from social-theoretical prose into a mathematical, law-based science.

The second avenue which made risk the proper object of economists was the impact of the idea of planned economies,[3] which, since the 1920s, had become a permanent reality, prompting economic theorists to establish the capitalist advantage, as well as justify its main symptom: inequality. Here, the modern contract, and in particular the tradeable contract, would gain new significance as coordinating mechanisms. Forward trading and publicly held shares, on the one hand, and the labor contract, on the other, would become the primary method of coordinating supply and demand schedules and distributing risks within a firm. These methods of capitalist 'planning' enter economic theory in the 1920s and 1930s, against the backdrop of a rapid rise in state-run social-insurance apparatuses in the United-State and Europe.

Both avenues are evident in the dialogue between Hicks and Keynes, as it unfolds in their 1930s works on economic dynamics, forward trading and the theory of money. Though marked differences divide the two in their approach to uncertainty, they share the sense of its growing significance and urgency for economic theory. Between them they articulated a comprehensive psychological model of the risk-premium that would come to undermine a basic premise of utilitarian welfare economics: that each person strives to maximize utility under conditions of perfect competition. They also largely ignored the probabilistic sciences of prediction and

[3] Historian Till Düppe goes so far as to claim that the lure, and threat, of gearing the science of economics to the socialist project served as "the background of most theoretical innovations in economic theory for the first half of the twentieth century" (Düppe 2011, 143). The threat, of course, was that economic science at its best and most optimistic version would undermine the very tenets of capitalism, which made it a science in the first place.

estimation of the first, actuarial model, which were developing at the same time elsewhere (as the next chapter illustrates).

Though Hicks and Keynes largely share their notion of the risk-premium, they diverge quite sharply on its context and role. Their discussions of money, equilibrium, and uncertainty mark a parting of ways that will become much more pronounced in the work of later generations. In the face of Keynes' clear role for government institutions and programs in moderating the effects of the business cycle, Hicks' theory lets the regulatory apparatus of the state fade into the background as new regulatory roles are consecrated for the market itself. The market, and the financial industry which runs it, are now no longer merely the site of exchange, but also, almost indistinguishably, the site of risk-management. The price of the privatization of this important allocative function, namely the distribution of risk, would be the permanent presence of asymmetry between risk-takers and the risk-averse and only limited access to true market benefits: the profits of risk-taking and the fair price of safety.

Measuring Uncertainty

Upon first glance, Hicks' and Keynes' approaches to uncertainty couldn't be more different. Hicks devotes a significant portion of *Value and Capital* (1939) to the discussion of uncertainty in a dynamic system. Uncertainty, according to the method he presents, translates into bundles of probable outcomes that can be used to adjust future expectations according to present doubts. Once the adjustment is made, we can regard the new payoffs as stable enough facts to be rationally weighed and soberly decided. Keynes, on the other hand, famously denounces the validity of much of the 'probability calculus' when it comes to matters of ethics, normative problems, or economic decision-making. In a 1937 article, he refers to the common use of

probabilities as a relatively useless fiction, the more or less futile attempt to reconcile human beings' dependence on future prices and rates, with their fundamental inability to predict trends and events with any degree of precision (Keynes 1937).

As Perry Mehrling has argued, the measurability of uncertainty was the main line dividing Hicks (and his successors, Kenneth Arrow and Jacob Marshack) from Keynes, Frank Knight and Irving Fisher (Mehrling 2010a, 208). Much like Keynes, Fisher, otherwise known as one of the first econometricians, had denounced the power of "the mathematics of risk" to sufficiently account for "problems of intertemporal choice, much less intertemporal general equilibrium" (ibid. 205). In what follows, I propose some important modifications to this reading. While ample evidence separates Hicks from Keynes on questions of the calculation of risk and uncertainty, they also retain some striking resemblances which helped shape a unique psychological approach to the risk-premium. Both also shared a willingness to measure and evaluate this psychology, though they fundamentally disagreed on the ways to control it.

Value and Capital was to a large extent devoted to introducing dynamic elements into the equilibrium model. Time enters as a corrective measure, bringing the model into closer proximity to reality by acknowledging the inevitable truth "that the adjustments needed to bring about equilibrium take time" (Hicks 1939, 116). Even more fundamentally, dynamics meant a complete gestalt shift in the way the economy was understood. As Hicks wrote in his review of Keynes' *General Theory*:

> Ordinary (static) economic theory, so the old argument went, explains to us the working of the economic system in "normal" conditions. Booms and slumps, however, are deviations from this norm, and are thus to be explained by some disturbing cause… the present theory breaks away from the whole of this range of ideas. It is no longer allowed that ordinary economic theory can give a correct analysis of even normal conditions; the things it leaves out of account are too important. But if there is no norm which we have understood, it is useless to discuss deviations from it. The changing, progressing, fluctuating economy has to

be studied on its own, and cannot usefully be referred to the norm of a static state.[4] (Hicks 1936, 239)

Expounding on his dynamic model in the second half of *Value and Capital* (1939), Hicks proceeds to discuss at length the role of risk and uncertainty in economic decision making. From the perspective of the individual person or firm, whose marginal decisions form the basis of the equilibrium model, dynamics meant paying attention not only to preferences in the present, but preferences weighted by expectations about the future: "supplies (and eventually demands too) are governed by expected prices quite as much as by current prices" (117).

Uncertainty thus poses a clear methodological difficulty. If the dynamic model is to allow for prices to change over time, it must take into account not only the effect of present plans on future prices, but also the effect of future expectations on present prices. In reality, Hicks admits, expectations do not take the form of a definite expected price, but rather reflect an entire range of possibilities, each with its own likelihood, and inspiring varying degrees of doubt and confidence in their subject. Probabilities for Hicks are a combination of objective opinions about facts, expressed as probabilities, as well as a psychological, subjective attitude towards risk, which gives diverse interpretations to these probabilities (125-6).

[4] Economic historians and interwar economists have offered several reasons for the emergence of economic dynamics around this time. One important catalyst for studying time and change was the development of the mathematical and statistical tools needed to measure them: time series analyses and the growing body of statistical data produced by the federal government (Morgan 1992; Roos 1934). Other reasons have to do with internal contradictions implied by a static representation of a dynamic reality, a problem inherited from mechanics, which served as a model for economics, and was itself undergoing radical revision in the early twentieth century (Weintraub 2002). Finally, the 1929 crash and following depression changed the way mathematical tools were used, putting the emphasis not on prediction, which proved to be deeply flawed (Friedman 2014), but rather on the limits of prediction and the randomness of economic phenomena (Working 1949; Cowles 1933), as the next chapter shows in greater detail.

In response to these complications Hicks offers a telling simplification, drawing his solution from what he perceives to be the very nature of probabilities:

> we shall formally assume that people expect particular definite prices, that they have certain price-expectations. But we shall be prepared on occasion to interpret these certain expectations as being those particular figures which best represent the uncertain expectations of reality. (126)

To retain the gradations and ambiguities of incomplete knowledge and irreducible uncertainty, one can produce a definite price expectation that represents uncertainty as an average of multiple expectations, identifying the most probable expectation and adding to it "an allowance for risk." Practically speaking, the 'risk allowance' measures the possible range of outcomes, with regard to the most probable one, the greater the range, the higher the uncertainty:

> where risk is present, the particular expectation of a riskless situation is replaced by a band of possibilities, each of which is considered more or less probable. It is convenient to represent these probabilities to oneself, in statistical fashion, by a mean value, and some appropriate measure of dispersion. (Hicks 1935)

The 'risk allowance,' moreover, must also measure the way doubt dampens our more positive expectations. Risk-aversion is represented by a slight movement of the expected price in an adverse direction.

Thus, "an analysis in which we suppose people to have precise expectations of prices" as Hicks claims, is "not altogether incompetent for dealing with a world in which risk is supremely important" (Hicks 1939, 126). Notably, however, he does not answer the question of how such probabilities are to be measured in the first place, nor the more philosophical question, whether expectations can be aptly represented by numbers at all. Nonetheless, the idea that uncertainties may be 'flattened out' and made definite as long as final outcomes are adjusted for likelihoods and confidence levels makes this notion of uncertainty very different from than the one we will

find in Keynes. It is a notion of expectation that is susceptible to representation, and a notion of uncertainty susceptible to measurement. Hicks' introduction of dynamics thus fits into the tradition of equilibrium theory, and its practical significance is not much different from previous assumptions of perfect foresight, using "reducing uncertainty to the same calculable status as that of certainty itself" (Keynes 1937, 213-4).

So what was Keynes' position on risk and uncertainty? Hyman Minsky proposes we read the *General Theory* as an analysis of the economic system from the perspective of the uncertainty of the business cycle (Minsky 65). A large class of these uncertainties, moreover, defy calculation and can only engender subjective estimates. Famously, Keynes writes:

> the sense in which I am using the term [uncertainty] is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealthowners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know (Keynes 1937, 214).

Rather than an accurate representation of expected benefits or proper guidelines to choosing the best course of action, probabilities and their science are a compromise born of our need to predict the unpredictable and stabilize the unstable. Instead of predicting future probabilities, our "market-place idols" allow us to exaggerate the weight of the present on future outcomes and of our knowledge on the yet unknown. They also propel us to seek guidance in the general trends of "the majority or the average," hoping there is wisdom in numbers and placing our faith in the predictive accuracy of reigning expectations (ibid. 214-5).

In his analysis, Minsky suggests we read the *General Theory* with an eye to the author of the *Treatise on Probability* (1920), an early work where Keynes takes up the moral and philosophical implications of the expanding science of probability, which reached maturity in the

19th century and early 20th. Keynes shows the 'Benthamite calculus'—the balancing of consequences, both near and remote, when deciding on a course of action—to be grossly deficient in capturing the ethical consequences of the condition of uncertainty (Keynes 1920, 353). The consequences of our actions, for Keynes, and particularly the 'good' they entail, are rarely known, let alone prone to measurement and comparison, despite the presumptions of the calculation of 'mathematical expectations' (namely, "the product of the possible gain with the probability of attaining it," ibid. 355).

The greater offence of probabilities, however, lies in the way they misrepresent not the fact but the *cost* of uncertainty. They ignore, he writes, "the element of 'risk' and [assume] that an even chance of heaven or hell is precisely as much to be desired as the certain attainment of a state of mediocrity" (ibid. 356). Risk, in other words, is that aspect of uncertainty which deals with the prospect of actual loss, with the costs involved with the spread between the most wanted outcome and the least wanted one. If we follow Keynes' preferred formula for measuring risk, it is the likelihood of losing one's *stake* in a probability.[5] For Keynes, as I will show, accounting for risk means accounting for the effects of fear, doubt and hope, whether they attach to numbers or to vaguer consequences. Finally, he defines probabilities as a relation between knowledge and

[5] To measure the element of risk Keynes adopts a formula devised by Emanuel Czuber (1903). In this formula risk amounts to the probability of losing one's stake in a probable outcome: "If A is the amount of good which may result, p its probability ($p + q = 1$), and E the value of 'mathematical expectation,' so that $E = pA$, then the 'risk' is R, where $R = p(A - E) = p(1 - p)A = pqA = qE$…" and he explains: "E measures the net immediate sacrifice which should be made in the hopes of obtaining A; q is the probability that this sacrifice will be made in vain; so that qE is the 'risk'" (Keynes 1920, 360). For example: the fair cost of a wager in which one stands to gain $80 with a probability of 1/4 is $20. The risk in such a scenario is the risk of losing that initial stake, that is: $20*3/4=$15.

belief, namely the likelihood a certain idea of the world is true.[6] One, therefore, has to take into account the quality and breadth of the evidence on which any given probability, or belief, is founded (ibid.).

So how significant is this divergence between Hicks and Keynes? The answer is, not very much. While probabilistic expectations can be neatly repackaged as definite, certain looking numbers, there is a flipside to Hicks' account of uncertainty. Though uncertainty can be masked, the effects of uncertainty cannot: it is in prices, demand schedules and payment streams that the gap between expectation and reality can no longer be ignored. When Hicks discusses the *effects* of uncertainty, he uses an extended definition of 'equilibrium over time,' adapted to a dynamic system. Equilibrium, he claims, no longer describes a system in which prices are determined once and for all, but one in which prices at a given moment match the expectations held about them in the past (Hicks 1939, 132). Disequilibrium, under this definition, is thus the more or less regular effect of uncertainty. It "marks the extent to which expectations are cheated, and plans go astray" (ibid.). The significant place which disequilibrium has in Hicks' dynamic theory not only brings him closer to Keynes but prompts him to borrow directly from the latter's account of forward markets as well as money and the interest rate. The remainder of this chapter is dedicated to Hicks' reading and elaboration of Keynes on these two topics.

[6] Lawson (1985) identifies two main models of the notion of probability in twentieth century economic thinking. In his taxonomy, Keynes belongs to a group of thinkers which see probabilities as a product of the mind alone: a set of beliefs about the world, grounded in available evidence. The second model, on the contrary, takes probabilities to be a fact, an object, or really an attribute of world events. In other words, our probabilities reflect the actual indeterminateness and random patterns of the factual world.

Uncertainty and the Challenge to Equilibrium: Futures Markets

For Hicks, uncertainty and unmet expectations bring about disequilibrium in four different ways. The first two are essentially coordination problems. If different actors have different expectations about the future the resulting market decisions will equally be mixed. Similarly, the future plans of different actors may be inconsistent with each other (even if expectations are accurate) (Hicks 1939, 133). The third kind of disequilibrium is caused by error in judgment, the inherent imperfection of human, and corporate, knowledge, or in a more Keynesian language: the low 'weight' of probabilities founded on insufficient evidence. Actors, in this case, err in estimating future needs or capabilities.

Finally, the forth type of equilibrium emanates directly from uncertainty, understood not as a summary of probabilities but, much like for Keynes, as the true unexpectedness of economic events, on the one hand, and human psychology under uncertainty, on the other. This is where Hicks' subjective 'risk allowance' comes into play. Doubt, a permanent feature of a society that expects the unexpected, can bring about disequilibrium, even when predictions are accurate, precisely because "when risk is present… people will generally act, not upon the price which they expect as most probable, but as if that price had been shifted a little in a direction unfavorable to them" (ibid. 134).

The important thing to note here is that, for Hicks, the third and fourth types of disequilibrium are an irreducible effect of uncertainty and imperfect knowledge, and exist in any economy and any society. Where they are made palpable is where institutions and arrangements are set up to try and overcome disequilibrium and increase systemic coordination. It is, moreover, the attempt to overcome uncertainty that reveals its actual cost. Forward transactions

in the futures exchange[7] produce what can be seen as a market-rate for irreducible uncertainty. It is perhaps less surprising, therefore, that it is Keynes who first identified and explained forward rates and the risk-premiums that determine them, an analysis later borrowed and elaborated by Hicks.

Forward markets and the forward rate become a primary site for explaining the effects of uncertainty in a dynamic system both for Hicks and for Keynes. Hicks sets up his account of the forward rate as a thought experiment, a reflection on how a perfect or 'pure' forward economy might look. A perfect forward economy can coordinate all actors without the need for centralized economic planning: all prices, loan rates and other costs and payments have been determined in advance through individual contracts.[8] The first two types of disequilibrium—inconsistent expectations or plans—have, therefore, been completely eliminated.

The perfect forward economy, however, which provides perfect hedges for the risks of miscoordination, is not only a far cry from reality, but cannot be maintained even in its ideal form if we include the third and fourth types of disequilibrium. When a future promise cannot be met due to unforeseen changes, the indebted party must procure alternative means, and will therefore give rise to a 'spot market' where assets can be traded in the present. When we look to the functioning of real markets we get a similar picture, where forward prices live alongside spot

[7] A forward transaction allows a buyer and a seller to settle a future transaction in the present. The forward contract is a binding agreement that determines the date, price and quantitates to be traded, and can be exchanged in the open market or in private (over the counter). Exchange traded forward contracts are called 'futures contracts.'

[8] Hicks permits a rather broad interpretation of forward markets, which include "not only dealings in forward markets, commonly so called, but also all orders given in advance, and all long-term contracts" (Hicks 1939, 135).

prices and are, moreover, significantly different from them. It is this mismatch that is at the heart of Keynes' notion of the risk-premium, which Hicks adopts and expands.

Empirical observation led Keynes, himself a futures trader,[9] to propose that the market chargers a price for forward-hedging (Keynes 2013 [1930]). The cost of hedging is revealed in the gap between current spot rates and forward rates. In general, spot rates will be either higher or lower than the forward rates quoted in earlier contracts, a discrepancy called, respectively, normal backwardation or contango. That gap is the premium the market places on securing, in the present, a future price, or in other words, on the risk of prices shifting unexpectedly (Fantacci, Marcuzzo, and Sanfilippo 2014, 1103).

But why must the market charge a premium for risk-taking, rather than match future buyers and sellers, equally invested in locking-in a future price? Here Hicks gives a twofold answer. The first part of his answer lies in the more or less fixed asymmetries involved in forward trading: the uneven distribution of uncertainty in the different stages of the production process. The second, complementary part, is that the market charges a premium because it can. There are people willing to pay to eliminate risks, and others willing to take them for a fee. To understand the functioning of the forward market as a form of market-based risk-management we need to understand the beneficial, balancing interaction of these two opposing types of market participants.

[9] In a recent working paper, Marcuzzo and Sanfillippo (2014) show how Keynes' trading activities in forward-contracts influenced his theory. Unlike the stock-exchange, where Keynes was generally successful, his poor luck in futures (which involve commodities rather than corporate equities), they suggest, may be directly responsible for his growing skepticism towards data-fueled economic prediction and greater belief in irreducible market uncertainty.

The forward market, argues Hicks, maintains a permanent but moderate skew in favor of the holders of long positions (that is, future buyers, who stand to gain from receiving products or services at the forward price, and then selling them at the future spot price). It can do so because of the counterbalancing interaction of 'natural hedgers' and speculators. The first category includes those who have good reason to assume they will be able to meet future contracts and profit from them (like industrial entrepreneurs who can rely on a degree of rigidity of production conditions). They are likely to pay the fee involved in reducing future price risks, but not in a uniform way. A natural asymmetry is formed since "technical conditions give the entrepreneur a much freer hand about the acquisition of inputs… than about completion of outputs." The "desire to hedge planned purchases," is, therefore, "less insistent than the desire to hedge planned sales" (ibid. 137). In other words, the people who use forward contracts as a hedge are usually sellers, and they are willing to pay a certain premium to their counterparts: future buyers.

The true counterparties of 'natural hedgers', therefore, are not other natural hedgers, but speculators. Looking to profit from the spread between forward rates and future prices, they enable the creation of a two-way market (i.e. a market in which there are constantly both buyers and sellers for a product, or in this case a security) in forwards and exploit the market's various asymmetries. Moreover, by creating the kind of speculative demand for forwards, divorced from the constraints and needs of production, they actually reduce the spread and keep prices more stable, and reasonable. The persistence of a spread despite this balancing, corrective influence, is further proof that some kind of risk-premium is not only acceptable to natural hedgers, but indeed necessary to guarantee speculators are lured into these markets and their balancing function is maintained. Indeed, it is the permanent presence of speculators which adds balance to the system, in a somewhat paradoxical conclusion that will persist in financial theory throughout

the decades, at odds with the general tendency to see speculation as an unnecessary, unwanted and unfortunate side-effect of finance.

Risk and the Return of Equilibrium: Money and Interest

In the decade leading up to his 1939 work, Hicks began developing a theory of money that would end up forming an essential part of his discussion of dynamics. Most notably, it was a risk theory of money. As early as 1932, and reaching greater clarity and methodological precision by 1935, Hicks ties money and risk together by making money, or really holding on to money, a problem of choice under uncertainty. In the evolution of his thought on money, moreover, is folded the entire drama of the 1930s challenges to the static world view, as equilibrium was at first deemed unfit for dealing with uncertainty and eventually put forward as its solution.

What happened between the rejection and rehabilitation of equilibrium was the rise of the risk approach to finance. Even more than the problem of the forward contract, though doubtless informed by the latter, it is in the problem of money and interest that the three elements of the 'risk approach' come into their first full view: the 'risk situation' as the object of optimization and equilibrium; the translation of the payment system into a system of risk management and insurance (though not in so many words); and the privatization of risk-management.

A single puzzle dominates Hicks' repeated attempts to provide a theory of money: why do people, and to an extent institutions, hold on to their cash reserves instead of investing their excess wealth in profit yielding instruments, such as loans, securities, etc.? They do so, he claims quite consistently throughout, because of the uncertainty inherent both to investments and to the timing of future payments. What changes between the first articulations of this idea and its

mature 1935 and 1939 forms is the place of equilibrium analysis. While Hicks shows confidence in people's ability to estimate uncertain outcomes, or at least choose between different probability distributions, his idea of money evolves more slowly. It begins with money representing uncertainty itself: a reserve fund against true unknowns and a measure of general fear, much like we find in Keynes (1937). With time, however, it becomes a much more precise measure, not of uncertainty in general, but rather of the preferred 'risk situation' of an individual carefully balancing profit and against safety.

In an unpublished draft from November 1932 (cited at length in a later article), the puzzle of money leads Hicks to conclude that "*the use of money is inconsistent with economic equilibrium*" (Hicks 1973, 4, original emphasis). This is because holding money can never be the optimal portfolio as long as profit yielding alternatives exist. The only reason people hold on to money is their uncertainty about future payments, specifically those which are yet unknown. As early as this draft, therefore, money is a key medium not for the static world of fixed prices and perfect hypothetical foresight, but for a dynamic world where decisions rely on expectations and "disequilibrium is the disappointment of expectations" (Hicks 1973, 5). The quantity of money one holds cannot be explained as the equilibrium of income and expenditure because it necessarily keeps equilibrium out of reach, setting money aside for a rainy day. At most, it can serve as a general indicator of confidence or fear in the public, particularly in its aggregate form, the oft invoked "velocity of circulation of money" which, Hicks concludes, is "fundamentally a function (an inverse function) of risk" (ibid. 6).

The twist in this story occurs in 1935. Hicks, now informed of Keynes' *Treatise on Money*,[10] will attempt to apply the logic of value theory further, taking as his starting point the demand for money as proof of its value. It becomes quite clear that money as a reserve performs a vital function for the holder of money, and as such, must have intrinsic value of its own, namely that it is a risk-free and liquid store of wealth. Money can be used for immediate payment and requires none of the transaction costs involved in holding securities, or in transforming them into money when a payment is due. It is also less risky than most loans and all stocks and futures.

The more important thing to note, however, is that by establishing that money has value, Hicks had made the quantity of money a proper object for equilibrium analysis, and the preference for money an object of measurement. Rather than treat money as a reserve, a cushion for all other transactions and a vague measure of one's lack of confidence, money is now an expenditure one chooses over alternatives, balancing its relative advantages against theirs. When compared with buying consumer goods, holding money signifies a preference for a future expenditure over a present one, whether out of need or caution. When compared with loans and other securities the quantity of money more properly establishes the relative preference of safety over profit. Namely, it is the equilibrium of desired earnings and desired security, the balance of risk and returns.

[10] What stands out for him is Keynes' 'fundamental formula': "when Mr. Keynes begins to talk about the price-level of investment goods; when he shows that this price-level depends upon the relative preference of the investor—to hold bank-deposits or to hold securities. Here at last we have something which to a value theorist looks sensible and interesting! Here at last we have a choice at the margin! And Mr. Keynes goes on to put substance into our X, by his doctrine that the relative preference depends upon the 'bearishness' or 'bullishness' of the public, upon their relative desire for liquidity or profit" (Hicks 1935, 3)

This equilibrium approach is modeled on the balance-book. The desire to hold money can take the form of one of three actions: selling commodities, borrowing money or collecting on a loan. The desire to hold less money similarly translates into consumption, lending or repaying debt. The demand for money, therefore, finds its expression between one's assets and liabilities. Unlike the present prices of commodities, which are the basis for choosing between them, the problem of choosing money over interest-bearing securities relies on anticipations of future yields and maturities. The decision-maker, moreover, must take into account the anticipations of others in the face of "changes in objective data which call them forth" (ibid. 13). It is, in other words, a decision-problem founded on uncertainty.

An individual will only invest if the return on her investment promises to pay more than the cost of the original investment, and to pay out at a convenient time. The permanent "penumbra of doubt" which surrounds yields and durations of investment impacts the desirability of investing (Hicks 1935, 7). Here Hicks introduces the same technique he will propose in his later work to account for such doubts. All decisions are founded on a mean expectation and a range of possible outcomes, as well as a subjective risk tolerance. The larger the range and the lesser the tolerance, the greater the risk which is added to one's calculation of costs.[11] The task of compiling a

[11] As explicit as the equivalence of risk and gains becomes in Hicks' equilibrium analysis, they are not for that reduced to some kind of average benefit that remains constant as they rise and fall in tandem. While risk and gains may rise proportionally, they do not balance each other out for the marginal decision maker. Rather, "in this situation, I think we are justified in assuming," claims Hicks, without further explanation, "that he will become less willing to undertake the investment" (Hicks 1935, 8). In other words, while risk and gain are commensurate, risk-aversion and greed are not, as the former tends to trump the latter: "increased dispersion of the possibilities of yield," or greater volatility, rather than a source of profit, is, in Hicks' story, a "deterrent to investment" (ibid.).

portfolio, or managing a balance-book, thus becomes the task of capping one's risks while maximizing one's profits in light of a preferred "risk-situation:"

> we shall, therefore, expect to find our representative individual distributing his assets among relatively safe and relatively risky investments; and the distribution will be governed, once again, by the objective facts upon which he bases his estimates of risk, and his subjective preference for much or little risk-bearing (Hicks 1935, 10).

In *Value and Capital* Hicks will bring together the two separate approaches to the problem of money. First, the quantity of money is now fully incorporated into a general equilibrium model, with its own supply and demand equation, among all other commodities. Notably, however, this money equation does not suffice and fails to capture an important aspect of money—the one responsible for the puzzle in the first place—namely the instruments by which money can accrue interest.

