

## 2 | *Foundations and Background*

A company creates value by making products and services that it sells at prices higher than its costs. The company's costs include materials, labor, production machinery, and overhead: anything it pays for in order to be an ongoing enterprise. A company's goal is to capture as much value as possible through the price it charges to customers, while consumers look to receive greater value from the product than the price they pay. Well-functioning markets benefit both companies and consumers by allowing these exchanges to occur. The buyer and seller both gain from the exchange. Adam Smith described how markets harness private incentives for broader societal good:

Every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it ... He intends only his own gain, and in this, as in many other cases, is led by an invisible hand to promote an end which was no part of his intention. (Smith 2000: 485)

Smith described exchanges where all the costs and benefits accrue to just the buyer and seller. In practice, sometimes exchanges produce costs and benefits that accrue to other people as well. As mentioned in Chapter 1, as a company produces and sells its products, it also creates environmental harm. All companies have at least some environmental impact, regardless of whether they are creating a product or not. Sometimes a company may want to improve its environmental performance and may even choose to do so of its own accord, without the promise of value from appreciative recipients. Such public-spiritedness is likely to be rare – environmental improvements are costly, and companies face pressures to keep their prices and costs low and to return profits to shareholders to maintain their stock prices.

A company's stakeholders are the people or groups that can affect the company or have preferences about how the company performs (Freeman 2010). Stakeholders include employees,

suppliers, shareholders, interest groups, and governments. A subset of a company's stakeholders is its environmental stakeholders. These are the people who interact with the company because of its environmental impacts. When a company reduces its environmental impacts, it creates value when environmental stakeholders appreciate the positive outcomes for the earth's environment and its people. Sometimes people experience these improvements as direct benefits – a fisher can earn a better living if a healthy ocean ecosystem produces more and bigger fish. Other times, stakeholders experience the value indirectly as co-benefits of the environmental improvements. When air pollution declines, conditions for nature and wildlife improve, as does people's health. Sometimes the co-benefits are the emotions stakeholders feel from knowing environmental conditions have improved, even if they do not directly experience them. The opportunity for companies – and the world's ecosystems – is to implement environmental improvements in a way that returns value from the stakeholders that appreciate them. If a company can receive value from its environmental stakeholders, these initiatives do not require public-spiritedness to be implemented, and they are more likely to be implemented as they can bring money back to the company.

Just as consumers bring financial value to a company by paying for products, environmental stakeholders may also provide value to companies for the environmental benefits. Stakeholders use their own resources to influence the company's ability to accomplish its objectives, for better or worse. For example, stakeholders in a community may possess political or legal authority to prevent a company from expanding its operations. Residents may object that a proposed wind farm would obstruct their scenic view and may lobby the government to prevent its construction. Environmental activists may publicly praise a company for its environmental accomplishments. A company and its stakeholders can exchange value and create win-win scenarios that benefit the company, its stakeholders, and the environment, just as in Smith's account of market exchanges where a company sells a product to a consumer.

Understanding these interactions as value exchanges sheds light on how they are formed, what barriers can prevent them from occurring, and what initiatives companies can take on to help the environment in financially sustainable ways. This chapter opens the analysis of how value exchanges between companies and their stakeholders

can produce win–win outcomes that resemble the promise of market exchanges. To do so, we start by examining market exchanges and how market failures lie at the root of many of the environmental problems that companies produce. We then show how value exchanges as envisioned by Coase (Coase 1960), akin to buying and selling products, can also be a solution to environmental problems and create win–win outcomes that benefit the triple bottom line. Such exchanges do not occur automatically. They require the exchange partners to overcome several obstacles – finding the partner and assessing needs, negotiating terms of the exchange, delivering value, and ensuring the agreement terms are upheld.

