

A hand is shown holding a box of medicine in a pharmacy. The background is filled with shelves of various medications, including boxes of 'Cintone' and 'SCOON'. The entire image has a strong red color cast. The word 'SPECULATIVE' is printed in large, white, sans-serif capital letters on the box being held.

SPECULATIVE

MARKETS

Drug Circuits and Derivative Life in Nigeria

KRISTIN PETERSON

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PREFACE

In the early 1990s, I obtained a bachelor's degree in biology from the University of California, Santa Barbara. The United States was emerging out of the 1980s Reagan era, characterized by late capitalist flexibility and anticommunism, each of which had profoundly different impacts within the country. During the 1980s, manufacturing industries in the Midwest and on the East Coast were steadily going bust as corporations went overseas in search of lower manufacturing and labor costs. The state of California remained afloat partly because of defense industry subsidies that leaked into other areas, including public education. But by the early 1990s a recession had hit California, leaving thousands jobless.

I attempted to get an entry-level research job at the university, but grant money for such positions had evaporated the year I graduated. And so, like other newly graduated biology majors, I joined the migration to Silicon Valley in search of a job in the emerging life-sciences industry, which was flooded with new money from investors. One strategy used by the investment community to seduce these new sources of funds was to generate plenty of hype that guaranteed new breakthrough products; future exorbitant earnings promised a way out of the stagnation that had characterized the industry in the early 1980s.

I got a job in no time, thanks to the temporary work agencies that catered to creating the long-term temporary work force typical of this period. The temp agency made more money per hour for my labor than I did, and I remained a temp throughout my fourteen-month stay. Yet I felt lucky. After searching six months for a job, I had been hired not at one of the biotech start-up companies that no longer exist but rather with a well-established one—Genentech—which is now owned by Roche, and I worked in a quality control microbiology lab. Genentech is well known for being the very first biotechnology company to provide an initial public offering on

the stock market: that is, it “went public,” in 1980. This was preceded by an important U.S. Supreme Court decision, *Diamond v. Chakrabarty*, which permitted for the first time the patenting of genetically modified organisms. Indeed, the use of patent protection from this point on gave the biotech industry enough stability to jump-start it as well as allowing the drug industry to be completely tied to the speculative marketplace, where the industry’s future could be traded on the NASDAQ.

The time I spent working at Genentech and living in San Francisco was full of contradictions. Company lavishness and management hype regarding the high status of Genentech within the biotech world was offset by the relative poverty I would return home to at night in the Mission District of San Francisco. There was a stark contrast between the world of recession and the world of abundant investor money swirling within, yet confined to, a few industries. It was not until the late 1990s when these contradictions would kick in, as property values skyrocketed and many start-up biotech firms went bankrupt. There was a massive remaking of San Francisco during this period. While dot-coms and biotech companies went bust, the city rid itself of its poor and, indeed, many of its middle-class residents. It is remarkable that an entire U.S. city can now welcome only the most affluent.

While I worked at Genentech, my routine was to take BART, the Bay Area’s public transportation system, from 24th Street in San Francisco to Glen Park. There I picked up a corporate shuttle that would take workers to different companies in the area. One day on the bus, I sat next to a man who worked at a firm called Shaman Pharmaceuticals, a start-up that relied on the stock market to raise research funds. He was laid back in a way that defied the corporate culture of these places, despite the fact that it entertained plenty of alternative types who seemed to have gotten somewhat lost in the woods. The name “Shaman” caught my attention, and we got to talking. Shaman’s methodology was to travel to rain forests, consult with shamans on medicinal plants, collect samples, patent biologically active ingredients, and embark on ambitious research agendas. This was the moment that intellectual property law began to pique my interest, just a few years before the World Trade Organization “harmonized” it across nation-states. I left Genentech and earned a master’s degree in women’s studies at San Francisco State University, focusing on Shaman—partly in an attempt to get a handle on how to think about science (through a transnational, postcolonial, and feminist lens) instead of doing science and partly to digest more fully what I had experienced in the biotech industry.

A few years later, in the late 1990s, I left San Francisco and began graduate school in anthropology at Rice University. A number of events and circuitous routes led me to the expansive pharmaceutical market in Lagos. My dissertation research focused on AIDS policies at the time. Because of this work, I was hired by the Futures Group, based in Washington, D.C., as a consultant to study access to HIV/AIDS drugs in Nigeria. I conducted this project jointly with Olatubosun “Tubosun” Obileye, a Lagos-based pharmacist and former staff member of Médecins Sans Frontières (Doctors Without Borders). The focus of the project was almost entirely on AIDS and AIDS-related drugs, which were scarce at the time. When they were available, they mostly circulated within donor programs and not private drug markets. Tubosun urged that the project should consider conducting research on the private drug markets in order to see what kind of synergy the two spheres—private drug circulation and drug distribution by the state and nongovernmental organizations—might have on access to HIV/AIDS drugs.

Because I knew next to nothing about pharmaceuticals in the private sector, the first thing I did was to search the stacks in the Lagos medical libraries (specifically, those of the Nigerian Institute of Medical Research and the University of Lagos). I came across shocking research conducted by academic pharmacists, life science researchers, and physicians that revealed the striking levels of disease resistant to the most common and affordable drugs, the high and wildly varying numbers of substandard and fake drugs circulating in unofficial markets, the incredible rates of patients’ self-medication, and endless debates about what was consistently referred to as a “chaotic drug distribution system.” But I also discovered that the Nigerian pharmaceutical landscape was not always like this, that the drug market was once home to brand-name drug manufacturers that commanded a booming, thriving market. I wanted to know more about how such radical changes within a national market could take place in a mere decade. With each trip to the library, I collected stacks of periodicals several feet high, hoping that the electricity would remain on long enough (or that it would return after a long blackout) so I could get photocopies. When the power was out, an occasional kind librarian would allow me to take as many periodicals as I could carry. I would then flag down an *okada* (motorcycle taxi) and go to a nearby business center, usually a small shop piloted by a generator, where I would have photocopies made.

The vast drug markets I encountered during these library trips did not exist until the 1980s, when Nigeria’s economy was being restructured

according to the mandates of the International Monetary Fund and was quickly taking a radical turn for the worst. It was hard to imagine what life was like then in formerly noncommercial neighborhoods that are now packed with constantly pumping markets and unceasing commercial activity. These neighborhoods were essentially remade, not in the same way that San Francisco was reconfigured to usher in an almost exclusively wealthy set of residents but to accommodate the country's newly impoverished people after the implementation of a structural adjustment program. My experience made one thing clear: at the same moment I was temping my way through biotech's self-assured and speculative future, the Nigerian brand-name drug market was crashing. How these phenomena were ultimately tied together is a primary subject of this book.

When I arrived at Rice University, I knew I wanted to think about the future of drug development through the lens of political economy. The problem was that I did not really have a framework, much less training, for going about that methodologically. But when I read *Anthropology as Cultural Critique* for the first time, the following passage struck me:

What we have in mind is a text that takes as its subject not a concentrated group of people in a community affected in one way or another by political economic forces, but “the system” itself—the political and economic processes spanning different locales or even different continents. Ethnographically, these processes are registered in the activities of dispersed groups or individuals whose actions have mutual, often unintended consequences for each other, as they are connected by markets and other major institutions that make the world a system. Pushed by the holism goal of ethnography beyond the conventional community setting of research, these ideal experiments would try to devise texts that combine ethnography and other analytical techniques to grasp whole systems, usually represented in impersonal terms, and the quality of lives caught up in them. These are the truly ambitious experiments in the political-economy vein. (Marcus and Fischer 1986, 91)

Since then George Marcus, Michael Fischer, Kim Fortun, Anna Tsing, Arjun Appadurai, Akhil Gupta, and James Ferguson, among others, have hammered out and refined just how to ethnographically capture “the system itself.” With my ethnographic focus on the distribution systems of pharmaceutical markets, the challenge has not been about bridging the

often wide gap found between complex and intangible macro economic systems and the quotidian, hidden, and often nuanced things that people do to make markets work. After I had made several trips, it became relatively easy to see the structure of Lagos drug markets as simultaneously urban, regional, and transnational—but only because actors working in or through these markets consistently imagined and described them as such. Although they taught me how things worked and provided very strong opinions about the implications of market dynamics, I still needed to do a great deal of conceptual and analytical work at other scales.