For Hicks', in direct opposition to Keynes, interest rates and the quantity of money are complementary yet independent aspects of the problem of money, and especially the problem of risk (Hicks 1939, 159-160). For Keynes, the interest rate determines the quantity of money people hold. It is, more specifically, the bribe they would need to not hold money and therefore measures liquidity preference almost exclusively (Keynes 1937). For Hicks, on the other hand, the quantity of money measures a general sense of confidence, while interest measures the price attached to various risks by those willing to take them: the balance of greed and fear.[12]

[12] The distinction is clearer when we call the risks by their name. For Keynes an individual will prefer to hold money for its liquidity, and will relinquish this liquidity for a certain interest rate. For Hicks, on the other hand, interest is compensation for a whole host of risks, including liquidity, but also market and credit risks, like price-risk and counterparty-risk. Keynes' view talks exclusively about the choice between money and securities, as two firm opposites. Hicks' view, on the other hand, focuses on the relative preferability of different securities (*including* money), with respect to the tradeoff they entail between risk and profits. For Hicks, as I will show, the quantity of money is really only relevant when people cannot participate in the

In light of this fundamental disagreement, Hicks' analysis of the interest rate is particularly striking. He explains lending as another form of forward contracting, namely: an asymmetrical contract with a spot and a forward component, on either side. In other words, as a forward contract of sorts, lending (and trading securities) adheres to the same principles Keynes' found in forward contracts: normal backwardation and the risk-premium (the interest rate, as opposed to the forward rate), which compensates the speculative party for its risks. As noted by Brilliant (2014) and Frantacci et al. (2014), Hicks' innovation lies in the translation of lending and interest into Keynes' language of forward contracting. I propose, however, that in so doing Hicks goes a great deal further than the specific problem of the interest rate. While it is true that he finds Keynes' theory of the term-structure impossibly circular, Hicks' move is not simply an improvement upon the latter. In translating, or really collapsing, lending, securities, forward contracting, and eventually money itself into a single category, Hicks' move has far wider implications.

First, by including the lending rate in the broader category of forward rates, Hicks can reintroduce the main components of his forward-trading analysis into questions of money and securities. For instance, he shows that a persistent gap remains between actual interest rates and the rates 'predicted' by previous loans (which were based on current and expected future rates at the time of the loan)[13] since they include compensation for various additional risks and especially

investment game at all. It nonetheless remains a very important measure, as these are the majority.

[13] Namely, "the long rate is the arithmetic average between the current short rate and the relevant forward short rates," say, the two month rate over two months ($2R_2$) = the spot rate + the forward rate (r_1+r_2) (Hicks 1939, 145). In other words, a long-term rate of interest should be equal to a series of short-term rates, or else one would expect everyone to prefer lending and borrowing in the cheaper rate of the two. What happens in reality, however, is that the longer rate is more expensive, but is still used by people who have a stake in a long-term guarantee. They are willing

price risk (the risk of fluctuations in interest rates and securities prices). Similarly, the market is comprised of natural 'hedgers'—anyone who requires a guaranteed source of long-term funding for the proper functioning of their business or household—but suffers from an asymmetry, with no natural counterparties who stand to 'naturally' gain from long-term lending. Indeed, bankers and other lenders would always prefer lending short-term, to preserve the liquidity and value of their assets. To compensate bankers for their risks, "borrowers would thus tend to offer better terms in order to persuade lenders to switch over into the long market (that is to say, *enter the forward market*)" (Hicks 1939, 147, my emphasis). Just like the forward exchange, long-term borrowers pay a risk-premium to their counterparties.

What is clear, therefore, is that in this translation, bankers and other lenders become speculators:

> the forward rate of interest… is thus determined, like the futures price of a commodity, at that level which just tempts a sufficient number of 'speculators' to undertake the forward contract. It will have to be higher than the short-rate expected by these speculators to rule in that week, since otherwise they would get no compensation for the risk they are incurring. The forward short rate will thus exceed the expected short rate by a risk-premium… (ibid.)

As Hicks himself concedes, "it is not usual to think of the market for long-term loans in terms of hedgers and speculators; but that distinction does in fact continue to be relevant here" (Hicks 1939, 146). This, moreover, is where his translation becomes particularly charged. Not only does Hicks maintain an eerie consistency in his belief that speculation balances and clears markets in the presence of natural asymmetry, or that risks must carry pecuniary compensation for

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to overpay, and the extent to which they overpay is measured by comparing the average of expected rates with the forward rate, an average which includes risk-premiums on top of these expectations (ibid.).

individuals. In treating bankers as speculators and in collapsing loans, securities, money and forward contracts onto one category, Hicks is quite tacitly eliminating the internal distinctions within finance and the division of labor between banking (the payment system), hedging (insurance), and, investment (the trade in securities).[14]

This collapsing of boundaries is amplified, and to an extent enabled, precisely by maintaining the autonomy of interest and the demand for money. It opens up a range of possible portfolio choices that begins with money on one end as the "perfect security," and is populated by "promises to pay money" of various qualities and degrees of 'acceptability'. In other words, all securities are like graded commodities, such as sugar or wheat, where interest represents the discount on lower graded securities: the loss in value due to their lesser moneyness.

But what is moneyness? In the context of Hicks' discussion of money and securities, money is perfect because it is universally acceptable (backed by the state it has the least counterparty risk and widest circulation). But it is also perfect because there are no transaction fees related to using money. As opposed to other securities, which must first be converted to money in order to facilitate payment, money is perfectly liquid, as Keynes would no doubt concur. Finally, money is also the safest security, even if it is not completely risk-free. This is evident when we find high-risk high-yield securities on the opposite end. Thus, the autonomy of the demand for money and the interest rate allows one to compare one's relative preference for money or securities, as

[14] At least part of this process is discussed at length in Perry Mehrling's history of the Federal Reserves, which traces the transformation of the main tools of banking, from loans and deposits to trading securitized-debt, particularly public, corporate and eventually household bonds (mortgage backed securities) traded in the open market (Mehrling 2010b).

placed on a single scale between safety and yield, just like one would compare any other two commodities.

To summarize, what we find in *Value and Capital* is a two-leveled theory of money. The quantity of money, as a matter of individual portfolio choice, and the interest rate, as the necessary compensation for risk-taking, are complementary measures of the equilibrium of risk and profit. In other words, money and interest determine the marginal decisions of a portfolio manager, as she weighs her risks against possible gains until she has optimized not only her income and expenditures but her 'risk position'. The first measures individual confidence and the relative preference for liquidity over profit as a safeguard against unexpected future payments. The second measures the incentives investors seek for holding securities (including loans), that is, the amount of compensation, or temptation, they will require for taking on various risks. The ability to choose one's risk position, moreover, depends on the existence of markets for such 'goods', and the ability to trade in them.

But who is the portfolio maximizing investor? Hicks' finalized theory carries important implications for the kind of 'anthropology' already glimpsed at in his account of hedgers and speculators in the futures exchange. As early as his 1935 work, the puzzle of money, liquidity and investment, and its equilibrium solution, rely on another fundamental distinction between types of actors, namely: those sensitive to changes in rates, and the insensitive masses. Like the counterbalancing needs of hedgers and speculators, whether in forward contracts or in loans, the investors and those who are endemically unable to invest are responsible for keeping the financial system stable and maintaining prices reasonable.

Two main factors, says Hicks, will affect a person's decision to hold money rather than securities. The first is the amount of money they have for spending and the second is the total

wealth they possess. Since investment is tied with certain fixed costs, it will hardly be worthwhile for an individual to invest only a little bit, for only a short while. This means that the majority of potential investors are "fairly insensitive to changes" in interest rates, yields and even general confidence (Hicks 1935, 7). In this way, insensitivity in large quantities has the same effect as the balance of hedgers and speculators. The masses counteract the harmful effect of a handful of powerful, institutional investors, who tend to flock after minor changes in yields and rates, threatening to inflate dangerous asset price bubbles:

> stock exchange depressions will pass into industrial depressions. But the insensitive are always there to act as a flywheel, defeating by their insensitivity both the exaggerated optimism and the exaggerated pessimism of the sensitive class. (ibid. 18)

But the small pool of large investors is not without its own unique contribution to stability. Not only are such investors—including banks, insurance companies, trusts and large firms—able to absorb transaction costs, but their size allows for effective diversification (which, again, is too costly for the small investor). By being not only larger, therefore, but safer, they are the optimal borrowers, providing the system, alongside the government, with the bulk of its safer securities—an expansionary money substitute that increases consumption and investment on both sides.[15] Moreover, since monetary, or portfolio equilibrium, isn't founded on given prices but on anticipated ones (including the anticipated reactions of other market actors), a reduction in

[15] Safe loans to institutional investors give lenders greater confidence and lead to a general expansion of the money supply, as the lender can now treat her securities as though they were a form of money, diminishing her demand for cash. The borrower in such a case is a voluntary borrower, which will use the money to invest and consume rather than service debts. Distress borrowing, on the other hand, prompts the lender to increase her reserves and her fees, out of fear of debt-default. Her borrower will likely also put a damper on available funds by using them largely to repay debts, a contractionary action (Hicks 1935, 11).

the heterogeneity of investors can also increase stability. Thus the greater uniformity of investment brought on by this basic division of labor in the market is also a simplifying, mitigating influence.

Opposing investor types, or really the opposition of investors and non-investors, is also crucial in understanding the effect of the second factor: the amount of wealth an individual possesses. The insensitive many, claims Hicks, increase their demand for money as their assets grow. The few that rely on anticipations and estimates in their investment decisions will, on the other hand, see a sudden change as a signal to increase their investment, reducing the demand for money. It is this effect of wealth changes that contributes most prominently to the formation of asset price bubbles, spurred by bouts of optimism and followed by equally dramatic collapse.

Conclusion

The introduction of the risk-premium into economics is ripe with irony, contradiction, and unpleasant truths. Rather than overthrowing the static confines of the equilibrium model it merely substitutes the rational, autonomous utilitarian subject, which commanded a great degree of control over her destiny, with one subjugated to the irreducible uncertainties of time and the humanmade constructs of the market. By finding the solution to the problem of equilibrium in equilibrium itself, Hicks was forced to concede an inherent asymmetry between economic actors, the stark separation of people, and the centrality of the market in managing risk. It is therefore highly significant that this three-partite 'risk-approach' to finance—supply and demand for risk, banking and investment as forms of insurance, and the privatization of risk-management—will come to dominate the future science of financial decisions, instruments, and institutions.

The different stages in the evolution of Hicks' ideas appeared side-by-side in his final theory, as the fundamental distinction between investors and non-investors, the subjects of uncertainty

and the subjects of risk and profit. Money has marginal utility as a safeguard, and as such it is held by the many who do not otherwise invest (though they still get to decide when to spend). But the real puzzle of holding money instead of securities belongs to a select group, performing multiple calculations of risk versus gain to make such choices, on both sides of the balance sheet (borrow, lend, invest and save).

While Hicks' early work reflects the less-than-optimal state of the former, his later work discusses the various tradeoffs of safety and profit that allow the latter to reach true equilibrium. The masses may be responsible for the bulk of aggregate demand for money (and safe investments), but it is in the realm of institutional investors that interest-rates are largely determined. These heavy players, with their high sensitivity to changes, will frequently wander among the various maturities and counterparties, if they feel they are not properly compensated for their risks:

> if the long rate is too low to compensate for the risk of capital loss, they begin to go into shorts; if the short rate is too low to compensate for the risks involved even there, they hold cash; it does not take much to induce them to make these changes. It is these professional investors, operating upon the whole gamut, and paying close attention to small differences in rates, who provide most of the logic of the interest system. (Hicks 1939, 169)

What is perhaps more surprising is that it is only by maintaining this distinction that systemic balance can be achieved, a rather grim conclusion when it comes to questions of the public good. Throughout his analysis of risk, whether in the form of risk premiums in forward trading and lending, or as a marginal preference for money, Hicks returns time and again to the balancing presence of two opposite types of actors, with slight, yet significant variation. Risk-premiums are paid directly by those who seek to offload risk to those who will take them on. The line in this

case separates the various financial actors—bankers, dealers, investors—from entrepreneurs, farmers, or producers.

The demand for money, on the other hand, lumps together financiers, speculators, insurers and any corporate actor who is sufficiently large. These are not necessarily risk-takers, but they are acutely attuned to the relation of risk and profit. The entire group is then countered by the leveling effect of a large demand for money as a reserve among the many non-investors. One may suggest that the second opposition is thus an aggregate version of the risk-premium: to increase stability in society, the many must sacrifice an optimal balance of risk and profit, so that the few can be lured into entering the high-stakes high-risk game of investment.

It is for this reason, perhaps, that Hicks accepts, even justifies, the idea that "there is no reason why policies which tend to economic welfare, statically considered, should also tend to monetary stability. Indeed, the presumption is rather the other way round." Utilitarianism, in other words, as the art of human welfare grounded in equality and agency, doesn't really work when we take into account the effects of uncertainty and risk. The stability of the market requires that two classes, or types of actors, be maintained even at the cost of "harming a great many people a little for the conspicuous benefit of a few" (Hicks1935, 19). The only way to contain uncertainty is to allow and encourage some to reap its biggest rewards by taking on the greater share of its risks.

Notably, however, the strength of the investor and speculator classes lies not in their ability to hedge, diversify or minimize costs through sheer scale, just like the risk-premium is not merely a reward for risk-taking. It lies, rather, in the balancing of risk with large quantities of safety and uncertainty with large quantities of static rather than dynamic decision-making. The balance is an effect of the market itself, creating competition among speculators and placing

barriers that limit investment. More importantly, it is an effect of the market as the place where such opposites can meet and let their contrary needs clash, in a modern day version of the Machiavellian opposition of class-appetites.

The self-regulated market and the erosion of internal boundaries between the functions of finance are key elements of the privatization of risk-management. The process was, perhaps surprisingly, contemporaneous with the heavy regulation of the New Deal, but emerged fully only with the rollback of the welfare state in the 1970s. Diverging from Keynes' emphasis on the role of state institutions in regulating the separate branches of finance, it was Hicks' theory of the market for risk that would set the tone for the burgeoning science of finance in the 1950s.

Chapter 4. Model Markets

Michel Callon (1998) has famously argued that economic theory plays an important role in the way markets are constructed. He described this relationship as a form of performativity, with market actors constantly adapting to the tools (mainly accounting tools and managerial practices) introduced by 'academic specialists' and practitioners alike (23-4). Similar feedback mechanisms, I propose, whereby a tool or a technique both teaches its users how to act, and is consequently refined and transformed through their use, can be found on other levels of economic activity. This is particularly true for the ideals used to judge market behavior and the idealized notions of what a market is and does. In this chapter, I focus on the significance the idea of equilibrium, including equilibrium under uncertainty, has had on the evolution of actual markets for risk, namely the securities and futures exchanges.

The argument I am making is similar. Namely, there is a common frame of reference for practitioners across the different practices and institutions which form markets. Agents adapt their behavior not only to new tools, as Callon shows, and, as his readers have subsequently shown, to abstract pricing models or prediction methods (Mackenzie 2006). They also rely, in delineating legitimate market behaviors, on market idealizations, or models, of market mechanisms as much as the proper ethics and legal limits of markets. These ideals are perhaps secondary to the market's more technical reference points, but are nonetheless constitutive of actual markets, the relationship of markets and the state, and the subjectivities markets give rise to. This is because they are shared and deliberated among various types of economic agents—government officials, economists, traders, growers, and producers. Moreover, they respond to feedback from the reality they provide a reference for, and evolve by competition with other guiding ideals.

The problems of risk and profit foreground the relationship between model markets and actual ones. Originating in late-nineteenth century abstractions, the equilibrium model limited economic language to the utility optimizing individual, operating in a frictionless, timeless environment. Notably, market mechanisms were assumed to require no intermediaries—Walras' auctioneer was only a metaphor for the market mechanism's emergent outcomes. For economists like Knight, Keynes, and Hicks, however, the more realistic assumptions of time, change, and ignorance prompted a reflection on the conditions of the possibility of markets, and the obstacles posed to their smooth functioning by the presence of uncertainty. Their answers had powerfully reinstated human agency into the abstract model. Knight's entrepreneur and Hicks and Keynes' speculator transformed uncertainty back into certainty, allowing for markets to emerge where prices were reliable promises and fair reward for effort could be guaranteed. To do so, they had taken on the irreducible risks and the disequilibria of economic activity as personal liabilities. Their personality and psychology, and the value of their choices and beliefs thus became, for Knight, the unique objects of a broader social-humanist theory, while for Hicks and Keynes they formed a quantifiable basis for economic mechanics.

A similar process, I argue here, also took place in the reverse, as model markets were projected back onto the realities from which they emerged. The road from academic debate to political reality is not as long as may appear. As Perry Mehrling (2010b) has shown in his history of the Federal Reserve, "ideal norms" about the ways markets function have played a significant role in twentieth century financial regulation and monetary policy. In the case of the latter, he argues, it was, ironically, and quite dangerously, the constraints of liquidity which were abstracted away. Money and its use were assumed to be cost-free and abundant—money was a pure veil over the transacting individual's actual utility calculations (Mehrling 2010b, 6). As I

will show, the equilibrium model of markets provided one such ideal norm, which played itself out in debates over the creation, management and regulation of financial markets. A second idealization pivotal to the early days of finance was the opposition of hedgers and speculators, which adapted the equilibrium model to conditions of uncertainty.

The ways in which markets, theories, and political action interacted in the interwar years provides important insight into the origins of contemporary financial markets and their role in shaping the neoliberal subject as a subject of risk. Beyond that, they complicate recent critiques of neoliberalism, which present it as, in the first place, a form of economic imperialism, the expansion of an ambiguously defined "market logic" to previously non-economic fields. The chapter develops the claim that market logic is neither uniform nor unchanging. It is very much the subject of controversy and contestation among multiple stakeholders, shaped and transformed as it traverses their unique fields of action: industry, agriculture, journalism, social movements, government administration, constitutional law.

'Market logic', moreover, is not limited to market mechanics, and always includes in addition beliefs about social values and proper human conduct, a fact appreciated by current scholarship, but often not clearly identified. The relationship between model and ideal, between market mechanics and broader social discourses remains underexplored. As recent historiographies of the neoliberal movement have shown, however, it was precisely the combined strategy, linking theory, policy, and their common occupation with a set of ideals and ideal norms, that has greatly aided the spread of neoliberalism. Both financial and intellectual entrepreneurs succeeded in widely disseminating the notion of an autonomous, self-clearing market, as the solution to a host of social and economic problems from uncertainty, to crime, to

self-improvement. The story of the early beginnings of commercial financial exchanges and their theories thus forms part of this more elaborate picture.

In the chapter, I demonstrate the pervasive interwar belief in the power of a free-standing market as both efficient and fair, in three central sites. The first is Friedrich von Hayek's model of an agentless, spontaneous, self-adjusting price mechanism. Perhaps the ultimate ideal of markets as autonomous, emergent coordination systems, it both obscures and highlights the technical expertise of actual speculators as well as the processes of standardization real markets must undergo to facilitate the free flow of trade. Second, I look at the opposition of hedgers and speculators as it migrated between Cambridge debates in the late-1930s and the statistical tables of administrators and econometricians, attempting to quantify their impact on market trends and assess their powers of prediction. Finally, I look at the battles around financial regulation, as speculators were both vilified and heralded as the exchanges' true experts and authors. Much like Frank Knight's profiteers, I conclude, the figure of the speculator had emerged from the drama of crisis, doubt, and political struggle to assume the role of market-maker, allowing for a price system to emerge in the first place, to adjust over time, and to release the 'real economy' from the greater costs of its uncertainties.

Neoliberalism and Market Logic

A unifying thread across the vast literature which now exists on the rise of a neoliberal order in the twentieth century, attributes to it the expansion of market logic to previously non-marketable spheres of social existence. As Wendy Brown has recently argued, neoliberalism should not be seen as "a set of economic policies, an ideology, or a resetting of the relation between state and economy" but rather as "a normative *order of reason* developed over three decades into a widely

and deeply disseminated governing rationality" that "transmogrifies every human domain and endeavor, along with humans themselves, according to a *specific image of the economic*" (Brown 2015, 9–10, emphasis added). In this new "governmental logic," she adds, "all conduct is economic conduct; all spheres of existence are framed and measured by economic terms and metrics…" (ibid.), "we are everywhere *homo oeconomicus* and only *homo oeconomicus*" (ibid., 33). Most notable and potentially dangerous, therefore, is its expansion to the political public sphere (ibid., 39-40), but much has also been written on the privatization of education, the criminal justice system, healthcare, and many other areas, especially from the now hollowed out welfare state.

Market logic is manifested, for example, in the way the democratic citizen is recast primarily as a market optimizer, and her character and motives parsed out as forms of human capital: a revenue generating mechanism embedded into the individual's body and mind. With this human capital maximizing individual for a starting point, moreover, the education system was transformed into a profit maximizing provider of human capital. At the same time, those left out of the new market for skill and ability were branded a social problem to be managed and disciplined, primarily through a racialized system of mass incarceration, welfare to work programs, and other punitive measures attached to former social safety-nets and provisions (Soss, Fording, and Schram 2011). If the welfare state had, in the past, intervened to counter market movements and adverse market outcomes, especially inequality, the argument goes, it is currently devoted to legitimating and amplifying these outcomes, offering little remedy to the recurring crises of the 'real economy' since the 1970s (Schram 2015, 29).

It is difficult to argue with claims that living our lives as pure market actors, *homines oeconomici*, obliterates the common aspects of social and political life and threatens to

undermine the other-regarding virtues our liberal forefathers held in high esteem.[1] A problem, however, emerges when attempting to understand what a pure market actor is, and what a world completely subordinated to the market's logic entails. Many accounts of neoliberalism tend to leave blank the specific content of "market logic" and the actual paths by which it gradually took over other, relatively unspecified, logics. A tacit but pervasive slippage afflicts the neoliberal literature whenever the term "market logic" appears. This is the slip between actual market mechanisms, forged in the constant back and forth between economists, regulators, and market actors, and the set of ideals, beliefs, and habits that attach to a market society, without being themselves economic.[2]

Neoliberalism, so it seems, is the extension of market logic, by other means. The Tea Party movement for example, as Sanford Schram (2015) has shown, responds to the actual crisis of mounting personal debt by vehemently arguing for a principled reduction in the size of the government (and its taxes) in the name of the ideal of self-sufficiency (46). Similarly, many neoliberal programs to replace welfare provisions use a language of personal responsibility, linking disadvantaged social positions with personal pathologies and arguing for better self-management, industriousness, and sounder investment decisions as a way to achieve it (Young 2013).

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[1] In the next chapter, I take up this argument in more detail, suggesting that, while accurate in essence and a good description of present problems, it sets off from a problematic assumption about the pervasiveness of "the economic", coupled with a rather thin description of what the latter means. This has implications, therefore, for possible courses of action under financialized neoliberalism, as I will show.

[2] A similar problem, as Bill Maurer has shown, characterizes the anthropology of finance, a parallel occupation with the symbolic relationships in which markets are embedded, which tends to leave the "black box" of actual financial artifacts unopened (Maurer 2002).

Even the more likely claim, that the idea of "human capital," developed by Gary Becker and Theodore Schultz at Chicago, is the emblem of market logic and its imperialist expansion, ought to be qualified by the term's highly metaphorical and ideological content. From the beginning, the idea of human capital allowed economists to understand the non-economic, from education decisions to life plans and future satisfaction, and incorporate it into their models of a utility maximizing individual (Feher 2009, 25–26) thus stood in not only for long-term self-improvement programs or short-term "self-esteem" (ibid. 27) but broader assumptions about a universally accessible market, the commensurability, and prominence, of human talents and skills (as opposed to social position), and the ubiquity of an entrepreneurial spirit among all market participants. From the individual's perspective, moreover, 'human capital' was a metaphorical way to understand her own life decisions as though she had at her disposal a "portfolio of conducts" (ibid. 30, see also Foucault 2008, 226–27).

Another look at the disciplinary divides within the scholarship of neoliberalism reveals a more substantive break around the meaning of 'market logic', generally obscured by interdisciplinary citation practices. While historians of economics have focused on the development of new theories of markets and their consequent impact on institutional design, economic historians have highlighted the macroeconomic pressures which propelled neoliberal policies as a set of market-state solutions to low rates of profit, overproduction, etc. (Harvey 2005; Piketty 2014).[3] At the same time, political and social theorists have identified ways these

[3] Macro numbers have been instrumental in giving a pulpable shape and scope to the broad material and structural changes the economy has undergone. What such accounts often lack are deeper explanations for shifts in policy and public opinion, in other words—for the causes which drove governments and industry elites to adopt one set of solutions rather than another. The 'rise of finance', a key moment in the history of neoliberalization, is a case in point. The financial industry's rising, disproportionally large profits, have loomed large in these accounts, highlighting both the impact and predicament around finance: its returns are often seen as greater

new realities helped transform individual beliefs, instigating broad changes to institutions and social organization. This division of labor has led to a great deal of confusion, not only about the ways the three factors—institutions, theories, and beliefs—interact, but about the very meaning of terms.

In tracing the spread of market logic, *qua* logic, historians of economic thought have made several important points, often lost in broader theoretical arguments. One of these points, is that there was nothing pure about the extension of "pure market logic." At the forefront of the neoliberal intellectual movement, the Mont Pèlerin Society and the Chicago School, of the Chicago economics department, were both the culmination of deliberate efforts to create an independently funded basis for the promotion of "classical liberal" ideals and policy proposals. Finally convened in 1947, the Mont Pèlerin Society was in the making since the late 1930s, creating a basis of solidarity among "like minded" intellectuals seeking to reinstate a values-centered liberalism, where individual freedom of action is a key concern, but the state remains an active player, correcting the aberrations of the *laissez faire* market (Burgin 2013, 95).