## 2.1 Markets and Environmental Problems

Environmental problems, such as air pollution, climate change, and overfished fisheries, suggest that markets do not always work to produce triple bottom line outcomes. Markets can fail for many reasons – there are not enough buyers or sellers, no one directly owns the resource that is damaged, and so on – and when failure happens, markets can reduce the overall welfare of society instead of increasing it. Externalities are a common reason that markets fail, and, as we will see, they are at the root of many environmental and pollution problems. An externality is a consequence of an activity that is borne by someone who did not choose to incur it. With a positive externality, the producer pays the costs of making the externality while its benefits spill over to others. The homeowner who pays to install the streetlight receives some benefit from the well-lit sidewalk but does not receive any compensation for all the benefits received by the rest of the people walking on the sidewalk. These types of externalities are underproduced because the producer pays the entire cost of making the externality but receives only a fraction of the benefit. With a negative externality, some of the costs spill over to others, while the benefits accrue only to the producer. When college students throw a party in a residential apartment building, they are producing a negative externality – the students enjoy the benefits of a rocking good time, but the loud music leaves their elderly neighbors sleep deprived. When a company generates pollution as it creates its products, it is also creating negative externalities. The company and its consumers may still experience gains from the sale of the company's products,

but the environment and those who experience the pollution are made worse off by the pollution.

From the perspective of society as a whole, the problem with externalities is that the misalignment of costs and benefits changes producers' incentives so that exchanges do not result in win-win outcomes. The homeowner may not derive enough direct benefit from the streetlight to go to the trouble of installing it, even though his benefits combined with his neighbors' benefits are greater than the streetlight's costs. By contrast, if the partying college kids live near many other people, their good time may have been of small value to them compared to the greater suffering among their sleep-deprived neighbors, but they will go ahead with their fun regardless. Many clashes over companies' environmental behavior result from negative externalities being overproduced or positive externalities being underproduced. In this book, we use the phrase "environmental improvement" to refer to situations where a company goes beyond the requirements of government regulations to increase the production of a positive environmental externality or decrease the production of a negative environmental externality.

A similar source of environmental problems stems from how companies and environmental stakeholders can value time differently. Environmental NGOs tend to place more weight on the value of resources in the future. On the other hand, companies tend to place more value on the present, perhaps because their shareholders want money as dividends or because the companies see highly profitable ways to invest the money they have now. Take, for example, two identical forests, one owned by a business and the other by an environmental NGO. The business values the trees because they can be cut down and sold as lumber for a net gain to the business of \$1,000. Let us assume the NGO and the business value the trees in this forest at the same amount. The NGO values the trees for the ecosystem services they provide, such as cleaner air, wildlife habitat, and so on. If the forests were allowed to stand, their value would increase over time as the trees grow larger and improve in quality. Let us further assume that the financial value of the sold lumber increases at the same rate as the ecosystem services the NGO values from the forest. In such circumstances, the company would want to cut down the trees and sell them today, while the NGO would prefer to let the trees stand. The reason is not that the NGO values the trees more than the business does. The

current and future values of the trees were the same for the company and the NGO. The company preferred to cut down the trees because it had an opportunity to use the proceeds from their sale for some other financially valuable use.

## 2.2 Solving Environmental Problems

Throughout history, societies have addressed environmental problems in many ways. Sometimes the solution is government-enforced laws and regulations that limit pollution emissions, conserve resources, and protect ecosystems. Sometimes the solution is to define property rights so that market forces can drive improvements. Other times, people can create their own governance institutions to solve environmental problems, as when fishers cooperate to prevent overfishing. Academics and policymakers hotly debate which of these approaches works best. Some approaches work better in some circumstances than in others (Ostrom, Janssen, and Anderies 2007; Ostrom and Cox 2010). When it comes to solving environmental problems, there are no panaceas (Ostrom 2007).

Many solutions to environmental problems use government rules and regulations, such as rules to limit emissions from factory smokestacks and noise ordinances in residential neighborhoods. A common regulatory approach is called “command and control”: the government issues a rule prescribing how much of a negative externality a company can produce, then monitors and enforces compliance with that rule. Other regulatory approaches look to harness market incentives by charging a price for negative externality production, such as by levying a tax on pollution emissions, which gives polluters an incentive to reduce their emissions, while giving tax breaks for energy-efficient appliances or grants for solar panel research to subsidize the production of positive externalities.