One scaling challenge was to understand how disparate yet simultaneous events could produce unexpected convergences that generate long-term market patterns. For example, speculative practices in the drug industry (such as massive mergers and investing in high-risk biotech companies), as well as lateral arbitrage strategies that speculate on wild currency fluctuations in unofficial Nigerian drug markets, must be understood alongside each other even though they emerge in different contexts. The reason for this is not because they sound like similar practices; rather, it is because they are two reverberations occurring in a volatile transcontinental supply chain.

Beyond event and place as objects to be scaled, it was also important to capture and represent temporal scales. Drug traders, pharmacists, regulators, and industry workers always marked their analyses of drug circulation against very specific historical events dating from the early post-colonial period up to the present. They helped me understand how events occurring at very different times, such as the Nigerian civil war (late 1960s) and brand-name pharmaceutical company divestment out of Nigeria (mid 1990s) converged in ways that materialized in the current dynamics of Nigerian drug markets.

A multi-scalar ethnographic project of this sort does not simply capture how the thing or the idea exists within a larger world system. Rather, objects of study may have disparate multiple lives or expressions. High levels of fake drugs in Nigeria, for example, do not simply reveal a problem with pharmaceutical regulation, which can lead scholars to conclude that the African state is “failed” or “weak.” Instead, the making of fake drugs is largely an outcome of drug prices and global market volatility. In this sense, recent and historical propulsions of capital (such as past market dispossession and current downward pricing pressures) largely drive fake drug production, which makes it not that different from regulated drug economies. In

order to capture these dynamics methodologically, regulation and its link to the state must be brought into the realm of chemistry, geopolitics, and market logics. My experiment here is to think about how the thing or the idea articulates at scales beyond their linear paths and trajectories of event, place, and time. By exploring anthropological “third spaces” (Fischer, 1–27), I hope to “discover new paths of connection and association by which traditional ethnographic concerns with agency, symbols, and everyday practices can continue to be expressed on a differently configured spatial canvas” (Marcus 1995, 98).

Tracking what happened in San Francisco here in this preface and what happened in Lagos throughout the rest of this book is part of this pursuit. At the same time as the California economy struggled to resurrect itself via an industry that never produced a significant therapeutic revolution, the postcolonial dreams of an equally promising Nigerian pharmaceutical future were sacrificed in the name of speculative pursuits.

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INTRODUCTION

Chemical Multitudes

Fake Drugs and Pharmaceutical Regulation in Nigeria

Holly Martins looked directly at Harry Lime and asked, “Have you ever visited the children’s hospital? Have you ever seen any of your victims?”

“Victims?” replied Harry, pointing to the small children moving below them, appearing as small dots in the far distance. “Would you really feel any pity if one of those dots stopped moving forever? If I said you can have £20,000 for every dot that stops, would you really, old man, tell me to keep my money? Without hesitation?”

—*The Third Man*, directed by Carol Reed, 1949

The Problem of Chemical Multitudes

Between April and August 1990 nearly a hundred infants and children mysteriously died of kidney failure in Plateau State, located in the central part of Nigeria. The Plateau State Ministry of Health, located in the city of Jos, issued a report that listed symptoms indicative of a severe hemorrhagic virus (Alubo 1994).¹ Toward the end of that period, a second wave of deaths occurred in Ibadan, Oyo State, located in southwest Nigeria. There, twenty-six children suffered many of the same symptoms, and twenty-four of them consequently died. Clinicians at the University of Ibadan apparently did not suspect a virus but rather a problem with the drugs they had administered



MAP I.1. Nigeria. © Daniel Dalet, d-maps.com.

to their young patients.² They found that when they withdrew paracetamol syrup (acetaminophen), an over-the-counter pain reliever from the treatment regimen, the symptoms immediately ceased (Alubo 1994).

A federal government study later confirmed these findings, as well as the source of the problem:

all the paracetamol syrups were prepared in a Plateau State Government pharmacy, from where distribution was made to at least seven government hospitals where the medicine was administered to children.

In the second reported case, the syrups was [*sic*] prepared in Oluyoro Catholic Hospital, Ibadan where it was administered to the children.

... the laboratory analysis of the sample of the second reported case has shown that one of the raw materials labeled and sold as *propylene glycol* was in fact *ethylene glycol*, which is known to be very poisonous and gives rise to kidney failure. (quoted in Alubo 1994, 100; his emphasis)

Remarkably, the report also tracked the source of ethylene glycol to a pharmaceutical company in Ibadan, which purchased the raw material from a supplier in Onitsha, in the southeastern part of the country. The chemical's label claimed to originate from the Netherlands. But S. Ogoh Alubo (1994), a medical sociologist, found in his own research that the Dutch company in question had ceased to exist two years prior to the incidents. In fact, the company was not a manufacturer, as the label indicated, but an international wholesale distributor. Ethylene glycol is about twenty times less expensive than propylene glycol, which suggests that it was probably intentionally mislabeled in order to gain a significant profit. The trail went cold after these discoveries; it was never determined who manufactured the chemical, who labeled it, and who distributed it.

As was the case in the classic British film noir *The Third Man*, which portrayed an underground trade in adulterated penicillin after World War II, the fake (intentionally adulterated) drugs that populate the Nigerian pharmaceutical landscape are often viewed only as a problem of sheer greed that distorts an otherwise legitimate trade.³ In the Nigerian case, greed can be represented as signs of corruption and chronic underdevelopment. Yet events like those described above have occurred elsewhere in the past. The U.S. Food and Drug Administration came into being in 1937 under very

similar circumstances: an anti-infective patent medicine made by Massengill had been formulated using diethylene glycol, a poisonous substance very similar to the one used in the paracetamol syrup in Nigeria. In the U.S. case, over a hundred people died throughout the South and the East Coast, generating a national outcry for better consumer protection laws (Carpenter 2010, 73–117). Although these incidents seem like horrors of a distant past to Americans, fake drugs entering the United States have recently caught the attention of the Food and Drug Administration. The agency recognizes the vulnerability of the U.S. pharmaceutical supply and has begun to reorient its approaches to try to regulate pharmaceutical industry offshoring and the transcontinental diffusion of the pharmaceutical supply chain. These activities make regulation highly difficult and therefore drastically complicate U.S. drug safety (U.S. Food and Drug Administration 2011 and 2013).

The same year that the Plateau and Oyo State deaths occurred, a new Nigerian drug regulatory agency, the National Agency for Food and Drug Administration and Control (NAFDAC), was getting newly established and so there were only nascent regulatory policies in place. Since that time, Nigerians have become fully aware of the problems with dangerous pharmaceuticals making their way into the national drug market. They have repeatedly demanded a better-quality drug supply. In turn, since the early 2000s NAFDAC has aggressively clamped down on every aspect of transnational supply, from production to retailing. Nevertheless, the quality of drugs cannot always be guaranteed. This is not due to problems of development, capacity, or know-how, as NAFDAC has received numerous international awards for the work it has done in the realm of fake drugs. Rather, the difficulty in regulating the pharmaceutical supply is a historical outcome of massive economic and structural changes that took place not only in African (and certainly European and North American) states, but also within the pharmaceutical industry.