Against the backdrop of a Keynesian hegemony dominating both the economics discipline and public policy, the group represented an outlier among academics and relied for its funding on a newly forged alliance with "individual corporate philanthropists and ideological foundations"

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than the services it provides (Krippner 2005; Crotty 2003; G. Epstein and Jayadev 2005). A cross-sector profit crisis in the 1970s, moreover, from the manufacturing sector to financial elites themselves, is further cited as the main reason financial services expanded to small businesses and homes and began assuming greater risks, furthering the reach of a new neoliberal governmentality (Brenner 2009; Duménil and Lévy 2001; Lapavitsas 2009). What these accounts overlook, however, are the ways profits are themselves generated by a combination of ideas and market ideals, which are in this case, as this dissertation shows, deeply tied to the financial industry's self-perception as a risk management system.

(ibid., 98–99). The notion driving this new collaboration, successfully promoted by organizers like Friedrich Hayek, was that changing minds is a necessary step before changing policy—a creed deeply embedded in the operation of this new forum and echoed in the outreach and public education activities of organizations like the Foundation for Economic Education or the American Enterprise Association (ibid.; Phillips-Fein 2009). In a similar vein, the radicalization of a new generation of Chicago economists after the war, drew not only on these intellectual sources and personal ties, but also on the same ideologically tinted funding sources. The Volker Fund, led by the businessman Harold Luhnow, was instrumental in placing several faculty members and "advisors" in the University of Chicago to facilitate a Hayekian-inspired, corporation-friendly collaboration on a "Free Market Study," which would become the core of the new School (van Horn and Mirowski 2009).

Equally important is the fact that there is no one 'market logic' but rather an entire range of theories and models of markets, changing over time, and competing with each other for authority and influence. In its early iterations, neoliberal thought was imagined at once as a return to the normative core of classical economics and a series of innovations applying the state's power and legal system to ensuring markets promoted individual liberty, rather than stifled it. Hayek and Wilhelm Röpke, figureheads of the Mont Pèlerin Society, advocated a vision of "constructive liberalism" which "relied on an acceptance of the idea

> that the problems with laissez-faire could not be addressed merely through a network of limited restrictions on the grosser excesses of the market. Rather, they demanded the abandonment of the abstract paradigm of the *homo economicus*, and the integration of the market economy into a redefined and morally renewed social order. (Burgin 74).

The later Chicago School, on the other hand, forfeited this broader normative agenda (shared by an earlier generation of Chicago theorists, like Frank Knight and Jacob Viner) and found its

own cohesion in a market-centered methodology (Emmett 2013, chap. 12), albeit one that underwent radical transformation by the 1970s. Consistently centered on "price theory," Chicago 'orthodoxy' was nevertheless divided in its interpretation of what a market-centered approach entailed. While Milton Friedman largely continued the earlier Marshallian approach of Knight and Viner, which understood markets as social mechanisms, the arrival of Gary Becker in the early 1970s shifted the focus to the rational economic agent and her decisions under conditions of scarcity. With the advent of this rational choice approach, the economic method could be expanded well beyond traditional market contexts and involve issues as varied as crime, discrimination, fertility, and, of course, human capital (Medema 2013, 162, 167).

Faith in the efficiency of markets, or market-like incentive structures, and their superiority as problem-solving mechanisms, drove the Chicago School's efforts to make its theories into policy devices, oriented towards greater privatization of the welfare state (Peck 2013). The Chicago School's success in populating government offices, even more than faculty positions, gained the neoliberal movement a reputation for extreme "structural readjustment" of public assets and provisions, now transferred to private hands, of global market deregulation, and of tight monetary policy (exemplified in Paul Volcker's tenure as Fed Chairperson). It was, moreover, the extreme application of its teachings under the authoritarian regime of Augusto Pinochet in Chile that made "neoliberalism" synonymous with a particularly inhumane and imperialist brand of "market logic", and a term used primarily by critics (Boas and Gans-Morse 2009).

What this broad historiography makes clear, is that neoliberalism should not be conflated with other forms of market radicalism, like American libertarianism, or *laissez faire* economics. Neoliberalism, as a form of economic rationality, that is, as a market *logic*, is deeply fact-based and relies on a data-driven, problem-oriented methodological orthodoxy (Emmett 2013, 151;

Medema 2013, 40) with roots in American institutionalism (Medema 2013). It is unsurprising, therefore, that neoliberalism is a critical, if ideologically charged, approach, one that argues for its proposed solutions out of scientific conviction and, at least nominally, abandons those aspects of it which do not withstand scientific scrutiny. Finally, the degree to which economists and other theorists have had to act as institution builders and to forge alliances between academia, government, the press, and industry (including a vast network of financial institutions) further complicates stories of turf wars between government and market, between 'the economic' and 'the political'.

By not acknowledging both the diversity inherent in neoliberalism as a way of thinking and its distinctness from other forms of market-based ideology, one loses sight of the meaning of one's own terms. Not only market logic, but the idea that neoliberalism is about "marketizing everything" (Schram 2015, 29) or the "financialization of everything" (Brown 2015, 28) take for granted the actual mechanisms at play in the spread of neoliberalism. Each market formed, each new commodity, each new way of measuring one's worth in terms of a future return, relies on its own complex institutional and theoretical foundations, which are neither self-evident nor were they guaranteed success at the outset.

The implicit assumption, therefore, that one "neoliberal subject" emerges out of a diversity of markets and market rationalities is unfounded and largely unhelpful. Financial markets, for example, the main concern of this project, produce a specific type of subject, which is in some respects (though not all) radically distinct from the 'democratized' entrepreneurial function embodied in the idea of human capital. The frequent conflation of a financialized economy and a neoliberal one has obscured the differences between the subject(s) of neoliberalism and the subject of finance (as a subject of risk). While both turn to markets solutions for their material

problems—want satisfaction, income generation, risk management, even discrimination—they hardly resemble each other. The neoliberal subject has a rich, multilayered "footprint," produced by various governmental and disciplinary regimes, from credentialing institutions to credit-raters, healthcare providers, and social network profiles. Within all these regimes, however, she is presumed equal (at least until proven otherwise), equally utility maximizing, and judged by her conformity to norms of self-sufficiency and self-improvement, which she is assumed capable of reaching.

The financialized subject, on the other hand, has a thin profile and an anonymized identity. Her personal integrity and behaviors are secondary to the market mechanisms charged with managing her risk-exposure. Her interface with the financial industry, moreover, is not a face to face meeting with a banker, or even the more standardized, but nonetheless deeply personal credit score.[4] It is, rather, her assets and debt portfolio. The former are, for the most part, managed by expert third parties, the owners of massive collections of individual bundles of securitized wealth, and consist mostly of bank deposits, savings for retirement, and insurance policies. The latter is similarly owned by large financial institutions, often not the originators of the loans, and processed by a massive industry of debt repackaging on the one hand, and wholesale debt collection on the other.

Between her debt (as opposed to her original loan or credit card application) and her limited assets, therefore, the financialized subject isn't considered of equal build to a financialized

[4] Rating agencies and the effects of credit scores on the dissemination of the neoliberal governmentality have featured prominently in accounts of the neoliberal subject. They have also, however, contributed to the conflation of a neoliberal subject and a financialized one, which is, as I argue in what follows, of a somewhat different breed. See, e.g., Fourcade and Healy 2013; Mahmud 2013.

subject of an altogether different sort: the speculator, the market-maker, the arbitrageur.[5] Either as individuals or, in most cases, as institutions, these market "actors" inhabit an entirely different financial universe. They seek out risk and have an intimate knowledge of market mechanisms. They are attuned to prices and often responsible for determining them, assuming liability, at least in theory, for mispricing the risks they buy and sell.

To understand the subject of finance as a substrate of neoliberal subjectivity, neither these differences, nor the intellectual and institutional mechanisms by which they are formed can be overlooked. An evolving market ideal has allowed individuals to assume these opposing roles, branding them 'risk-takers' and the 'risk-averse,' who turn to markets to resolve their conflicting desires: gain or security. This market ideal, moreover, repeats itself among theorists, exchange leaders, and government regulators, who did not develop it separately, but rather through their mutual exchange. Between the previous and the current chapter, I have begun the work of identifying the ways this dichotomous subjectivity was formed through reference to the idea of a balance among contrary motives in the face of uncertainty, on the one hand, and an autonomous, anonymous, and efficient market, on the other.

Financial Markets as Model Markets

The focus on financial markets in this dissertation has so far avoided addressing directly questions on the definitions of money and the relation between financial markets and the frequently invoked "real economy". There is in fact a great deal of overlap between the theories

[5] On securities dealers as market-makers, see Mehrling 2010b; on the centrality of the logic of arbitrage in contemporary finance, see MacKenzie 2006; Beunza and Stark 2004; Miyazaki 2013. I take up the question of speculation in the rest of this chapter.

and theorists of financial markets and those of monetary and business cycle theory. By the interwar years, all three were increasingly incorporated into an equilibrium framework, and had also gained a significant policy component with the advent of the Federal Reserve and early fiscal and monetary business cycle management, culminating in the New Deal. While Keynes' *General Theory* set the tone for business cycle theory and practice, the work was a relatively later artifact of a decades-long debate on the nature of the macroeconomy and the interaction of its key components: interest rates, productivity, capital investments, and wages. Macroeconomic analysis provided a site for early econometric analysis and models, for institutionalist data collection, and for reimagining the economy as manageable through its comparison to an ideal state of equilibrium (Morgan 1992; Laidler 1999; Moss and Vaughn 2010).

Moreover, by suggesting that an entire economy could be reduced to a set of equations, the combination of applied economics with equilibrium analysis informed the intellectual and ideological clash between free-market advocates and socialists of various stripes. If the proper proportion of supply and demand, wages and returns, could be reached by solving an equation, why assume, it was argued, that markets operating blindly would solve the equations better than a well-informed, data-driven central planning board. This was also an answer to the problem of uncertainty: instead of profit and loss, shouldered by individuals, trial and error experimentation in relative costs and quantities could instead be backed by the power and wealth of the state (Caldwell 2003, 217–19).

Money and markets thus played a key role both in the idea of macroeconomic management and the 'socialist calculation debates'. But what kind of markets were they? Here one must consider the radically different paths in which monetary theory, and, as I will show, early financial theory, were developing during the interwar years. First, as part of macroeconomic

analysis, distinctly monetary elements, from prices, to interest rates, to investment and saving money-flows, were treated as valves and levers in the greater system of production and exchange. Prices determined the quantities of inputs and outputs in the economy and money shifted them around as needed, as long as the state and its banking system did their job of making money available at just the right amount. To a large extent, therefore, the entirety of the debates around business cycle theory hinged on the question of what the right amount was. The role of money was to properly reflect actual supply and demand in the economy, and to facilitate the kind of saving and investment it would need to expand, develop technologically, or reach full employment, all without succumbing to costly and painful "correction" through economic crisis and depression (Moss and Vaughn 2010, 351).

This, however, was just one part of the story. As against the seamless integration of money and costless operation of markets stood a tradition of monetary thinking developed among market operators: bankers, financiers, exchange leaders, and, most importantly, central bankers (Mehrling 2010b). Here money was not simply a stand-in for an underlying economic reality, but adhered to its own rules of supply and demand, possessed with its own creative, and destructive powers, and shaped by the hierarchies between money and credit, by the layers which formed not the gap but the bridge between a real economy of goods, capital, and labor and a derivative one of prices, wages, and interest.

In other words, while markets and exchange were the center of attention and the primary mechanism of a capitalist economy, money, actual exchanges, and, in important ways, prices, were seen by the bulk of mainstream theory as a secondary, superimposed indicator of the underlying economy. Worse yet, real markets, and especially money markets, were often distorted indicators and corruptive influences, misleading market actors and causing waste and

crisis. The ‘price mechanism’ was a market ideal, the ultimate capitalist response to socialist ambitions, just as the interest rate, understood in the singular, was the ultimate lever for directing resources to their optimal use, all while retaining individual discretion and fulfilling individual needs. Actual prices, on the other hand, were unreliable, contestable, and often erroneous, the object of constant correction efforts. It was this tension, I argue, that explains much of the evolution of actual financial markets during the same period, in the power struggle between industry elites, financial practitioners, public opinion, and government regulators.

An emblem of this generative tension between real and ideal markets was Friedrich von Hayek’s highly influential reformulation of the market ideal in the late 1930s. Forged in intense dialogue with business cycle theory, on the one hand, and socialism, on the other, Hayek’s model redefined the function of markets as, first and foremost, instruments for the creation, distribution, and, most importantly, coordination of knowledge. As Bruce Caldwell (2003) has shown, Hayek’s *Economics and Knowledge* (1937) was dedicated to reframing the problem equilibrium was meant to solve, from individual optimization to collective coordination.

Much like Frank Knight in the early 1920s, Hayek called attention to the limited applicability of a notion of equilibrium premised on perfect knowledge and foresight among all market participants. Each individual, he agreed, could reach equilibrium—namely, an optimum utility given her resources—based on her subjective, localized knowledge of market. There was, however, little reason to assume that different individuals could reach equilibrium among themselves on the aggregate level. To do so, their subjective knowledge would have to be transformed into objective knowledge, and their plans would have to be perfectly compatible. Hayek argued that the ideal of equilibrium implies a perfect alignment of individual plans. To the extent that they approximated this ideal, markets were the mechanism by which such alignment

could be achieved, not through the centralization of local knowledge, or by massive redistribution of information, but by efficient coordination of dispersed knowledge (Caldwell 2003, 207–9).

Though the problem was similar, therefore, to the one Knight was dealing with, the solution was different on several levels. Knight had not tried to reformulate the ideal, but theorized the realistic conditions that could bring it about—these conditions involved people, the personification of market mechanisms and the fulfillment of their promise through substantive decisions, promises, and personal responsibility. Hayek on the other hand, focused on the ideal itself. He largely removed individual experts from the scene, and focused, as a later work would emphasize, on the price-mechanism itself.

In *The Use of Knowledge in Society* (1945), Hayek made the case for the price-system as the most efficient tool for national economic coordination and the better alternative to economic planning. If Knight's entrepreneur countered the limits of her knowledge with intuition and overconfidence, Hayek argued that dispersed and locally circumscribed knowledge was all that was needed in producing optimal market outcomes. He praised the surgical preciseness of prices in communicating only that sliver of relevant information needed for decisions and actions, out of the great noise produced by a vast and unruly capitalist economy. "The most significant fact about this system" he claimed, "is the economy of knowledge with which it operates, or how little the individual participants need to know in order to be able to take the right action…" (Hayek 1945, 527). Echoing Knight's sphere of pure "doing"—absent the latter's irony or criticism—Hayek praised the market's ability the serve as a filter, simplifying a complex reality about which one simply needed not think. "'It is a profoundly erroneous truism…,'" he quoted Alfred Whitehead, "'that we should cultivate the habit of thinking what we are doing. The

precise opposite is the case. Civilization advances by extending the number of important operations which we can perform without thinking about them'" (ibid., 528).[6]

Prices, Hayek argued, provide real-time and real-place information necessary for executing a multitude of individual, localized plans, which require constant adaptation to real trends and fluctuations in the economy. This idea too involved a reframing. As Caldwell emphasizes, Hayek was explicitly addressing the highly static assumptions of the dominant equilibrium model (Caldwell 2003, 211–12). In the latter, prices were adjusted to better reflect a single and unchanging underlying reality and to reach an ultimate and permanent state of equilibrium. Instead, adjustments in Hayek's model reflected actual changes in the underlying economy, and could only reach temporary equilibrium, before conditions changed again. His reframing was meant to make equilibrium a workable model for an inherently dynamic reality.[7] Prices reflected reality, and were judged by their ability to send accurate signals to market participants, eventually satisfying their mutual demands through exchange. The means by which prices were

[6] In one important way, Hayek's idealization was not a mere exercise in abstract theory. Angus Burgin (2013) shows the extent to which Hayek found support and inspiration for his ideas in Walter Lippmann's *The Good Society* (1937), which argued in favor of a classical liberalism equally distorted by *laissez faire* radicals and state-interventionist planners and bureaucrats. So much so, that, in sharing his enthusiasm from the book with a group of self-described classical liberals, including Lionel Robbins and Wilhelm Röpke, he began the organizational activity that would culminate in the neoliberal Mont Pèlerin Society. First published in installments in the Atlantic Monthly and back by the authority of a renowned journalist, the book and its reception in intellectual and public circles suggests an additional path by which the new market ideal tying limited knowledge, limited intervention, and, as Lippmann and later Hayek would make explicit, personal freedom, to the well-functioning market, was broadly disseminated (Burgin 59-64).

[7] In all these ways, Hayek's reframing resembles J. R. Hicks' model, which would be published two years later (discussed at length in the previous chapter). Though the two worked closely at the London School of Economics, Hicks does not reference Hayek's reframing of the model in his main work, though he does acknowledge an earlier influence elsewhere (Hicks 1939, 132; Hicks 1973, 5).

produced, controlled, and regulated, on the other hand, were bracketed. “The price-system” was, for Hayek, as well as many others, an inevitable fact of human life, a discovery, “just one of those formations which man has learned to use… after he had stumbled upon it without understanding it” (Hayek 1945, 528).

How did prices get produced? Though Hayek had abandoned the human agent formed in the gap between real and ideal, a wide interest in these figures characterized the debates around financial markets in the interwar years. Knight’s entrepreneur would return as a speculator, profiting from her various market-correcting roles: price-adjustment, market-making, price stabilization, and, as discussed extensively in the previous chapter, taking on risks for a premium. At once the ultimate market insider, and external to its governing principles of utilitarian exchange, the speculator was to be judged by her ability to fulfil the promise of market efficiency with limited knowledge. If Hayek’s new model addressed the problem of time and change, real people still had to account for their primary effect: uncertainty.

In actually existing “price-systems”, prices are rarely decided through the independent interaction between buyers and sellers, knowledgeable only in their own affairs. Rather, it is the work of market specialists which most frequently determines the final price of goods. A speculator does not participate in the cost-benefit calculations of producers and consumers, but rather targets those goods which are at the moment undesired or undersupplied. She can buy cheap products in a glutted market, and sell them again when they are scarce, or sell overpriced items, correcting their price as she does. The speculator stands to make a profit by the movement of price alone. By doing so she can prevent sharp price fluctuations, leveling the prohibitively high prices on rare goods and dangerously low ones on surpluses. She can also guarantee the continuous exchange of goods and expand the amount of goods that can be traded. Speculators

are thus necessary whenever supply and demand fail to reach equilibrium, or when different plans aren't perfectly synchronized. Speculators are required precisely because exchange takes place over time, and they rely on their ability, or at least a willingness, to estimate market movements.

The Hayekian ideal was further aided by the structure of markets themselves. As Nicholas Kaldor (1939) showed, the necessary conditions for market equilibrium and for market speculation were in essence identical. Both required that a 'perfect market' exist for a given good. Perfect markets in Kaldor's definition are, firstly, highly liquid, because only a large volume of trades will allow a speculator both to stock up and unwind her position when it becomes profitable to do so. To be liquid, moreover, a market must also be fully standardized, so that goods are interchangeable across time. Third, a good must have a low cost of carry (for instance, low storage costs and high durability), and finally, it must also retain its value in high quantities (Kaldor 1939, 3). To imagine *any* kind of self-leveling market we must assume these four criteria, which amount to a marketplace where constant adjustment between needs and supplies is possible at no additional cost.

For this reason, the most perfect markets, which are also optimal for speculation, do not trade goods at all, but rather perfectly standardized financial instruments—bonds, stocks, and commodity futures—backed by various highly standardized goods and stakes in the 'real' economy (Kaldor 1939, 5). Evolving alongside securities-markets and the post-1914 centralized banking system, the commodity exchange proved a fertile ground for refining the market ideal. Historically devoted to the shipment, storage, and delivery of produce and extracted materials, exchanges had accelerated the process of commodity standardization and facilitated trade across vast regions as well as across time.

The futures contract determined today the price of wheat or corn at a specified future date: one party would commit to selling at this future price and the other to buy. As such, it had a hybrid form: a financial instrument in its inception and an actual delivered good in its culmination. While retaining the language of goods and deliveries, moreover, most contracts were cash-settled, the difference between contracted price and market price handed over to the 'winner' of the transaction. This meant that exchanges, themselves hybrid constructs mixing real and speculative trading, allowed the volume of commodities exchanged to greatly exceed the volume of actual goods available.

This costless, "dephysicalized"[8] exchange, free from the constraints of material scarcity, storage and transportation costs and the threat of deterioration, facilitated the kind of coordination theorists had sought. Hayek himself drew his main example from the world of commodities: "assume that somewhere in the world a new opportunity for the use of some raw material, say tin, has arisen, or that one of the sources of supply of tin has been eliminated. It does not matter for our purpose… which of these two causes has made tin more scarce" (Hayek 1945, 526). Hayek is already assuming that the new use for tin and the old source of tin refer to exactly the same tin, that the absence of tin would be equally distributed across markets and that directing tin to new uses does not cost a thing. The unfettering of exchanges from the constraints of the "real economy" however, also threatened the reliability of prices and increased market vulnerability to manipulation, as I will show in the final section.

For markets to assume the kind of efficiency necessary for equilibrium, therefore, two reverse processes had to take place. On the one hand, the gaps and friction of real world market

[8] On the dephysicalization of property with the advent of high volume securities trading, see (Maurer 1999b).

operations had to be eliminated through the work of market experts, actual personifications of the abstract and explicitly dehumanized image of the price mechanism. On the other hand, material goods had to undergo a process of greater abstraction and standardization, rendering them closer to the theoretic ideal. The model market was the market which best facilitated speculation: a financial market, where immaterial stakes in the real economy could be traded at minimal costs and in high volumes. Derivative assets of all kinds allowed speculators to mimic, and embody, a market ideal of price efficiency, properly reflecting both the value of goods and the state of equilibrium.

Speculation in financial markets was the model market transaction. It was the site where estimates and judgments about market conditions and the value of goods could be tested on a large scale and yield an ultimate market answer. As such, however, it was also measured by the standards of a market model and ideal. The activities of speculators were put on a scale between the healthy correction of markets and distortive, even fraudulent manipulation. Different actors had a stake, therefore, not only in shaping the institutions, instruments, and practices of the commodities and securities exchanges, but the ideals regulating them.

Speculators Meet Hedgers

From the perspective of the equilibrium model, speculation was a way of explaining market adjustment through time, and of incorporating the costs of time and change in present prices. If a wheat merchant were to make a utility optimizing choice between selling her stocks of wheat today or storing them and selling sometime in the future, her calculation would include such considerations as the cost of wheat at the two dates, the cost of storing and possibly shipping the wheat, any loss of value, and the interest she might make on present gains. In a perfectly

balanced market, the two options are identical: present prices are equal to the future expected price minus the costs of time (interest, storage, shipping, etc.) (Kaldor 1939, 5). One way to achieve this state of equilibrium, even if supply and demand for wheat are asymmetrical, is through the profit seeking activity of speculators. "If expectations were quite certain," writes Kaldor, "speculative activity would so adjust the current price that the difference between expected price and current price would be equal to the sum of interest cost and carrying cost" (ibid.). In other words, if future gains are higher than the costs of time, speculators will increase their present stocks, causing present prices to rise. If the futures gains are too low, speculative demand for present goods will decline, lowering current prices.

The main point of this hypothetical scenario, is that even under conditions of perfect knowledge and accurate expectations about the future, time and change are costly. The speculator enters these dynamic models as an adjustment mechanism, and disappears when balance is regained. She enters as the counterpart of a stakeholder in the productive economy. This fundamental dichotomy, moreover, as discussed in the previous chapter, becomes even more pronounced in the presence of uncertainty. When future prices cannot be known in advance, an additional layer of risk is added to forward prices, which must now reflect the expected price minus the costs of time, plus a risk-premium. The risk-premium grows with the level of uncertainty around the future expected price (ibid.). The role of the speculator has also evolved in the process: she is no longer merely helping the market adjust to the effects of time, but offers other market actors something the market itself cannot: certainty about the future. The wheat merchant becomes a hedger and the speculator a risk-taker.

Forward transactions are the market's "special facilit[y] for divorcing the risk attached to holding stocks from the holders of these stocks" (ibid.). Two fictions, or abstractions, are at play

in the equilibrium theory of hedging, first developed by Keynes and Hicks, and extended by Kaldor and other Cambridge economists (see also, Hawtrey 1940; Dow 1940). First, the speculators are depicted as the direct counterparts of the hedgers, who are assumed to be carrying actual stocks of goods, and using futures contracts to deliver them at a later date. As I elaborate below, actual futures exchanges consisted of numerous cash settled contracts, overwhelmingly for the purposes of speculation. Hardly any real goods changed hands, and even hedgers used the exchange to mirror and offset cash trades, not to facilitate the selling of their goods.

For this reason, the second abstraction of speculation theory is even more striking. For Kaldor, the speculator possesses a "speculative stock"—a hypothetical stock of goods available for immediate sale. This stock, according to the theory, is constantly expanded and contracted based on changes in market prices, both present and future, known and unknown. While no such stocks exist in actual markets, the abstraction illustrates the kind of optimization problem a speculator faces, riddles with true unknowns. One such unknown is, for example, the cause of present price fluctuations—these could be the result of changes in economic conditions, but could also be the result of speculative activity, indeed of speculation about speculative activity. Second, the current forward prices quoted by the market are comprised both of an expected rate and a risk premium, but do not distinguish between them. The speculator must therefore have a sense of the expected future price rate to calculate the compensation she might receive for her risk. The level of compensation, finally, will determine not only her willingness to accept greater uncertainty, but to increase her speculative stock.

Together, the two fictions establish speculators as traders in risk that are themselves risk-takers and counterparties to the trade in real goods. They allow us to understand how speculators might approach the question of future prices, by way of constant comparison with other moments

in time, and as compensating for the various costs of time and of uncertainty. Finally, they emphasize the extent to which speculators rely in their assessments as much on objective information and common knowledge, as on subjective estimates of economic conditions and the estimates of other speculators. The speculator is thus a nearly perfect translation of Knight's entrepreneur: she makes markets for goods by offering traders a certain future price; she personally assumes the uncertainties inherent in intertemporal trade, and her reward is, in essence, residual. Even though the risk premium is a single market rate, it is not determined in advance, but rather reflects the speculator's expectation of future prices. In addition, as I will show, at least one important subsector of speculators, namely small, usually amateur speculators, also shared with Knight's entrepreneur an overwhelming tendency to suffer large net losses overall.