Environmental problems can also be addressed without direct government intervention. Under the right circumstances, people – and, as we will see, companies – can reduce their production of negative externalities by making a bargain with others who would enjoy the benefits of the externalities’ reduction. The economist Ronald Coase wrote how people can buy and sell externalities in his famous article “The Problem of Social Cost” (Coase 1960). The idea, now known as the “Coase theorem,” is that parties can, if conditions are right, bargain

among themselves to account for externalities' effects and allocate resources in ways that make everyone better off. In a "Coasian" scenario, those who would benefit from a positive externality compensate producers for providing that externality; those who would suffer from a negative externality pay for it to be produced less or not at all. A Coasian exchange can also work from the producer's end: the producer of a negative externality could compensate the victims for the damage caused by their activities, assuming that the producer's gains are greater than the damages they cause. An advantage of these solutions is that if conditions are right, the two sides will bargain their way to an efficient level of externality production, and society will see its net benefits maximized.<sup>1</sup>

To understand how a Coasian exchange can work, we can start with a hypothetical example of two people living in a two-story apartment building. Jane is a vegan who lives above Bob, a meat-eater. Bob occasionally likes to barbeque a steak on the grill outside his apartment. The apartment complex has rules permitting tenants to grill as much as they please, even if they live on the first floor and the grill smoke drifts up to the second-floor apartments (a negative externality of the grilling, from Jane's perspective). Suppose Bob decides to grill a steak on a day that Jane happens to be hosting her monthly vegan home-brew and cooking party. Before Bob lights the fire, Jane knocks on his door and offers Bob veggies, hummus, and a growler of home-brewed beer as an inducement not to grill his steak. From a Coasian perspective, this is a win-win outcome because Bob is happier noshing his snacks and beer, and Jane is happier because meat aromas won't invade her party.

The Nature Conservancy (TNC) and California farmers have used a Coasian exchange to create temporary wetlands from rice fields to help migrating birds. Rice farmers were already flooding their fields in January and TNC concluded that keeping some of them flooded for a few extra weeks would give birds a place to stop during their annual migration. During initial conversations with TNC, farmers reacted positively to the idea of receiving payment in return for keeping their fields flooded longer. As one farmer told TNC, "you want us to grow birds, like we grow rice. We know how to do that" (Hallstein & Miller 2014). TNC's program, called BirdReturns, had farmers bid for how

<sup>1</sup> Deryugina and colleagues provide modern and real-world examples of Coasian exchanges (Deryugina et al. 2020).

much TNC would need to pay them to keep their fields flooded for a few extra weeks. TNC selected bids with the lowest price that offered the best bird habitat. Over a hundred farmers have participated in BirdReturns, creating over 58,000 acres of temporary bird habitat (The Nature Conservancy n.d.). Through BirdReturns, farmers receive payment for “growing birds,” a positive externality that accrued to TNC, its members, and other people who care about birds. For its part, TNC pays a much lower cost than it would if it bought the land outright, and the birds enjoy nice resting spots during their migration.

Coasian exchanges can also occur across international borders. During the 1990s, the Japanese government used Coasian principles to reduce Japan’s exposure to pollutants released by companies burning coal in China and other parts of Asia. Japan’s Green Aid Plan spent \$500 million to help these companies implement clean coal and efficiency improvements; Chinese companies that did not receive Green Aid Plan funding did not implement improvements (Deryugina et al. 2021).

The logic of a Coasian exchange can also work in situations where the parties assign different values to time, as when the company and the environmental NGO both owned forests. When the company cuts down its forest, the company receives profits from the sale of the wood. The NGO would have preferred the company’s forest to remain intact to produce its future ecosystem services. If the NGO placed enough value on the forest and the future environmental benefits it would provide, it might raise the money to purchase the company’s forest. This would allow the company to realize its short-term profits while the NGO realizes the forest’s longer-term ecosystem benefits. On the other hand, if the company valued cutting down the forest more than the NGO preferred keeping it, the company could pay the NGO for the rights to the forest. The NGO could then use the proceeds to protect the environment elsewhere, perhaps where protection had more ecological value and the financial costs of protecting it were lower.