The death of so many children due to harmful fake drugs occurred at the same moment when Nigeria's economy was spiraling downward as a result of tremendous state and market transformations. Just four years earlier, the country had implemented a structural adjustment program (SAP) that included a significant state and market austerity policy. Following the 1970s recession in the West and the collapse of commodity markets in Africa, implementation of SAP was insisted on by the International Monetary Fund and overseen by the World Bank in exchange for new loans

to Nigeria, whose national economy became troubled after the collapse of an oil boom. Economic and state adjustments had profound negative consequences on African economies, including massive job loss, high inflation, and widespread poverty. At the same time, North American and European pharmaceutical companies were manufacturing and distributing drugs for the Nigerian market, then a highly significant one in terms of foreign sales. They abandoned this market when structural adjustment's worst effects kicked in. After the market for brand-name drugs crashed, a new market was built. Now the Nigerian market is a wholesale supplier for West and Central African private drug markets. The total national market value constitutes over \$2 billion worth of generic drugs of varying and often low qualities, almost all of which move through unofficial channels.⁴

Speculative Markets is about West African pharmaceutical circulation that is integrated into transcontinental trade. It particularly situates the Nigerian drug market and its lively practices squarely in the context of speculative capital, manufacturing off-shoring, and drug marketing. In this regard, Nigeria's pharmaceutical market is also connected to U.S. economic changes since the 1970s–1980s—changes that favored the economic growth and long-term survival of the pharmaceutical and biotechnology industries. The book links market transformations that have occurred at different times and on separate continents to specific movements of capital and the practices of new market makers.⁵ This is not only about how a once significant and formerly profitable African pharmaceutical industry collapsed in the face of economic reforms, nor how the American turn to speculative capital during the 1980s shifted transnational business strategies, creating intensified competition in the pharmaceutical industry. Concomitantly, the book shows how all of these occurrences are linked together and localized in the face-to-face exchanges at a major nodal point in Lagos, Nigeria.

One of the key issues arising out of these events is that the practices of a purely so-called legitimate trade and a black-boxed illicit one have become increasingly intermingled. Licit and illicit products are difficult to disentangle, as they may have the same manufacturing origins and travel along the same distribution routes. In both pharmaceutical production and distribution processes, various arbitrage and speculative practices are used to anticipate and bet on positive outcomes that can profitably move pharmaceuticals from producer to consumer. These speculative practices are integral to the licit production and distribution of pharmaceuticals. But they also encourage and fuel the proliferation of low-quality drugs in West

Africa. These blurred activities are a product of severe and chronic market volatility that resonates differently in the brand-name drug industry, Nigerian markets, and the transcontinental supply chain.

By the early 1990s the structure of the pharmaceutical market appeared out of control, as far as Nigerian government officials were concerned. Research studies and reports indicated that just a few years after the implementation of structural adjustment, fake drugs comprised 30–70 percent of the entire national drug market in Nigeria (Atueyi 2004, 38; Uwaezuoke 1991, 20). For this period, reports also indicated that fake drugs were sold in tens of thousands of illegal places in Lagos State (Itueyi 2004, 41). While current reports indicate that Nigeria’s fake drug problem has declined since the 1990s, the United Nations recently declared that West Africa has the worst fake drug problem in the world (UNODC 2009). Presently, fake drugs comprise anywhere between 30 to 50 percent of the entire regional market (Yeboah 2013, 6; Taylor et al. 2001, 1934).⁶ These numbers and declarations are epistemologically blurred because while fake drugs are perceived as prolific, their numbers cannot actually be counted or ascertained.

Such empirical elusiveness or “phantom epistemology” (Peterson 2009) is something that is both familiar and unknowable as discourse and cultural practice. Within Nigeria, there is a commonsense nature to stories, anecdotes, and rumor about fake drugs, which is very widespread and diffused across society. If one becomes ill after taking a drug, such an experience is almost always linked to “fake” drugs and few questions are asked about an allergic or adverse reaction to that drug. Or if a drug is perceived to not work, a lay diagnosis often blames fake drugs while few questions are asked about drug resistance—a serious widespread problem but one that is not nearly as well known as fake drugs.

While drugs have long been recognized as distinct technological objects in society that are embedded with plenty of social meaning,⁷ these Nigerian examples point to significant ontological confusions over the actual substance and clinical meaning of drugs. This makes it easy to fall into a collective effort to complain about an acknowledged national problem such as fake drugs, while other issues like a significant dearth of diagnostic technologies (Okeke 2011) and widespread drug resistance (Lamikanra et al. 2011) remain obscured in such scenarios. Equally, I am interested in these unknowable aspects of drug chemistry in relation to those things that are known or discernible. The very quick circulation of anecdote and rumor about fake drugs and the quantification of drug chemistry in quality con-

trol tests each have a lot to say about pharmaceutical landscapes. Scaling the supposed knowns and unknowns in this manner hopefully destabilizes understandings of the empirical while offering new analytical openings into the issues at hand (Peterson 2009, 37–42).

In what follows, I discuss what happens to drugs once they enter Nigeria and, specifically, how fake drugs are dealt with at the level of regulation. NAFDAC encounters complex Nigerian politics because regulation is not purely about legal mandates pertaining to public safety but rather about moral authority and heavy-handed leadership. Although NAFDAC has been lauded for its efforts, I take it for granted that regulation is a near impossibility due to very specific market and political dynamics appearing at various points in the transcontinental supply chain. This introduction describes the social, political, and economic entanglements that characterize the final point of a drug's arrival in Nigerian pharmaceutical markets. The chapters that follow examine just how volatile markets and speculative practices created new transcontinental drug circuits that are now integral to the drug industry and people's lives in Nigeria.

Fake and Substandard Drugs

On one of my first trips into Idumota market, one of the largest pharmaceutical markets in West Africa, I was with two long-time Lagos pharmacists, Toks and Abiodun.⁸ They took me to visit Ikenna, a wholesale pharmaceutical trader, in his market stall. After much discussion of the day's news, the four of us began to talk about fake drugs in Nigeria. I asked Ikenna which products are usually faked.

"Movable products. Fast [selling] products," he said. He then pointed to a few shelves situated behind the wooden stool I was sitting on and said: "All these products are in the same [chemical] range. They are all the same product." Reaching past me, he pulled a boxed antibiotic—a combination of ampicillin and cloxacillin—off the shelf and handed it to me, saying, "For instance, now this is Ampiclox made by Beecham, that we are selling for 5,600 naira." He pulled another drug off the shelf and said: "And this is Ampiclox generic that we are selling for 400 naira."

The brand-name Beecham product is actually manufactured by Glaxo-SmithKline,⁹ a brand-name multinational company based in the United Kingdom that is the highest-earning pharmaceutical company listed in the Nigerian stock exchange (Wambebe and Ochekepe 2011). The brand-name

product Ikenna handed to me cost roughly \$40, and the generic version cost about \$3.

As I was translating naira to dollars in my head, Ikenna rhetorically asked: “Is it not the same chemical compound they used in producing the generic and the brand [-name product]?” He then said something that surprised me: “If somebody who wants to buy retail, he brings out his sachet [wallet] . . . and I can’t sell this generic. It is the [brand-] name that is selling.”

Abiodun immediately jumped into the conversation and said: “Let me tell you something. What he is saying is 100 percent right. Let me compare multivitamin syrup. It has been in the market years even before I was born [in the 1960s]. I remember when I was growing up I was using Multivite. That time there was a lot of advert [advertisements].” He sang the advertising jingle, “Multi, Multi, Multivite!” and then continued: “Compare Multivite to all other multivitamins in the market now. I can assure you that there are some multivitamins that are much more better than Multivite, but because Multivite has made a name—it is only selling its name.”

In fact, people with very little money—especially those living with HIV or vulnerable to it, such as sex workers—had often told me while I was conducting research on HIV/AIDS in Nigeria that due to the presence of fake drugs, they prefer to buy brand-name products in spite of the higher cost. They imagine that companies such as Glaxo and Multivite’s manufacturer have higher-quality products than other companies simply because they were present in the drug market long before fakes became a widespread problem.

Holding up my left hand, I said to Ikenna: “This is the generic.” Holding up my right hand, I said: “This is the brand. Will they say the generic is fake because it is cheaper?”

“Some people will say it is fake because they don’t know about drugs. But if the brand is fast-moving and sells at 5,600, [fake drug manufacturers] will sell it for lower.”

At that point, Toks said to Ikenna: “Let me explain this fake very well.” He took the Beecham brand-name Ampiclox out of my hand and asked: “If they take this one now, will they reduce the price if it is fake?”

“They will reduce the price.” Pointing to the Beecham product, Ikenna said: “This one [is currently being faked and sold in markets]. It is selling for 1,000 [naira, about \$8].”

“So people will rush and say it is the same Ampiclox?” Toks asked.