Remote as their fictions were from the realities of exchanges, the opposition of hedgers and speculators dominated common practice as much as it did high theory. One of the first comprehensive empirical studies of the grain sector included detailed analyses of the hedging practices of grain merchants. Conducted in the 1910s and published in 1920, the survey showed that hedging was an incredibly widespread and evolved technique, used, on average, by just over half of all warehouses and country elevators, the main merchandizers of grain (FTC 1920, 213). In some northwestern states, the practice was so prevalent that it covered close to one hundred percent of all traders, though in others it was nearly nonexistent. Geographical differences accounted for much of this disparity, as trading took different forms, and especially different durations. At least some of the difference, however, had to do with attitudes towards hedging. While heavily financed elevators were required to hedge by their creditors, who saw it as a form of insurance on their funds, others continued to see it primarily as speculation, or at least found it

difficult to explain why it wasn't so to their superiors or the members of their farming cooperative (ibid., 222-4).

TABLE 75.—*Proportion of elevators in specified States reporting hedging in comparison with the prevalence of commission-house financing.*

State.	Percentage of elevators reporting hedging to a greater or less extent.[1]	Proportion of times commission houses are reported as source of loans to all sources reported.[2]
North Dakota	94.33	33.76
Montana	89.54	24.12
Minnesota	75.10	18.84
South Dakota	71.75	21.16
Nebraska	47.96	.26
Illinois	43.71	4.23
Iowa	33.09	2.67
Kansas	20.73	.44
Indiana	16.05	.....
Michigan	3.68	.....
Ohio	12.62	.....
Missouri	12.43	3.82
Oklahoma	8.27	.94
Wisconsin	3.04	8.39
All elevators	51.69	10.86

[1] The question asked was "Is it a custom to hedge your grain purchases?" The answers fell into four divisions, "Yes," "To some extent," "No," and "Only by flour sales," as appears from Table 73. In this discussion answers to the first two classes have been combined and those to the last two. The first two classes employ hedging in varying degrees, and hedging by flour sales is a type of hedging of a radically different character from hedging in grain (Vol. VII).

[2] Appendix Table 20.

Figure 4: Hedging in country elevators, FTC report on the grain trade, 1920. Source: FTC 1920, p. 216.

The report included a detailed illustration of the way hedging operations took place in real exchanges. Hedges were used whenever a significant time gap existed between the purchase and sale a stock of grain. The country elevator or warehouse operator would typically buy grain from multiple farmers, then sell it through the main commodity exchanges, most notably Minneapolis and Duluth, MN (Chicago was primarily a *futures* exchange). Since shipping the grain took time, and since terminal market prices could change in the meantime, the grain merchant relied on a futures transaction to insure her deal, by mirroring it in the exchange. If she bought 1000 bushels of wheat from farmers, she would, through her agent (usually a commission house), make an order to sell 1000 bushels at a future date. After her stock had shipped, reached its final

destination, and sold for the current market price, she would place an order to buy 1000 bushels at the same future date (208-10). The working assumption was that present prices and future prices will move in tandem. If present prices rose, future prices will likely drop, and vice versa. If one lost on one's cash deal, therefore, one was likely to make a profit on the futures deal, and so on.

The condition for a successful hedge, therefore, was the simultaneity of its execution with actual cash trades (210). This meant that a hedger could easily become a speculator, if she allowed for time lags to form between her futures deals, a fact not lost on elevator operators. Despite broad self-identification as hedgers, the realities of merchant involvement in commodity futures was, expectedly, messier, and open to speculative strategies. Aggressive price fluctuations were another obstacle for successful hedging, as were other disturbances to the assumed symmetry of the present and the future (225).

A 1949 study by the Commodity Exchange Authority (part of the New Deal regulatory regime) examined the behaviors of small speculators during the 1920s. With detailed information on the individual transactions, and their outcomes, of nearly 9,000 individual traders between 1924 and 1932, the researchers were the first to be able to test common assumptions about speculators and their strategies. As the data reflected the clientele of one Chicago brokerage firm, it consisted primarily of small traders, a fact that turned out to be crucial. After removing hedgers from the sample, it turned out that small speculators tended to lose overall, and by a ratio of 6 to 1. Though individual losses were relatively small, the cumulative effect was puzzling. Where, the researchers asked, were the large profits that could offset these losses? Nothing in their sample revealed commensurate levels of success (Stewart 1949, 131).

While such "amateur" speculators showed hesitation in following the exchange rule of thumb to "cut your losses and let your profits run" (129), their dominant trading strategy confirmed several beliefs about the benefits of speculation. Namely, most traders did not presume to be able to predict market trends, but rather followed a 'benchmarking' approach, buying and selling by comparing market prices to an internal estimate of the appropriate price of a commodity. Based on this sense of the normal price, a trader will sell when prices rise above what she deems appropriate, and buy when prices drop below it, thereby tempering market movements and easing price fluctuations. The technique, moreover, allowed market prices to reflect a kind of collective judgment on the values of the underlying economy, further reinforcing an ideal of markets as spontaneous coordinating mechanisms.[9] It was, therefore, a service provided by small speculators, and for which they generally lost their investments (104).

While the CEA's study dealt primarily with the speculations of non-specialists, recent research has assembled a detailed record of one instructive case of an expert speculator, namely J. M. Keynes himself. As Maria Marcuzzo (2012) has shown, Keynes began his investment career a fairly confident speculator, whose claim to professional expertise lay in his command of market information. He was a 'fundamentals' investor: assessing the underlying value of financial instruments, and investing where they are undervalued or overvalued by the market. He would gather information about global stocks and demand, seasonal fluctuations and storage and

[9] A converse strategy would involve buying when prices rise and selling when they drop, and would characterize a trader more confident in her ability to detect the beginning of a longer market trend (FTC 1920, 22).

shipping costs, and, as a theorist of probability, would include in his assessment the reliability of the information itself, as well as its public accessibility.[10]

If technical optimism translated to a rather reductive view of speculators as mere profiteers in Keynes early work (for example his 1910 *Lectures on the Stock Exchange*), it was his rather mixed results, argues Marcuzzo, that gave birth to the hedgers and speculators theory. Speculators now (that is, in the *Theory of Money* of 1930) had a vital function in the productive economy. At least some of Keynes' investment decisions followed directly from his redefinition of speculators as earners of a risk-premium funded by hedgers. For example, he sought to invest in the wheat and corn markets, which were seasonal and relied heavily on credit, placing them in greater need for hedging and thus, in theory, creating large demand for speculation (Marcuzzo 2012, 5). With mounting failures however, Keynes of the *General Theory*, in 1936, was now fully a skeptic. At the time he had substituted the 'fundamentals' approach for sophisticated strategy, balancing out various offsetting speculative positions to cap possible losses. The expertise of the speculator, his theory now claimed, lay not in forecasting price movements, but in guessing how other speculators might behave (Marcuzzo 2012, 14). His famous comparison of stock market trading to a game of musical chairs or a beauty contest (Keynes 1936, 156), where one must pick not a favorite but the probable winner—the estimated average pick—underscored a general disaffection with speculative markets, that will eventually lead to his withdrawal from such activities and embrace of greater regulation.

[10] Marcuzzo names three categories of commodities, according to reliability of information: "a) copper, tin and rubber, information being abundant but of variable quality, so that it was difficult to predict the pattern the stocks would show; b) nitrate, lead and spelter, with a low degree of uncertainty and thus possibility of reliable predictions; c) cotton and wheat, for which there was plenty of reliable information, but much uncertainty due to the unpredictability of extra-economic factors (weather, parasites)" (Marcuzzo 2012).

More avid support for the theory, however, could be found in a Cowles econometrician, studying the interwar commodities exchange from the vantage point of two decades of regulated oversight. H. S. Houthhakker's 1957 study of the exchange brought theory and empirical evidence to relative harmony. First, the data he was using came from the Commodity Exchange Authority, which had required traders with large positions to self-identify as either hedgers or speculators, making earlier models into a bookkeeping fact (Houthakker 1957, 144). Second, the study had definitively located the large profits missing from the 1949 sample. While registered hedgers and smaller speculators suffered intermittent losses, as might be expected, large speculators tended to earn considerable profits. The risk-premium, Houthakker declared, was an established statistical fact: speculators who took long positions to the hedgers' short ones, that is, speculators who bet on the market (thereby making a market for some to bet against it), generally made gains (148).

Even in Houthakker's study, however, the greatest profits were to be made by properly anticipating the behavior of other speculators, at the latter's expense (ibid.). The Keynesian "beauty contest", the internal mechanics of speculation, divorced form hedging, grew in importance as the volume of speculative trading grew in proportion to others. Between Houthakker's and the CEA study, empirical evidence appeared to be confirming Hicks' conclusion on the necessity for sharply asymmetrical rewards to sustain the system of hedging and speculation (see chap. 3). Or, as Kaldor further argued, "if the proportion of speculative transactions in the total is large,

> it may become, in fact, more profitable for the individual speculator to concentrate on forecasting the psychology of other speculators, rather than the trend of the non-speculative elements. In such circumstances, even if speculation as a whole is attended by a net loss, rather than a net gain, this will not prove, even in the long-run, self-corrective. For the losses of a floating population of unsuccessful speculators will be sufficient to maintain permanently a small body of successful speculators; and the existence of this body of

> successful speculators will be a sufficient attraction to secure a permanent supply of this floating population. So long as the speculators differ in their own degree of foresight, and so long as they are numerous, they need not prove successful in forecasting events outside; they can live on each other. (Kaldor 1939, 2)

Hedgers and speculators are therefore the kind of market abstraction that oscillates between theory and practice, between the mechanics of markets and their broader rationales and forms of legitimation. Just like the futures contract was deeply rooted in the material realities of actual commodities, the speculative function drew on its hypothesized pairing with the commodities trade, a fact that will become crucial for regulators as well, as the final section shows. Despite the fact that speculators and paper trades vastly outnumbered hedgers, and that hedgers themselves regularly engaged in tacit kinds of speculation, their imagined symmetry was used for everything from exchange registration to the justification of highly skewed returns.

If Keynes made the psychological guessing game a common explanation for the internal dynamic of speculation, his preferred solution was increased regulation (Keynes 1938; Keynes 1943). Such was also much of the public's response to the basic fact of exchanges: too many losers, not enough winners. Before attending to the fraught battles around exchange regulation in the 1920s and 30s, however, it is worthwhile to note another kind of solution, which emerged from the statistical study of exchanges and seemed to confirm the market's superiority over its individual transactors: the idea of market randomness and the inherent impossibility of expert forecasting.

Forecasting and Random Markets

The interwar period saw unfold a drama of prediction and doubt. While perfect foresight, even among the chosen few, was rarely seen to hold in reality, confidence in the talents of forecasters

and scientific calculation was relatively high in the early 1920s. The rapid advancements in the insurance industry, including early versions of social insurance (Bühlmann and Lengwiler, n.d.), the growth of a statistical forecasting industry in capital markets (Friedman 2014), and early attempts to manage the business cycle using fiscal and monetary policy (Eisner 2000, chap. 7; Mehrling 2010b; Burgess 1964), created a growing consensus around human-beings' mastery over their fate. A trained eye and a large enough dataset, it was largely held, could establish reliable patterns and order in the apparent chaos of economic life. But this vast edifice of prudent wagers and savvy management began to crack with the stock market crash of 1929, and even earlier, in the mid-1920s upheavals of the commodity exchanges. There was, however, an ironic twist to post-crisis disillusionment. In one of the more devastating rebukes to the science and art of prediction, doubts about market forecasting ended with a regained confirmation of market robustness, which relied precisely on its unpredictability.

While Houthakker in his study of large speculators took monetary success as "*prima facie* evidence of forecasting skill" (Houthakker 1957, 146), others were not so forgiving. Not only economic leaders and populist movements cried foul over numerous types of exchange manipulation, but statisticians increasingly offered challenges to the assumption that exchange profits were merited. In particular, they took aim at the idea of speculators as expert forecasters. In 1933, Alfred C. Cowles, the founder of the Cowles Commission for the study of econometrics, published the results of a 5-year research into the success rates of professional forecasters. Cowles, who had inherited the fortunes of a stock market forecaster and was himself employed in the profession, provided a statistically backed rebuke of this very expertise. At the height of the depression, argues Walter Friedman (2014), the piece was a product of its time, reflecting general disenchantment with the numerous forecasting agencies and statistical services

that had emerged in the preceding decades. Dedicated to combatting market volatility by collecting massive information about economic fundamentals like production, sales and employment rates, and relying heavily on past analogy, they had repeatedly failed at predicting large price slumps and the 1929 crash in particular (Friedman 2014, 4, 201; Marcuzzo 2012, 12).

Cowles' research compared lists of recommended securities and actions (hold, sell, buy) distributed by such services, with actual stock market performance, and estimated investors' gains and losses on these trades. In total, only six out of sixteen firms' recommendations managed to turn a profit over the long run, one broke even and the rest had lost up to 33% of their investment. The question remained, however, what was behind the success of the first six. Rather than assume expertise, at least in this handful of cases, Cowles wanted to know whether they had perhaps succeeded by chance alone. To test this possibility, he computed the odds of an outcome such as the one achieved by the most successful firm, which had accurately picked stocks 7 out of 9 times. The odds of such an achievement was close to one in sixteen and so "the record of Service Number 1," he concluded "could not be definitely attributed to skill" (Cowles 1933, 312). By the basic principles of probability, success in the stock market appeared to have been completely random, which was further corroborated by a test on randomly selected securities.

This demonstration of the random success and frequent failure of forecasting, however, did not have the devastating effect one might have expected. Not only did Cowles himself vigorously promote continued research into market behavior, supporting the burgeoning field of econometrics, which applied statistics and mathematics to the study of the economy. It was the idea that markets *ought* to be random that was perhaps the greatest contribution of momentary doubt to bolstering the science of price stabilization, management, and calculation. Around the

time that Cowles applied randomly selected securities and trades to prove a point about chance, Holbrook Working, of the Food and Research Institute at Stanford University (and early Cowles Commission participant), was searching for random movements in the actual prices of commodities produced by the exchanges. By 1949, that research would culminate in a broad claim about the relation between predictability and fairness.

As early as 1934, Working had argued that, while price trends across time were far from random, changes in prices were. These changes are random because prices are affected by independent factors which are at the same time cumulative, which means they remain largely unpredictable in the long run (though quite comfortably predictable in the immediate future).[11] In fact, what the 1934 article did, was undermine what Cowles had largely left intact: the methods and theories by which forecasters analyzed their data. If price changes are random, claimed Working, any recurring pattern, even a conspicuous one, cannot indicate a real-world change in underlying economic conditions—precisely the kind of things forecasters had been searching for, and finding, in their massive databases (Friedman 2009; MacKenzie 2006). But how can one tell whether or not changes are random? Working suggested that one may proceed by way of comparison to an ideal model: a series comprised wholly of random differences, where he had managed to demonstrate the existence of similar patterns to those which emerged from price series, and were otherwise considered quite significant.

Working's aim, however, went a great deal beyond correcting the phantasmatic errors of economic statistical analysis. For him, randomness was not just the skeptic's tool, but that of the regulator and reformer. If random patterns can be debunked by comparison to an idea model,

[11] For this reason, as he noted elsewhere, futures prices grow more and more accurate as a futures contract is traded closer to its delivery date (Working 1942).

non-random patterns can similarly be detected. These non-random patterns, he claimed in a 1949 article, must be produced not by an independent factor, but a dependent one, that is—one tied with the activity of trading itself. Namely, one may detect the presence of biased expectations that lead to the mispricing of financial instruments. Taking futures contracts as his case-study, Working listed the three most significant biases that may distort futures quotes: (1) conservative bias, or the tendency to respond slowly to significant market changes; (2) inadequacy of information—the existence of information asymmetries among market participants, often exploited by speculators in the know; and (3) exaggerative bias, which he identifies with Keynes' 'beauty contest', or the effect on expectations from the attempt to anticipate the expectations of others. All three biases can be seen as errors the market will eventually correct, as sharp changes are followed by a gradual corrective movement in the opposite direction (Working 1949, 154–56).

Using random changes, or a 'random difference series,' as his benchmark, Working drew a distinction between acceptable and unacceptable market error. On the one hand, he showed that in a healthy and fair market, irreducible uncertainty about the future means that expectations are frequently bound to be wrong. As 'necessary inaccuracies,' they appear as random changes in prices across time, and are hardly cause for skepticism. On the other hand, biases are the cause of unacceptable error, or 'objectionable inaccuracy' and therefore, paradoxically, enable the prediction of prices:

> If it is possible under any given combination of circumstances to predict future price changes and have the predictions fulfilled, it follows that the market expectations must have been defective… given an ideal futures market in which market expectations exhibited only necessary error, it would be impossible for any professional forecaster to predict price changes successfully. Apparent imperfection of professional forecasting, therefore, may be evidence of perfection of the market. The failures of stock market forecasters, to which we referred earlier, reflect credit on the market. (Working 1949, 160)

The task of the regulator would thus be to retroactively identify manipulation, herd behavior, information asymmetry, or a lag in response to change, and work to eliminate such instances in the future. The skeptical moment expressed in 1930s work by Keynes, Cowles and even Working himself had come around full circle to pin market fairness on its seeming disorder and intractability.

While his ideas would take several decades to fully germinate in financial thinking, finally enshrined in the "efficient market hypothesis" proposed, more or less simultaneously, by Eugene Fama (1970) and Paul Samuelson (1965), interwar regulators would arrive at rather similar conclusions. Finding middle ground between a financial elite ardently defending its practices and public outcry against the "slaughtering of prices" in the exchanges, regulators sought market remedies in their own notion of market autonomy.

Speculators and Regulators

In Hayek's model market, the constant adjustment of prices through the localized knowledge of individual actors served as the central coordination mechanism for society and its production and allocation problems. For industry representatives, regulators, and the general public, prices were both the product and the measure of a well-functioning market. In both cases, prices were expected to reflect the true values of the economy, its underlying trends, its fair costs and rewards. Prices had to be free of manipulation, but also of faulty judgement and human error. To achieve a mechanism as efficient as Hayek's agentless market, the independent judgment of numerous individual actors had to be filtered and synthesized through the fair competition among them (Moore and Wiseman 1934, 51).

In this final section, I elaborate some of the key moments in securities and futures regulation in the early-twentieth-century. Notably, the two had been treated separately by lawmakers and the public, and have therefore had overlapping but distinct histories. While a common complaint sought to root out speculation and especially counter-market positions in both types of financial markets, responses to these complaints have been shaped by some key differences between them. For one, commodities had engaged the federal authorities and Courts much earlier than securities. While the latter were federally regulated only as part of the Roosevelt administration's New Deal, in 1933 and 1934, the former were discussed by the Supreme Court as early as 1905, and regulated federally since 1922.

The promptness in regulating futures is tied to a second key difference: the collective interests that each represented. While securities' fraud robbed the unwitting, unrepresented masses, the interests of the agricultural sector were well represented both politically and commercially. As dependency on exchange price quotes grew, any manipulation to these prices was perceived, and vocalized, as a direct assault on the interests of growers, elevators, merchants, and the public at large. Finally, securities were artificial constructs only loosely connected to any material object. They represented abstract, if monetized, stakes in an even more complex legal construct—the modern corporation. Futures, on the other hand, maintained a lingering hold on the concrete reality from which they emerged: graded goods, shipments and deliveries, cash trades and storage.

The years following the 1929 crash saw an intensification of public outrage over the practices of the exchanges. "The greatest evil of the New York Stock Exchange," testified A. S. Brown of Boston, MA, before Congress,

> is due to the fact that the law of supply and demand is not allowed to take its natural course. Through organized effort the stock market is swayed either up or down and in many cases without regard for actual merit of the stock, the bulls or bears having only in mind their immediate possibility of success. (U.S. Senate 1931, 2).

Of all market manipulations, none was the target of public concern more than short-selling. Much like a hedging transaction in the futures exchange, a short-seller in the stock exchange contracts to sell a given security at a predetermined date and time. In both cases, the "short" position in the market implies one is in effect selling something one does not own (a fact masked, of course by the financially irrelevant fact that a grain merchant owns the real commodity somewhere in the real world). The short-seller thus stands to profit if actual market prices on the day of execution are lower.

"Bears," therefore, as such negative speculators are called, have a stake in the decline of prices—a rather unpatriotic sentiment at the height of a raging depression. As President Hoover's official correspondences disclose, the practice drew heat from industry leaders, brokerage firms, banks, and even country elevators, which largely saw short-sellers as price manipulators and conspirators. Bears, they argued, made their money not only by selling the property of others, but by destroying its value, at a time when systemic forces did much to destroy them already. Numerous appeals to the president decried the "slaughtering of prices on the New York Stock Exchange" (Brown 1932), in the name of "citizens who had placed their life's savings in the leading securities of the country" (Langford 1932). Put bluntly in an urgent telegram from Thomas Gates, president of the University of Pennsylvania: "the shylock's have resumed cutting the peoples flesh… continuing to poison and corrupt the life blood of the nation its securities" (Gates 1931).

In their critique of short-sellers and other speculators the representatives of the "real" economy, and some financial institutions, had not been well off the mark. While short-selling might have had its merits as a form of hedging, most short sellers hardly confined themselves to this function. Speculators widely engaged in various activities meant to guarantee that prices moved in harmony with their "predictions". They would conspire and collude to raise prices before entering a short-selling position, only to systematically drive them down before they needed to be resold. They spread false rumors and betrayed their fiduciary duties to their clients, artificially inflated trading activity, or held onto stocks to corner their market. Speculators were undoubtedly destabilizing markets and distorting prices (Markham 1987; Moore and Wiseman 1934; Hill 1904).

Both in the case of securities and of futures, critics and exchange leaders spoke the language of market equilibrium and supply and demand. On both sides of these protracted political battles a notion of a free and fair market was at stake, with both sides targeting those activities which appeared most to threaten it: governmental direction on the one hand, and speculative collusion, on the other. It was the futures exchange, however, which enjoyed a greater success in establishing the legitimacy of counter-cyclical activity, making the case not only for market autonomy, but for its central role in the spontaneous balancing of opposite interests.

Securities

The Securities Exchange Act of 1934 was, according to its contemporaries, an attempt "to establish a free and open market" (ibid., 56). The term was not an arbitrary one. Though it would only enter the explicit language of lawmakers in the 1975 amendment to the Act, it was already an established norm in British and American common law, where it had been effective in

protecting the public from certain kinds of market manipulation. The common law could be invoked to redress direct fraud and deceit, the distortion of market prices through false rumors or misinformation. In the American case, local and federal antitrust laws could also be appealed to in cases of collusion such as pools and corners (ibid. 65, 73). The free and open market reflected the public's interest in fair and accurate pricing, increasingly attributed to the working of actual exchanges.

Echoed in the 1931 testimony of Richard Whitney—president of the New York Stock Exchange—before Congress, the "free and open market" disclosed a second, parallel history of financial markets. The term had been strategically deployed by the governors of the NYSE since the First World War, in response to increasing oversight and regulation during the progressive era, most notably state "blue skies" laws and the creation of the Federal Reserve system. The Exchange was, quite justifiably, seen by its critics as a closed members' club, highly suspect in its methods, and injurious to the public. In return, exchange leaders, with the help of a newly established public relations department and wide-reaching campaign, reinvented the public as a community of small investors. Rather than regulation and oversight, exchange leaders argued, these investors relied on the expertise of an autonomous, self-regulating market (Ott 2011, 39–40; see also, Keller and Gehlmann 1988).

As Whitney set about to defend the integrity of NYSE practices, before and especially after the crash, his testimony included all the major hits of the early campaign, by then a widely disseminated, technocratic ideology. "The function of the exchange," he claimed, "is to provide a free and open market place for the principal securities of the United States…

> An active market for securities facilitates the flow of capital into industry. Investors always wish to buy property that can be turned rapidly into money… An active and free market supplies the liquidity which induces people to buy and sell securities. Once this fact is

> established companies desiring additional capital know they can secure it more promptly and more cheaply by issuing securities which can be dealt in in the public market place. This fact has produced the great security issues that have financed our companies, and it is now generally recognized that the great sums needed for the development of the United States could not have been obtained unless the funds of innumerable investors had been mobilized and made available for investment through the activities of the stock market. (U. S. Senate 1931, 21)

Liquidity, cheap and ready capital, and progress, were just some of the ways an independent exchange promised to secure economic prosperity. "Through the purchase of securities," moreover, "a great number of our citizens have acquired a share in American business" (ibid. 22, see also Ott 2011, chap. 6; Levy 2012, chap. 8). The free and open market was not only accessible to all, but made the greater economy accessible and turned citizens into stakeholders. To do so, it had to remain autonomous and self-governing. The public interest lay not only in honest price quotes, but in the impediment-free operation of the market as a rational coordination mechanism and in the calculated transparency of self-disclosure. The free and open market was "affected with a national interest" precisely because it was free from government direction. Instead, it could rely on the natural laws of supply and demand. Citing the NYSE's constitution (art. XVII, sec. 4), Whitney explicitly invoked the exchange's role in distinguishing legitimate from illegitimate dealings:

> 'Purchase or sales of securities made for the purpose of upsetting the equilibrium of the market and bringing about a condition of demoralization in which prices will not fairly reflect market values, are forbidden, and any member who makes or assists in making any such purchases or sales… shall be deemed to be guilty of an act inconsistent with just and equitable principles of trade.' (quoted in Subcommittee on the Judiciary 1931, 26)

What is perhaps more surprising, is the extent to which 1934 regulators had accepted these premises (Keller and Gehlmann 1988, 338–39; Ott 2011, 215). The new Act, as Wiseman and Moore argued, "effect[ed] little change" on existing common law; "anything in excess of actual

damages… could not be recovered… nor could manipulation not in contravention of the Commission's rules and regulations be attacked" (ibid., 77). They were referring especially to the impossibility of uninvolved third parties to sue for damages caused them by the distortion of the price system itself. At best, the law, "recognizing that complete freedom may be demoralizing, qualifies the concept by delimiting speculation and by authorizing such legitimate manipulation as the [regulatory] Commission thinks necessary or appropriate in the public interest or for the protection of investors" (56). The task of the regulator, reproduced in several of these laws, as well as their legal challenges in the interwar period, was to assist the exchange in its self-regulation, in telling apart manipulation and equilibrium.