### 2.3 Companies, Environmental Impacts, and Stakeholder Exchanges

An *environmental impact* is a “change to the environment, whether adverse or beneficial, wholly or partly resulting from an organization’s environmental aspects,” according to the best-practice environmental

management standard ISO 14001 (Geneva: International Organization for Standardization 2015). Industries that use extensive natural resources, such as agriculture and mining, tend to have large environmental impacts. Large-scale agricultural production can pollute waterways with runoff fertilizer and pesticides. But even apparently benign industries such as banking and consulting have environmental impacts. For example, the electricity that powers offices is often generated by burning fossil fuels, as are the fuels that heat offices, and the airplanes that enable business travel, all of which emits carbon dioxide that contributes to global climate change.

When a timber company cuts down trees on its property to sell, it liquidates an asset and converts it into income when it sells the wood as lumber. If the company does not protect the land, its topsoil might erode and diminish its ability to grow new trees, reducing the asset value of the land. These are all private costs and benefits from tree farming if they affect only the company. A company's environmental impacts are often externalities, as they have impacts that affect others. If the eroded topsoil ends up in a river and impairs its ecosystem, that cost would not be borne by the landowner but would be a negative externality for downstream users. The benefits, or positive externalities, of a sediment-free river and healthy ecosystems – abundant and healthy fish, easy boat navigation, and so on – are available to users beyond the landowners and to those who value healthy natural systems.

Producing a positive environmental benefit, whether by reducing a negative externality or producing a positive externality, is costly. The timber company would lose immediate income when it retains trees to stop erosion. Boiler operators can spend resources for protective equipment and more thorough cleaning to mitigate the risk of accidental discharge and spills of fuel and other chemicals. Companies sometimes have opportunities to purchase and install more energy-efficient equipment that can reduce the amount of pollution associated with their production.

Environmental impacts are opportunities for a company to create win-win exchanges with stakeholders. To make these exchanges happen, the company must identify its stakeholders and their demand for improvements. The company and its stakeholders must overcome the transaction costs that can prevent the exchanges from reaching fruition.

### 2.3.1 *Environmental Stakeholders*

A company's *environmental stakeholders* are those who are affected by the company's environmental impacts and are able to express their interest in the company increasing its production of positive environmental externalities (or reducing its negative externalities). Sometimes a company's environmental stakeholders are those who directly experience the harms and benefits of its environmental performance. In 2017, hundreds of Achuar people protested oil production facilities in the Peruvian Amazon. The Achuar are indigenous to the area and have a rich history of preserving their local environment. For forty-three days, the protestors occupied oil fields and shut off road and air strip access, demanding that Petroperú, the state oil company, improve consultation with local communities about the environmental impacts of its oil production (Zaitchik 2020). A company's environmental stakeholders can also include those who want the company to improve its environmental performance, even if its environmental impacts do not directly affect them, such as when European activists boycott companies that purchase palm oil from plantations that destroy local habitats in Indonesia.

Most benefits of the company's environmental improvements accrue to stakeholders outside the company in the form of greater positive externalities or smaller negative externalities. When a company improves its environmental impacts, people may enjoy cleaner air and water, long-term climate change mitigation, more resilient and biodiverse landscapes, or healthier wetlands. A company's environmental externalities are thus opportunities for the company to create and capture value. Value is created when reducing environmental impacts benefits the company's stakeholders. In fact, the same environmental improvement can be valued by multiple stakeholders at the same time. For example, suppose a company improved its production practices to reduce its impacts in the developing world. Consumers who value environmentally beneficial goods may appreciate the environmental features in the company's products while environmental groups may appreciate the protection their local ecosystems. Yet, a mechanism is needed for companies to capture a portion of the value that stakeholders receive from the environmental improvements. Fortunately, Coase provides an answer to how mechanisms can work.