“They cannot differentiate [between fakes and] the original.”

Those facilitating the entry of fake drugs into the country identify which “nonfake” drugs are selling quickly and well—what is commonly referred to as “fast-moving products”—in Nigeria and then place orders for those drugs with overseas manufacturers. Ikenna pointed out that the Beecham Ampiclox had been faked and was circulating in the market for about \$8. Brand-name multinational companies like Glaxo bank on their reputation and on habitual prescribing and hospital stocking practices to sell their drugs rather than establishing competitive prices, which remain high compared to generic products on the market. Glaxo has more products for sale in Nigeria than any other brand-name multinational. Ampiclox is an older antibiotic to which most bacterial infections are largely resistant. Yet it is well recognized by the public and is a “fast mover.” As Ikenna points out, this makes Beecham Ampiclox a prime candidate to be faked and sold in the market, especially given the fact that low price can be linked to a number of scenarios besides faking.

Although they initially arrived in small amounts, fake drugs began entering Nigeria as early as 1968, when Crown Agents, the main British company charged with national drug distribution since the colonial era, divested. Taking over distribution was the Pharmacists Board of Nigeria, a government agency (Atueyi 2004). Because it was saddled with other tasks, including regulation, it could not meet all the country’s distribution needs. It turned distribution over to state governments, which issued patent medicine vendor licenses that were increasingly held by traders. There had been an extreme shortage of pharmacists since independence (Atueyi 2004) and so these licenses were meant to fill this gap. In Idumota market, traders hold patent medicine vendor licenses and import directly from pharmaceutical manufacturers. The increasing diffusion of wholesaling from a centralized body to multitudes of private trading companies was a result of both hold-overs from the colonial infrastructure and state reforms in the 1980s. As a result, multiple paths to importation opened up new avenues to smuggle fake drugs into the country.

When fake drugs reach West Africa, they join legitimate generic drugs mostly imported from Asia as well as a smaller percentage of drugs manufactured by Nigerian companies. Fake drugs are quickly dispersed into the market and sold by pharmacists and wholesale pharmaceutical traders (sometimes mistakenly), roadside hawkers, travelling salesmen on buses, and patent medicine sellers in rural areas. In Nigeria many of these drugs

are distributed through what are called “open” markets by regulators, which are nonregulated sites located in public yet unofficial market spaces that rapidly emerged and expanded in the immediate aftermath of state and market reforms. Once drugs pass through open markets, they are extremely difficult to trace, much less regulate.¹⁰

While fake drugs are highly patrolled, substandard drugs are not well regulated. Substandard drugs are not intentionally faked drugs, but ones that have too little or too much active ingredients as a result of shortfalls in the Nigerian or other manufacturing processes.¹¹ Both fake drugs and substandard ones pose threats to human health, and they cannot always be discerned from each other once they end up in Lagos wholesale markets and retail shops. For example, a story about malaria drugs in Lagos was reported in the national daily newspaper *The Punch*, which subsequently went viral on the Internet. The newspaper article was about a research publication by pharmaceutical chemist, Teddy Ehianeta and his colleagues (Ehianeta et al. 2012) at the University of Lagos. The researchers found that out of the thirteen antimalaria drugs they purchased from Lagos pharmacies, only 15 percent (two drugs) had the required amount of artesunate and amodiaquine, the active pharmaceutical ingredients (API) for standard malaria treatments (Ehianeta et al. 2012, 642).¹² Otherwise known as artemisinin-combination therapies, these chemicals compose the World Health Organization’s recommended first-line therapy for malaria in Africa. The researchers, the media, and Internet discussions posited these results as a problem of fake drugs, with no attention given to other possibilities.

Ehianeta and his colleagues compared the weight of the API—amodiaquine and artesunate—listed on the label with the actual weight. To be considered a standard and efficacious product in Nigeria, the API should fall within 90–110 percent of the standard range. A substandard product may contain API that falls short of, or exceeds, this range. Five of these eleven contained inadequate amounts of one active ingredient and too much of another (for example, sample C had 127 percent of the proper amount of amodiaquine and 60 percent of that of artesunate). Four of them had an adequate amount of one ingredient and a low amount of the other (for example, sample F had 98 percent of amodiaquine and 71 percent of artesunate). One sample was on the low end for both (sample A had 76 percent of amodiaquine and 36 percent of artesunate). And one had too much of both (sample G had 134 percent of amodiaquine and 115 percent of artesunate) (Ehianeta et al. 2012, 639). How can these wide variations at

both the low and high end of the API range be explained? It may be safe to say that sample A, the only one that had low amounts of both API, is fake. All other malaria drugs tested could be fake, but they could also be a result of shortcomings in the manufacturing process.

An academic pharmacist, Temi, explained to me that too much API is a usual problem for Nigerian manufacturers. Many manufacturing companies are over thirty years old. With very little available capital from financial institutions, a few have been refurbished but many have not, creating problems with manufacturing infrastructure. For example, if a company imports a secondhand scale and uses it for a long period, the weighing accuracy diminishes over time, and there are few auditing mechanisms for such equipment. Temi asserted that manufacturers actually anticipate this problem and do not want to be accused of including unacceptably low API because that would indicate faking. This means that local companies often add too much of the active ingredients to their drug products, which is considered legal although it is substandard. Unfortunately, the problem of fake drugs often overshadows these problems of “good manufacturing practices,” which is industry language for very specific standard operating procedures that must be accurately followed in drug production and quality control audits throughout the manufacturing process. In the context of these multiple scenarios, Ehianeta and his colleagues lumped these chemical variations into one category: “fake drugs.”

In turning to fake drugs as the primary site of regulation, NAFDAC did something throughout Nigeria that very few regulators around the globe have attempted: it shut down unofficial drug markets. In doing so, it ran a successful and rather stunning national public awareness campaign, but at the same time it put the national, and in effect, West African, drug distribution network at risk of collapsing.

Drug Market Raids as Drug Regulation

Professor Dora Akunyili was appointed director general of NAFDAC in 2001. Highly motivated by her own sister’s death as a result of taking a fake drug, Akunyili started a very visible national campaign to confiscate and burn fake drugs, accompanied by great media attention and public displays of the drugs’ destruction. She also rid the agency of perceived corruption by sacking some of the highest officials at the time, an act that was relatively rare and highly supported by the public. Her work received humanitarian

awards and commendations from around the world, including *Time Magazine's* 2006 “Eighteen Heroes of Our Time.” She became a celebrity almost as soon as she took over the agency. During her tenure she was clearly one of the best-known civil servants to emerge in the period immediately after the end of several decades of military rule. The public celebrated her as the embodiment of a new democratic era.

NAFDAC launched massive awareness campaigns that educated the public on the fact that fake drugs—unlike other fake products such as knock-offs of Fendi bags and Samsung mobile phones—enter the human body and have toxic qualities. Drugs and the premises through which they travel must be regulated from the start of manufacturing to the purchase by the end user. A regulatory apparatus that oversees pharmaceuticals even into the postmarketing phase is required. NAFDAC also educated the public on how to tell whether a drug product was registered in Nigeria, by the agency’s hologram seal on the packaging: if there is no hologram, the drug should be considered fake. Stricter drug regulation rules and inspection requirements were also implemented. NAFDAC even set up inspection offices in countries whose drug firms export their products to Nigeria, including China and India.¹³

Although these new requirements eliminated unregistered products as a widespread problem, these measures did not eliminate fake drugs. It just became more costly and cumbersome to manufacture and distribute such products as they continue to make their way into Nigeria. Several regulators indicated to me that after Akunyili initiated the crackdown on fake drugs, distributors attempted to register standard and authentic versions of fake products. They accomplished this by submitting samples of high-quality drugs as part of the registration process. But after a drug was registered, distributors reverted to importing the fake version instead. Even though extensive documentation is in place to compare registered with potentially faked products, the postregistration process is difficult to monitor. It is also difficult to tell if a faked yet registered product came from the manufacturer or from the importing distributor, who may have tampered with the product.