Commodities

The regulation of commodities exchanges took a somewhat different path. If stock-exchange leaders found it difficult to convince industry and government representatives that there is an economic value to betting against the economy, the commodities exchanges could rely on the greater proximity of their futures contracts to the material economy. Either mirroring the cash market, or mimicking the actual delivery of goods, the commodities exchange with its elegant pairing of hedgers and speculators offered a more coherent language with which to fit financial transactions into the logic of a natural market. Futures trading, as I have shown, offered the theoretical imagination a model market where uncertainty could be translated into risk, and where risks and their premiums could be efficiently allocated to willing risk-takers. It had also been a model market for more practical purposes, as legislators and jurists made frequent reference to its concrete material forms.

Deeply wrought in the material interests of an organized agricultural sector, regulatory concerns over futures commenced early and drew national attention. It was in the context of these public debates that the narrative of the risk-distributing, market-regulating speculator met its counterpart in the general fury over the price-manipulating practices of market insiders. Faced with a perpetually dysfunctional pricing system and the impossible task of separating productive from unproductive speculation, it was the language of price stabilization, the delivery of actual goods, and especially hedging, which anchored the back and forth between regulators and practitioners.

An early victory for the exchanges' own self-image as a balanced, rational market, came in the 1905 ruling in *Board of Trade v. Christie* (1905). The ruling established the legitimacy and priority of commodities exchanges over "bucket shops"—businesses which allowed anyone to wager on the price of commodities for a low cost of entry. Exchange contracts, even when they did not involve actual delivery, the ruling had determined, were done with an intention to deliver, or in "contemplation of delivery." Since one must one day settle one's trades by closing one's position,[12] one had to include future prices in one's decisions to buy and sell. A gambler was not bound by a similar consideration—her position did not commit her to additional market activities.

Jonathan Levy (2012) describes the ruling as the culmination of a process of abstraction, as commodities exchanges evolved from the trade of concrete goods to the exchange of fabricated entities and from individual risk-taking to collective risk redistribution (232-3). Abstraction was

[12] If one is "short", that is, committed to sell in the future, one had at one point or another to "cover" one's position, to buy the requisite stocks one has promised to sell. Similarly, if one was "long", one had to "liquidate" one's position, or sell. Until a position is closed it cannot be settled (Stewart 1949, 2).

both a necessity of exchange operations—standardization across time and place was crucial for global, financially mediated trade—as well as its means of expansion, with paper trades fast outgrowing material ones. Parallel to the turn to abstraction, therefore, was the increasingly social, collectivist understanding of risk management: the danger to the economy lay in price instability, production surpluses, and real or artificial scarcity (ibid.).

The new rhetoric in support of futures trading, saw "men of the pits [assume] the risks inherent in capitalist agriculture, removing risk from the backs of other participants in the physical market structure— both handlers, and whether they realized it or not, farmers. Corporations like the Chicago Board of Trade thus centralized, systematized, and socialized risk" (Levy 2012, 247). In the words of one Chicago trader: "'active and continuous buying and selling for future delivery holds prices in conformity with the inexorable law of supply and demand…" (ibid.). Even Justice Oliver Wendell Holmes' opinion in *Christie* sounded a similar tune: "speculation of this kind by competent men is the self-adjustment of society to the probable. Its value is well known as a means of avoiding or mitigating catastrophes, equalizing prices, and providing for periods of want" (Board of Trade v. Christie 1905).

Christie epitomized this process of abstraction because it sanctioned the activity of exchanges as professional, expert run, and information driven managers of social uncertainty. Challenging their greatest competitors, the bucket-shops, exchanges had won out by proving that their paper contract served a social function that the former's did not. I argue, however, that this triumph of abstraction was greatly indebted to the continued hold of the concrete and material aspects of commodities in how markets were conceived and shaped. The wording of exchange contracts, after all, much more than bucket-shop deals, remained rooted in the concrete exchange of material goods and drew much of its legitimacy from it. Forced to determine the highly

ambiguous line between productive speculation and illegal gambling, the state not only accepted the abstract logic of supply and demand, but re-imagined it through the expert activities of traders. The state, in other words, had accepted the personification of the 'price-mechanism' in the work of speculators.

Notably, the court ruled against bucket-shops on *intellectual property* grounds. The bucket-shops, it argued, illegally infringed on the exchange's property in its own price quotes. "The Chicago Board of Trade" it opened, "collects at its own expense quotations of prices offered and accepted for wheat, corn and provisions in its exchange and distributes them under contract to persons approved by it… it is entitled to have its collection of quotations protected by the law, and to keep the work which it has done to itself" (Board of Trade v. Christie 1905, 244). No longer seen as transparent reflections of market values or expectations about them, the professional expertise of speculators translated into a unique product which properly belonged to them. The concrete materiality of prices, moreover, was further highlighted by the court's direct reference to the new technologies involved in their distribution and communication. Namely, the court sought to enforce the wire companies' contracts with the Chicago Board of Trade, which explicitly barred the transmission of this exclusive intellectual property (Board of Trade v. Christie 1905, 237).

The tension between concrete, now private, price quotes and the more abstract notion of a single and stable equilibrium market price would continue to shape the regulation of commodities exchanges in the coming decades. As the volume of future, speculative trades overshadowed both 'cash' or 'spot' trades of commodities (executed in the present) and the actual delivery of goods, their impact on the price of raw materials, market-wide and the world over, was immense. Though a powerful, populist agrarian movement drove dozens of legislative

efforts, targeting what it saw as the exchanges' dominant role in effecting violent price fluctuations, the bulk of these were unsuccessful (Markham 1987, 10). It was only with the advent of war, when the US government fixed prices to ensure urgent production (Eisner 2000), that the stage was set for more aggressive federal regulation.

Post-WWI financial legislation spoke an entirely new language. While earlier attempts focused on market manipulation, corners, pools, and other price fixing schemes by strong exchange members, the language of the 1920s regulatory Acts was steeped in the *Christie* world-view. "Transactions in grain involving the sale thereof for future delivery… known as 'futures'" stated the 1922 Grain Futures Act "are affected with a national public interest." Exchanges enjoyed full recognition as productive institutions with a crucial economic function. The Acts relied on the 1920 Federal Trade Commission study (cited above), which indicated a widespread need for hedging opportunities as a form of insurance for agricultural production. Moreover, the social impact and growing interconnectedness of exchanges allowed legislators to treat them as a matter of interstate commerce and more generally a federal concern. The 1921 *Futures Trading Act* and the 1922 *Grain Futures Act* which replaced it, were founded on the assumption that the fate of the price system pertained to all interstate commerce, constitutionally falling under federal jurisdiction. Regulation thus reflected at once the exchanges' new status as autonomous, highly professionalized institutions of national and global import, and the growing need to subject them to federal supervision and limitations.

Early regulation, therefore, was focused primarily on oversight and the exchanges' self-regulation. The 1922 Act created a three-person external oversight committee, headed by the Secretary of Agriculture, albeit with minimal coercive authority. Though their averred aim was the elimination of "sudden or unreasonable fluctuations in the prices [of grains which] frequently

occur as a result of… speculation, manipulation, or control" (Grain Futures Act 1922, 999) both acts did little to undermine ruling exchange practices or its authority. Limited in means, authority, and personnel, the newly minted Grain Futures Administration focused on local cases of fraud, manipulation, and misinformation, but was incapable, perhaps uninterested, in actively managing the prices produced in the voluminous commodities market. One of the key obstacles in stabilizing prices was the market's patented illiquidity: though it was abundant in financial instruments of every possible grade and expiration date, it was incredibly vulnerable to the one-sided, unimpeded influence of large positions. This meant that large exchange transactions, executed by individuals, corporation, or, most frequently, by coordinated pools, would singlehandedly shift dominant market trends (Markham 1987, 19).

It was a practical problem, even more than a political one, that points back to the hybrid nature of the commodities exchange. Unlike the money markets, where the Federal Reserve could exert considerable influence simply by participating in open market trading (Burgess 1964; Mehrling 2010b), when it came to commodities, the government lacked a similar monopoly over supply. For this reason, no government trade, no matter the size, succeeded in offsetting the effect of detrimental market price movements. Indeed, intervention of this kind would often be countered by large speculative positions that would render it void, and the practice was quickly abandoned after a failed 1929 effort in the wheat market (Markham 1987, 23).

It was, finally, during the New Deal efforts to investigate and regulate market practices that securities had caught up with commodities regulation and, indeed, surpassed it in the level of discretion it offered government officials. The 1934 Securities Exchange Act not only fortified the deep administrative division between the two markets—securities and commodities—but pushed investors in the direction of the latter, which temporarily enjoyed relative regulatory

laxity (ibid. 25). The Commodity Exchange Act of 1936 was a response to this gap, as well as an admission of the weakness of earlier regulation. Like the Securities Exchange Act, however, it did not leverage public outrage and increased legitimacy for intervention to radically transform the shape which regulation took. While not completely negligible, new controls, such as limitations on daily price movements, higher margin requirements (the money an investor had to place upfront before executing a deal, really a down-payment on a loan), and the prohibition on new instruments such as options, remained rather toothless, and many could not be enforced. Much of the earlier failure was reinscribed into the new law, which lacked the means to truly cap position sizes or the tools to manage extreme price fluctuations (ibid. 27-8).

Awareness to the patented weaknesses of commodities exchanges and even a growing willingness to intervene couldn't overcome the internal logic of this hybrid, monopolistic market. On the eve of the Second World War, as Cambridge economists were debating the merits of speculative hedges, and statisticians found new evidence for the market's robust intractability, *Christie* now stood as a self-fulfilling prophecy. The Chicago Board of Trade's futures price quotes, which the court sought to protect as a unique form of intellectual property, had in fact evolved into the ultimate arbiter of the 'price system', at the very center of the national and global economy.

Conclusion

The commodities futures exchange was the site where a model market emerged in the interwar years, bringing together the disparate positions of administrators, traders, and theorists of various stripes and creeds. Though their ideas of the market were radically distinct, all appeared to converge on a set of ideal characteristics: markets were the self-regulating coordination

mechanism whereby society's needs could be determined and its goods evaluated and allocated, through the free competition and individual judgment of numerous participants. The abstract market of theories and its closest real-world counterpart—the commodities exchange—thus displayed a remarkable coincidence of opposites. At once controllable and perfectly random, expertly run and frivolously compromised by insiders, spontaneous, mechanistic, and deeply personal, personified, and whimsical, markets nonetheless remained, quite consistently throughout, an autonomous system offering solutions to the social, political, and economic imbalances imposed by time, scarcity, and human difference.

How should one understand the relation between Holbrook Working's new benchmark of market randomness and the growing privatization of prices? The impossibility of prediction and the idea that exchanges could and should regulate themselves? Both positions can be seen as unique responses to a new set of problems prompted by the intellectual and institutional foregrounding of time and uncertainty. The first relied on novel mathematical tools, the collection of vast new data and developments in the theory of probability in its practical application. The second emerged from a new institutional constellation which brought together private financial markets and a new regulatory framework.

The implications of these innovations were at once radically at odds and complementary to astonishing effect. Randomness would, by the 1960s become the ultimate sign of market efficiency. It was Hayek's notion taken to the extreme: the market was at once the producer and the product of perfectly distributed information, and prices were, by definition, always right. Though hardly as abstract, or circular, Working showed that human mastery lay not in individual forecasts, but in the ability to 'not think' and let the market run its course independently. Prices were beyond our predictive ability, as was the full elimination of uncertainty.

A similar conclusion lurks behind the new institutional concreteness which the price system had assumed in the *Christie* ruling in 1905. While commodities markets, as their tumultuous regulatory history reveals, were not quite random in their movements and far from efficient, prices were not for that better susceptible to prolonged human control and direction. Relegated from the onset of early regulation to the status of the intellectual property of experts, exchange quotes nevertheless enjoyed systematic and wide geographic reach. The contracts that would bind entire industries to the paper deals of speculators proved much more powerful in determining prices than any other component in the economic chain. Neither the federal and local governments, nor the producers, distributers, or consumers shared the impact of the exchanges on commodity prices.

Taken together, therefore, the skeptical turn in the early 1930s and the destructive price fluctuations of the commodities exchanges, can be seen as temporary setbacks and eventual catalysts on the institutional and conceptual path towards the idealized notion of an autonomous and independent market. One of the costs of this turn was the acceptance, within this new conception of markets, of the presence of intractable risk and price volatility, and of a regulatory deficit, that would precede the ideological rejections of state intervention.

Nonetheless, the new market ideal was far more attuned to the problems of risk and uncertainty, and provided direct answers to some of their more destabilizing outcomes, transforming the market problem for generations to come. If the stock-exchange offered risk-redistributing schemes, from the fragmentation of material stakes in an enterprise to the well curated, diversified portfolio, the commodities exchange had been envisioned as a risk-specialization mechanism—individual risk-takers would assume liability for market uncertainties in return for a premium, to be determined by their success in properly estimating the market.

Speculators were not portfolio managers, but rather market-makers, who tackled the prohibitive uncertainties of production and exchange over time and offered in return a stable price system and guaranteed returns for production. But if profits and entrepreneurs remained beyond the purview of classical models, speculators and their risk-premiums defined a new kind of equilibrium: not the optimization of utility under conditions of scarcity, but the balance of greed and fear, of conspicuous, uncertain gains and secure returns.

As the careful balance of opposites, the commodities exchange, much more than the stock-market, succeeded in enshrining the "short", the bet against the market and hypothetical trade in non-existent goods, as a necessary mechanics of the price-mechanism. The problem of equilibrium had been redefined to include not only the allocation of positives, but the redistribution of negatives, and markets could only be balanced through its participants making explicitly opposite evaluations of future trends. Since only one of these positions exposed its holder to possible losses, its rewards had to be equally lucrative, paving the way for a scientifically sanctioned, permanent, and substantial asymmetry in the allocation of market rewards. Productivity earned one a decent return. Speculation, whether expert or frivolous, could earn one fantastic ones, for little effort.

The pairing of hedgers and speculators, which served administrators and regulators, grain merchants as much as exchange traders in the interwar years, thus achieved two main feats. First, by grounding the activity of speculators in real world goods, in the materiality of a commodity under production or in transit and the real needs of merchants and growers, hedgers made speculators into market-makers. They gave their contracts substantive meaning and allowed them to be experts in prices as reflections of real values. The more real their underlying assets and

counterparties, in other words, the less realistic did futures and speculators have to be. They could become mere veils, transparent mediums.

Second, the pairing of hedgers and speculators allowed for the complete transformation of the idea of a balanced market, extending the new mechanics of opposites into the heart of finance. As the financial sector expanded dramatically, beginning in the 1970s, the theory of hedgers of speculators, in new mathematical garb, would become the basis for Nobel prize winning financial asset pricing models founded on the basic duality of all such goods: namely the risk-free component, and the risk-premium, rewarding the few for making safer markets for the many (Sharpe 1964a; Black and Scholes 1973).

Not only the ideal, however, has persisted. Interwar critics, theorists, and overseers of financial markets had identified with alarm the degree to which their dominant practices were founded much more on the insular logic of the "beauty contest," betting on the movements of other market actors, than the movements of the 'real economy'. In other cases, internal coordination and sharp asymmetries of knowledge further contributed to the domination of exchanges by less than levelling forces. The same gap between theory and practice persisted despite the successes of scientists and a growing confidence in the self-correcting tendencies of markets. The great calamities of financial markets today, from the 1998 collapse of Long Term Capital Management to the 2007-8 financial crisis, can be seen as the lingering mismatches between models and reality (Mehrling 2010b; MacKenzie 2006).

The limits of financial regulation, as the interwar story reveals, are determined by the ideal norms prevalent among multiple market participants and affected parties. Not only vested interests and political influence, but the tools with which markets are imagined and reimagined in their different points of contact with the lives of individuals shape the outcome of

investigations and policies. If political answers to the distortions of markets remain at the level of regulation, the most one can hope for when it comes to finance, is for a system that can actually provide security for the many, at a somewhat high price. Such a system would, for example, focus on the market-making functions of speculators, limiting the formation of redundant markets for risks that are already thoroughly covered (for example, the risks of wheat price fluctuation, or, to name a later example, of mortgage lending), and rewarding the establishment of new ones (Tobin 1984). Expanding the logic of financial markets to new fields is in fact the fulfilment of their best promise: to increase economic safety.

Limiting the political problem of risk-management to increased regulation, therefore, means that risk will remain fundamentally an economic problem, and, more specifically, a market problem. It is a problem, moreover, that mandates the wide expansion of financial services as well as a highly skewed distribution of rewards. When done right, this solution is highly preferable to the current situation. It does however raise the urgent question of what a political solution to risk would look like. In the final chapter, I answer this question with an example taken from the world of new social movements. The Environmental Justice Movement, I will show, is an organized response to environmental hazard, framed as a problem of unequal distribution. As such, it provides useful ways to rethink some of the problems of uncertainty and economic life from a political perspective.

Chapter 5. The Politics of Risk

The final decades of the twentieth-century mark the transformation of risk as a discourse, technology, and epistemological framework. Risk had migrated from its original contexts in insurance, financial markets, and economic and mathematical theory, to become a means of managing the behaviors and physical well-being of populations (O'Malley 2008). As Mary Douglas (2013) has shown, it also transitioned from an ostensibly neutral designation—a given probability for success and failure—to a thoroughly politicized, adversarial one, a way of attributing blame and demanding redress for various losses, now seen as harms. In that, risk had come to reflect in the developed, modernized "West", an approach to danger, especially the danger imposed by technology, previously seen as the backward, magical thinking of "the tribes," where "danger is defined to protect the public good" and "pollution… is a powerful forensic resource. There is nothing like it for bringing their duties home to members of the community" (ibid., 6).

The politicization of danger through a language of risk offers new paths for imagining a politics of risk that goes beyond the limitations, explored in the previous chapters, of market and governmental solutions to uncertainty. Risk scholars have already done much to identify key actors and organizations in this new political constellation. Most prominent among them are a new type of social movements, shaped by fundamental changes to the structure of government, the economy, and science. By offering society a means by which to observe itself, to reflect on the cumulative outcomes of its past decisions, new movements use risk and its attribution strategically, to challenge both the economic and political responses to risk, increasingly mediated by markets. Understanding risk-based organizing, therefore, is also important for

understanding the role of popular resistance and community organizing more broadly, in the attempt to offer viable means for democratic participation in the face of globalized neoliberalism.

In this chapter, I trace the emergence of new social movements as a direct response to a mounting risk governmentality. In particular, I focus on the environmental justice movement (EJM) as a quintessential model of risk-based organizing. A direct descendant of civil rights and environmental activism in the late 1960s, environmental justice brought together the dual concern for the hazardous side-effects of progress and for the unequal distribution of environmental impact on poor communities of color, women, and workers. These complementary issues were often made manifest through direct local struggles against polluters, unsafe working conditions, and racialized environmental segregation in cities, all of which were traced back by activists to discriminatory policies and exclusionary decision-making.

In its community organizing, national and international solidarity networks, and interventions into markets and bureaucracies, the EJM reverses some of the more detrimental cultural and political impacts of risk. In place of anonymized risk-management it offers visibility and voice to marginalized communities. In place of action-inhibiting, personalized responsibility it invokes collective agency and reverses the arrows of blame. In place of eroded social solidarities of labor organizing and the welfare state, it puts forward future danger coupled with past grievances as a way to create new alliances. Finally, where risk-allocation mechanisms tacitly perpetuate social exclusion, differential treatment, and patently asymmetrical social distribution, the EJM's politics of risk foregrounds the ways inequality is an outcome not only of risk but of its management. As I will show, by offering ways to think together the problems of inequality, mutual-accountability, participation, and public perceptions, the politics of risk goes beyond the

questions of environmental justice and encompasses the broader objectives for a popular politics today.

Two Models of Risk: Attribution and Distribution

Though economists of risk in equilibrium, from the 1930s onwards, were quite explicitly readers of Frank Knight's early work (see, e.g., Hicks 1939, 1931), his main message appears to have largely been lost, or only indirectly acknowledged. That message, the core of his later turn away from economics to social theory and history (Burgin 2009), was that irreducible uncertainty cannot be addressed with the tools of economic mechanics. Knight did not have an economic theory of uncertainty, but rather a social and even an existential one. The encounter with, and answer to, uncertainty, relied on the human ability to make reliable promises and to take responsibility for one's decisions. Not many cared to assume this position, and those who did, did so with the expectation of great rewards. Knight had envisioned a world that was, from the perspective of a fully human life, substantively divided, separated by habits of action and decision making, into a realm of reflection and a realm of pure mechanistic doing.[1]

[1] The resemblances between Knight and other American existentialist thinkers, most notably Hannah Arendt, are not accidental. The questions of time, transformation, and the role of perceptions in constructing a distinctly human world were shared by dynamic economists and phenomenologically inspired philosophers and social theorists. Though more explicit in some than in others, the existential question of a life worth living, and the economic question of the reproduction of mere life, were similarly bound together, reflecting, as I show in Chapter Two, an active debate between science and philosophy, as new developments bolstered strong materialist positions and threatened the autonomy of the life of the mind. Knight and Arendt (1958, 2007) share a common concern with the scientific developments of their time, particularly those borrowed from the natural sciences to explain the human and social sciences. The reduction of human life to its biological meaning, whether for the sake of explaining economic phenomena, human psychology, or politics, was a problem both addressed through a layered

For economists, however, Knight's contribution to the question of economic uncertainty was to identify the limits of risk redistribution through markets. In response, they proposed new kinds of markets, where even uncertainty-bearing could be de-personalized, opened up to the larger public (if not fully democratized), and managed through the self-correcting tendencies of markets. The market's ability to balance the greed of some with others' need for greater security would become a generally accepted norm about markets, the basis for their regulation and the science by which they were further developed. The supposed symmetry between hedgers and speculators, reproduced over and over again in theory and in practice, obscured the degree to which the two were in fact radically distinct market actors. Speculators, just like Knight's risk-bearers, made markets for hedgers. They allowed them to invest, produce, and labor, because they could promise them a secure, definite price to reward these efforts once they had been completed in the unknown future. Speculators, though more numerous and more abstract than entrepreneurs, translated uncertainty into a pronounced and regular asymmetry of rewards, which few if any needed to acknowledge. Knightian uncertainty had received its own economic theory, but it stopped being a socially, politically, and existentially relevant theory.

There were, however, others, who heeded Knight's call. By the late-twentieth-century, risk and uncertainty had resoundingly left the field of economics, insurance, and finance to become widely used terms. Contemporary work on risk owes much to early dynamic economics. Not only Knightian uncertainty, but economists' early work on insurance and financial markets have provided some of the tools with which to think about the role of risk as a modern governmental

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understanding of human existence—one which was not only theoretical, but reflected the fullness or poverty of one's life and social context.

logic.[2] That is, actuarial risk, the well-balanced portfolio, or the self-clearing market, were conceived by these economists as a set of instruments and institutions meant to eliminate uncertainty or reduce its costs through its broad redistribution. In contemporary analysis, one can find equivalent accounts of the emergence of a science of criminology, psychiatry, epidemiology, and others, all focused on the proper classification of social risks, now embodied in persons and behaviors, and the ways they can be channeled or contained in the most cost-efficient ways (see, e.g., Stenson and Sullivan 2001; Rose 2002). The idea that society is comprised of self-regulating systems aiming to reach a state of equilibrium is itself a notion highly influenced by the impression of the market model and metaphor in the twentieth-century, as critics of neoliberalism have repeatedly argued (see previous chapter).

François Ewald (1991) has been a dominant voice extolling the virtues of risk redistribution in the manner of actuarial technology. Using statistics and probabilities to pool together possible dangers and then divide their costs evenly, insurers did much more than define, really create, a risk population. They gave rise to a new society, one bound together through mutual help, collective accountability, and solidarity. While danger, harm and loss can be quite individual and personal, the risk, conceived as the probability of them occurring to any one member of a group, is shared by all members at once. For Ewald, actuarial risk forms the basis for a new principle of justice, a new form of social redistribution not grounded in charity but in allocating proportional

[2] The term is borrowed from Michel Foucault's later work, and was in fact applied to the study of risk by his students. The governmental power constellation works horizontally, through a set of principles, practices, or institutions that simultaneously delineate a population (of persons and nonpersons) and internally regulate and manage its behavior. It is "the view that what is to be governed is itself self-governing, and thus any act of governance must take account of the self-regulating order of things… the optimal harnessing of these self-governing capacities—'conduct of conduct,'" (O'Malley 2008, 55).

shares of a "collective burden" (Ewald 1991, 206). It is a moral technology for exerting control and responsibility over one's life, to "to master time, to discipline the future" (207). On the practical level, it gives individuals a strong tool against powerful employers, corporations, or the government and liberates action and enterprise by freeing people from fear (208). Through insurance, risk became a form of solidarity based on a new understanding of individual harm as a communal problem and of society as answerable for these harms.

What such accounts ignore, however, is the extent to which actuarial risk is founded on exclusion and differential treatment. Belonging to a specific risk category determines the price one must pay for her security, while actuarial classification relies on identifying outliers, isolating problematic populations, and excluding others, all for the sake of internal balance (Bouk 2015, chap. 7). Moreover, risk populations as the constructs of actuaries are imposed rather than chosen, and can further facilitate coercive state measures in an attempt to preempt and prevent dangers. Even as one considers market redistributive means, like the financial industry, access to its benefits is hardly equal or pervasive (Sandel 2013; Satz 2012). The risk redistributive model, therefore, cannot in itself solve some of the more fundamental political problems of risk, from identifying the political community and its rights to the larger question of the distribution of risk not within populations but between them, in society as a whole.