### 2.3.2 *Transaction Costs and Coasian Exchanges*

Coase showed that the amount of externality production can, under some circumstances, be bought and sold through market exchanges, just like regular products. In theory, these exchanges can make everyone better off and even produce efficient outcomes. The company that reduces its environmental impacts wins because stakeholders provide compensation above the company's cost of making the improvement. The stakeholders win because they received more value in environmental benefits than what they provided to the company.

The discussion so far would make it seem easy to identify and implement a Coasian exchange: simply identify an environmental problem, find the stakeholders who want improvements, and negotiate terms for a deal. But that "under some circumstances" qualifier does not always hold, and the market does not magically create Coasian exchanges. Every market exchange requires buyers and sellers to expend some time, effort, and resources to make an exchange happen: these are what economists call transaction costs. The buyer and seller must be aware of the opportunity to make the exchange and of who their potential partners would be. They must be able to negotiate the quality, quantity, delivery terms, and price of the goods to be exchanged. And they must have confidence that the deal will happen on the terms they negotiated. Any of these things can trip up the potential Coasian exchange.

While every exchange involves transaction costs, some exchanges have more than others. When transaction costs are low, the parties can easily negotiate a deal that makes everyone better off: Jane just needed to walk downstairs with some extra food and beer. High transaction costs can prevent efficient exchanges for the production, or minimization, of externalities: the costs required to make the exchange happen can overwhelm the benefits participants would receive. What if Jane couldn't trust Bob to forgo grilling for the night? Bob might renege on his agreement, deciding that beer and hummus would make tasty appetizers for a grilled steak dinner. Without confidence the deal would be carried out, Jane would be reluctant to make a deal, and both are worse off. Jane endures the smoke from Bob's grill, and while Bob does enjoy the steak, he goes without the snacks and beer he would have enjoyed more. At the same time, it is costly for Bob to establish a reputation as a trustworthy guy since cultivating

**Table 2.1** *Transaction cost categories*

Type of transaction cost	Time	Source	Examples
Search and screening	Prior to exchange	Lack of knowledge about exchange opportunities: stakeholders' demand, supply, and quality of goods	Identifying stakeholders and opportunities for pollution reduction, communicating with stakeholders
Bargaining and transfer	During exchange	Ambiguity about rights and obligations in the transaction, the cost of exchanging resources	Negotiation expenses, the cost of transferring goods and value among actors
Monitoring and enforcement	After exchange	Difficulty in discerning adherence to terms of the agreement, problems in enforcing terms	Legal costs, costs of social pressures

trust requires him to pass up benefits to show he genuinely is making sacrifices that would show he merit's Jane's trust.

Understanding the nature and source of transaction costs is an important first step toward mitigating them. Various forms of transaction costs can arise before, during, and after the exchange occurs: the buyer and seller expend resources negotiating terms of the exchange, gathering information about the quality of the products, and enforcing contract terms to ensure neither side reneges on the agreement. Table 2.1 lists three broad categories of transaction costs that can impede market exchanges for externalities.

### 2.3.2.1 Search and Screening Costs

Buyers and sellers must find partners suitable for the exchange to occur: who is offering products and services, and who wants them. Such information can be crucial for many areas of business strategy. In market strategy, the information needs of a company looking to enter a new market

include a rich understanding of the market landscape, the production costs of their products, what potential customers want, and how much they are willing to pay. Potential customers must know about the company's products, quality, and prices and opportunities to obtain them. Search and screening costs are time and resources expended for buyers and sellers to find suitable partners. A low-cost scenario might require expenditures as simple as a company attracting customers through a website. Search and screening costs are an important problem for many companies – they must spend significant resources to market their products to consumers. Online retailers like Amazon and Alibaba reduce search costs for many common household products – rather than traveling to the store, consumers can find products from their home computer.