Packaging, a seemingly inconsequential issue, is actually one of the most important aspects of drug registration and distribution, and of detecting fake drugs. The lower the API costs, the more money can be budgeted for packaging, which is the largest overhead cost (Bate 2012). These investments are important because they go toward faked logos, fonts, holograms,

colors, and so forth that require sophisticated computer graphics and ink matching. If well done, the fakes can easily fool even suspicious regulators. Excellent packaging means better entrance into the more high-end markets and legitimate wholesale systems that include fake papers, fake quality and inspection certificates, and fake custom stamps (Bate 2012).

Before new registration guidelines were implemented by Akunyili, many manufacturers used graphics on the packaging as a way of listing a drug's uses, which appealed particularly to those who cannot read and who are self-medicating. A NAFDAC official told me:

Look at Napozine [a steroid], for example. Somebody is now putting one man who is carrying [laughs] maybe fifty bags of cement on his head, and he is saying, "Yes! I can do it!" We don't allow this at all. [The packaging] must be free of any pictorial that is indicative of the implication. With it, you can read meaning that somebody is representing. Take Cimetidine [used for ulcers and gastrointestinal hemorrhages]—[someone] just puts a picture of the stomach. That means everybody can go and take it for stomach [laughs]. The picture already tells you what it is used for, and [consumers or patients] may not even consult anybody before going to go and take it. So we disallow pictures, but compliance is always a problem. When registering they would comply, but after registering, now it is a problem. They go back [to using the pictures] and this is a serious challenge—this issue of monitoring what has already been registered.

The port inspection branch of NAFDAC may check for graphics, find fault, and impose a fine. Sometimes the agency even blacklists a foreign company. But once the drugs make it past inspection and into the Nigerian market, they are quickly distributed throughout the country and across West Africa and lost to regulators.

In addition to the administrative and regulatory tactics described above, NAFDAC took a step further by shutting down large unofficial drug markets in Nigeria. This was somewhat unusual, as most countries that try to curb fake drug distribution do not necessarily go after the importers but instead attempt to strengthen the regulatory environment. The largest raids took place in Aba (eastern Nigeria) in 2002, Kano (northern Nigeria) in 2004, and Onitsha (eastern Nigeria) in 2007, which had some of the largest drug markets in Nigeria; others have taken place since then and many of the shutdowns last for a few weeks to a few months. During the first raid

in Aba, one official who had worked for NAFDAC at the time told me that the effort required the entire police force of two neighboring states because the traders, whether or not they were selling fake drugs, fought back with great force to protect their livelihoods. The police had to be treated to hotel rooms and well fed in order to discourage them from helping themselves to the raided drugs. Nigerian civil servants often are not paid in a timely manner, and NAFDAC felt that the confiscated drugs would be a great temptation to the police. Inside the market, all the stalls were shut down, and literally tons of drugs were confiscated and burned.

I asked a NAFDAC official how the agency orchestrates a market shut-down. Referring to the raid in Onitsha, in which over a hundred trucks were used to haul away drugs found in the market, the official told me: "It's very strategic, with the assistance of the law enforcement. It's very strategic, and it's usually done uninformed because [the traders] can just pack and go [if they get word that a raid is coming]. So, when you assemble every police officer, they don't even know what they are going to do until you get to that [market]. . . . So that has really made the activity to be very effective. You would even find people doing the things in the act [laughs] [packing their stock as the raid is happening] so it has been wonderful."

"The police don't even know?" I asked.

"Nobody is informed," he said. "The police ask, 'How do we go about this?' And we say, 'We are moving to [a certain] place.' 'For what?' 'When you get to [that] place, report to Mr. X. So when you report to Mr. X, you will get your assignment the next day. [For now], move into this hotel. This is your room. Just sleep.'"

We both laughed. Indeed, the strategy addressed the stereotype of the police, and precautions were taken to ensure that they had no prior knowledge of the raid and so could not take advantage of the situation.

The official looked at me and said: "So nobody is telling you what [the police] are going to do. So the following morning [the police are told]: 'Okay, good morning, everybody, enter this bus [that will take you to the market to be raided].'" Finishing the story, he said: "By the time the traders return [to the market] the next morning, the whole of the place is already fenced with police, already inside."

I asked him how to tell the difference between fake drugs and real ones. He said: "So many ways, [I] am telling you."

"But if you fence off the entire market, how do you know which ones are the real people?"

“Are you telling me that I should ask the faker, ‘Is this fake?’ He will not tell you.”

I laughed out loud at the thought and rephrased my question: “So you go into every shop? You still have to inspect everything.”

“You don’t know by face until you get there and check every shelf, every item. . . . Presentation, labeling, everything [should be] the same.” Here he was implying that a fake drug would be detected if the packaging, labeling, color of tablets, and so forth was different from the original generic or brand-name drug.

“How do you do the logistics? Do you put them somewhere before taking them to be burned?”

“There are standby trucks.”

“But do you assemble them, maybe on the ground before taking them to be burned, or . . . ?”

“The trailers are down there. One is a full mobile police trailer that escorts them to the dumping site. Straight [away]. No diversion.”

“I thought you normally keep them somewhere.” Certainly, the photographs I had seen in the media of stored fake drugs indicated this.

“No diversion,” he insisted.

“So what happens at the end of the day once you’ve finished and everything is destroyed? You leave the ones that look okay behind on the shelf?”

“You have no business with the ones that are okay and you leave it!”

“Well, what a method!”

“And it worked! They could not believe it, how it worked, until tomorrow, they do not understand how it worked.”

As a result of these raids, Akunyili and many NAFDAC workers were attacked in markets; there were several car bombs and in December 2003, there was an assassination attempt on Akunyili’s life. Shortly thereafter, NAFDAC’s offices in Lagos, Kano, and Benin were burned down by arsonists (Olugbenga 2013). The only time I met Professor Akunyili was at a NAFDAC conference in 2005 where I served as a consultant. She entered the room late in the day and took her seat to speak, while her three guards sat off to the side with their automatic weapons.

The same raid in Onitsha that the NAFDAC official described was very significant. It is the largest unofficial drug market in Nigeria, with (according to some in the Idumota market) over five thousand pharmaceutical traders. It is an extraordinary, expansive market that spills out onto the expressway. Even the traders in the congested Idumota market that is

home to about 1000 traders in Lagos talk about Onitsha as if it is an exotic, undesirable place to do business. According to them, there is no place to park and there are large, six-story buildings with no ventilation that are so close to each other that “from the window, you can stretch your hand and shake” with someone in the building next door, as Ikenna described it for me. The raid in Onitsha happened in March 2007, and the market was subsequently shut down for four months. It reopened as a result of negotiations between the state governor and NAFDAC. The governor agreed to long-term conditions, including forcing several officers of the market union to step down. Another key condition was the banning of several people from owning and operating shops, especially more than twenty individuals who were identified as leaders of the fake drug trade (Anyanwu 2007).

Prior to the shutdown, Onitsha had its own drug task force. But traders in Idumota claimed it was not very good at deterring the sale of fakes. As far as Akunyili was concerned, Onitsha was a “den of criminals,” “a disaster” (quoted in Sowunmi and Dada 2007). Certainly most fake drugs get channeled through unofficial drug markets, and certainly some drug traders in Nigeria are responsible for that process. However, when one large market shuts down, it has a great effect on Nigeria’s drug supply. This was especially true in the four-month closing of the Onitsha market. Due to the market’s size and its ability to supply countries throughout West and as far as Central Africa, its closing sent shockwaves through the wholesaling distribution chain.

Idumota is considered the main drug market, while Onitsha is the central market. A *main market* means that Idumota traders buy directly from the manufacturers and then sell to large wholesale clients like state hospitals and clinics, retail pharmacies, and corporations with health care facilities in the Lagos area as well as other parts of West Africa. Idumota supplies other pharmaceutical markets such as Onitsha, which as a *central market* supplies eastern Nigeria as well as the bulk of neighboring countries, especially those in closer proximity to Onitsha than Idumota, such as Cameroon, Gabon, and Chad. There are just a handful of Onitsha traders who buy directly from the manufacturers; but the vast majority of them must purchase drugs from Idumota traders. Sometimes there are drug shortages in Lagos because as soon as the drugs arrive in Idumota, they are sent off to Onitsha. Small-time Lagos traders who rely on better-off Idumota distributors with direct ties to manufacturers sometimes have to travel to Onitsha to get the products they need.