This is where Knight's late readership becomes important. For many contemporary risk theorists, "risk" already implies a reflexive form of knowledge (and practice); one that asks not only how to deal with uncertainty, but about its sources and causes. Knight had already pointed out the need to supplement the "insurance principle" of risk consolidation with an individualized function of risk "specialization," that included personal responsibility for uncertain decisions. In the 1980s and 1990s—an age of environmental catastrophe and general skepticism toward

science and technological development—responsibility for risk was no longer merely assumed, but thoroughly and strategically *attributed*. Risks were outcomes, and decisions had caused them (Douglas 2013, 14–15). From this perspective, therefore, which one may call, following Mary Douglas, the forensic, or blame-assigning approach to danger, the meaning of risk and the temporalities it implies have been reversed. In the early twentieth-century uncertainty was a destabilizing force, inhibiting present conduct for fear of an unknown future. In the late-twentieth-century, a new discourse of responsibility and liability traces potential danger, as much as actual catastrophe, back to its causes in the decisions of individuals and organizations.

Risks, therefore, are as much a future wager (or hedge, depending on the side of the market one takes) as they are an indication that someone in the past made such a wager, and must now bear the consequences. This idea was extended by Ulrich Beck to society as a whole, which, he argues, uses a language of risk to understand its present circumstances as the outcome of its past behaviors. Risks are a way of reflecting on the hazardous consequences of progress. They are a 'side-effect', a result that comes into view only when we look back at our own actions:

> the concept of risk is directly bound to the concept of reflexive modernity. *Risk* may be defined as a *systematic way of dealing with hazards and insecurities induced and introduced by modernization itself.* Risks, as opposed to older dangers, are consequences which relate to the threatening force of modernization and to its globalization of doubt. They are *politically reflexive.*" (Beck 1992, 21, original emphasis)

'Risks are consequences,' that is, they are the products of a specific historical and social configuration by which society has allowed its technological tools and scientific solutions to become the main cause of its endangerment (see also Douglas 2013, 9).

While Beck was primarily concerned with the cumulative effects of numerous parallel decisions with no clearly identifiable authors, others have addressed the practice of personal risk-

attribution more directly. The sociologist Niklas Luhmann has come closest to Knight, in several ways.[3] First, he adopted a version of Knight's layered reality. Like Beck, Luhmann pins the omnipresence of risk in contemporary society on the process of modernization. Modernity, particularly since the second half of the eighteenth-century, meant the transformation of society from a hierarchical and stratified order into a functionally differentiated, and leveled one (Luhmann 1996, 8). Modern society lost its fixed social roles and historical and causal determinism. It became inherently plural, seen differently from different positions, perspectives and the kinds of distinctions people apply to understand and operate within their reality. In Luhmann's theory, therefore, the functionally differentiated society is one determined not by actions but, first and foremost, by observations and decisions (Lumann 1986; Japp & Kusche 2008, 79).

Each function system, whether it is the legal system, the economy, or the political system, not only reproduces itself by extending its own unique logic, but by observing itself, by giving itself feedback on its performance of its function. That means that for each activity done and, especially, every choice made, another one must take place to assess and make sense of it. For example, if an engineer must decide whether a building is safe or unsafe, an inspector on the scene of a collapsed structure must decide whether the engineer was competent in her decision or not, whether she had taken a risk. If modernity, therefore, is the transition from hierarchical to functional differentiation, decisions are its main mode of operation (Luhmann 2002, 44-6).

A world founded on decisions is a world full of uncertainty; the uncertainty towards a future no longer dictated by a past, and available only through an endless series of decisions. That is

[3] Notably, Luhmann's book on risk opens with a discussion of Knight's 1921 distinction of risk and uncertainty (Luhmann 2002, 1).

why in Luhmann's definition, risks are an integral part of this highly reflexive society, and inherently linked with the attribution of responsibility. When we use the term risk, what we mean is that a decision was made by someone (person, institution, organization), under conditions of uncertainty, and at a potential cost, whether or not this cost was known at the time of the decision.[4] 'Risk' was thus never simply about new, distinctly modern dangers and hazards. Rather, it is tied with the question of how responsibility is attributed, shifted around and acted upon, and therefore serves as the basis of social self-reflection.[5]

Setting the two approaches to risk in current scholarship side by side—namely risk distribution as a governmental logic, and risk-attribution as a forensic logic—it is clear that contemporary society is ardently holding the stick at both ends. As the financial system expands and the language of risk and reward proliferates, so grows the burden of past-decisions and the language of personal responsibility. Similarly, as skewed rewards are justified by forward-facing uncertainty-bearing, the language of risk exposes the asymmetrical distribution of social negatives, from environmental degradation to individual precarity.

The two logics of risk not only produce a radically different human environment—one hopeful and daring, the other intimidating and alienating—but give a completely different

[4] Different function systems will of course attribute responsibility by different means. The legal system will find a person guilty or innocent of risky behavior in the face of adverse consequences, while a corporation may allocate funds to redress, or perhaps conceal, the negative impact of its risks and a scientist may produce evidence identifying one source of risk over another.

[5] For his part, Luhmann sees the obsession with risk as quite dangerous, giving rise to a culture trapped in what he calls 'second-level' observation. It is in attempting to anticipate responses to one's deeds and decisions—the endless back and forth between prospective and retroactive thinking—that ordinary communication and authority structures are severely harmed. It is a society blinded by over-observation, fragmented by its own decision-making processes and slow to adjust its primary institutions to a fast-changing reality (Luhmann 2002, chap. 12).

meaning to the idea of a politics of risk. As the previous chapter shows, the limit to political responses to financial risks in the interwar years were the various models and ideal norms of markets circulating between practitioners, regulators, and academics. Financialized, governmental risk is spread by markets and bureaucracies and has the political form of the administrative state. The forensic logic of risk, on the other hand, is highly disruptive of the "police order" of society (Rancière 1999). As Luhmann shows, the greatest social impact of the attribution model of risk is the fundamental social divide it perpetually reproduces: the opposition between the makers of risky decisions and those affected by them (Luhmann 2002, 101). A decision one cannot influence—and in modern society "nobody can participate… in all decisions that affect him" (Luhmann 1996, 17)—unjustly subjects one to danger, forcing the various social systems, from the law to politics, to serve as rather inadequate arbiters.

The political system in particular, finds itself critically challenged by the language of risk. If a significant function of politics is to create collectively binding decisions (Luhmann 1986, 85-6; Borch 2011, 116), then the political system is not just a locus for "a high degree of risky decision making" (Luhmann 2002, 145), but one of the systems most fit to arbitrate risk-conflicts on a large scale. And yet, Luhmann identifies several ways in which it normally fails at this task. For one, the presence of risk does not give rise to identifiable and relatively fixed groups, organized around ideological, ethnic, class or other traditional divides. Rather, "those affected [by the decisions of others] constitute an amorphous mass that cannot be given form" (110). This means that traditional political remedies, such as parties and other forms of political representation have little effect on it (150). The very idea of representation for at-risk groups involves a paradox: the representation of those who are not represented, as such (110-11).

In dealing with risk, as a regulator or as a prosecutor, Luhmann concludes, the political system faces the threat of its own disintegration: that extraneous demands by "non-political" actors will weaken its ability, and commitment, to produce collectively binding decisions, or indeed—decide much of anything at all. In the attempt to ease these pressures, it often finds itself delegating the problems posed by risk down to the "sub-political" level (mostly rules and regulations prescribed by experts and bureaucratic procedures) or to other subsystems, particularly the legal system (Luhmann 2002, 165). This kind of solution, by which systems deal with risks by shifting them to other systems, is one of the more problematic side-effects of the new risk discourse.[6]

The image of society which emerges from the attribution model of risk is inherently oppositionary and conflicted. It is important, therefore, to note that opposition does not spell out social disintegration. On the contrary, the divide between decision makers and those affected is "an irrevocable duality—which does not necessarily constitute a conflict" (106). Disruption has its own political efficacy and social function, epitomized in the organized action of social movements. The multifaceted practice of identifying dangers, attributing risks, and organizing communities around their resistance to their own endangerment, forms the core of the forensic logic of risk and the function of social self-reflection.

[6] This becomes quite evident when examining the legal system, which is overburdened with the duty of arbitration between risk-takers and those affected. One of the main challenges it faces is prosecuting people for liability even if they haven't broken any law, and without the possibility of outlawing such behavior in the future (61). It is also little equipped to deal with "long term remote effects and an incalculably high number of contributing factors (169). Blame attribution itself becomes "opportunistic," bypassing the many problems of causal attribution and bracketing background conditions by picking identifiable, solvent agencies to take responsibility (119, 169).

Risk and New Social Movements

The attribution logic of risk offers an important complement to market-based or bureaucratic governmental approaches, especially from the perspective of politics. Attribution is a public gesture, which brings a grievance out into the open while establishing a public around that grievance, namely those affected. The governmental logic of risk, on the other hand, relies on homogenization and standardization. As the example of financial markets shows, the trade in risk, as much as the trade in commodities, requires a flattening out of difference and specificity. Risks, in particular, become a more or less uniform, abstract substance, perfectly quantifiable in monetary terms, making risks interchangeable among themselves. Risks that cannot be quantified, like Knight's or Keynes' notions of uncertainty, remain beyond the purview of markets. Attribution reverses these effects. It works by isolating risks and giving them unique pulpability, naming their distinct outcomes, their place and time, and the persons and communities they impact. The attribution of risk, therefore, can overcome the obstacles posed to political action by the increasing dominance of horizontal, self-regulating governmental power.

Drawing on 'new social movements' as a historically specific political phenomenon and an emerging scientific literature, risk-attribution theorists have enhanced our understanding of the politics of risk. Risk, argue Luhmann, Douglas and Wildavski (1983), and others, has transformed movements from popular contenders for power and control to free-standing cultural institutions in their own right. Movements are a separate political sphere, whose job is to unravel power and hegemony without offering a replacement. Instead, they transform the way society sees itself, understands its own values, and counts its own members. While resonant with other depictions of new social movements, as I will show, this view represents an extreme interpretation of present day movements, missing out on the potential for risk-based organizing

to reshape the seat of power itself. The politics of risk, as I will show in the next section, is in fact broader than the functions of disruption and reflection.

The idea of "new social movements" developed in tandem with contemporary risk scholarship, and reflects a similar occupation with the unique forms of a globalized age and the decline of the welfare-state, since the 1970s. The term generally refers to a range of movements which have sprung up primarily after the 1968 student protests, marking a transition from workplace to community organizing. Their main concern with quality of life, on the one hand, and with voice and recognition, on the other, has dabbed them 'lifestyle' movements and 'identity politics'. Generally lumped together under this name are the environmental and antinuclear movements, the peace movement, the feminist and LGBT rights movements, and global human rights movements.

It is broadly accepted that new movements mark a turn to "culture" and civil society as the primary sites of social, economic and political contestation (Offe 1985, 833; Hannigan 1985; Buechler 1995). In this view, the main political battles are between value-laden discourse and value-neutral, technical languages, between organic forms of interaction and bureaucratized ones (Fuchs 2006, 103–5; Habermas 2004, 348). For Jürgen Habermas, what the student movements had articulated (indirectly) was a new social need to defend the spheres of cultural and normative reproduction from their mechanical systematization—their subjugation to considerations of profit and bureaucratic order (Habermas 1971, 2004).[7] New movements thus represent a

[7] Based on the distinction between a wide sphere of cultural and normative reproduction (the "life-world"), and mechanical, self-running and self-reproducing systems, Habermas locates new movements precisely at the point of their convergence, "along the seams between system and lifeworld" (Habermas 2004, 395). He sees movements not only as vehicles of resistance, but as forms of communal organization. At their best, movements succeed in creating a place for 'practical' rather than 'technical' debate, the open negotiation of ways of living, going beyond

historical shift from the conflicts between labor and capital, to a concern with other forms of domination in a commodified, growingly global and uniform mass society (Farred 2000).

Notably, the rise of a welfare state was as important for this transformation as its later erosion. For Habermas, the welfare state had effectively ended worker-struggles and replaced a participatory, politically active identity with that of a pacified consumer of state services (ibid. 395). It also precipitated the 'domestication' and individualization of social problems, the "imposed privatism of mass culture" and the "personalization of what is public," which presented the results of political decisions in "categories of deviant behavior: as private conflicts, illness, and crime" (Habermas 1971, 42-3). NSMs thus represent the successive rejection, first of the politics of the old left, grounded in a universalist, homogenous notion of 'the worker' (white, male, native, etc.); and then of the new left, which, though attuned to culture and grassroots organizing, remained rooted in a language of class (Farred 2000, 638). It was only with the decline of these powerful hegemonic organizations, and the rise of Thatcher's and Reagan's new right, that space had opened up for a new type of local, identity- and community-based organizing (Hannigan 1985, 440; Fisher 1992).

New movements, finally, from civil rights to environmentalism, emphasize the role of consciousness, perception, and framing in delimiting the possibilities of political action (Elbaz 1995, 45–46; Buechler 1995). At their core, they articulate new, positional identities, embedded in a broader community, either symbolic or geographic, and inherently heterogeneous (Handler 1992, 705; Farred 2000, 638; Pulido and Peña 1998). New movements, in other words, equate culture primarily with community, identity, and discourse, which combine as a basis for

"what we need for life," and asking "how we should like to live if we could find out… how we could live" (1971, 42).

organizing, making demands, and empowering members. As Havercroft and Owen (2016) have recently suggested, new movements, especially contemporary mass movements like Black Lives Matter, are engaged primarily in a battle of perceptions, distinct from the politics of distribution or recognition. A politics of redistribution, they argue, understands justice as an allocation problem among a given population and competing interest groups, while a politics of recognition demands that each group be given equal respect and treatment under the law. Combining insights from Rancière and Wittgenstein, they propose that a politics of perception, in contrast, focuses on those who are as yet unseen and uncounted by the existing order. Their activism responds to the "soul-blindness"—a patented inability to see someone as human—that keeps such people invisible.

Risk theorists, particularly on the side of risk-attribution, share a great deal of common ground with the NSM literature, and in fact push it to its logical extreme by seeing movements as increasingly isolated from the sphere of official politics. For Luhmann, new social movements are the mark of a new risk society because they are dedicated to reflection over the well-being of society as a whole—its values, its modes of living, and the threats it faces. They also reflect new stakes: not merely, or not at all, political representation, but the preservation of values and more organic life-styles, as opposed to a highly commodified and bureaucratized society.

Unlike other NSM theorists, who continue to see the purpose of any political action in the reshuffling of political power, social order, and "incumbent positions" (see., e.g., Fligstein and McAdam 2015), Luhmann sees movements as perfectly autonomous. A reader of NSM theory, Luhmann sees new movements as self-reproducing systems, all of which share the same form: an appeal "addressed *to others* calling on *their* sense of responsibility" (Luhmann 2002, 125, original emphasis), "an expression of dissatisfaction" divorced from the intention to take the

place of the criticized party (ibid. 126). In effect, Luhmann is claiming that new movements, first and foremost, protest for the sake of protest and mobilize for the sake of mobilization. This conclusion, however, does not mean that movements have become superfluous or futile.

Like all function systems, movements, for Luhmann, are concerned with their own self-perpetuation, choosing their topics based on their ability to attract and retain members, gain exposure, and lead to successful action (ibid.). But by reproducing themselves they also serve the important function of allowing society to "describe itself by means of protest against itself" (ibid. 137). In their conflictual, oppositionary form, movements publicly stage an artificial social rift which allows society to observe itself as a conflict between opposing forces, as though from a point external to itself. Social movements give rise to an internal opposition, which main purpose is to allow it to correct itself, adapt, and evolve, compensating for "modern society's manifest inadequacies in reflection" over itself as a whole (ibid. 143).[8]

By describing movements as self-reproducing, autonomous function systems, Luhmann embraces their spectacular nature, their ability to pressure other systems via mass media and public opinion, and their provocations in the name of a generalized, universal content. Within this constellation, risk takes center-stage as a highly productive topic for movements to organize around. Dangers imposed on individuals and communities through the risk-taking of others give rise to common protest—a protest against one's lack of voice in the policies which shape one's

[8] Luhmann ascribes a great deal of significance to new movements' image-making function; to their construction and distribution of perceptions, grievances and problems about a given society. Social movements make visible the tensions and malfunctions of the social system in general by giving them a form, a name and some kind of value judgment: "protest is not content that is imported into the system from the environment; it is a construct of the system itself" (ibid. 127). In other words, movements don't arise out of economic or political tension—they reflect, in effect 'create,' these tensions by giving them a culturally cognizable form.

life. Risk, moreover, is presented as separate from, and substitute for, the older focal point of inequality.[9] I will return to this distinction in my discussion of the environmental justice movement.

For Mary Douglas and Aaron Wildavsky, a similar autonomy of movements, along with their reflexive function, is described through the spatial metaphor of border and center. The center is occupied by 'market individualists' and 'bureaucratic heirarchists', while a specific type of activist-organization occupies the border (Douglas and Wildavsky 1983, 90). Like Luhmann's function systems, both center and border make important choices based on their fundamental drive to persist and sustain themselves. The center fortifies itself by bracketing the long-term consequences of its operations (93) and resisting change (100)—a method that also allows it to guarantee its members future rewards for current sacrifices with a sufficient degree of confidence.

Unlike the binding effect of hierarchies or the discipline yielded by an ethos of personal responsibility, typical of market societies, border organizations are characterized by voluntary and highly egalitarian membership (120-1). Studying early environmental organizations, Douglas and Wildavsky see true border organizations as sect-like, both in their forms and in their rhetoric and choice of topics. They will focus primarily on opposing the corrupt center and rejecting its values, while offering their own way of living as a model of purity and wholesomeness (ibid.). Their main critique will aim precisely at those dangers produced, and ignored, by the center, generally adopting a highly grim vision of imminent doom and radical

[9] While other NSM theorists have shown that inequality itself has changed form, from distributive equality to questions of recognition, equal protection, and equal opportunity, for Luhmann inequality remains a material issue (137).

discontinuity between past and future (122). Finally, they will see themselves as speaking for society and even humanity at large (125). In so doing, they produce the kind of "fundamental criticism" of society at large which the center cannot (102). Like Luhmann's social movements, therefore, the border constitutes a border by actively opposing and criticizing the center.

Where both accounts fall short, however, is in their view of the border as artificially staged, as in Luhmann, and 'not real', as in Douglas and Wildavsky. By claiming that "the concepts of center and border are entirely abstract and relative to discussion" (Douglas and Wildavsky 1983, 103) and that a "sense of border" rather than material, or even cultural marginality, forms a border position, the latter do not reject the existence of 'real' borders, but rather bracket them. The "real borders of society" are "those places remote from power and influence" (102). These, however, do not in themselves produce "border gadflies." Indeed, more often they deter people from entering such a position, overburdened as they are with the concerns of basic existence. Moreover, the basic premise that border organizations will be voluntary, implies the bracketing of the involuntary aspects of actual marginal positions. It is by ignoring real marginality in the formation of new movements that both accounts can depict them as perfectly isolated and removed from the material realities and political conflicts of the society in which they operate. Just like Luhmann's function systems, which cannot communicate and directly influence each other, the center and the border in Douglas and Wildavsky's formulation are bound to talk past each other, "arguing from different premises" (174). The idea of the border's isolation, moreover, misses out on Rancière's point, that political struggle is always about a border inserting itself into the line of vision of the center, thereby altering the order which sustains it (Havercroft and Owen 2016, 746)

While the two approaches, therefore, offer a compelling case for the centrality of movements in advancing a new politics of risk, they cannot capture its full scope. Three central, interrelated premises need to be reexamined. First, the disconnect between border and marginality should rather give way to an examination of the different ways the two interact. When one considers both material and cultural marginalization, one puts into question the very assumption that new movements are inherently 'postindustrial', or represent middle-class hegemonic actors. Such a reading aligns with those voices in the NSM literature which emphasize the role of marginality, difference, and identity, and create a more forceful bond between the cultural stakes of new movements and their embeddedness in material inequalities and political exclusion.

Second, specific movement characteristics which follow from the metaphorical border, such as voluntariness and autonomy, represent only a small subsection of risk organizing. Movements which spring out of a sense of imminent and very concrete danger, with clear, identifiable adversaries and an even clearer plan of action, cannot be seen as completely voluntary or aimed exclusively at sounding opposition. In an important way, not only communities 'select' their risks, as Douglas and Wildavsky claim, but certain risks (and risk-takers) 'select' communities, as apparent threats beckon and call for organization. Finally, the specific 'forensic' significance of these characteristics, namely new movements' social role of collective finger-pointing, should also be questioned. What one often finds in cases of risk-based organizing, are demands for greater participation, not only internally, within the organization, but within established public and private sector procedures. I propose that such organizing allows at-risk communities to take responsibility for their own fate, while attributing blame in a much more precise way than an abstract critique of growth.

In the final part of this chapter I look more closely at the environmental justice movement as a model of risk-based organizing which combines the disruptive and reflective functions of risk-attribution, while challenging the notion of their autonomous isolation. The EJM, as a later offspring of the environmental movement, perhaps the ultimate "new movement", emerged in direct response to the limitations of an exclusively "cultural" or "lifestyle" perspective. Instead, the movement adopted a language of unjust distribution, inextricably tying risk with the question of inequality in ways only tacitly acknowledged by proponents of risk redistribution. Environmental justice responded to risk through the organization of communities and used risk to make visible a politically invisible population. It thus offers productive ways to think beyond the limitations of the market solution to risk, on the one hand, and an overly symbolic interpretation of risk-attribution and the work of movements, on the other.

Environmental Justice as a Model for the Politics of Risk

Environmental justice organizations have emerged through conscious and deliberate opposition to mainstream environmentalism. As early as the late-1960s, grassroots organizations challenged the elitist, white, upper-class composition and agenda of the environmental movement, endorsing, instead, the principles of civil rights activism (McGurty 1997, 302–3; Sandler and Pezzullo 2007, 3). It further established itself in the national and international consciousness through key events, most notably the 1982 struggle against the placing of a landfill in Warren County, NC, an area populated predominantly by black and poor communities. The EJM's cause reflects a displacement of the environmental movement's original critique of growth, toward a critique of its 'disparate impact'—the unequal distribution of the costs (and benefits) of technological progress. It further addressed the invisibility of marginalized communities in the

various contexts in which decisions about risks were made, from government agencies providing polluters with permits to the organizations selecting which environmental risks mattered for protest and resistance.

As the movement matured into a national and global network, its principles included wide participation, inclusion, and diversity consolidated in its summits, legislative agendas, and the framing of local struggles. The idea that danger is distributed rather than a random side-effect, and that this distribution is a matter for social debate, not simply technical resolution, stands at the heart of the demand for environmental justice. In this section, I discuss four ways in which the movement both demonstrates and transcends the parameters identified by risk theorists as key to the reflexive work of movements. In particular, I look at the ways the EJM challenges the language of border and center through the composition of its members, its strategic intervention into the existing order, and its battle to transform both perceptions and the rules of the game.

The Border reflects a Marginalized Position

The EJM is highly consonant with Luhmann's idea that risk is never only a danger but is necessarily tied with decision-makers who can then be held accountable. When a local struggle against the siting of a landfill or chemical plant accepts the framework of environmental justice it is no longer purely a local concern, but one informed of persistent historical and geographical disparities. The demand for environmental justice constitutes a border position, but it also reflects real marginalization understood in a wide historical and social context. Though justice is a universal demand, this position does not speak for mankind or the 'public interest'—it speaks first and foremost in the interests of communities directly affected and historically excluded from decision-making.

But environmental justice does not end there. It is not a neutral measure of disparate environmental impact and a demand for social and political intervention to help mitigate it. A tougher position to defend, which is nevertheless crucial to the environmental justice position, is that these disparities are grounded in racist (as well as sexist and classist) attitudes and should be understood in the context of historical and systemic discrimination. Here the measurability of risks and clear representation of disparities, which give scientific authority to activist tools, reveal their more problematic side as a basis for organization. Unlike the undeniable evidence of disparate impact,[10] environmental racism is easy to mask behind economic arguments. For example, Westra and Lawson cite Larry Summers' position in his capacity as chief economist of the World Bank. Pollution, Summers argued, should be directed to poor countries, since

> the measurement of the costs of health-impairing pollution depends on the foregone earnings from increased morbidity and mortality… a given amount of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. (Westra and Lawson 2001, xviii)

[10] Evidence for disparate impact abounds and continues to expand. Robert Bullard, for example, cites a 1992 study which examined 1,777 Superfund toxic waste sites and found that penalties for hazardous waste are generally 500 percent larger when a white population is affected (though the difference between wealthiest and poorest is only 3 percent); that abandoned hazardous waste in communities of color takes 20 percent longer to be placed on the National Priority List; and that the Environmental Protection Agency (EPA) will more often choose containment (sealing off) of waste in these communities (by 7 percent) while preferring treatment (elimination) for white communities (by 22 percent) (Bullard 2001, 5). Another study by the Argonne National Laboratory found that "'57 percent of whites, 65 percent of African-Americans, and 80 percent of Hispanics live in 437 counties with substandard air quality'" (ibid. 4). Brown et al. discuss the fast accelerating asthma rates (73.9 percent between 1980-1996) in the US, where a black and poor child has a 15-20 percent greater likelihood of having the disease, caused by poor air quality (Brown et al. 2005, 185–88). Another study summarizes the data from 64 empirical studies, which have an overwhelmingly high percentage of positive findings for racial impact (numbers range from 98-87 percent in total) (Newton 1996, 28).

A similar logic can be found in decisions to place property-devaluing land uses in already low property-value neighborhoods. And yet, this type of economic reductionism, and cynicism, does not in itself suffice in explaining the full range of existing disparities.