Searching and screening for potential partners is likewise an important component of a company's sustainability strategy. To make a Coasian exchange happen, the company needs to know quite a bit about its own environmental performance and its potential stakeholder partners. A company needs to understand its environmental impacts and costs for improvements. It needs to know how its stakeholders view its current impact and their demand for different types of improvements. These information challenges can be particularly severe in sustainability domains. A company's environmental impacts can extend far beyond its customers, perhaps deep into the company's supply chain and well outside the stakeholders' view. High search and screening costs can be a barrier to a win-win exchange. Such costs can be reduced when the buyer and seller have more information about the market, its consumers and product offerings, and its prices.

### **2.3.2.2 Bargaining and Transfer Costs**

Most of the purchases people make take place with very little effort spent on bargaining and transferring resources. Consumers can easily see product prices and the means for obtaining them while strolling through their local supermarket. After a few simple clicks online, they can have products delivered to their door. To make such purchases, buyers do not need to spend much effort finding products and their prices, assessing quality, and physically receiving the product. In other cases, buyers and sellers need to spend considerable effort and resources to agree on transaction costs. Buyers might need to physically inspect the product to assess its quality. Transferring ownership may be cumbersome, such as when shipping costs are high.

Bargaining and transfer costs can be particularly challenging for companies and their environmental stakeholders. Exchanges between companies and their environmental stakeholders often occur with nonfinancial resources. Companies provide environmental goods, which often are difficult for stakeholders to assess and are rarely associated with market prices. In some cases, stakeholders provide financial value – such as when consumers pay extra for environmentally friendly products – but very often, stakeholders provide resources that have less clear financial value. Stakeholders may value a company’s environmental improvements, and be willing to reward the company for them, but lack a mechanism for easily transferring resources to the company. Environmental stakeholders are often quite diverse and spread across a broad geographic region, making negotiations and resource transfer more difficult and costlier.

Though bargaining and transfer costs may slow or halt a transaction, people can reduce these costs. Money is useful in market economies because it lowers the transaction costs of buying and selling. Think about what would happen if we lived without any money and goods were only bought and sold in barter exchanges. Buyers and sellers would spend a lot of time figuring out value and haggling about the amount and quality of goods to be sold. A baker would need to figure out how many loaves to offer for a basket of vegetables, a new oven, and a chocolate gift for her wife. A dollar provides the evaluative yardstick for comparing the value of different goods and products. Money also lowers transfer costs. It is a lot easier for our baker to bring her wallet to the oven store than a truckload of bread loaves. As with search costs, Amazon and Alibaba’s online marketplaces also reduce transfer costs – the companies ship the products to consumers’ homes rather than requiring travel to the store.

### **2.3.2.3 Monitoring, Enforcement, and the Holdup Problem**

A final set of transaction costs stems from the fact that parties to a deal may have the opportunity to back out of their commitments.<sup>2</sup> This can happen in several ways. A company might claim to have produced an environmental benefit without having actually done so.

<sup>2</sup> This section draws on (King 2007) for insights and examples on transactions costs and the holdup problem in environmental agreements.

It is often difficult for stakeholders to assess the quality of the environmental goods that companies create, leaving them reluctant to reward companies for environmental improvements. Likewise, even when the companies and stakeholders both have relatively complete information about the exchanges, they may have concerns that the other side will follow through and fulfill the full terms of the exchange to which they agreed.

An important transaction cost obstacle to Coasian exchanges occurs when those who would compensate a company for producing an environmental good are unable to evaluate its quality. We can call this the “green lemons” problem because it is an example of the scenario that George Akerlof presented in his famous paper “The Market for Lemons,” for which he was awarded a Nobel Prize in economics (Akerlof 1970). In a lemons market, the quality of goods ranges from low to high, and sellers know more about the quality of a good than do buyers. Fearing they will receive a low-quality good if they paid for a higher-quality one, consumers refuse to pay anything but rock-bottom prices. Without confidence that buyers would pay for higher-quality goods, sellers end up producing only lower-quality goods. If consumers were fully informed, those who want the higher quality would pay higher prices, fully confident they were getting what they paid for. Once again, Amazon and Alibaba provide examples of ways to lower monitoring and enforcement costs in consumer product markets. Consumer reviews posted on the website provide information about how other people have experienced the product. Because negative reviews can harm sales, sellers have incentives to make sure their offerings meet customers’ expectations.