When the market in Onitsha was shut down, fewer traders came to buy in Idumota, and the ones who did come bought in smaller amounts. Because their shops were closed down in Onitsha, I was told, many of them were going on the road to hawk their products. One of the wealthiest Idumota traders told me that he had eleven million naira (about \$90,000) trapped in Onitsha. In other words, some goods were distributed on credit, and because items were not selling, he was not getting any return on his money. On top of that, he was losing two million naira (about \$15,000) per day in sales. The cash flow of small-time traders was even more impeded.

Abiodun was part of a study team that analyzed the impact of market shutdowns, whether they resulted from NAFDAC actions or other reasons (usually fires or riots). He told me that when Idumota shut down for several days in 2001 due to a riot, the team estimated that 850 million naira (\$6.8 million) per day were lost in traded sales.¹⁴ All sales, including those on credit, halted. And as Abiodun pointed out, “if you lose Onitsha market and you lose Lagos market, then the business is finished.” Unofficial drug markets are home to both fake drugs and West Africa’s wholesale distribution system. Thus, while shutting down markets does lower the rate of fake drug distribution, it also puts the regional distribution of drugs in serious jeopardy.

Sanitizing Wholesaling: Moral Authority and “Nigerian Factors”

Pharmacists and traders alike praised NAFDAC’s dramatic awareness campaigns about fake drugs. People began to ask questions about the drugs they were consuming and they became savvy in identifying fake drugs from packaging alone. These actions were facilitated by a great deal of highly favorable media coverage, which helped to expand public awareness. Despite these efforts, Toks stressed a point that many people I interviewed concurred with:

In my opinion Akunyili’s achievement was genuine but overblown. I think she didn’t carry the reform to an appropriate level. For instance, she did not prosecute anyone throughout her tenure—not one person—and really that is the deterrence. When you prosecute, the [fake drug] guy next door realizes that that guy is in jail because of that, so let’s be careful [meaning that other fakers will become more cautious]. And that’s what she did with NAFDAC and that is

an issue. . . . In 2004, one man lost 10 billion naira [about \$8 million] in one day. He lives two hours away from here [Lagos]. Ten billion! He had packaged the fake drugs in Nigeria and was sending them to Côte d'Ivoire. He was arrested, his shop was locked up for some time, but really he was not prosecuted. That why he's living "next door" . . . [laughs].

Prosecution is viewed by pharmacists as a successful deterrent to the importation of fake drugs. But the fact that prosecution is not widely pursued is commonly referred to as one of many "Nigerian factors," and not necessarily the executive actions taken by Akunyili. *Nigerian factors* in this case meant that shutting down markets and prosecuting the big men who are traders in fake drugs involves conflicts with layers of politics and connections that can have nothing to do with the actual illegality at hand. Some pharmacists who shared their analysis with me claimed that because Akunyili did not shut down markets on her home turf in Lagos, she was not successful with prosecutions elsewhere. It is not simply that one must have "political will" to enforce regulatory law. Rather, when state authorities take action in the name of public safety, they inevitably face complex political issues—especially when those issues are tied to commerce. Commercial constituencies that depend on unofficial activities, such as trader and other labor associations, can be linked to more powerful people by home region or professional organizations who can act on their behalf when their livelihoods are threatened.

For example, an industry pharmacist told me the following story, meant to demonstrate the entanglement of complex politics with law enforcement in Nigeria: At one point along the expressway from Lagos to Ibadan (a stretch of about 150 kilometers), there are long-haul transport trucks parked along the shoulder of the road for many miles, forming informal depots. Truck drivers are always visible here—resting, working on engines, and socializing. A market has formed in this area, which catches the business of the truckers as well as expressway traffic that often must slow down to pass the parked trucks. The governor of Ogun State, through which this expressway passes, went to the federal inspector general of police to request the removal of the long queue of trucks on the road, which presented safety concerns because many of the trucks transport fuel. The inspector general was from the same home region as most of the truckers and this connection prompted him to go directly to the president of Nigeria. The inspec-

tor general complained to the president that he had helped the Ogun State governor get elected, and now he was making impossible requests. So the president blocked the governor's attempts to remove the trucks, which still remain on the road.

These stories of failed action were often compared to the efforts of Governor Babatunde Fashola of Lagos State, who cleared out many interstitial urban areas for which no residential or commercial permits existed. People on the Lagos street talk about how the first illegal premise that Fashola destroyed was his own mother's permit-less shop. Or maybe it was his father's house that sat too close to the road. The story is never precisely the same, but it has an extraordinary appeal: if you dare to act first against your own family or others to whom you have social, financial, or political obligations, as Fashola was at one time praised for doing, you are viewed as serious and someone who is not to be messed with. This kind of heavy-handedness is often seen as the best, if not at times the only, way to ensure justice and public safety.

These two very different stories are important because they are typical of the kinds of narratives that people commonly tell about the entanglement of "Nigerian factors," law enforcement, and how "things don't work" in Nigeria. Taking action in the name of regulation may lead those to whom you are indebted to move against you. Or it may create more enemies, because clearing an expressway or breaking up a shop without a permit or shutting down a market can often result in outright violence as well as displacing people who have nowhere to go (except back to their villages) because alternatives are usually not created for them. So those responsible for regulation and public safety must either contend with or rely on networks of political and social obligations. These networks cannot be avoided because they include social debts that are far more powerful than the law on the books; and these debts can be traded, hedged, or destroyed (as Governor Fashola did) in lieu of regulatory practices. With these politics in mind, NAFDAC recognized that drug regulation required moral authority to gain any traction. The dangers of fake drugs and the discourse of evil fakers are what give drug regulation its moral authority and so they remain prolific tropes of the problem at hand. But regulation is never a *fait accompli* because the complex politics of social networks always turns up in the mix.

These are sometimes notorious, sometimes banal Nigerian stories and challenges. No matter their particularities, they are connected, and even completely intertwined, with long-term historical precedents as well as

transcontinental politics that animate Nigerian complexities at multiple scales. Fake drugs, regulation, and “Nigerian factors” are just a few small parts of a much broader story that animate the lively world of drug circulation in and outside of Nigeria.

The Making of Speculative Markets

The elements and actions of the state, law, manufacturers, traders, pharmacists, and so forth facilitate and contend with elaborate drug circuits. Generally, drug circuits constitute an assemblage of indirect and lateral paths that comprise transcontinental drug manufacturing and distribution. Geopolitics, trading relationships, regulation, and consumer purchasing power help determine the extensive routes through which drugs are made and distributed.

Drug circuits in Nigeria represent a betrayal of not just the promise of a 1970s vibrant economy but also a vision of a nascent postcolonial future. In a very short period of time (1960s–1980s), a number of events converged to reconfigure Africa’s place in the global economy.¹⁵ At the beginning of this period, independence as both an idea and a reality gained importance because it allowed people to imagine the possibilities of how life could be lived.¹⁶ Freedom’s imaginary was located in massive state investments in building schools, roads, and health care facilities, and in expanding manufacturing, such as that of pharmaceuticals. This newly built infrastructure was accompanied by the idea that education, literacy, health care, and job opportunities would be available to the masses (see especially Awolowo 1966). But these independence-inspired visions were quickly thwarted. Civil war in the late 1960s threatened to undo the new postcolonial Nigerian state, and then the 1970s oil boom reoriented Nigeria’s pan-African visions of prosperity (Apter 2005). With new state oil wealth, extraordinary limitlessness was projected into the future, but it came up against another event that emerged at nearly the same time: the neoliberal revolution.¹⁷

Visions of independence and neoliberal reforms were at tremendous odds with each other. The temporal nature of this intersection was completely disoriented by the exuberance of the visions of possibility and their destruction near simultaneous. This book captures these historical conjunctures that produced long-term economic turbulence. Pharmaceutical markets in Nigeria are exemplary of such turbulence and continue to embody the aftereffects of a seemingly endless decline.¹⁸

Beginning in chapter 1 I examine several historical convergences that took place within Nigeria that made it possible for the control over national drug distribution to switch from Nigerian pharmacists and North American and European multinational drug companies to Igbo traders (from the eastern part of Nigeria) and generic drug manufacturers located mostly in China and India. These historical convergences are as disparate in time as they are in events, spanning post–late 1960s civil war migration to the rise of an oil boom and its subsequent bust in the late 1970s. They had the effect of bringing pharmaceutical traders and pharmacists together into the same professional, yet rather tense political realms that became solidified at the height of Nigeria’s economic crisis in the 1980s.