Claims that an economic logic, or at worse a 'classist' bias, are the real causes of apparent environmental racism do more than distort the truth of this type of discrimination. They often mean the difference between the applicability and inapplicability of Title VI of the Civil Rights Act in claims of environmental racial-discrimination. As opposed to the civil rights movement, the EJM has had a poor record in federal courts (Gordon and Harley 2005). The primary difficulty in successfully filing an environmental-injustice or environmental-racism claim has to do with the wording and original context of Title VI, which requires proof of discriminatory intent on the part of a federally funded program or institution. This means that even clear evidence of disparate impact does not constitute proof of discrimination. To prove intention, moreover, one would have to be able to isolate individual factors in what is usually the cumulative effect of numerous, unidentifiable causes. To the extent that environmental hazards are always, in a sense, a 'side-effect', an unwanted consequence of development, discriminatory intent has become an insurmountable obstacle for EJM advocates (ibid., 155-7).

Though the burden of proving discriminatory intent poses significant practical barriers, it is nonetheless worthwhile to think of environmental inequalities beyond the visible outcome of "disparate impact," namely as a form of structural discrimination. By looking at environmental hazards through the prism of racial, gender, and class asymmetries, a greater continuity emerges between different forms of risk and non-risk based marginalization. It is also an important bridge between the inequalities of income and wealth, and the unequal distribution of social negatives or market "externalities"—both seemingly "color blind". The juxtaposition of risk and

discrimination, finally, highlights key differences, and a conflict, between alternative strategies of risk attribution from the border. If risk theorists, and some NSM theorists, had focused on the most totalizing concerns of new movements—the end of the world, the end of humanity—others have identified the central place they accord intersectional identities and community organizing. When a border position is articulated from the social margin, therefore, it must first engage the perceptions and misperceptions involved in totalizing views, which generally obscure marginalized voices.

Mainstream environmentalism has historically served as a vehicle for promulgating two conflicting, yet mutually reinforcing narratives of a specifically environmental form of racism, relegating communities of color to the status of deviant and intruding, namely—polluting. Much like the notion of border and center, these racialized narratives are dominated by a spatial and geographical metaphor. The first sees the space occupied by non-white communities as a form of wilderness, a state of nature which, according to the liberal social contract, is yet to be civilized, namely a colonial metaphor. Civilization, however, does not mean inclusion. The social contract, as Charles Mills suggests, does not serve merely to transform 'brutish' man into a subject, but to separate white from nonwhite (as colonizer and colonized) and make official the latters' removal from the newly erected public sphere (Mills 2001, 78–79). The nonwhite dwells in the private places of society, taking on the functions of digestion and excretion, which Hobbes omitted from his depiction of the artificial man (ibid.).

Against this basic identification of the nonwhite with the 'wild'—the earth itself in its raw materiality, and eventually in its processes of regeneration and decay—is the opposite position, which nonetheless leads to a similar conclusion. On this view, the nonwhite body poses a threat to the ideal purity of the wilderness. The urban lifestyle in particular, identified with minority

groups, people of color, and the working class, is seen as both morally and physically corrupt (Lawson 2001). Within this paradigm, culture and nature are coextensive, if not identical, equally threatened by technology and industrial pollution located in the ultimate artificial construction—the city. Ironically, city spaces, like the state of nature, can also be 'reclaimed' in the name of a more organic, naturalistic culture, represented in processes of gentrification and the 'return' of a white middle-class to urban centers (ibid., 45). Both approaches, therefore, whether they identify people of color with the wild or with its demise, similarly legitimize their exclusion, quarantine, and subjection in the name of the purity and integrity of civil society.

Douglas and Wildavsky identify a similar concern with preserving a pure and vacant 'wilderness' as the founding ideal of the emerging environmental movement in the 1970s. This movement, they claim, came in part as a response to the 'end of the frontier,' when American expansion was reaching its geographic and political limits in the mid-nineteenth-century (155). Whether or not one wishes to impute at least an implicit bias towards racial purity in this predominantly "white, middle-class, professional" movement (ibid. 130; Cable et al. 2005: 58), it is hard to deny that an infatuation with vacant nature is not a strong foundation for claims to justice.

The ideal of untouched wilderness, shared by both centrist and border environmental organizations in their general plight for mankind, could do little to address the social inequalities inherent to polluted spaces. The exclusion of minority voices and concerns from the environmental movement itself was thus a decisive factor in the emergence of the EJM in the first place (Schlosberg 1999, 107; Cable et al. 2005, 67). The latter, constitutes as much a demand for inclusion and access to decision-making and agenda-setting, as it is a reaction to the specific local hazards faced by communities of color.

The Border Takes Responsibility

The EJM represents not only a marginalized border position, but one that problematizes the idea of voluntary membership. In Luhmann's account, risk form an optimal basis for organization because it creates a perpetual, inherently unresolvable, and pervasive social tension; namely, the tension between risk-takers and affected third parties. It is the sheer complexity of society, he claims, which prevents all relevant parties from sounding their voice in risky decision-making (Luhmann 2002). They are thus exposed to various dangers over which they have no influence, but which they can nevertheless try and attribute to specific parties. While its two main hypotheses are questionable—namely that the tension cannot be resolved and that it is complexity rather than systemic discrimination that is responsible for the exclusion of some—Luhmann's model remains useful in explaining the unique form of risk-based organizing. Risk is fundamentally a problem of 'third-parties'. Risk-communities emerge out of their exposure to risks, or identification as such. Whether or not a joint identity will consequently follow, and sufficient means pooled in order to counteract the risk, is the measure of successful political organizing.

Risk-based organizing epitomizes John Dewey's pragmatist definition of a political community. A public, Dewey famously argued, forms in response to perceived problems, caused by others. In that, it is both a voluntary organization, and distinctly not one. "Those indirectly and seriously affected for good or for evil" writes Dewey, "form a group distinctive enough to require recognition and a name. The name selected is The Public" (Dewey 1927, 35). In this account, a public will "endeavor to act through suitable structures, and thus to organize itself for oversight and regulation" (ibid. 28-9) as best approximating the ideal concept of a 'community'.

A community, finally, forms "wherever there is conjoint activity whose consequences are appreciated as good by all singular persons who take part in it" (ibid. 149). Dewey's model thus offers a way beyond Luhmann's sharp disconnect between movements and the political process, by making the problems imposed by others the very heart of a constructive, institution-building politics, and not merely an adversarial politics.

The EJM follows Dewey's model in two important ways: the attribution of risky behavior as a socially relevant problem, and the emphasis on self-determination in response to the presence of risk. Each function had developed separately, as the movement evolved from the organizing framework of 'environmental racism' to 'environmental justice.' As Robert Benford (2005) shows, 'environmental racism' was incredibly effective in setting off the movement by tying together environmentalism with struggles for civil rights and racial equality. It also offered high credibility and consistency, or 'narrative fidelity', with people's everyday experiences of racial discrimination and high exposure to health and safety risks (Benford 2005, 40). But this frame was also limiting, confined to the "diagnostic," or attributive, function. The transition to 'environmental justice' gave the movement its "prognostic" framing and a more inclusive, flexible structure. Under the heading of environmental justice, the movement could focus not only on policymakers but on the kind of environment communities ought to live in (ibid.; Pellow 2000, 582). In this new constellation, the experiences of the "most affected" articulated the movement's narratives and identities (Benford 2005, 44).[11]

[11] Again, Luhmann's theory is useful, if inaccurate. While the environmental justice frame provided the kind of versatility and inclusivity which allowed the movement to differentiate itself from other forms, past and present, as well as reproduce itself (i.e. become an autonomous function system), it did not do so by becoming a pure form of opposition, directed outwardly. In Luhmann's own terms, the movement had become self-referential, allowing vastly disparate

The kind of self-determination involved in environmental justice organizing, moreover, runs directly counter to the hegemonic discourse of personal responsibility which evolved alongside the erosion of the welfare-state. Though both resort to a language of liability, they exemplify two radically different strategies of risk-attribution. "Personal responsibility" has facilitated the process of individuation and privatization of social problems that accompanied the dismantling of social safety nets and decrease in social spending since the 1980s (Young 2013; Hacker 2004). A useful ideological tool, it has shifted responsibility from the state to its citizens, in numerous areas from employment to public health and criminal justice. The atmosphere of constant blame and fear of incrimination is shared by the discourse of personal responsibility and the logic of risk more broadly, with a stifling effect on political action and social solidarity.

Rejecting the language of responsibility wholesale, however, may undermine the kind of agency and activism which risk-based organizing entails. One may, therefore, wish to describe environmental justice organizations as 'taking responsibility' not as individuals, but as an organized collective formed in light of particular hazards. Highly resonant with Dewey's approach discussed above, Tracy Isaacs proposes a contemporary version of a collectivity formed by the act of taking responsibility—of answering the 'call' of a particular danger (Isaacs 2011, 150). Responsibility in this approach almost precedes the group, and to a large extent enables it, providing the basis for its agency. Identifying a risk, by this logic, is already a call to action, which may or may not be answered. It does not shift responsibility exclusively to the group, but it does compel it to shift from a passive to an active role.

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demands and grievances to form a more integrated whole, but it did that by turning to more robust forms of self-determination.

Brown et al. discuss the tension between personal responsibility and EJ organizing. They look at two cases of community organizing in response to the asthma epidemic in Boston and New York City. Fighting Asthma involved not only concerted, systemic efforts to reduce emissions, improve housing and sanitation, and increase access to healthcare, but also a radical reframing of how the illness was perceived, and eventually treated. As growing evidence showed the connection between poor air quality and asthma, organizers had to contend with the dominant framing of the problem as one of personal hygiene and way of life—a completely personalized responsibility (Brown et al. 2005, 191).

Local organizations faced the dual task of reframing asthma, already twice 'individuated' by the personal experience of illness as well as its repeated attribution to personal habits. What they offered instead, was a new narrative of asthma as a collective problem shared by a community, the result of political priorities and environmental degradation (198). This educational role was complemented by the identification and targeting of new causes, environmental factors like bus emissions, rather than 'lifestyle' or cleanliness of the home (194). In this transformed narrative, a personal injury becomes the basis for community identity and action aimed at structural transformation, with disease symptoms serving as signals:

> the ACE [Alternatives for Community and Environment] interns and many of the children they teach cannot separate out their experience of wheezing from their knowledge of the harmful effects of diesel exhaust from nearby buses. They cannot think about their inhalers without thinking about the excess of bus depots and trash incinerators located in their neighborhoods. (ibid. 201)

While the risk of developing asthma is indifferent to the distinction between individuated and socialized hazards, a social justice framing forms the basis for selecting social over personal risk factors. The place where a collective identity comes to fill in the gaps left open by the individuation of responsibility and the retreat of the welfare state, becomes the place where the

sense of powerlessness can be replaced with action. Risk attribution is an effective strategy because it inhibits the actions of others by threatening them with liability. The EJM managed to take advantage of this inhibiting nature and use it to undermine its rivals while propping up its members. Though hardly voluntary in its inception, this kind of response nevertheless serves as an antidote to the passivity induced by a growingly risky environment. Instead, action is leveraged by the prospective element of risk, which, as captured in Isaacs' notion, transforms a present danger into a future obligation.

The Border Contests its Isolation

The autonomous form of new social movements, a key component for Luhmann and for Douglas and Wildavsky, generally refers to their assuming an oppositionary role, suspicious of the 'center' and more inclined towards community organizing and bottom-up politics. While these movements are not secluded from mainstream politics and are very much geared towards setting a new agenda and shaping public opinion, they are defined by their dual rejection of party politics and of government bureaucracy as means to resolve social problems. Such a description, however, cannot account for many of the strategies employed by the EJM. Its main limitation, is that it obscures the ways border and center interact, and especially the transformative influence of the former and the inherent instability of the latter.

The question of movement autonomy goes to the heart of the contemporary question of politics. Outside of official politics and corporate and government bureaucracies, what is the role and efficacy of popular organization and protest? How far has the new neoliberal order, ask its critics, undermined the self-governance of the people, and what forms can the latter assume? The wide impact of two of the more prominent, national and even global contemporary movements,

Black Lives Matter and Occupy Wall Street, offer encouraging signs of public participation and resistance, but they also sharply raise the question of autonomy: are they waging a battle of perceptions, or do they present concrete demands and political ambitions? Are such populist movements confined, in the age of globalization, to disruption and finger-pointing, or is their ultimate aim the transformation of institutions?

A key feature of the EJM is its emphasis on participation, both in its internal structure, and as a primary demand aimed at society at large. Most EJM-influenced legislation includes significant participatory elements requiring official authorities to inform, consult, and even comply with the will of affected parties. Furthermore, the movement's strategies of attribution are plural and complex, as it targets, and allies itself, with both governmental and private sector actors (Pellow 2000). Finally, as it repeatedly fails to reap significant symbolic victories in federal and local courts, the movement increasingly relies on administrative complaints, local ordinances, and other highly bureaucratized methods to prevent, forestall, and redress environmental harms (Gordon and Harley 2005). All three aspects of EJM 'attribution' thus transcend the kind of isolation and strict finger-pointing function described in the theories.

Political theorists have long pointed to the importance of participation in overcoming the limits of representative politics and the lingering dominance of authoritative institutions within liberal democracies. Risk changes only slightly the context in which theorists like Carole Pateman (2012, 1970) see participation as key to transforming nondemocratic power constellations. Unlike Pateman's examples of workplace participation or participatory budgeting, where institutional parameters already determine the boundaries of the relevant community,

participation around risky decisions must first establish who the affected community is.[12] In other words, it must establish a relationship between a present or future threat, the cause of this threat, and those that are or will be affected. Nonetheless, in both cases, the aim of participation is to decrease the degree of coercion involved in collectively binding decisions and increase the political efficacy, real and perceived, of those on the losing end of a power asymmetry (Pateman 1970, 43, 74).

A degree of continuity exists between early environmental movement achievements in legislation and the later EJM emphasis on participation. The National Environmental Policy Act of 1969 (NEPA), a clear achievement of early environmentalism, claims David Schlossberg, "spawned participatory mechanisms in the development of, and arguments around, environmental impact statements" (151). Participation in this early legislation, however, is not much more than the requirement of full disclosure, primarily to government agencies and only secondarily, and quite abstractly to "the public" (NEPA 1969, 94). Moreover, provisions for public information and deliberation were soon defunded and eroded by the Reagan administration, often unimpeded by the primary environmental organizations.

[12] This opposition is similar to what, on the international level, can be seen as the contrast between an "all subjected" and "all affected" principle of democratic membership. Classical liberalism, grounded in the nation state, had prioritized an "all subjected" principle of democratic membership, according to which all those subjected to political rule should, in a democracy, be its authors (Näsström 2011, 120). In contrast, a reality of globalization and migration (and, one may add, risk) has instead promoted an "all affected" principle, where the community is not pre-given, but rather the ad hoc outcome of various decisions (117). All those affected by a decision, it argues, should be able to influence it. Just like in the sub-national context, therefore, the first principle already assumes a political unit, a people, from which legitimacy and authority flow. The second, on the other hand, starts with decisions and establishes the boundaries of the people based on their scope and reach.

It is only with the emergence of the EJM that participation returned as a key demand, one that separated this grassroots movement from the kind of lobbying-focused, nationwide organizations of the environmental movement, and the EPA as its main interlocutor. The EJM not only refined and extended the notion of the 'public' as the primary addressee of 'impact statements' (the major requirement to come out of the NEPA) and other forms of public information, but expanded the idea of participation itself. Diverse practices now fell under its purview: from translations of public documents for non-English speakers, to 'good neighbor agreements' with corporations, and provisions for full public deliberation and debate (Schlossberg, 163-5). Similarly, the 'public' had to reflect all relevant affected parties, in their distinct and diverse positions.

This fundamental demand found its way into highly circulated movement publications, into its stated agendas, and into its ideological framing, culminating in the ratification of the *Principles of Environmental Justice*, as part of the First People of Color Environmental Leadership Summit (ibid. 112). "Environmental justice," as stated in the *Principles*, "demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation" (Principles of Environmental Justice 1996, 157). True plurality, which incorporated plural identities and versions of the environmental grievance, was an essential part of the kind of justice promoted by the EJM and gave it a palpable form (Schlossberg 1999, 108).

Later legislation, executive orders, and internal EPA guidelines continued to reflect the centrality of broad participation. In Bill Clinton's 1994 *Executive Order 12898* on environmental justice, a detailed subsection enumerates the various ways by which federal agencies must make public information accessible as well as ensure "public meetings, as appropriate, for the purpose

of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice" (Executive Order 12898 1994, 276). The EPA's *Environmental Justice Guidance under the NEPA* goes yet further, encouraging activism on the part of agencies to develop "effective public participation strategies" as well recognizing "the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action" (Council of Environmental Quality 1997, 9). The document reinforces the kind of link suggested by Schlossberg and Pellow between participation and representation, as the "meaningful representation" it seeks can only be achieved by recognizing "diverse constituencies within any particular community" and by ensuring that "community participation occur as early as possible" (ibid.).

Participation, moreover, acts as a bridge between the material, distributive grievances of the movement and the demand for voice, recognition, and decision-making power. David Pellow (2000) suggests a broadening of the meaning of participation, to include equitable access to resources (among them safety and protection from hazards). In this way, one can transition from a victim-perpetrator dyad to the more effective framework of plural stakeholders, even as the latter represent radically disparate and asymmetric power positions (Pellow 2000, 582). Such an approach also expands the possible fields of action for a given stakeholder—she is not limited to avenues of legal and bureaucratic redress and can actually find herself aligned with certain corporate actors against others, and so on (ibid. 588).

The stakeholder perspective thus undermines the idea of an isolated border, and more importantly—the idea of a center and border 'talking past each other'. Pellow describes the case of a Chicago waste disposal site, whose history cannot be explained without reference to the mutual benefit disparate parties saw in its development. A recycling plant was built in 1995 to

replace a local trash incinerator deemed as a severe polluter. It was the outcome of a convergence of interests between environmentalists, the city seeking to provide jobs for its working-class population, and a for-profit, monopolistic corporation. The outcome, as might be expected, was a dangerous and unhealthy work environment for the local women of color who operated the plant, culminating in explicit acts of worker resistance and sabotage to bring their hazardous working conditions to the public eye, and under public oversight (ibid., 591). A stakeholder approach demonstrates the extent to which the 'border' and the 'center' often share similar stakes, albeit for different reasons, and can successfully negotiate them.

Finally, some of the methods employed by EJ organizations are far from the kind of symbolic, public spectacles which Luhmann, Habermas, or Douglas and Wildavsky see as the core activities of border organizations. Aside from direct action and public campaigns, and in light of its particularly weak record in federal courts, EJM activism often resorts to bureaucratic challenges. The use of administrative complaints instead of private legal action relieves activists from the need to prove discriminatory intent and offers a significant deterrent against federally funded programs (Gordon and Harley 2005, 158). The administrative complaint procedure, moreover, rarely if ever reaches a full, formal 'conviction' but is rather used to pressure different organizations into adopting reforms (ibid. 159). This method is further amplified by the participatory requirements in new laws and regulations, which allow a growing body of legal personnel (both in community legal clinics and the mainstream environmental organizations) to submit various types of petitions for public hearing, notice, and appeal (162).

To conclude, participation, broadly construed, combines the promise of inclusion and visibility with a multilayered praxis, working within existing institutional frameworks. On the one hand, it embodies its own ideals of pluralist representation and the inclusion of "all affected"

in decision-making processes. On the other hand, it uses participatory methods to form alliances with adversaries, to encumber bureaucratic processes, or to pressure more recalcitrant opponents. While it doesn't remain purely "autonomous," therefore, neither does it simply reintegrate its members into society, replacing their former invisibility with a clearly delineated social position, function, and share of the pie. The EJM inserts itself into the fabric of an existing order without becoming part of it. In this sense, therefore, Luhmann and others are right in suggesting that new movements are not seeking to replace incumbents or seize power. Rather, their interaction with this order is strategic and temporary, transformative as it is disruptive. In the final subsection, I will discuss in more detail how risk and its temporalities facilitates this type of strategy.

The Border and Time

The usefulness of the idea of a border to conceptualize political and social relations may obscure the fact that it privileges spatial considerations over temporal ones. Environmental degradation, historical patterns of discrimination, and future dangers, or risks, all contain an undeniable temporal element which requires some foregrounding. One important question to ask, is how these three temporalities interact. What kind of a challenge do cumulative, complex effects, some of which are at present only prospective, pose for justice? While the past poses a set of problems for environmental justice, the future actually gives it some advantages, both practical and symbolic.

As discussed above, the 'at-risk' position is doubly burdened with proving that it is systematically discriminated against, and that this discrimination is intentional. This barrier, however, is easier to overcome when one wishes to prevent rather than redress a wrong. Toffolon-Weiss and Roberts (2005) discuss the practical benefits of prospective cases. A

prolonged battle over permitting imposes the primary financial burden on the developer, rather than the affected community. The sheer duration of the process and its costs can deter developers, eliminating the need for a final verdict in favor of the movement, which is harder to come by. Similarly, the advantages of uncertainty in predicting outcomes also shift to the affected side, which can turn the debate away from technicalities to quality of life concerns by emphasizing low-probability high-impact ('worst case') scenarios.

The focus on preventative measures also dominates EJ strategies and broader ideals. If the answer to historical exclusion is participation in decision-making processes, such demands are more clearly answered in forward-facing institutional design and prospective plans. The benefits of the prospective position may also explain the relative success the EJM has had in promoting EJ legislation, as opposed to the backward facing tools of litigation. The new office of environmental justice within the EPA, Clinton's executive order, and a slew of new EJ programs and strategies in multiple government departments all testify to the success of activist pressure on government to adopt a proactive approach to persisting discrimination.

The advantage of the prospective position is also evident in the way the new laws are worded and framed. The proposed Environmental Equal Rights Act of 1993, which was never enacted, was meant "to allow petitions to be submitted to prevent certain waste facilities from being constructed in environmentally disadvantaged communities" (U.S. House 1993). Such wording uses a forward facing administrative procedure both to establish the basic fact of historical wrong and to assert the collective rights of an endangered community *qua* community. It also bypasses the question of intent by disqualifying a location based on accumulated, past injustices. A similar juxtaposition of retroactive assessment combined with forward-facing procedures is found in the Model Environmental Justice Act produced by the Center for Policy Alternatives in 1994. In this

case, even the methods and findings of the original analysis are to be published for public comment (Gordon and Harley 2005, 163). It also sets up targets for the reduction of cumulative hazardous impacts, beyond any single siting or development (164).

The notions of intention and obligation themselves highlight the temporal duality implicit in the concept of risk, between an unexpected side-effect and a decision which implicates the decision-maker in its aftermath. Indeed, some risk-taking is only revealed in hindsight, making the attribution of intention all the more complex. Moreover, in establishing culpability and allocating responsibility risk can act both as a future hazard, prompting organization, and as a tool by which to read past decisions. In important ways, risks are as much a part of retrospection as they are of prospective planning, namely they prompt an examination of the quality of prospective thinking that occurred in the past.

With a twist on Dewey one can now suggest that publics form better around problems which haven't yet happened. But the benefits of prospective action also highlight its inherent limitations without sufficient enforcement and retroactive redress. To keep new participatory procedures from being hollowed out, risk as a basis for organizing will always bring one back to the need to hone the tools of attribution. For this reason, risk-based organizing needs to reframe the past in prospective action. In other words, EJ is successful when both past and future are framed in a forward facing, preventative, and participatory demand.

Conclusion

Risk-based organizing in the environmental justice movement carves out a path for a popular politics of risk. In so doing, it not only offers ways to transcend the limitations of governmental and market solutions to risk, but sheds a light on the meaning of politics in a neoliberal age,

dominated by the subjects of risk. One such 'subject of risk' emerged from interwar tumults and pressures, the combined effect of scientific buoyancy in the face of political and economic instability. Markets were the solution to the problem of uncertainty by balancing contrary human tendencies: optimists and pessimists, the confident and the insecure, the calculating utilitarian and the greedy. Translated into the prices of financial goods, these character traits did not belong to any identifiable, well-rounded market actor, but were instead standardized, anonymized, interchangeable quantities, packaged and repackaged by market-experts.

The late-twentieth-century gave rise to another subject of risk, one that turned the now ubiquitous language of risk against itself. As markets and bureaucracies continued to manage populations through an ever expanding "risk portfolio" (Hacking 2003; Douglas and Wildavsky 1983), as social provision was replaced by personalized responsibility—the language of risk and its logic formed the basis for new forms of protest and resistance. Preventative measures, containment and isolation, collateral damage, liability and blame—such were the ways risk created new subjects, and such were the tools available to confront this lateral, self-regulating power.

Various movements have emerged to confront the inherent precarity of the present time: the economic fragility of the heavily indebted middle and lower classes in the Occupy movement, the constant threat of racialized, fatal violence in the Black Lives Matter movement. While environmental justice activism has not reached the same national renown and media presence, it crystalized a set of tools that straddled the divide between border and center, combining the three elements of distribution, recognition, and perception in a model politics of risk. Indeed, behind the scenes, both Occupy and BLM have adopted forms of community organizing, self-help, and

strategic intervention into bureaucratic organizations, that have cashed in on the promise of their undeniable success in the realm of perceptions (Aitken 2015; Manski 2013; Vesely-Flad 2017).

Risk defines the environmental justice movement at every step. Unlike financial risks, and the subjects that they formed, the risks identified and employed by the EJM were localized, singled-out, reframed, and used to define and mobilize a community. Danger attributed to specific decisions, as in Luhmann's definition, serves as the movement's basis for political organizing on a wide, participatory basis. Through participation, affected parties can regain a hold over the decisions that put them in harm's way. Moreover, they can insert themselves into bureaucratic procedures to impede the development of potential polluters, disappoint the expectations of economic calculation, and disrupt the market's equilibrium. Attribution thus alternates between a politics of disruption and a method of institution-building, creating new spaces for "collectively binding decisions".