The green lemons problem exists because stakeholders are rarely in a position to directly evaluate the amount and quality of a company’s environmental performance, especially since many companies have far-flung, complex, and difficult-to-observe environmental impacts. Anyone can tell how a banana will taste just by looking at it: bright yellow skin with just a few brown spots indicates its precise ripeness. But it is not easy to tell whether that banana has been sustainably produced; ripe or not, an organic banana looks the same as any other. Companies collectively release thousands of pollutants into the air, water, and land, each of which can trigger local, regional, and global consequences of widely varying magnitudes, and all of which can be difficult to measure, aggregate, and compare. Many types of

environmental impacts are geographically distant from most stakeholders. Pollution emissions by overseas suppliers are distant from local consumers. Even proximate production processes are often hidden from stakeholders' view or are visible but difficult to measure – such as how much pollution is being emitted from a nearby factory's smokestack or effluent pipe.

People know that environmental goods are costly to produce and that companies' pursuit of profits leads them to cut costs where they can. Any company can claim to be sustainable, but without the reassurance that the environmental externalities are genuine, people may suspect the company is engaging in greenwashing – falsely claiming to have produced an environmental benefit (Delmas & Burbano 2011). A company might greenwash by highlighting the narrow environmental improvements it produces while failing to mention the larger environmental problems it contributes to. As a result, companies often face stakeholder skepticism about their environmental performance claims, including whether their claimed investments are merely symbolic and how much environmental performance improvement actually resulted. Stakeholders are unlikely to be willing to reward a firm that claims to act sustainably unless they are confident those claims are true. For most companies, establishing credibility for their environmental quality claims can be quite challenging. And, the credibility challenge can be especially daunting for companies in industries that consumers think of as “dirty” or “polluting,” for companies that are producing green products for the first time, or for companies whose products' green features do not provide obvious, immediate, and direct consumer benefits.

A holdup problem occurs when one party spends resources to make an exchange happen, and the other party has the opportunity to not follow up on her end of the deal. The holdup problem can arise when the exchange of resources occurs at different times. The first mover makes an initial payment or investment for the deal, while the other party's payment in return happens later. The first mover may be reluctant to make the up-front payment without insurance that the return payment will happen. The parties in the exchange need to be confident the other side will follow through on his end of the deal. In market exchanges, contract law usually prevents the holdup problem: our auto mechanic is willing to fix our car because she knows we will pay her once the repairs are complete. Consumers buy advance tickets to

a theater production because they know they will receive a refund if the show does not go on. In many cases, public law helps solve holdup problems. Because we are legally obligated to make payment once repairs are complete, our mechanic can confidently work on our car.

A company may be reluctant to make its environmental improvements without confidence the stakeholders' rewards will be forthcoming. Unlike market transactions where public law usually requires parties to uphold their end of the deal, such as paying for car repairs or refunding theater tickets, many of the exchanges between companies and their stakeholders lack the backing of public law. Consider again the timber company that can prevent silt runoff from damaging a river's ecosystem. Suppose the company and the association representing local anglers made an agreement. The company would make an up-front investment to prevent soil runoff, maybe changing its harvest schedule or improving drainage to prevent runoff from its roads. In exchange, the angler association would, over time, provide value back to the company, perhaps by helping to pay for several years' backwoods road maintenance. The holdup problem arises if the angler association has an incentive to back out of its end of the deal: once the timber company makes an up-front drainage investment, the association may decide that it can enjoy the benefits of fishing in a sediment-free river without paying back the company.