After structural adjustment was implemented in 1986, the citizenry and markets got remade into newly discernible risks via military governance and corporate practices, what I describe as *risky populations* in chapter 2. In terms of governance, the 1970s Nigerian state went from investing in public goods to violently repressing social movements that opposed economic austerity in the 1980s. The newly rendered widespread poverty generated by structural adjustment also meant that the vast majority of Nigerians could no longer afford brand-name drug products. As a result, the brand-name companies abandoned the Nigerian pharmaceutical market. I draw on the story of two brand-name manufacturers, Upjohn and Pfizer. Here I describe how market abandonment was simultaneously tied to the pharmaceutical industry’s pursuit of speculative capital—the industry’s primary survival strategy in a highly competitive business environment. Nigerian market abandonment and the industry’s speculative practices are both responses to crises in the late 1970s global economy, and ones that pertain to very different economic and political circumstances within the United States and Nigeria. They converged to dramatically transform the Nigerian pharmaceutical market into the stressed and volatile condition it is today.

After the brand-name market crashed in the 1990s, Nigerians involved in the international narcotics trade reportedly built a new generic market; this generic market also attracted Asian pharmaceutical firms, which I describe in chapter 3. The remaking of the pharmaceutical market not only altered trading circuits, it also gave rise to new professional relationships and market formations within Nigeria. Pharmaceuticals were largely ejected from formal trading circuits and relocated to legally defined “illicit” unofficial markets that grew tremendously in the interstices of urban space, that is, within neighborhood public space, on the side of the road, in

traffic jams. The ontology of these markets is constantly questioned in sites of exchange and even the courts: Are they legal? Illegal? Can they be called markets? Because of their liminal nature, markets as a legal category are difficult to discern and, as a result, become difficult to regulate. I illustrate how these problems of discernment emerged in one particular court case that not only contested regulatory jurisdiction but also animated subsequent claims over who is entitled to control this enormous and highly profitable unofficial market.

Inside the unofficial markets, labor, changing credit structures, debt negotiations, high-risk entrepreneurialism, and quite importantly pricing strategies and price wars all encountered new scaling and forms of valuation occurring within unpredictable and profound market volatility. In chapter 4 I describe how these dynamics are fused with actors' hustling the day in the pursuit of cash. These actions rely upon anticipating and speculating on chronic market volatility as well as life's chances, what I refer to as *derivative life*. I situate these dynamics within non-equilibrium and entrepreneurial theories of the market—specifically Yoruba and Igbo as well as Chicago and Austrian neoliberal market theory—which have converged in ways that negotiate the chronic uncertainty of market life.

The Nigerian pharmaceutical market provides 60 percent of the health products consumed by all West African states by volume (Wambebe and Ochekebe 2011, 64). The bulk of drugs found on this market include antibiotics, analgesics, antimalarials, and nutritional supplements. The shape of market structure does not match needed treatment for high burdens of both chronic (such as hypertension) and neglected tropical diseases (such as schistosomiasis). I describe in chapter 5 how this market structure is directly connected to downward pricing dynamics, transcontinental outsourcing of drug production by the brand-name industry, and the consumption capacity of low-income West African consumers. These intertwined scenarios also drive the distribution chains. Transporting low cost drugs from mostly Asian firms to Nigerian markets is facilitated not only by price arbitrage but also by arbitraging drug chemistry itself. This raises constant concerns and social anxiety over national drug safety, what I refer to as a *social life of bioequivalence*.

In chapter 6, I describe how pharmaceutical marketers in this environment invent drug markets and help to develop the contours of the markets' structure. Multinational brand-name companies compete alongside generic companies by selling simple drug formulations and over the coun-

ter medication like aspirin and multivitamins rather than marketing more complex and patented formulations for hypertension, HIV, and cancer. I show how these specific marketing strategies only become possible within the context of debt regimes and trade related intellectual property law. As such, marketing strategies in Nigeria are key to securing protected drug markets in Europe and North America for brand-name companies, which shapes the current formations of global drug monopolies. Potential industrial competition posed by a drug industry such as Nigeria's raises questions about future promises and desires to secure drug supplies and poor people's access to them.

In conducting this research during the summers of 2005, 2007, 2009, and 2010, I got to know Nigerian regulators, pharmaceutical traders, pharmacists, marketers, and management staff members at Nigerian and multinational pharmaceutical companies. I conducted extensive interviews, shadowed many of their activities, and observed transactions in retail pharmacies as well as Idumota market, located on Lagos Island. I also did extensive archival work in medical libraries, government agencies, and industry associations, which helped me understand the complex convergences of history and circumstance that made the market what it is today. The very generous people with whom I spent a great deal of time witnessed, experienced, and survived the civil war, the oil bust, structural adjustment, military rule, and now chronic market turbulence and protracted economic decline—the things that string their disparate lives together. When I began this project, I did not know how much these different events that span several decades would come to bear so significantly on the pharmaceutical worlds these people now occupy. Following their lead, I have endeavored to situate Nigeria as a geographically centralized place from which we can see just how the rest of the pharmaceutical and their related worlds have come into being.

NOTES

Introduction: Chemical Multitudes

- 1 Alubo quotes a government report, which states the symptoms begin “with fever, vomiting and diarrhoea which were usually treated for malaria at the OPD (Out Patients Department) or at home and in most cases, the patient has a period of convalescence with a relapse of fever, this time with Anuria (complete suppression of urinary secretion) . . . just before the children die they would swell up (particularly abdomen, face and the limbs) bleed from the mouth and anus, become dyspnoic (laboured breathing)” (qtd. in Alubo 1994, 99, parentheses in original, ellipsis in original).
- 2 Although the federal government considered the possibility of hemorrhagic fever, it decided it would also test the drugs that had been administered to the children. Samples were sent to university teaching hospitals located in the cities of Jos (Plateau State) and Ibadan (Oyo State) and also to the U.S. Centers for Disease Control and Prevention, in Atlanta, Georgia.
- 3 Thanks to Jeremy Greene for directing and helping me think through these histories alongside *The Third Man*.
- 4 In a publication of the United Nations Industrial Development Organization, Charles Wambebe and Nelson Ocheke indicate that these figures vary widely: “The estimated market for prescription ethical pharmaceuticals is US\$ 500 million and that for over the counter (OTC) pharmaceuticals about US\$ 900 million. Furthermore, The Pharmaceutical Manufacturers Group of the Manufacturers Association of Nigeria estimates the Nigerian market for biological products (including vaccines, insulin, interferon, etc.) to be worth about US\$ 100 million. In addition, related health care and lifestyle products account for about US\$ 500 million” (2011, 11). The authors contrast this data with the following: “Business intelligence services estimate the pharmaceutical market in Nigeria at US\$ 600 million . . . for 2009. Out of this figure, BMI [Business Monitor International] attributes the largest share of US \$418 million to generic medicines, US\$ 121 million to over the counter (OTC) products and US\$ 61 million to patented products. Frost & Sullivan estimated a pharmaceutical market value of US\$ 740 million in 2009. Out of this figure, US\$ 266.4 million were attributed to generic medicines, US\$ 177.6 million to branded products and US\$ 296 million to OTC products” (2007, 11).