Risk is also a key component in the hegemonic discourse of personal responsibility, which overemphasizes the role of personal decisions in determining one's social position, while bracketing the structural and historical causes of marginalization. Responsibilization and increased personal liability combine with the increased perception of risks in daily life and actual environmental degradation, to inhibit protest and inquiry, to isolate, and to prevent political action among affected communities. The EJM, however, reverses this logic, making risk the primary cause of action and a focal point for identity-formation, both internally, within a community, and outwardly, as an intervention into common perceptions. It can therefore be seen as a way of reclaiming responsibility, not as a liability imposed by others, but as a forward-facing obligation, a commitment toward the future, which does to communities what speculators and entrepreneurs do to markets.

Finally, in environmental justice, questions of distribution reassert themselves as the heart of the risk problem. No longer concealed in understated confessions of the highly inegalitarian nature of market allocation under uncertainty, future threats appear as cumulated stores of social negatives. Environmental hazards are no longer seen as market "externalities" or as an aggregate outcome with systemwide impact. Rather, they pose a distribution problem, which addresses the burdens of growth and progress as discrete, historical as much as geographical, and compounded with other forms of inequality. While actuarial technologies and other risk governmentalities both define populations and redistribute their risks, they fall short of the political problem of distribution for society at large. It is, rather, the language of attribution which transforms local risks into national and international problems of distributive justice.

Conclusion: Risk and Justice

> "There are seven things hidden from men, and they are these: The day of death; the day of comfort; the depth of judgment. No man knows by what he can profit. No man knows what is in the heart of his fellow man; and when the Kingdom of David will be restored, and when this wicked kingdom will be uprooted"
>
> —Babylonian Talmud, Pesachim, 54b[13]

Under a veil of ignorance, Rawls has famously argued, the members of a prospective society would accept a degree of unequal distribution that would make all better off. He referred to this principle of distributive justice as the "difference principle," which mandated that all concessions to inequality must improve the lot of the least well off. The difference principle establishes an economic reciprocity between those more or less advantaged in reaping the rewards of a system of social cooperation (O'Neill 2012, 78). Though such concessions could only be made under a

[13] Translation based in part on Lauterbach 2010.

veil of ignorance that hides from each their actual social position and in effect makes the outcome of their decisions unknown, Rawls was not making a point about uncertainty. Rather, he permitted that "society should take into account economic efficiency and the requirements of organization and technology" (Rawls 1999, 130) in justifying unequal distribution. In this dissertation, I have attempted to show that an inherent uncertainty about outcomes is not limited to the Rawlsian thought experiment, but is in fact a key component of the problem of justice, and, historically, a way to justify inequality.

Uncertainty is a problem for justice when actions and outcomes are misaligned, and worse still, when this misalignment is broadly anticipated by the members of a political community. The quote from the Babylonian Talmud outlines a path from material uncertainties to the broader problem of justice. How can one plan for one's life when death can come at any moment? How does one engage in productive activity when one is unsure how one will profit from it? How does one participate in social and political life when one is ignorant of the motives of others? Insurance was one historical answer to such problems. It repackaged uncertainty as risk: definite bundles of probabilities and predetermined payments that spread the costs of calamity across a population. Life insurance, in particular, solved the uncertainties pertaining to one's lifespan, providing for old age, or for one's dependents in the case of an early death.

But the concept of risk is not limited to the actuarial industry. Even before the latter's heyday in the nineteenth-century, risk already played a central role in the ways the political economies of nations were understood with the advent of capitalist society. As I have shown in this dissertation, markets and the capitalist market system were devised and conceived as another, more paradoxical answer to the problem of uncertainty and justice. On the one hand, the market is a system put in place to guarantee fair, efficient, and noncoercive allocation of resources and

rewards. It does so through its inherent publicity, as a place where all goods and wants are displayed so that all may bid freely on their value.

This public competition, on the other hand, already relies on the wide availability of information and the relative stability of economic conditions. Model markets thus often assume that which they claim to provide—certainty. This paradox has guaranteed that the problem of uncertainty is always close to surface in the theory of markets, closer in fact, as markets have come to take center stage in the way economic life as a whole is understood and theorized. For this reason, mainstream economics finds itself confronted anew, in each turn of its development, with the task of explaining the actual mechanisms at play in transforming uncertainty into certainty, and with their social costs. The dissertation collects several of these introspective moments, to foreground the link between uncertainty and inequality. Markets at their best, it argues, are meant to provide not only relative certainty about the future, but confidence in the fairness and integrity of the social *allocation* of goods. To do so, however, they consistently rely on an inherent asymmetry in the *distribution* of social benefits.

Historically, risk has consistently formed part of the capitalist distribution problem. Debates about risk and profit are debates about permissible inequality, either openly discussed or tacitly admitted. Given the uncertainties and ignorance that prevent markets from acting as perfect, unbiased allocation mechanisms, uncertainty raises the question: how much bias and inequality can we and should we introduce to keep the system running? In response, uncertainty receives a price tag in the profits and residual incomes of capitalist production. As financial markets emerge, it is further broken down into quantifiable, monetized risks, available for trade and exchange. The effect is similar: when uncertainty is undesirable, those who assume it as their personal liability are generously rewarded. Not only, moreover, are the broad material divisions

of society determined by the need for certainty, but its main protagonists are shaped on either side of this divide, as either risk-takers or the risk-averse, with distinct personalities and opposing drives.

As I showed in the first part of the dissertation, profit carried much of the conceptual weight of this distribution problem, much more, in fact, than private property or capital accumulation, its usual suspects. Profit, I have argued, serves as an overdetermined solution to the inherent contradictions involved in capitalist social distribution. To the view that capitalism is a way to ensure that individual self-interest leads to collective prosperity, profit was a way to understand and explain the individual enclosure of this prosperity. Moreover, profit resolved the 'collective action problem' of capitalism, which rewarded holders of capital for its passive employment through lending. By keeping profit rates higher than interest rates, one would have an incentive to productively put capital to work. Finally, profit determined whether returns on capital would reflect a proportion of capital invested, or whether they would be seen as perfectly residual, correlated only with the possibility of loss.

Developed on either end of the marginal revolution, Adam Smith's and Frank Knight's ideas of profit are, ostensibly, radically different. Smith takes profit as a fixed proportion to capital investment, consistent throughout the various industries of an economy. It is thus socially determined, a market rate that spreads the costs of the "risk and trouble" of the "master of industry" evenly across society. As a social rate, moreover, profit both reflects the state of society and controls its material progress. High profits come at the direct expense of the wages of labor, prevent the expansion of the labor force, and remove incentives to expand industry, leading to stagnation. Low profits, on the other hand, create a virtuous cycle where the low return on capital necessitates its constant expansion, increasing the need for labor and therefore

increasing wages and the labor force itself. For Smith, profit can be used by lawmakers to regulate the entire economy, where progress is coupled with a more even distribution of income.

In contrast, Knight, writing in the wake of marginalism and in a direct response to it, sees profit as the ultimate residual income. Profit cannot be a market rate because it represents an unimputable return—there was no form of past investment, either of labor or of capital, that it could be traced back to. Not even risk-taking, in the sense of accepting a known probability in advance, is rewarded with profit. Rather, profit rewards uncertainty-bearing: taking responsibility for those future outcomes that are truly unknown in advance. This responsibility looks like an investment in the labor and capital of others, which are guaranteed payment by the entrepreneur. Profit, therefore, is not a fixed ratio of one's investment, but reflects the difference between expectations and outcomes, or more accurately, between individual expectations, collective expectations, and actual outcomes.

Despite these differences, however, a closer examination reveals Smith's and Knight's common concern with assuring society at large of the certain and fair outcomes of markets. The "risk and trouble" of Smith's master of industry are the risk and trouble necessary to advance to labor its regular wages—the condition for employing capital in an active, productive sense. Notably, while the risks involved in regularly doing so are compensated for by society, the function of undertaking business, of making promises both to lenders and to workers, remains an individual function. Knight makes a similar point, and does so even more explicitly. The very condition for the possibility of a market for labor and for capital, he argues, depends on entrepreneurs' willingness to promise payment in advance, and their competition among themselves.

While both thinkers tie income-shares with more specific class attributes, it is Knight who articulates these social differences as a sharp dichotomy, on top of an elaborate hierarchy of human types. The effects of uncertainty, for Knight, are so pervasive that it divides not only society, but the world of human experiences, separating a mechanical realm of automated "doing" from a reflective realm where decisions about "doing" take place. The main currency of this realm of thinking are intuitive estimates about the future and active judgment about the value of such estimates as well as the abilities of other people. Only by undertaking this kind of deliberate decision-making, a far cry from the automatic choices typical of equilibrium analysis, can anything resembling efficient markets emerge. Knight concludes by arguing that the only way to induce the few who are sufficiently confident to take on the task, is to introduce conspicuous rewards—a path to quick wealth, and more than that the thrill of the guessing game itself. Accordingly, the losses to the entrepreneurial class tend to outweigh individual gains, making this class, rather than society, the primary bearer of the costs of uncertainty.

Knight's suggestion that uncertainty divides society into two opposing classes gained significant traction in the decades to come, even as his theory's more critical aspects had largely been abandoned. Knight explicitly avoided dealing with uncertainty using the tools of equilibrium analysis, designating the former to a social and psychological realm beyond markets—a set of behaviors and commitments that enabled markets' mechanized existence. His readers, however, identified a similar opposition of forces deep within markets—more specifically in the financial-securities exchange—suggesting they would be perfectly amenable to equilibrium analysis.

In the second part of the dissertation, I traced the reproduction of Knight's opposition of entrepreneurs and the contractually-employed in the opposition between hedgers and speculators.

Like the entrepreneurs, speculators made markets—namely commodities markets—by eliminating important forms of uncertainty, which earned them a disproportionally large income, when they were successful. The nature of this balancing act, however, was different, and did not rely on the responsible direction of business activity. Instead, speculators were the quintessential market actors, whose activities took place exclusively within markets. At the same time, their exchange strategies were modeled on, and justified by, their ability to mirror and complement the productive economy. Risk-takers and the risk-averse now met on a level playing field, the latter paying the former (more) directly for their risk-carrying services. A market price, so it seemed, could be determined, representing the value placed by economic actors on avoiding a risk, balanced against the costs estimated by others for taking them on.

Drawing on John M. Keynes' earlier work on the commodity-futures exchange, John R. Hicks was a seminal figure in generalizing the conditions of equilibrium in all financial transactions. Though divided on the question of the measurability of risks, both shared a wide set of assumptions on the possibility of using markets to eliminate risks by focusing on subjective elements like risk-perception and risk-tolerance. Keynes represented a Knightian position in this debate, arguing that the future is inherently unknowable, and that mathematical prediction tools and probabilistic calculations were therefore largely unhelpful in economic decision-making. The public's answer to this widespread uncertainty, he argues, is to hoard money. When catastrophe hits, money is an available payment method that will allow one to get by. Though money yields no returns and is likely to lose value over time, therefore, its high liquidity makes it an optimal rainy day fund. The hoarding of money in a society, moreover, becomes the sign of a general sense of uncertainty—the more money hoarded, the greater the general fear.

Hicks, on the other hand, took a position closer to J. B. Clark's, arguing that forward-facing decisions combine an objective, probabilistic assessment of outcomes, and an equally quantifiable subjective element, like confidence, optimism, or love of risk. Nonetheless, Hicks agreed with Keynes that the future will likely disappoint one's expectations, if only for the reason that the cumulative predictions of all members of society are often conflicting or misaligned. Without the ability predict the future sufficiently accurately, market actors rely instead on the ability to contract-away future uncertainties. Known as hedgers, they find their counterparties in financial speculators, from futures traders to bankers, who offer them a fixed price for future goods, and accept the actual price fluctuation. Hicks was relying on evidence from actual exchanges, which confirmed that such transactions tended to reward speculators, overall, for their risk-taking, rebranding their profits a 'risk-premium'. True to market principles, a large speculative demand meant a lower risk-premium, allowing markets to balance out the greed of some with the fear of the many.

Like for Keynes, therefore, Hicks' ultimate equilibrium solution for the problem of risk relied on the quantification of passions, much more than any actuarial calculation of the risks involved in market decisions. Hicks also appeared to be endorsing another of Keynes' conclusions. The majority of society, he claimed, couldn't afford to participate in financial markets at all, whether because the transaction costs were too high, or their stake in the economy too small. In the absence of the more precise risk-benefit calculus of hedgers and speculators, most would resort to hoarding far less accurate stocks of liquid assets. Just like for Knight and Smith before him, Hicks assumed financial risk management was a high stakes game, offering conspicuous rewards (and fair compensation for risk-taking) for only a handful of risk-takers.

The persistent connection between personalized risk-taking and a skewed material distribution foregrounds the need for political intervention into markets. If financial theory and practice mandate a sharp asymmetry of rewards, how are democratic institutions to respond? The fourth chapter explored one highly plausible political response to market activity: government regulation. As the chapter showed, such an approach is limited by an inherent flaw: for regulation to work, regulators and practitioners must converge around a set of theories and ideals that explain how the regulated entity runs and works. This mutual reliance on a unified idealization means that the state can only guarantee the proper functioning of markets in their own terms. In the case of financial exchanges, therefore, both the idea that markets are self-sufficient, and the idea that they balance opposites, at a high social cost, became the ideal norms which regulation had to ensure, rather than target.

The chapter showed the extent to which scholarly debates about market equilibrium or the role of speculation are derived from practice, as well as significantly inform it. In the interwar years, markets were generally perceived, by practitioners as much as the general public, to be fair and accurate assayers of true economic value. So much was evident in the outrage over speculative "short-selling" in the New York Stock Exchange in the aftermath of the 1929 market crash. Speculators, argued members of the 'real economy', were colluding to destroy true values and then profit from price declines. Legal and financial experts retorted, in a similar language, that at least some speculative practices were necessary to ensure that the market remains "free and open."

It was, however, in the commodities exchange—a hybrid form, mixing the trade in real goods with the exchanges of paper contracts—that the opposition of hedgers and speculators would become an established reality. For one, archival records of the period demonstrate the

pervasiveness of the logic of hedging and speculation in the way actual exchanges were discussed by government regulators and inspectors, by agricultural merchants, and in empirical studies. The well-organized political representation of agricultural interests also meant that regulatory efforts would begin earlier, and that financial activities supporting agricultural production would be endorsed by regulators, even if it meant betting against the market.

Coupled with new statistical and probabilistic evidence that unpredictable markets were in fact fairer and more efficient than ones that appear to adhere to fixed patterns, the interwar period culminated in two broad regulatory efforts. The Grain Futures Act of 1922 and the Commodity Exchange Act of 1936 enshrined the primacy of exchanges' self-regulation and widely legitimized the role of the speculator as the true author of market prices. A unique coincidence of opposites made markets at once emergent phenomena—blind coordination mechanisms with no guiding hand—and the highly personalized, personified products of the expertise and daring of speculators. Speculators, both courts and lawmakers confirmed, had a right to pocket the social value placed on security and stability, whether or not actual stability was in fact achieved.

In light of the apparent impasse of regulation as a political approach to the problem of risk and distribution, the dissertation closes by suggesting another avenue for the politics of risk. To do so, it leaves the realm of financial markets and their theories and turns to late-twentieth-century social movements. This pivot, I argue, is mandated by the very nature of risk. Financial markets, as mechanisms for the allocation of risk among market participants, reflect the "governmental logic" of risk. A horizontal power constellation, risk in this context defines a set of technologies capable of defining and managing a risk-specific population and resolving its internal imbalances and vulnerabilities. Social movements, on the other hand, represent an

adversarial, “forensic logic” of risk. In this model, risk is not a future prospect one can either take or transfer, but is the attribution of a current, future, or even past danger to the specific actions and decisions of a social actor, whether individual or collective. Risk, in other words, transforms danger into the endangerment of some by others.

The chapter studied the environmental justice movement of the 1980s and 1990s, as a model of alternative political strategies shaped profoundly by risk, but also disruptive to its normal functioning. This disruption, I argued, is not mere spectacle, but an opportunity to fundamentally reshape common conceptions of invisible and marginalized communities, the power asymmetries that shape them, and the broader problem of social distribution. The EJM, in other words, uses the language of risk and attribution both strategically and symbolically. Committed to broad participation, it allows for heterogeneous communities to form in the face of prospective danger. Moreover, its activists campaign to transform the language of personal responsibility, reframing danger and deteriorating living conditions as socially and institutionally inflicted. Finally, the movement applies bureaucratic remedies and preventative measures to stifle plans that would place it in danger, applying the various temporalities of risk both to blame in hindsight and to deter, with the threat of future accountability.

Perhaps the most important achievement of the movement is its ability to tie together exposure to danger with historical marginalization and racial, ethnic, and gender biases. By highlighting the ways risk allocation within groups offers few answers to the problem of the asymmetries between groups, the environmental justice movement exposes the political nature of uncertainty, danger, and endangerment. The movement articulates the relationship between risk and justice and the need for a socially comprehensive approach, that ties together the distribution of social positives and social negatives.

By the late-twentieth-century, financial markets, which organize all markets, are broadly structured around the division between the risk-takers and the risk-averse. Its "products" are organized around a similar dichotomy between risky assets, which earn variable returns, and risk-free assets, which earn a fixed return over time (see, e.g., Sharpe 1964; Black and Scholes 1973). The risk-premium, or the price of risk, is, ironically, separated from the price of time, represented in the "pure" interest rate on a safe security. All combinations of assets aim to reap the highest return for the lowest risk exposure, transforming risky assets into safer ones by bundling them together, or increasing their returns (and risk) by leveraging them with the risk-free asset. The main principle, however, remains the same: for any given, optimal, bundle of risks, or a portfolio, the greater the risk, the greater the reward.

The "ideal norm" of markets as mechanisms for the allocation of risk, which this dissertation has traced back to its interwar origin, was summarized by Kenneth Arrow, a seminal figure in its mathematical formalization in the postwar decades:

> We will take it as axiomatic that individuals are risk-averse, so that the bearing of risks is a cost and the shifting of risks to others a good… As part, then, of the general use of market for exchanging goods, we expect to find markets in which risks are traded. The risks are shifted to those more able to bear them until at the margin the cost to the risk-bearer is equal to the benefit to the risk-shifter. More specifically, there are, in addition to the usual commodities, a set of contingent commodities; a unit contingent commodity is an agreement to deliver one unit of a specific good or… to pay one unit of money if and only if a specified event has occured… if there is uncertainty about the event… there will be a price at which supply and demand will balance with some buyers and some sellers. In fact, if markets are created for every commodity for every contingency, then the general competitive equilibrium leads to an efficient allocation of risk-bearing. (Arrow 1978, 5)

The logic of the market for risk necessitates its expansion to the point at which "markets are created for every commodity for every contingency." The ideal, therefore, supposes a material

impossibility, the full elimination of uncertainty without which the price of risk can never be fully accurate, fair, or stable.

In permitting the financial system to run as if its outcomes are already accurate and its prices always right, therefore, one risks its recurrent interruption by this 'suppressed' uncertainty. But in its limitation to this stylized ideal, financial theory also opens up a space beyond it, for non-economic theories of uncertainty, just like Knight used a highly abstract equilibrium model to define a social-ontology that extends beyond markets. It is within this space that both regulators and movements can develop a politics of risk. The first are tasked primarily with holding financial markets to their promises of stability and a fair price for risk. Regulation can also increase access to these markets and help temper their effect on wealth accumulation. Movements, on the other hand, are charged with identifying the subjects of risk, making them visible, and creating the discursive and institutional disturbance necessary to their incorporation in a broader debate about social distribution. Indeed, it is ultimately the role of movements to invoke the problem of uncertainty and justice as one that defines an entire society and political community, rather than a local concern.

I therefore see the dissertation's contribution in three main areas. First, it points to the historical need to think about democratic liberalism beyond the framework of private property. This includes an understanding that new material relations change the kinds of subjectivity through which power operates and through which sense can be made of the world. The dissertation identifies an actual shift in economists' focus, as profit became a central category while interest and rent receded to the background. It further shows how, with the decline in the importance of private property for understanding progress and productivity in society, the virtues of property ownership were similarly replaced with initiative, responsibility, and daring, the

virtues of enterprise. As much of the debate around justice continues to seek the kinds of self-government and equal dignity bestowed by property, one must ask how this material transformation might affect these goals, and their appropriateness.

Second, the dissertation identifies a severe ambiguity around a key claim made by critics of neoliberalism—namely that this new constellation of power/knowledge involves the unhealthy spread of market logic. In response, I have argued that there is no uniform, ahistorical meaning to the term 'market logic' and that, in any case, theorists all-too-often bracket the mechanics of markets completely. Instead, the spread of market logic is primarily understood through the spread of market-related ideals such as responsibility, individualism, efficiency, etc. By focusing on the emergence of a market for risk, which brought together some of the early proponents of neoliberalism, the dissertation identifies the anonymized, dual subject of risk as one type of neoliberal subject. This financialized subject is, moreover, radically different from the latter's more common depiction as highly individuated and thoroughly identifiable, through the disciplinary regimes which constantly track and record it.

In addition, by understanding how finance purports to offer safety, I offer an alternative explanation of the push to expand this particular "market logic," necessitated by the internal principles of risk-reallocation. Such an explanation, grounded in the way ideas have shaped financial institutions and behaviors, supplements available narratives on financialization which focus on its incredible profits, without engaging the sources, real and imagined, of these profits. The project thus supplements current literature on neoliberalism and its analysis of subject positions in contemporary markets, by identifying a more specific power constellation bound with the language of risk. At the same time, it proposes, in the context of the financialization

literature, a more comprehensive account of the epistemologies and subjects shaped by the expanding financial system.

Finally, the dissertation reframes the question of justice and inequality by identifying the pervasive role of uncertainty in shaping economic life. The dissertation offers an alternative analysis of capitalist market society not from the perspective of capital accumulation, but from the inherent doubt about future rewards and fair distribution. The picture which emerges shows the extent to which markets are organized around the minimization, elimination, or reassigning of risk, to guarantee the many a life free of fear and loss. In this view, therefore, the market for labor becomes one of the most important functions of a capitalist system, namely the ability the extend to labor a regular wage—a function severely undermined in recent decades by the rapid expansion of a contingent-labor class. From the perspective of uncertainty, moreover, individual risk-taking had emerged as a necessary solution, and markets were increasingly expected to reward risk-taking generously, maintaining a permanent asymmetry in the distribution of wealth and income.

The problem of justice is further complicated by the limits of the politics of risk. The gap between allocation (of goods) and distribution (of endowments), key in the historical transition from "political-economy" to "economics," is as important for questions of risk as it is for questions of income. Risk allocation mechanisms—from insurance to the risk-benefit calculations behind landfill siting—lack the language to reflect on their own outcomes for society as a whole and often disguise their less voluntary aspects. Regulators, moreover, are often bound to the very same technical languages produced by such systems.

In order to overcome some of the limitations of governmental risk-reallocation and of regulation, the dissertation identified more effective political strategies, that allow movements to

interact fruitfully with regulators and administrators. Exemplified in the case of the EJM, movements have been able to force the recognition that risk-reallocation carries broad social implications. In some cases, movements have also successfully demanded redress for the historically skewed distribution of risks and rewards. In their activism, movements have thus offered ways to counter the depoliticizing, often alienating effects of risk-allocative languages, in particular when it comes to marginalized communities.

It is important to qualify, however, the extent to which movements, acting from a position of severe deficit in power and resources, can effectively resolve any but the most localized forms of unequal risk distribution, not to mention its linking with wealth redistribution. The project, therefore, does not suggest that they exhaust or even epitomize the "politics of risk," and casts doubt on their 'generalizability' or 'scalability'. It might be more accurate to propose that uncertainty places an inherent limit on democratic politics, and that, within this limited context, there nevertheless exist better and worse distributions, and that social actors can leverage the language of risk to move society from the latter to the former.

Having set out from the mysterious link between risk and profit, all the more mysterious for its apparent self-evidence, this project is not yet complete. First, to understand what we may have lost (and retained) in the demise of the subject of property, a comparative study of the evolution of property both historically and in theories of justice and citizenship can greatly enhance the picture I have presented here. In the same vein, the elaborate history of profit and the interest-rate as measures of time, abstinence, and virtue is important to understanding the full significance of the Knightian turn and the role risk-takers in the twentieth and twenty-first centuries. Such an account would have to engage, in addition to theoretical texts, the ways profit

has featured in more pragmatic realms, for example in debates on early income taxation, in propelling colonial expansion, and in setting up the problem of slavery and capitalism.

Another story yet to be told is the postwar reception of interwar ideas and its culmination in a vast financial system. By understanding how the opposition of risk-takers and the risk-averse has continued to dominate the financial imagination such a study can account not only for the unequal outcomes of financialization, well-recorded in the literature, but its inegalitarian premises, and its ways of masking them. Finally, the inequalities imposed through the social acceptance and widespread use of risk-allocation technologies of various kinds, and their corresponding government policies, call for further exploration of effective political responses to the problem of risk and injustice. The organizational forms adopted by the environmental justice movement are in fact reproduced in numerous political movements, only some of which are explicitly devoted to combatting risk. By identifying the ways danger and uncertainty combine to both inhibit political action and politicize entire communities, one can begin to articulate the demands of a contemporary theory of justice.

The Talmudic quote cited above closes with the ultimate political uncertainty, about the end of an unjust government. This can be a simple, but crucial, uncertainty about the timing of such an event, or it could include ignorance of the means to do so, or the requirements of justice itself. The greatest question yet to be answered at the conclusion of this dissertation is how to reimagine justice and democracy in light of the costs of uncertainty. When one rejects the forms of justice available through the self-correcting motions of markets and their regulators, one is left to doubt both the efficacy of more disruptive political action and the possibility of erecting an alternative structure, free of the current system's concessions to radical inequality. It is perhaps wise at this point to defer to the conclusions of mathematicians, who have proven that more

problems exist in the world than solutions, and accept that a language of risk, if not of profit, will continue to shape both, at least in the foreseeable future.

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