Absent the threat of legal sanction, what would stop a restaurant diner from refusing to pay for her meal? Why would a company not deceive customers by swapping in cheaper materials for its products? Along with public law, holdup and lemons problems can likewise be solved through costly signals that make each side's commitments credible to the other. "Costly signaling" can increase credibility. A signal is costly when the sender bears a cost should the receiver find out the message is untrue (Spence 1973). An example of a costly signal is when a company pays for an independent audit of its environmental performance, which both costs money and increases risks that the auditor will return with a negative verdict. Such audits are generally more credible than if the company simply released its own internal review of its environmental performance. Another way to address these problems can occur when participants see value in the prospect of future interactions and exchanges. A company may refrain from exploiting its advantage today because it would lose out on tomorrow's gainful interactions should its malfeasance become known.

## 2.4 Conclusion

Understanding why companies produce environmental harms is an important first step toward mitigating the problem. In some cases, a company might be misinformed about the problem it is causing. Psychological biases and cognitive limitations may prevent people in companies from fully perceiving environmental impacts, which tend to occur outside the company and distant from the areas where most business managers focus their attention. Or perhaps the right information is within the company, but it is not shared with those empowered to make decisions, as we discuss in Chapter 5.

This chapter discusses how externalities provide insights into why businesses make the environmental decisions that they do. The source of environmental problems can often be found in misaligned costs and benefits and the difference in how stakeholders and companies value environmental goods. Companies produce environmental harm when they purchase inputs, produce products and services, and deliver them to customers. People experience these environmental consequences as externalities, whether as a direct harm to their health or well-being or as a damage to something they value.

Win–win Coasian exchanges can occur, and not just between businesses and their stakeholders. In fact, we often engage in them ourselves. When we throw a party, our neighbors might not be first on our invite list, and we may even be disinclined to invite them at all. But, as we all know, a neighborly invitation can smooth feathers that would be ruffled when we end up dancing through the night to loud music. Or perhaps, we offer our neighbors a small gift – a bottle of wine or some cookies – as a goodwill gesture for enduring the inconvenience of our party. With a Coasian and transaction cost theoretical framing, we can see why these exchanges occur. Our raucous good time will create externalities: loud music that would disrupt our neighbors' enjoyment of a quiet night. We can also see the obstacles that can prevent a resolution to this problem – it helps to know something about our neighbors: how much noise annoys them, how much they like wine and cake, and so on. We need to take the time to let them know about our party and bring them a cake. And, we would want to know that our neighbors, satiated with cake or wine, would feel enough goodwill toward us that they will refrain from filing a noise complaint to shut down our party.

A company can create value through its environmental improvements – reducing the costs of its stakeholders’ experience – such as lower pollution emissions, improved ecosystems, and expanded wildlife habitats. A company that improves its environmental performance creates value for its stakeholders, thus setting the stage for the type of Coasian exchange described in this chapter: the company produces an environmental good and receives rewards from stakeholders who value these improvements. Such exchanges can increase a company’s incentives to implement environmental improvements.

Creating a Coasian exchange requires overcoming transaction costs. The externality producer and recipient must engage in the activities necessary to bring any market exchange to fruition. There may be search and screening obstacles: the company may lack knowledge about how it can produce and supply environmental goods and how much stakeholders would demand those goods. There may be bargaining and transfer obstacles: a portion of the value stakeholders receive from the environmental improvements must be translated back into value to the company. And finally, there may be monitoring and enforcement obstacles: the company and its stakeholders need assurance that all will uphold their obligations in the exchange.

As we will see in the remainder of this book, the transaction costs for environmental problems and improvements are likely to be significantly more challenging than for market exchanges for regular goods and services. For environmental problems, search and screening costs are likely to be higher because the producer and recipient may not be geographically proximate and may not have other venues for interacting with each other, such as a grocery store or other market venue. Bargaining and transfer costs are likely to be higher: there may not be clear exemplar contract terms because exchanges for environmental goods are more rare than for market products. Finally, environmental improvements may also have higher monitoring and enforcement costs than other products because stakeholders are rarely able to evaluate the quality of a company’s environmental improvement prior to the exchange occurring. An environmental strategy helps companies identify these obstacles and the opportunities for improving their environmental performance. Overcoming the obstacles can help companies capture value from their environmental improvements through Coasian exchanges with stakeholders.