- 5 Important works on the histories and current social politics of markets in Lagos and neighboring markets include but are not limited to Ngozi G. Egbue (2006), Toyin Falola (1984), Laurent Fourchard and Ayodeji Olukoju (2007); Faith Ossy Ikioda (2013); Niara Sudarkasa (1973). Other important works on markets outside of Nigeria include and that I draw on: Michel Callon (1998); Julia Elyachar (2005); Karen Ho (2009); Donald MacKenzie (2006, 2009).
- 6 West African countries are some of the poorest in the world. Yet for almost each country in this region, consumer markets rank much higher than national poverty indexes. That is, collectively West Africa is a relatively big consumer with Nigeria as the biggest consumer on the continent, and the West African market is therefore highly desirable to those who sell cheap products, including fake drugs (The World Bank 2005).
- 7 Very important book-length ethnographies and edited volumes link drugs as technological objects to other important issues in the postcolony that include questions of biopolitics and access to medicines, interfaces with traditional medicine, the making of absent medication and obscured disease in relation to political economy, and the link between colonialism and modernity: Adriana Petryna (2002); Petryna et al. (2006); João Biehl (2009); Vinh-Kim Nguyen (2010); Andrew Lakoff (2005); Nancy Rose Hunt (1999); Steve Feierman and John Janzen (1992); Julie Livingston (2012); Kaushik Sunder Rajan (2006); Sean Brotherton (2012); Cori Hayden (2010); and Stacey Langwick (2011) to name a few. Other researchers investigating pharmaceuticals in the U.S., such as Joe Dumit (2012a), Jeremy Greene (2007), and David Healy (2004), among others think about pharmaceuticals via questions of markets, risk, and consumption.
- 8 With the exception of public figures, those who appear in the book have been given pseudonyms. For some who are a generation older than me, I use the prefix “Mr.” or “Mrs.” to represent my relationship to them while conducting field research. All others who are my age or younger, I only use first name pseudonyms.
- 9 Beecham was a British pharmaceutical company that after several mergers became GlaxoSmithKline. The new entity still uses the Beecham brand name for over-the-counter products sold in Nigeria, England, and other countries.
- 10 As Alubo (1994) points out, these regulatory politics have to be measured against the fact that the health care system does not extend in any widespread way to rural Nigerians, who often turn to unregulated private pharmaceutical sellers.
- 11 Quality assurance, that is, regulation of the different manufacturing stages, was an expressed concern in the industry literature by at least the 1980s (“Absence of Quality Assurance Aids Faking” 1988).
- 12 The UN Office of Drugs and Crime (2009) estimates that up to half of all malaria infections are treated with fake drugs in West Africa. This amounts to about forty-three million malaria cases per year, with the fake drugs involved worth roughly half a billion dollars.
- 13 Other kinds of overseas authentication were included. Nigerian banks are now required to have clearance permits before processing financial documents for drug

- importers. Certificates of sale must be signed by a minister of trade from the exporting country, and they must also be authenticated by a Nigerian embassy or a Commonwealth mission (Bate 2012).
- 14 More conservative estimates put this at about \$1 million per day (see Okelola 2009).
 - 15 Portuguese and Arab trade with Africa, trans-Atlantic slavery, and European colonialism were precedents for this new era.
 - 16 For Nigeria, see especially the work of Obafemi Awolowo (1967). Other prominent African thinkers involved in the nationalist project, pan-Africanism, and independence include Kwame Nkrumah (1970), Julius Nyerere (1974), Thomas Sankara (2007), and Amílcar Cabral (1979).
 - 17 Anthropologists who have focused on the social effects of neoliberalism within and outside of Africa include but are not limited to Brenda Chalfin (2010); Jean and John Comaroff (2001 and 2011); Mark Edelman and Angelique Haugerud (2005); James Ferguson (2006); Carol Greenhouse (2010); Aihwa Ong (2006); and; Anna Tsing (2005). Especially noteworthy among the Africanists, Edelman and Haugerud (2005) argue that anthropologists lean more toward theorizing globalization and development rather than political economy. James Ferguson (2006) has argued that Africa is largely an inconvenient case when it comes to theories of globalization. Inconvenient because it does not satisfy proponents of state-to-market transitions, as most of the continent still poorly manages the blow of 1980s structural adjustment programs. Africa is also inconvenient for theorists whose critiques of globalization largely imagine wealth accumulation achieved via expanding capital markets in search of both cheap labor and consumer goods, which does not easily map onto African realities. More recently, Jean and John Comaroff (2011) have asserted the need to think more rigorously about a “theory from the south,” where new capital frontiers are opening up and where the “practical workings of neoliberalism have been tried and tested” (Comaroff and Comaroff 2011, 14).
 - 18 Pharmaceuticals and pharmaceutical markets found outside of North America and Europe have been widely studied. The early foundations of this research was influenced by the work of Charles Leslie (1976), John Janzen (1978), and others who elucidated the concept of medical pluralism as the co-existence of multiple healing systems, both religious and secular, that people draw upon when seeking various kinds of medical care. Scholars who turned to the study of pharmaceuticals were interested in accounting for a theoretical gap in the medical anthropology literature. Anthropological works by Didier Fassin (1988), Anne Ferguson (1981), Mark Nichter (1980), Sjaak van der Geest (1988), Sjaak van der Geest et al. (1996), and Susan Reynolds Whyte et al. (2003), to name a few, asserted that little attention was paid to how people come to desire and seek out Western pharmaceuticals (and not necessarily Western biomedicine). Beyond studies in shamanism, spirit possession, and indigenous medicine, they were interested in how pharmaceuticals play a significant part in health and healing. They asked who purchases drugs and who provides them, and they attempted to elucidate how people perceive what drugs actually do. But beyond quotidian practices, these scholars linked the complex

ways that drug distribution systems, government and private health care, and poverty as well as urban and rural divides ground the conditions of drug use.

Chapter 1: Idumota

- 1 I do not use the term *informal economy*, mostly because it suggests a clear break from the state and its regulatory interventions, or a break from the private sector, whose commerce is officially taxed or otherwise accounted for. The popular economy includes a mix of official and unofficial forms of exchange and interaction. See Guyer (1994).
- 2 Agudas, also known as Amaras, first reached the Nigerian coast in the 1830s and settled in Olowogbowo, on the west side of Lagos Island. Other returnees who were liberated shortly after capture, such as the Saro from Sierra Leone, helped settle the island during this period. The Saro were captured people destined for the Americas in the aftermath of the abolition of slave trading. They were recaptured by the British before arriving at American shores and were resettled in Freetown, Sierra Leone. Many of them were Yorubas. Olabiyi Yai (2001) describes how the Agudas retained both their language and cultural identification, unlike the Saro and the former American slaves who migrated to Liberia. The Agudas, Saro, British citizens, and indigenes made up the entire population of Lagos Island in the late precolonial period. The period between the end of slavery and the Conference of Berlin in 1885 is rich in trans-Atlantic exchanges between the Americas and the West Coast of Africa (see especially Clarke 2004; Matory 2005; Verger 1976).
- 3 For a remarkable book on the history of Brazilian architecture in Lagos and Yorubaland, see Manuella da Cunha and Marianno Carneiro da Cunha (1985).
- 4 The MSF Access Campaign's "purpose has been to push for access to, and the development of life-saving and life prolonging medicines, diagnostic tests and vaccines for patients in MSF programmes and beyond" (Médecins Sans Frontières n.d.). One key aspect of the campaign is to ensure that states implement the Trade Related Intellectual Property Agreement of the World Trade Organization in ways that favor easy access to generic drugs.
- 5 In referring to the formal and informal distribution system for pharmaceuticals in South Cameroon, Sjaak van der Geest has suggested that "what appears chaotic and formless (in-formal) at first sight proves fairly structured when one looks more closely and starts to understand the commercial logic of the whole" (1988, 131).
- 6 The figure is an estimate. Another estimate is that the volume of drug sales in the market grows at a rate of 10–15 percent every year (Wambebe and Ochekepe 2011). Kunle Okelola (2009), executive secretary of the Pharmaceutical Manufacturers Group of the Manufacturers Association of Nigeria estimated that the size of the total pharmaceuticals and health care products market in Nigeria was more than \$2 billion in 2009. Okelola told me that about 30 percent of the pharmaceuticals in Nigeria pass through unofficial markets. Ezeanya (2000, 11) estimated that it was as high as 70 percent. Others in the industry told me that it is more like 50 percent. If the higher figure